Data Replication Service

Troubleshooting

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1 Solutions to Failed Check Items

1.1 Disk Space

1.1.1 Checking Whether the Destination Database Has Sufficient Storage Space

MySQL Serving as the Source in Migration

Table 1-1 Checking whether the destination database has sufficient storage space

Check Item	Whether the destination database has sufficient storage space
Description	Check whether the destination database has sufficient storage space. If storage space is insufficient, the migration will fail.
Failure Cause and Handling Suggestion	Failure cause: This item cannot be checked because the source database fails to be connected. Handling suggestion: Check whether the source database is connected.
	Failure cause: Insufficient user permissions Handling suggestion: Check whether the database user permissions meet the migration requirements.

	Failure cause: The destination database does not have sufficient storage space. The destination database must have at least * GB of free space. Handling suggestion: Scale up or clean up the destination database storage space. If you clean up the storage space, you will obtain more space within 2 to 3 minutes. **NOTE** It is recommended that the size of the destination database disk be set to the smaller value of the following two values: 1. 2.5 times the size of the data to be migrated in the source database. 2. The size of the data to be migrated in the source database plus 200 GB.

PostgreSQL Serving as the Source in Synchronization

Table 1-2 Checking whether the destination database has sufficient storage space

Check Item	Whether the destination database has sufficient storage space
Description	Check whether the destination database has sufficient storage space. If storage space is insufficient, the synchronization will fail.
Failure Cause and Handling Suggestion	Failure cause: This item cannot be checked because the source database fails to be connected. Handling suggestion: Check whether the source database is connected.
	Failure cause: The destination database does not have sufficient storage space. The destination database must have at least * GB of free space. Handling suggestion: Scale up or clean up the destination database storage space. If you clean up the storage space, you will obtain more space within 2 to 3 minutes. **NOTE** It is recommended that the size of the destination database disk be set to the smaller value of the following two values: 1. 1.5 times the size of the data to be migrated in the source database. 2. The size of the data to be migrated in the source database plus 200 GB.

MongoDB Serving as the Source in Migration

Table 1-3 Checking whether the destination database has sufficient storage space

Check Item	Whether the destination database has sufficient storage space
Description	Check whether the destination database has sufficient storage space. If storage space is insufficient, the migration will fail.

Failure Cause and Handling Suggestion	Failure cause: This item cannot be checked because the source database fails to be connected. Handling suggestion: Check whether the source database is connected.
	Failure cause: The destination database does not have sufficient storage space. The destination database must have at least * GB of free space. Handling suggestion: Scale up or clean up the destination database storage space. If you clean up the storage space, you will obtain more space within 2 to 3 minutes. **NOTE** It is recommended that the size of the destination database disk be set to the smaller value of the following two values: 1. 1.5 times the size of the data to be migrated in the source database. 2. The size of the data to be migrated in the source database plus 200 GB.

MariaDB Serving as the Source in Synchronization

Table 1-4 Checking whether the destination database has sufficient storage space

Check Item	Whether the destination database has sufficient storage space
Description	Check whether the destination database has sufficient storage space. If storage space is insufficient, the migration will fail.
Failure Cause and Handling Suggestion	Failure cause: The destination database does not have sufficient storage space. Handling suggestion: Scale up or clean up the destination database storage space. If you clean up the storage space, you will obtain more space within 2 to 3 minutes.

1.1.2 Checking Whether the Destination Server Has Sufficient Storage Space

Table 1-5 Checking whether the destination server has sufficient storage space

Check Item	Whether the destination server has sufficient storage space
Description	If the destination server's storage space is insufficient, the migration will fail.

Failure Cause and Handling Suggestion	Failure cause: The amount of data in the source database is greater than the remaining storage space of the destination server. Handling suggestion: Modify the synchronization object.

1.2 Database Parameters

1.2.1 Checking Whether the Source Database Binlog Is Enabled

MySQL Migration

Table 1-6 Checking whether the source database binlog is enabled

Check Item	Whether the source database binlog is enabled
Description	Check whether binlog is enabled for the source database.
Failure Cause and Handling Suggestion	Failure cause: This item cannot be checked because the source database fails to be connected. Handling suggestion: Check whether the source database is connected.
	Failure cause: Insufficient user permissions Handling suggestion: Check whether the database user permissions meet the migration requirements. **NOTE** For details about the required MySQL permissions and authorized operations, see **Which MySQL Permissions Are Required for DRS?**

	Failure cause: The binlog function is disabled on the source database.
	Handling suggestion:
	• If the source is an on-premises database, perform the following operations to enable binlog.
	1. Run the following command to check whether binlog is enabled:
	show variables like "log_bin";
	`mysql> show variables like "log_bin";`
	`*************************** 1. row ***************************`
	`Variable_name: log_bin`
	`Value: OFF`
	`1 row in set (0.01 sec)`
	2. If binlog is disabled, add **log-bin = mysql-bin** followed by **[mysqld]** in the MySQL configuration file **my.cnf** or **my.ini**.
	`[mysqld]`
	`log-bin = mysql-bin`
	3. Restart the database.
	`mysql> show variables like "log_bin"\G;`
	`*************************** 1. row ***************************`
	`Variable_name: log_bin`
	`Value: ON`
	`1 row in set (0.00 sec)`
	• If the source is an RDS instance, enable binlog by referring to the RDS official documentation.

Synchronization from TiDB to GaussDB(for MySQL)

Table 1-7 Checking whether the source database binlog is enabled

Check Item	Whether the source database binlog is enabled
Description	Check whether binlog is enabled for the source database.
Failure Cause and Handling Suggestion	Failure cause: The source database binlog is not enabled. Handling suggestion: Add enable=true under the [binlog] label in the TiDB database configuration file and restart the database to apply the modification.

1.2.2 Checking Whether the Source Database Binlog Is Row-Based

MySQL Migration

Table 1-8 Checking whether the source database binlog is row-based

Check Item	Whether the source database binlog is row-based
Description	Check whether the source database binlog is row-based.
Failure Cause and Handling Suggestion	Failure cause: This item cannot be checked because the source database fails to be connected. Handling suggestion: Check whether the source database is connected.
	Failure cause: Insufficient user permissions Handling suggestion: Check whether the database user permissions meet the migration requirements.

	Failure cause: The source database binlog is not row-based.
	Handling suggestion:
	• If the source database is an on-premises database, perform the following operations to change the binlog format of the source database:
	Method 1: You can modify the **my.cnf** or **my.ini** configuration file and restart the database.
	`binlog_format=row`
	Method 2: Stop all service connections.
	`set global binlog_format='ROW'`
	Modify the **my.cnf** or **my.ini** configuration file.
	`binlog_format=row`
	In the **ROW** format, the log growth rate increases, which may occupy more disk space.
	NOTE
	The MySQL **Global binlog_format** parameter does not take effect for connected sessions. For details, see **How Do I Set Global binlog_format=ROW to Take Effect Immediately?**
	• If the source database is an RDS DB instance on the cloud, change the **binlog_format** value of the source database to **ROW**. After the change, restart the database for the change to take effect.
	NOTE
	The MySQL **Global binlog_format** parameter does not take effect for connected sessions. For details, see **How Do I Set Global binlog_format=ROW to Take Effect Immediately?**

1.2.3 Checking Whether the Binlog Retention Period Is Set on the Source Database

MySQL Migration

Table 1-9 Checking whether the binlog retention period is set on the source database

Check Item	Whether the binlog retention period is set on the source database
Description	Checking whether the binlog retention period is set on the source database. You are advised to store the source database binlog for a longer time, if the storage space is sufficient.
Failure Cause and Handling Suggestion	Failure cause: The binlog retention period is not set on the source database. Handling suggestion: Log in to the source database and run the following SQL statement to set the retention period of binlog: `call mysql.rds_set_configuration('binlog retention hours', n);` The value **n** indicates an integer from 1 to 168.

1.2.4 Checking Whether the Source and Destination Database Character Sets Are Consistent

MySQL Migration

Table 1-10 Checking whether the source and destination database character sets are consistent

Check Item	Whether the source and destination database character sets are consistent
Description	Check whether the character sets of the servers hosting the source and destination databases are consistent.
Failure Cause and Handling Suggestion	Failure cause: This item cannot be checked because the source database fails to be connected. Handling suggestion: Check whether the source database is connected.
	Failure cause: This item cannot be checked because the destination database fails to be connected. Handling suggestion: Check whether the destination database is connected.

	Failure cause: Insufficient user permissions Handling suggestion: Check whether the database user permissions meet the migration requirements.

	Failure cause: The character set of the source database is inconsistent with that of the destination database.
	Handling suggestion: Modify the character sets.
	Run commands to modify the self-created source database.
	1. Check whether source and destination database character sets are consistent.
	show variables like "character_set_server"\G;
	`mysql> show variables like "character_set_server"\G;`
	`*************************** 1. row ***************************`
	`Variable_name: character_set_server`
	`Value: utf8`
	`1 row in set (0.00 sec)`
	2. Modify the character set of the source database server.
	set character_set_server='utf8';
	`mysql> set character_set_server='utf8';`
	`Query OK, 0 rows affected (0.00 sec)`

MySQL -> PostgreSQL Synchronization

Table 1-11 Checking whether the source and destination database character sets are consistent

Check Item	Whether the source and destination database character sets are consistent
Description	Check whether the character sets of the servers hosting the source and destination databases are consistent.
Failure Cause and Handling Suggestion	Failure cause: The character set of the source database is inconsistent with that of the destination database. Handling suggestion: Change the character set **character_set_server** of the source database to the same as that of the destination database, or change the character set **server_encoding** of the destination database to the same as that of the source database.

1.2.5 Checking Whether the Source Database server_id Meets the Incremental Migration Requirements

MySQL

Table 1-12 Checking whether the source database server_id meets the incremental migration requirements

Check Item	Whether the source database **server_id** meets the incremental migration requirements
Description	Check whether the source database **server_id** meets the incremental migration requirements.
Failure Cause and Handling Suggestion	Failure cause: This item cannot be checked because the source database failed to be connected. Handling suggestion: Check whether the source database is connected.
	Failure cause: Insufficient user permissions Handling suggestion: Check whether the database user permissions meet the migration requirements.
	Failure cause: The source database **server_id** does not meet the incremental migration requirements. Handling suggestion: Run the following command to modify the **server_id** value: **set global server_id=n** The value **n** indicates the source database server_id. If the source database version is MySQL 5.6, the value **n** ranges from 2 to 4294967296. Otherwise, the value **n** ranges from 1 to 4294967296.

1.2.6 Checking Whether the Source and Destination Database Table Names Are Consistent in Case Sensitivity

MySQL Migration

Table 1-13 Checking whether the source and destination database table names are consistent in case sensitivity

Check Item	Whether the source and destination database table names are consistent in case sensitivity
Description	Check whether the source and destination database names and table names are consistent in case sensitivity.

Failure Cause and Handling Suggestion	Failure cause: This item cannot be checked because the source database fails to be connected. Handling suggestion: Check whether the source database is connected.
	Failure cause: Insufficient user permissions Handling suggestion: Check whether the database user permissions meet the migration requirements.
	Failure cause: The **lower_case_table_names** values in the source and destination databases must be the same. Handling suggestion: • If you are migrating data out of the cloud, change the values of **lower_case_table_names** in the source and destination databases to the same. You are advised to change the parameter value in an empty database. For example, if the destination RDS DB instance is empty, run the following example command to change the **lower_case_table_names** value to the same as that in the source database: Sample command: `set global lower_case_table_names=n;` In the preceding command, **n** indicates the parameter value of the source database. After the modification, restart the database for the modification to take effect. • If you are migrating data out of the cloud, perform the following operations: If the destination database is a self-built database, modify the **lower_case_table_names** parameter of the destination database. Add **lower_case_table_names=n** under the **[mysqld]** tag in the MySQL configuration file **my.cnf**. **n** indicates the value of parameter **same lower_case_table_names** of the source database. The database must be restarted to make the change take effect. If the destination database is a cloud database, check whether the **lower_case_table_names** parameter can be modified. If not, contact Huawei technical support.
	Failure cause: The **lower_case_table_names** parameter value of the destination database is different from that of the source database, and the source database contains uppercase database and table names. Handling suggestion: Rectify the fault by referring to **FAQs**.
	Failure cause: The database is unavailable. Handling suggestion: Contact Huawei technical support.

MySQL->MySQL, MySQL->Gauss(for MySQL) and Gauss(for MySQL) to MySQL Synchronization

Table 1-14 Checking whether the source and destination database table names are consistent in case sensitivity

Check Item	Whether the source and destination database table names are consistent in case sensitivity
Description	The destination database is case insensitive. The names of the mapped databases and tables contain uppercase letters. If the destination database is case-insensitive, all uppercase letters are converted to lowercase letters for storage.
Failure Cause and Handling Suggestion	Failure cause: The destination database is case insensitive. All uppercase letters are converted to lowercase letters for storage. The names of the mapped databases and tables contain uppercase letters. Handling suggestion: If the mapping relationship is correct, change the database and table names that contain uppercase letters to lowercase letters.

1.2.7 Checking Whether the Source Database Contains Object Names with Non-ASCII Characters

MySQL

Table 1-15 Checking whether the source database contains object names with non-ASCII characters

Check Item	Whether the source database contains object names with non-ASCII characters
Description	If the source database contains object names with non-ASCII characters, the migration will fail.
Failure Cause and Handling Suggestion	Failure cause: The source database cannot contain object names with non-ASCII characters. Handing suggestion: In the source database, change the object names containing non-ASCII characters.

1.2.8 Checking Whether the TIME_ZONE Values of the Source and Destination Databases Are the Same

MySQL Migration

Table 1-16 Checking whether the TIME_ZONE values of the source and destination databases are the same

Check Item	Whether the **TIME_ZONE** values of the source and destination databases are the same
Description	The migration fails because the **TIME_ZONE** values of the source and destination databases are different.
Failure Cause and Handling Suggestion	Failure cause: The **TIME_ZONE** or **SYSTEM_TIME_ZONE** values of the source and destination databases must be the same. Handling suggestion: Change the **TIME_ZONE** value of the destination database to the same as that of the source database, or change the **TIME_ZONE** value of the source database to the same as that of the destination database.

Synchronization from Oracle to DDM

Table 1-17 Checking whether the TIME_ZONE values of the source and destination databases are the same

Check Item	Whether the **TIME_ZONE** values of the source and destination databases are the same
Description	The synchronization fails because the **TIME_ZONE** values of the source and destination databases are different.

Failure Cause and Handling Suggestion	Failure cause: The TIME_ZONE (TIMEZONE) or SYSTEM_TIME_ZONE value in the source database is inconsistent with that in the destination database, or there is a large difference between the times in the source and destination databases.
	Handling suggestion: Change the TIME_ZONE(TIMEZONE) value in the source database to be consistent with the destination database or change the TIME_ZONE(TIMEZONE) in the destination database to be consistent with the source database or modify the destination database time to be consistent with the source database time.
	• To change the value of TIME_ZONE in the Oracle database, perform the following steps:
	1. Run the following statement to query the value of TIME_ZONE in the database:
	`SELECT DBTIMEZONE FROM DUAL;`
	2. Run the following statement to modify the value of TIME_ZONE in the database:
	`ALTER DATABASE SET TIME_ZONE='Time zone';`
	Example of changing the time zone to GMT+8:
	`ALTER DATABASE SET TIME_ZONE='+08:00';`
	3. Restart the database after changing the value of TIME_ZONE.
	SQL> shutdown immediate
	SQL> startup
	• To change the value of TIME_ZONE in the DDM database, perform the following steps:
	Log in to the DDM console and change the time zone.

1.2.9 Checking Whether the COLLATION_SERVER Values of the Source and Destination Databases Are the Same

MySQL

Table 1-18 Checking whether the COLLATION_SERVER values of the source and destination databases are the same

Check Item	Whether the **COLLATION_SERVER** values of the source and destination databases are the same
Description	The migration fails because the **COLLATION_SERVER** values of the source and destination databases are different.

Failure Cause and Handling Suggestion	Failure cause: The **COLLATION_SERVER** values of the source and destination databases must be the same. Handling suggestion: Change **COLLATION_SERVER** of the source and destination databases to the same value.

MariaDB Synchronization

Table 1-19 Checking whether the **COLLATION_SERVER** values of the source and destination databases are the same

Check Item	Whether the **COLLATION_SERVER** values of the source and destination databases are the same
Description	The synchronization fails because the **COLLATION_SERVER** values of the source and destination databases are different.
Failure Cause and Handling Suggestion	Failure cause: The **COLLATION_SERVER** values of the source and destination databases must be the same. Handling suggestion: Change **COLLATION_SERVER** of the source and destination databases to the same value.

1.2.10 Checking Whether the SERVER_UUID Values of the Source and Destination Databases Are the Same

MySQL Migration

Table 1-20 Checking whether the SERVER_UUID values of the source and destination databases are the same

Check Item	Whether the **SERVER_UUID** values of the source and destination databases are the same
Description	If the **SERVER_UUID** values of the source and destination databases are the same, the migration fails.
Failure Cause and Handling Suggestion	Failure cause: The **SERVER_UUID** values of the source and destination databases must be different. Handling suggestion: Check that the source and destination databases are not the same MySQL database.

1.2.11 Checking Whether the SERVER_ID Values of the Source and Destination Databases Are Different

MySQL

Table 1-21 Checking whether the SERVER_ID values of the source and destination databases are different

Check Item	Whether the **SERVER_ID** values of the source and destination databases are different
Description	Check whether the **SERVER_ID** values of the source and destination databases are different. If they are the same, the migration fails.
Failure Cause and Handling Suggestion	Failure cause: The **SERVER_ID** values of the source and destination databases must be different. Handling suggestion: Change **SERVER_ID** of the source and destination databases to different values.

1.2.12 Checking Whether the Source Database Contains Invalid sql_mode Values

MySQL

Table 1-22 Checking whether the source database contains invalid sql_mode values

Check Item	Whether the source database contains invalid **sql_mode** values
Description	If the source database contains invalid **sql_mode** values, the migration will fail.
Failure Cause and Handling Suggestion	Failure cause: The **sql_mode** value of the source database cannot be **no_engine_substitution**. Handling suggestion: Change **sql_mode** of the source database to a proper value.

1.2.13 Checking Whether the sql_mode Values of the Source and Destination Databases Are the Same

MySQL

Table 1-23 Checking whether the sql_mode values of the source and destination databases are the same

Check Item	Whether the **sql_mode** values of the source and destination databases are the same
Description	Check whether the **sql_mode** values of source and destination databases are the same. If they are inconsistent, the migration may fail.
Failure Cause and Handling Suggestion	• If you are migrating data to the cloud, perform the following operations: Failure cause: The **sql_mode** values of the source and destination databases must be the same. Handling suggestion: Change the **sql_mode** values of the destination database to the same as those of the source database, and ensure that both the source and destination databases do not have the forbidden sql_mode values. For details, see **Modifying Parameters**. If MyISAM tables are to be migrated, the **sql_mode** values in the destination database cannot contain **no_engine_substitution**. • If you are migrating data out of the cloud, perform the following operations: Item to be confirmed: The **sql_mode** values of the source and destination databases must be the same. Handling suggestions: Change the **sql_mode** values of the destination database to the same as those of the source database. Ensure that both the source and destination databases do not have the forbidden **sql_mode** values.

1.2.14 Checking Whether the sql_mode Value in the Destination Database Is Not no_engine

MySQL Migration and Synchronization

Table 1-24 Checking whether the sql_mode value in the destination database is not no_engine

Check Item	Whether the sql_mode value in the destination database is not no_engine

Description	If the MyISAM tables are included in the migration objects, the **sql_mode** value in the destination database cannot be **no_engine_substitution**. Otherwise, the migration fails.
Failure Cause and Handling Suggestion	Failure cause: The **sql_mode** value in the destination database is **no_engine_substitution**. Handling suggestion: In the destination database, set **sql_mode** to a value other than no_engine_substitution. For details, see **Modifying Parameters** in the *Relational Database Service User Guide*.

1.2.15 Checking Whether the innodb_strict_mode Values of the Source and Destination Databases Are the Same

MySQL Migration

Table 1-25 Checking whether the innodb_strict_mode values of the source and destination databases are the same

Check Item	Whether the **innodb_strict_mode** values of the source and destination databases are the same
Description	Check whether the **innodb_strict_mode** values of source and destination databases are the same. If they are inconsistent, the migration may fail.
Failure Cause and Handling Suggestion	• If you are migrating data to the cloud, perform the following operations: Failure cause: The **innodb_strict_mode** values of the source and destination databases must be the same. Handling suggestion: Create a parameter group for the destination database and change **innodb_strict_mode** to the same value as that of the source database. For details, see **Creating a Parameter Group** in *Relational Database Service User Guide*. • If you are migrating data out of the cloud, perform the following operations: Failure cause: The **innodb_strict_mode** values of the source and destination databases must be the same. Handling suggestion: Change **innodb_strict_mode** of the destination database to the same value as that of the source database.

1.2.16 Checking Whether the max_wal_senders Value of the Source Database Is Correctly Configured

PostgreSQL Synchronization

Table 1-26 Checking whether the max_wal_senders value of the source database is correctly configured

Check Item	Whether the **max_wal_senders** value of the source database is correctly configured
Description	The **max_wal_senders** value of the source database must be greater than the number of used replication slots. Otherwise, the synchronization may fail.
Failure Cause and Handling Suggestion	Failure cause: The **max_wal_senders** value of the source database is less than or equal to the number of used replication slots. Handling suggestion: Set **max_wal_senders** to a value greater than the number of used replication slots and restart the database to apply the changes. Run the following command to query the number of used replication slots in the current database: `select count(1) from pg_replication_slots;`

1.2.17 Checking Whether the WAL_LEVEL Value in the Source Database Is Correct

PostgreSQL Synchronization

Table 1-27 Checking whether the WAL_LEVEL value in the source database is correct

Check Item	Whether the WAL_LEVEL value in the source database is correct
Description	Check whether **wal_level** of the source database is set to **logical**. If the value is not **logical**, the incremental logs of the source database cannot be logically decoded. As a result, incremental synchronization cannot be performed.
Failure Cause and Handling Suggestion	Failure cause: The **wal_level** value in the source database is incorrect. Handling suggestion: Change the **wal_level** value of the source database to **logical**. For details about how to modify the parameter for self-built databases, see: • Run **alter system set wal_level = logical** in the source database as a super user and restart the database to apply the changes. • Alternatively, modify the **postgresql.conf** configuration file, set **wal_level** to **logical**, and restart the database to apply the changes.

	Failure cause: The source database version is not supported. Handling suggestion: Ensure that the source database version is supported by DRS. Supported source database versions include PostgreSQL 9.4, 9.5, 9.6, 10, 11, 12, and 13.
	Failure cause: The destination database version is not supported. Handling suggestion: Ensure that the destination database version is supported by DRS. The destination database supports the following major versions: RDS for PostgreSQL 9.5, 9.6, 10, 11, 12, and 13. If the source database is RDS for PostgreSQL Enhanced Edition, the destination database supports only RDS for PostgreSQL Enhanced Edition.

1.2.18 Checking Whether the MAX_REPLICATION_SLOTS Value in the Source Database Is Correct

PostgreSQL Synchronization

Table 1-28 Checking whether the MAX_REPLICATION_SLOTS value in the source database is correct

Check Item	Whether the **MAX_REPLICATION_SLOTS** value in the source database is correct
Description	The **max_replication_slots** value of the source database must be greater than the number of used replication slots. Otherwise, the synchronization may fail.
Failure Cause and Handling Suggestion	Failure cause: The **max_replication_slots** value of the source database is less than or equal to the number of used replication slots. Handling suggestion: Set **max_replication_slots** to a value greater than the number of used replication slots and restart the database to apply the changes. Run the following command to query the number of used replication slots in the current database: `select count(1) from pg_replication_slots;`
	Failure cause: Insufficient user permissions Handling suggestion: Check whether the database user permissions meet the synchronization requirements.

1.2.19 Checking Whether the Source Database Is on Standby

PostgreSQL Synchronization

Table 1-29 Checking whether the source database is on standby

Check Item	Whether the source database is on standby
Description	For a full+incremental synchronization task, the source database cannot be a standby database. Otherwise, incremental synchronization cannot be performed. For a full synchronization task, the source database can be a standby database, but **hot_standby_feedback** must be set to **on**. Otherwise, the synchronization may fail.
Failure Cause and Handling Suggestion	Failure cause: In a real-time full+incremental synchronization task, the source database cannot be a standby database. Otherwise, incremental synchronization cannot be performed. Handling suggestion: Configure the source database as the primary database.
	Failure cause: For a full synchronization task, the source database is a standby database, and **hot_standby_feedback** is set to **off**. Handling suggestion: Configure the source database as the primary database, or set **hot_standby_feedback** of the source database to **on**. • Change the source database to the primary database. • Alternatively, change the **hot_standby_feedback** value of the source database to **on** before starting full synchronization. After the full synchronization is complete, change the value of this parameter to **off**.

1.2.20 Checking Whether the log_slave_updates Value of the Source Database Is Correctly Configured

MySQL Migration, Synchronization, and Disaster Recovery

Table 1-30 Checking whether the log_slave_updates value of the source database is correctly configured

Check Item	Whether the **log_slave_updates** value of the source database is correctly configured
Description	The migration will fail if the **log_slave_updates** parameter of the source database is disabled.

Failure Cause and Handling Suggestion	Failure cause: The **slave_updates_check** parameter of the source database must be enabled. Handling suggestion: In the MySQL configuration file **my.cnf**, add the "log_slave_updates=1" line under [mysqld] and restart the database for the modification to take effect.
	Failure cause: The source database is a standby database and the **log_slave_updates** value is **OFF**. Handling suggestion: On the source database, set **log_slave_updates** to **ON**. Then, restart the database for the modification to take effect.
Item to Be Confirmed and Handling Suggestion	Item to be confirmed: The source database is a standby database and the **log_slave_updates** value is **OFF**. Handling suggestion: On the source database, set **log_slave_updates** to **ON**. Then, restart the database for the modification to take effect. If no switchover or failover will occur, no operation is required.

1.2.21 Checking Whether the BLOCK_SIZE Value of the Source Database Is the Same as That of the Destination Database

PostgreSQL Synchronization

Table 1-31 Checking whether the BLOCK_SIZE value of the source database is the same as that of the destination database

Check Item	Whether the **BLOCK_SIZE** value of the source database is the same as that of the destination database
Description	The **BLOCK_SIZE** value of the destination database must be greater than or equal to that of the source database. Otherwise, the synchronization may fail.
Failure Cause and Handling Suggestion	Failure cause: The **BLOCK_SIZE** value of the destination database is less than that of the source database. Handling suggestion: • Use the destination database whose **BLOCK_SIZE** value is greater than or equal to that of the source database. • Use the source database whose **BLOCK_SIZE** value is less than or equal to the value of destination database **BLOCK_SIZE**.

1.2.22 Checking Whether the binlog_row_image Value is FULL

MySQL

Table 1-32 Checking whether the binlog_row_image value is FULL

Check Item	Whether the **binlog_row_image** value is **FULL**
Description	If the **binlog_row_image** value of the source database is not **FULL**, the migration will fail.
Failure Cause and Handling Suggestion	Failure cause: The **binlog_row_image** value of the source database is not **FULL**. Handling suggestion: • If the source database is an RDS DB instance on the cloud, change **binlog_row_image** to **FULL** on the RDS console, and then restart the source database. • If the source database is an on-premises database, perform the following steps: 1. Log in to the server where the MySQL source database is located. 2. Manually change the value of **binlog_row_image** in the **my.cnf** configuration file to **FULL** and save the file. `binlog_row_image=full` 3. To ensure a successful task, restart the source database during off-peak hours.

1.2.23 Checking Whether the Transaction Isolation Levels are Consistent

MySQL

Table 1-33 Checking whether the transaction isolation levels are consistent

Check Item	Whether the transaction isolation levels are consistent
Description	Check whether the transaction isolation levels of the source and destination databases are the same.

Failure Cause and Handling Suggestion	If you are migrating data to the cloud, perform the following operations: **Failure cause**: The transaction isolation levels of the source and destination databases are different. **Handling suggestion**: Change the isolation level (**tx_isolation** or **transaction_isolation**) of the destination database to be the same as that of the source database.

1.2.24 Checking Whether the lc_monetary Values of the Source and Destination Databases Are the Same

PostgreSQL Synchronization

Table 1-34 Checking whether the lc_monetary values of the source and destination databases are the same

Check Item	Whether the **lc_monetary** values of the source and destination databases are the same
Description	Check whether the **lc_monetary** values of the source and destination databases are the same. If they are inconsistent, the synchronization fails.
Failure Cause and Handling Suggestion	Failure cause: This item cannot be checked because the source database failed to be connected. Handling suggestion: Check whether the source database is connected.
	Failure cause: This item cannot be checked because the destination database failed to be connected. Handling suggestion: Check whether the destination database is connected.
	Failure cause: The **lc_monetary** values of the source and destination databases must be the same. Handling suggestion: Check whether the **lc_monetary** values of the source and destination databases meet the synchronization requirements.
	Failure cause: Insufficient user permissions Handling suggestion: Check whether the database user permissions meet the synchronization requirements.

1.2.25 Checking Whether the Source Database Contains Trigger Names with Non-ASCII Characters

MySQL

Table 1-35 Checking whether the source database contains trigger names with non-ASCII characters

Check Item	Whether the source database contains trigger names with non-ASCII characters
Description	If the source database contains non-ASCII characters, the migration will fail.
Item to Be Confirmed and Handling Suggestion	Item to be confirmed: The source database cannot contain view names with non-ASCII characters. Handling suggestion: To solve this problem, perform the following steps: Method 1: Click **Previous** to return to the **Select Migration Type** page. Select a customized object and do not select the trigger name that contains non-ASCII characters. Method 2: Change the trigger name.

1.2.26 Checking Whether the Source Database Collections Contain More Than 10 Indexes

MongoDB Migration

Table 1-36 Checking whether the source database collections contain more than 10 indexes

Check Item	Whether the source database collections contain more than 10 indexes
Description	If the number of indexes in the source database exceeds 10, the migration duration is affected.
Failure Cause and Handling Suggestion	Alarm cause: The source database has collections containing more than 10 indexes, which are migrated slowly. Handling suggestion: The number of indexes affects the migration duration. Check whether all indexes need to be migrated. If the index does not need to be migrated, delete the index before starting the migration. Run the following command to delete the index: **run the db.*Collection name*.dropIndex(*Index name*)**

1.2.27 Checking Whether the Source Database Collections Contain TTL Indexes

MongoDB Migration

Table 1-37 Checking whether the source database collections contain TTL indexes

Check Item	Whether the source database collections contain TTL indexes
Description	Due to inconsistency of time zones and clocks between source and destination databases, migrating TTL indexes will cause data inconsistency.
Failure Cause and Handling Suggestion	Item to be confirmed: Due to inconsistency of time zones and clocks between source and destination databases, migrating TTL indexes will cause data inconsistency. Handling suggestion: If data consistency is required, delete TTL indexes. Alternatively, do not migrate the collections containing TTL indexes. Run the following command to delete the index: **run the db.*Collection name*.dropIndex(*Index name*)**

1.2.28 Checking Whether log_bin_trust_function_creators Is Set to On in Both the Source and Destination Databases

MySQL

Table 1-38 Checking whether log_bin_trust_function_creators is set to on in both the source and destination databases

Check Item	Whether log_bin_trust_function_creators is set to on in both the source and destination databases
Description	During the out-of-cloud migration from MySQL to MySQL, the **log_bin_trust_function_creators** value of the source database must be the same as that of the destination database. If the source database supports user-defined functions (UDFs) but the destination database does not, change the **log_bin_trust_function_creators=off** parameter of the destination database to **log_bin_trust_function_creators=on**. If the parameters of the source and destination are different, the migration may fail.

Item to Be Confirmed and Handling Suggestion	Item to be confirmed: The destination database does not support custom functions. Handling suggestions: In the **my.cnf** file of the destination database, check whether **log_bin_trust_function_creators=on** exists. If it does not exist, add **log_bin_trust_function_creators=on** and restart the database for the modification to take effect.

1.2.29 Checking Whether GTID Is Enabled for the Source Database

MySQL Serving as the Source in Migration

Table 1-39 Checking whether GTID is enabled for the source database

Check Item	Whether GTID is enabled for the source database
Description	During data migration, GTID should be enabled for the source database. Otherwise, the migration fails.

Item to Be Confirmed and Handling Suggestion	Item to be confirmed: If the source database GTID is disabled and a primary/standby switchover occurs on the source database, the task may fail. In this case, you need to enable GTID.
	Handling suggestion:
	• If the source database is an RDS for MySQL instance, contact RDS for MySQL O&M personnel to enable GTID.
	• If the source database version is MySQL 5.5, ignore this alarm.
	• If the source database version is MySQL 5.6 and later, set the following parameters to enable GTID in the database configuration file. Then, restart the database for the modifications to take effect.
	`gtid_mode = on`
	`log_slave_updates = true`
	`enforce_gtid_consistency = on`

	Item to be confirmed: After the **show master status** command is executed on the source database, GtidSet cannot be queried. As a result, the DRS task fails because binlogs cannot be read. **Handling suggestion**: Change the source database IP address to the IP address of a read/write database.

MySQL Serving as the Source in Synchronization

Table 1-40 Checking whether GTID is enabled for the source database

Check Item	Whether GTID is enabled for the source database
Description	During data synchronization, GTID should be enabled for the source database. Otherwise, the synchronization fails.

Failure Cause and Handling Suggestion	Failure cause: GTID is disabled for the source database.
	Handling suggestion:
	• If the source database is an RDS for MySQL instance, contact RDS for MySQL O&M personnel to enable GTID.
	• If the source database version is MySQL 5.5, the current task cannot be used. Create a migration task or contact O&M personnel.
	• If the source database version is MySQL 5.6 and later, set the following parameters to enable GTID in the database configuration file. Then, restart the database for the modifications to take effect. Parameters to be configured:
	`gtid_mode = on`
	`log_slave_updates = true`
	`enforce_gtid_consistency = on`

	Item to be confirmed: After the **show master status** command is executed on the source database, GtidSet cannot be queried. As a result, the DRS task fails because binlogs cannot be read. **Handling suggestion**: Change the source database IP address to the IP address of a read/write database.

MySQL Serving as the Source in DR

Table 1-41 Checking whether GTID is enabled for the source database

Check Item	Whether GTID is enabled for the source database
Description	During disaster recovery, GTID should be enabled for the source database. Otherwise, the migration fails.

Failure Cause and Handling Suggestion	Failure cause: GTID is disabled for the source database.
	Handling suggestion:
	• If the source database is an RDS for MySQL instance, contact RDS for MySQL O&M personnel to enable GTID.
	• If the source database version is MySQL 5.5, the current task cannot be used. Create a migration task or contact O&M personnel.
	• If the source database version is MySQL 5.6 and later, set the following parameters to enable GTID in the database configuration file. Then, restart the database for the modifications to take effect. Parameters to be configured:
	`gtid_mode = on`
	`log_slave_updates = true`
	`enforce_gtid_consistency = on`

	Failure Cause: After the **show master status** command is executed on the source database, GtidSet cannot be queried. As a result, the DRS task fails because binlogs cannot be read. **Handling suggestion**: Change the source database IP address to the IP address of a read/write database.

1.2.30 Checking Whether GTID Is Enabled for the Destination Database

MySQL Disaster Recovery

Table 1-42 Checking whether GTID is enabled for the destination database

Check Item	Whether GTID is enabled for the destination database
Description	During disaster recovery, GTID should be enabled for the destination database. Otherwise, the migration fails.

Failure Cause and Handling Suggestion	Failure cause: GTID is disabled for the destination database.
	Handling suggestion: Check that the destination database binlog is enabled. Modify the parameter settings configuration file as follows to enable the destination database GTID, and then restart the database
	Sample command:
	`gtid_mode = on`
	`log_slave_updates = true`
	`enforce_gtid_consistency = on`
	Sample command:
	`log-bin = mysql-bin`
	`binlog_gtid_simple_recovery = on`

1.2.31 Checking Whether log_bin_trust_function_creators Is Set to On in the Destination Database

MySQL

Table 1-43 Checking whether log_bin_trust_function_creators is set to on in the destination database

Check Item	Whether **log_bin_trust_function_creators** is set to **on** in the destination database
Description	During the migration from RDS for MySQL to MySQL out of the cloud, the destination database does not support custom functions.
Failure Cause and Handling Suggestion	Failure cause: The destination database does not support custom functions. Handling suggestions: In the **my.cnf** file of the destination database, check whether **log_bin_trust_function_creators=on** exists. If it does not exist, add **log_bin_trust_function_creators=on** and restart the database for the modification to take effect.

1.2.32 Checking Whether the Values in the Source Oracle Database Are Out of the Ranges of the MySQL Database

Oracle Migration

Table 1-44 Checking whether the values in the source Oracle database are out of the ranges of the MySQL database

Check Item	Whether the values in the source Oracle database are out of the ranges of the MySQL database
Description	The values of the following data types in the source Oracle database are out of the ranges of the MySQL database, causing the migration failure.

Failure Cause and Handling Suggestion	**Alarm Information** 1. Ensure that the primary key or unique key column cannot contain values of character string data types when you map the MySQL data types to the character data types in Oracle. Otherwise, data inconsistency or migration failure may occur. 2. Due to differences between Oracle and MySQL databases, the migration will fail if the values of the following data types in the source Oracle database are out of the ranges of MySQL database: number, intl, float, double, date, and timestamp. Handling suggestion: Contact technical support.

1.2.33 Checking Whether the max_allowed_packet Value of the Destination Database Is too Small

MySQL Migration

Table 1-45 Checking whether the max_allowed_packet value of the destination database is too small

Check Item	Whether the max_allowed_packet value of the destination database is too small
Description	A large amount of data cannot be written to the destination database during the migration because the max_allowed_packet value is smaller than 100 MB. As a result, the full migration failed.
Failure Cause and Handling Suggestion	Failure cause: The **max_allowed_packet** value of the destination database is too small, which may cause data fails to be written during the migration. Handling suggestions: Set the **max_allowed_packet** value greater than 100 MB

MariaDB Synchronization

Table 1-46 Checking whether the max_allowed_packet value of the destination database is too small

Check Item	Whether the max_allowed_packet value of the destination database is too small

Description	A large amount of data cannot be written to the destination database during the migration because the max_allowed_packet value is smaller than 100 MB. As a result, the full migration failed.
Failure Cause and Handling Suggestion	Failure cause: The **max_allowed_packet** value of the destination database is too small, which may cause data fails to be written during the migration. Handling suggestions: Set the **max_allowed_packet** value greater than 100 MB

1.2.34 Checking Whether the Source Database User Has the Permission to Parse Logs

Oracle -> MySQL Migration

Table 1-47 Checking whether the source database user has the permission to parse logs

Check Item	Whether the source database user has the permission to parse logs
Description	If the source database user does not have the log parsing permission, the incremental migration will fail.
Failure Cause and Handling Suggestion	Failure cause: The source database user does not have the EXECUTE_CATALOG_ROLE role. Handling suggestion: Assign the required role to the user and perform the check again. Run the **GRANT EXECUTE_CATALOG_ROLE TO** *UserName* command to assign the role.
	Failure cause: The source database user does not have the log parsing permission. Handling suggestion: Assign the required role to the user and perform the check again. Run the **GRANT LOGMINING TO** *UserName* command to grant the permission.

1.2.35 Checking Whether the ExpireLogsDays Value Is 0

MySQL Synchronization and Disaster Recovery

Table 1-48 Checking whether the expirelogsdays value is 0

Check Item	Whether the **expirelogsdays** value is 0
Description	If the **expire_logs_days** value of the source database is set to **0**, the migration may fail.
Failure Cause and Handling Suggestion	Failure cause: If **expire_logs_days** is set to **0** in the source database, operations such as startup and flush logs will trigger binlog clearance and result in a migration failure. Handling suggestion: Set the binlog storage duration by running the following command on the client: **set global expire_logs_days=value** (***value*** indicates an integer greater than 0.)

1.2.36 Checking Whether the Source Database Character Set Is Supported

Oracle Synchronization

Table 1-49 Checking whether the source database character set is supported

Check Item	Whether the source database character set is supported
Description	If the character set of the source database is not supported, data synchronization may fail. A migration task from Oracle only supports the following character sets: ZHS16GBK, AL32UTF8, UTF8, US7ASCII, WE8MSWIN1252, WE8ISO8859P1, WE8ISO8859P2, WE8ISO8859P4, WE8ISO8859P5, WE8ISO8859P7, WE8ISO8859P9, WE8ISO8859P13, WE8ISO8859P15.
Failure Cause and Handling Suggestion	Failure cause: The source database character set is not supported. Handling suggestion: Go back to the connection test page and select a source database with supported character sets or change the character set of the source database to AL32UTF8.

1.2.37 Checking Whether the Length Table and Field Names Is Not Supported

DDM -> Oracle Synchronization

Table 1-50 Checking whether the length of table and field names is supported

Check Item	Whether the length of table and field names is supported
Description	In synchronization tasks from DDM to Oracle, the lengths of table and field names cannot exceed 30 characters.
Failure Cause and Handling Suggestion	Failure cause: There are tables or fields whose name lengths exceed 30 characters in the source database. Handling suggestion: Change the lengths of the table or field names fewer than 30 characters.

1.2.38 Checking Whether the Databases and Tables Exist

All Scenarios

Table 1-51 Checking whether the databases and tables exist

Check Item	Whether the databases and tables exist
Description	There are databases and tables in the uploaded file that do not exist in the source database. The synchronization fails.
Failure Cause and Handling Suggestion	Failure cause: Objects imported from files do not exist in the source database. Handling suggestion: Remove these objects that do not exist and import the file again.

Synchronization from PostgreSQL to GaussDB(DWS) and from PostgreSQL to GaussDB

Table 1-52 Checking whether the databases and tables exist

Check Item	Whether the databases and tables exist
Description	The selected tables contain identifier columns, but the destination database does not support identifier columns. As a result, data synchronization fails.
Failure Cause and Handling Suggestion	**Failure cause**: The selected tables contain identifier columns. **Handling suggestion**: Deselect tables containing identifier columns.

1.2.39 Checking Whether the Supplemental Log Level of the Source Database Meets Requirements

Oracle Synchronization

Table 1-53 Checking whether the supplemental log level of the source database meets requirements

Check Item	Whether the supplemental log level of the source database meets requirements
Description	The supplemental log level of the source Oracle database does not meet requirements. The synchronization fails.
Failure Cause and Handling Suggestion	Failure cause: The supplemental logging level of the source Oracle database does not meet requirements. Handling suggestion: Perform any of the following operations in the source database: • Enable all-level (database-level) supplemental logging: **alter database add supplemental log data (all) columns** • Enable minimal-level supplemental logging: alter database add supplemental log data. Then run the following command to enable all-level (table-level) supplemental logging for each to-be-synchronized table: **alter table TABLE_NAME add supplemental log data(all) columns**

1.2.40 Checking Whether the Length of the Source Database Object Names Exceeds the Limit

MySQL to PostgreSQL and MySQL to GaussDB(DWS) Synchronization

Table 1-54 Checking whether the length of the source database object names exceeds the limit

Check Item	Whether the length of the source database object names exceeds the limit
Description	The destination database object name can contain a maximum of 63 characters. The length of source object names mapped to the destination ones exceeds the upper limit.
Item to Be Confirmed and Handling Suggestion	Failure cause: The destination database object name can contain a maximum of 63 characters. The length of source object names mapped to the destination ones exceeds the upper limit. Handling suggestion: 1. Deselect the objects whose name length exceeds the limit. 2. If the objects are tables, change the table names to meet the mapping conditions.

DB2 for LUW to GaussDB and DB2 for LUW to GaussDB(DWS) Synchronization

Table 1-55 Whether the length of the source database object names exceeds the limit

Check Item	Whether the length of the source database object names exceeds the limit
Description	The destination database object name can contain a maximum of 63 characters. The length of source object names mapped to the destination ones exceeds the upper limit.
Item to Be Confirmed and Handling Suggestion	Failure cause: The destination database object name can contain a maximum of 63 characters. The length of source object names mapped to the destination ones exceeds the upper limit. Handling suggestion: 1. Deselect the objects whose name length exceeds the limit. 2. If the objects are tables, change the table names to meet the mapping conditions.

1.2.41 Checking Whether session_replication_role of the Destination Database Is correctly Set

PostgreSQL Synchronization

Table 1-56 Checking whether the session_replication_role value of the destination database is correctly set

Check Item	Whether the **session_replication_role** value of the destination database is correctly set.
Description	The **session_replication_role** parameter of the destination database is not set to **replica**. Data synchronization may fail when the synchronized table has associated foreign key constraints or triggers.
Item to Be Confirmed and Handling Suggestion	Item to be confirmed: The **session_replication_role** parameter of the destination database is not set to **replica**. Handling suggestion: Before starting the synchronization task, set **session_replication_role** of the destination database to **replica**. After the synchronization is complete, change the value of this parameter to **origin**. If the destination database is an RDS instance, you can modify the parameter on the RDS console.

1.2.42 Checking the Database Compatibility Type

MySQL -> GaussDB(DWS) Synchronization

Table 1-57 Checking the database compatibility type

Check Item	Whether the database compatibility type is supported
Description	The migration of tables without primary keys and empty strings does not support the Oracle (ORA) compatibility mode of GaussDB(DWS).
Failure Cause and Handling Suggestion	Failure cause: The migration of tables without primary keys does not support the ORA compatibility mode of GaussDB(DWS). Handling suggestion: Use the MySQL and Teradata compatibility mode of GaussDB(DWS) or add primary keys to tables that do not have primary keys. Run the following statement to add a primary key to the table: CREATE DATABASE mysql_compatible_db DBCOMPATIBILITY 'MYSQL'; Or: CREATE DATABASE td_compatible_db DBCOMPATIBILITY 'TD';

	Failure cause: The migration of empty strings does not support the ORA compatibility mode of GaussDB(DWS). **Handling suggestion**: You are advised to use the MySQL or Teradata compatibility mode.

MySQL -> GaussDB Synchronization

Table 1-58 Checking the database compatibility type

Check Item	Whether the database compatibility type is supported
Description	The destination database is incompatible with MySQL.
Failure Cause and Handling Suggestion	Failure cause: The destination database is incompatible with MySQL. Handling suggestion: Use a destination instance that is compatible with MySQL. If the destination instance is a distributed instance, run the following statement to create a compatible database: CREATE DATABASE mysql_compatible_db DBCOMPATIBILITY 'MYSQL'; If the destination instance is a primary/standby instance, run the following statement to create a compatible database: CREATE DATABASE mysql_compatible_db DBCOMPATIBILITY 'B';

1.2.43 Checking Whether the Collation of the Destination Database Is Correct

Oracle -> MySQL, Oracle -> GaussDB(for MySQL), and Oracle -> DDM Synchronization

Table 1-59 Checking whether the collation of the destination database is correct

Check Item	Whether the collation of the destination database is correct
Description	The primary key or unique key in the destination database contains a collation ended in _ci. The collation ending in _ci is case insensitive, so an error indicating duplicate keys may be reported during synchronization and cause the synchronization to fail.

Failure Cause and Handling Suggestion	Failure cause: The destination database collation is not supported. Handling suggestion: Change the destination database collation to a case-sensitive collation (not ending with _ci).

1.2.44 Checking Whether the Index Name Is Supported

MySQL -> CSS/ES Synchronization

Table 1-60 Checking whether the index name is supported

Check Item	Whether the index name is supported
Description	Check whether the index name complies with the specifications. The index name rules are as follows: • Uppercase letters are not allowed. • Cannot contain /*?"<,>|# and spaces. • Can contain colons (:). • Cannot start with a hyphen (-), underscore (_), or plus sign (+). • Cannot contain periods (.) or ellipsis (...). • Can contain up to 255 characters.
Failure Cause and Handling Suggestion	Failure cause: The index name is not supported. Handling suggestion: In the migration settings, select another table for synchronization or change the index name for table mapping.

1.2.45 Checking Whether Tables Structures Are Consistent

MySQL -> CSS/ES Synchronization

Table 1-61 Checking whether tables structures are consistent

Check Item	Whether tables structures are consistent

Description	Check whether the table structures at the source end and destination are consistent.
Failure Cause and Handling Suggestion	Failure cause: The source table columns are not a subset of the destination indexes. Handling suggestion: Return to the **Set Synchronization Task** page, select the tables that meet the requirements. Alternatively, create indexes required in the destination table. Statement for querying the destination database: `GET /<index>/_mapping?include_type_name`

MySQL -> GaussDB(DWS) Synchronization

Table 1-62 Checking whether tables structures are consistent

Check Item	Whether tables structures are consistent
Description	Check whether the table structures at the source end and destination are consistent.
Failure Cause and Handling Suggestion	**Failure cause**: The destination table does not contain all columns of the source table or the not-null constraints of the columns are inconsistent. The possible causes are as follows: 1. The number of columns in the destination table is less than that in the source table. 2. If the source and destination databases are different, the column names in the source table are converted to lowercase letters for comparison with those in the destination table. 3. Column names contain spaces or special characters. Handling suggestion: Return to the **Set Synchronization Task** page, select the tables that meet the requirements. Alternatively, modify columns required in the destination table. Ensure that the source table columns are a subset of the destination columns.

1.2.46 Checking Whether Existing Data Meets the Constraints

Oracle Synchronization

Table 1-63 Checking whether existing data meets the constraints

Check Item	Whether existing data meets the constraints

Description	The constraint type of the source database table does not check whether existing data meets constraints. Some data in the source table may not meet the constraints, and the destination database may not support the constraint types. As a result, data transmission fails or data is lost because the data written to the destination database fails the constraint check.
Item to Be Confirmed and Handling Suggestion	Item to be confirmed: Some check item constraints are not met. Handling suggestion: Ensure that all data in the corresponding table meets the current constraints. If any data does not meet the constraints, consider not configuring constraints in the destination (contact DRS online support to skip the table structure consistency check), or process the source data to ensure that the data meets the constraints.

1.2.47 Checking the Additional Column of the Destination Database

MySQL to GaussDB(for MySQL) Synchronization

Table 1-64 Checking the additional column of the destination database

Check Item	Additional column check
Description	Check whether the additional column is added to the additional column list of the destination database. If no additional column is added, the incremental synchronization task fails.
Failure Cause and Handling Suggestion	Failure cause: Some columns are missing in the additional column processing table in the destination database. Handling suggestion: Add the missing additional columns to the destination database tables. Reference statement: ALTER TABLE ` database `.` table ` ADD COLUMN ` column_name ` column_definition;

1.2.48 Checking Whether Implicit Primary Key Check Is Enabled for the Primary and Standby Databases

MySQL Disaster Recovery

Table 1-65 Checking whether implicit primary key check is enabled for the primary and standby databases

Check Item	Whether implicit primary key check is enabled for the primary and standby databases
Description	Check whether **create_default_primary_key** is enabled for the source or destination database.
Item to Be Confirmed and Handling Suggestion	Item to be confirmed: The **create_default_primary_key** parameter of the source or destination database is enabled. As a result, the primary/standby switchover may fail or data may be inconsistent. You are advised to disable **create_default_primary_key**. If this parameter is disabled, the task may still fail after a primary/standby switchover. The possible cause is that a table without a primary key is created when this parameter is enabled. Handling suggestion: This parameter was discarded, but in some DB instances of earlier versions, this parameter may be enabled. As a result, an error may occur during the primary/standby switchover, which may cause the task to fail or data inconsistency, you are advised to disable this parameter or ensure that the source database does not contain tables that do not have primary keys.

1.2.49 Checking Whether the Source Table Replication Attribute Is Correct

GaussDB->GaussDB, GaussDB->kafka, PostgreSQL->PostgreSQL, and PostgreSQL->Kafka Synchronization

Table 1-66 Checking whether the source table replication attribute is correct

Check Item	Whether the source table replication attribute is correct
Description	The replica identity attribute of the source database table must be **FULL**.

Item to Be Confirmed and Handling Suggestion	Item to be confirmed: The selected source database table contains the primary key column, but the replication attribute is not FULL. Handling suggestion: Change the replication attribute of the preceding tables to FULL. Run the following statement in the source database: `alter table table_name replica identity full;`
Failure Cause and Handling Suggestion	Failure cause: The source database contains tables whose replication attribute is not Full. As a result, incremental synchronization may fail. Handling suggestion: Change the replication attribute of the table to FULL. Run the following statement in the source database: `alter table table_name replica identity full;`

1.2.50 Checking Whether the Source Database Is on Standby

PostgreSQL->PostgreSQL and PostgreSQL->GaussDB Synchronization

Table 1-67 Checking whether the source database is on standby

Check Item	Whether the source database is on standby
Description	If the source database is a standby database, set **hot_standby_feedback** in the source database to **on**.
Failure Cause and Handling Suggestion	Failure cause: The source database is a standby database and the value of **hot_standby_feedback** in the source database is **off**. As a result, full synchronization may fail. Handling suggestion: Before full synchronization, set the **hot_standby_feedback** parameter of the source database to **on**. After the full synchronization is complete, change the parameter to the original value.

1.2.51 Checking Whether the Specified Replication Slot Exists in the Source Database

PostgreSQL->Kafka and GaussDB->Kafka Synchronization

Table 1-68 Checking whether the specified replication slot exists in the source database

Check Item	Whether the specified replication slot exists in the source database
Description	The replication slot with the specified name is automatically created after the task is started and cannot be the same as an existing replication slot in the source database.
Failure Cause and Handling Suggestion	Failure cause: The specified replication slot already exists in source database. Handling suggestion: • Delete the replication slot from the source database. • Alternatively, change the replication slot name to a name that does not exist in the source replication slots.

1.2.52 Checking Whether the MongoDB Instance Type Matches the Migration Mode

MongoDB Migration

Table 1-69 Checking whether the MongoDB instance type matches the migration mode

Check Item	Whether the MongoDB instance type matches the migration mode
Description	Check whether the MongoDB instance type matches the migration mode. If not, the migration fails.
Failure Cause and Handling Suggestion	Failure cause: When a DRS task is created, the source DB instance type is set to **Cluster**, but the source database is not a cluster. Handling suggestion: If the source DB instance type is set to **Cluster**, ensure that the source database is a cluster database.

1.2.53 Checking the Physical Standby Database

Oracle Synchronization

Table 1-70 Physical standby database check

Check Item	Physical standby database check
Description	When the source Oracle database is in the incremental phase, check whether the source database is a physical standby database.
Item to Be Confirmed and Handling Suggestion	Item to be confirmed: 1. The physical standby database does not generate logs. It replicates them from the primary database. Check whether supplemental logging of the primary database meets the incremental synchronization requirements. Handling suggestion: Check **Oracle supplemental logging**. 2. The physical standby database does not generate logs, resulting in synchronization task delay. You can shorten the interval for archiving logs from the primary database to the physical standby database. However, extremely low values can result in a large number of logs, so you are advised to synchronize data from the logical standby database. Run the following statement on the primary database to specify the log archive interval: `alter system set archive_lag_target=`*seconds*`;`
	Item to be confirmed: The source database is a physical standby database, where data of the LOB type cannot be parsed. Handling suggestion: Change the Oracle startup mode and restart the Oracle database.

1.2.54 Checking Whether the Case Sensitivity of the Destination Database Is Configured

Synchronization from TiDB to GaussDB(for MySQL)

Table 1-71 Case sensitivity check for the destination database

Check Item	Case sensitivity check for the destination database
Description	Destination database parameter **lower_case_table_names** check

Failure Cause and Handling Suggestion	Failure cause: The value of destination database **lower_case_table_names** is **1**, and the names of the selected databases or tables contain uppercase and lowercase letters. Handling suggestion: If the destination database is a self-built database, add **lower_case_table_names=0** under **[mysqld]** in the MySQL configuration file **my.cnf** and then restart the destination database. If the destination database is a cloud database, check whether the **lower_case_table_names** parameter can be modified. If it cannot be modified, contact customer service. If the destination database is an RDS database, you can modify the parameter on the RDS console.

1.2.55 Checking Whether CDC is Enabled for Tables in the Source Database

Microsoft SQL Server as the Source in Synchronization

Table 1-72 Whether CDC is enabled for tables in the source database

Check Item	Whether CDC is enabled for tables in the source database
Description	Whether CDC is enabled for tables in the source database
Failure Cause and Handling Suggestion	Failure cause: The CDC function is not enabled for the table to be synchronized in the source database. Handling suggestion: Enable CDC for the preceding table in the source database by following the instructions provided in the **official Microsoft SQL Server documentation**.

1.2.56 Checking Whether the CDC Retention Period in the Source Database Is Long Enough

Microsoft SQL Server as the Source in Synchronization

Table 1-73 Whether the CDC retention period in the source database is long enough

Check Item	Whether the CDC retention period in the source database is long enough

Description	Check whether the CDC retention period in the source database is long enough.

Failure Cause and Handling Suggestion	Failure cause: The retention period of CDC data in the source database is less than one day. As a result, incremental synchronization is abnormal.
	Handling suggestion: Change the CDC retention period to 1440 minutes (one day) or longer. The recommended value is 4320 minutes (three days).
	For details, see the following statements:
	`EXECUTE sys.sp_cdc_change_job`
	`  @job_type = N'cleanup',`
	`  @retention = 4320;`

1.2.57 Checking Whether the Source and Destination Databases Have Different Computer Names

Microsoft SQL Server as the Source in Synchronization

Table 1-74 Checking whether the source and destination databases have different computer names

Check Item	Whether the source and destination databases have different computer names
Description	The source and destination databases cannot have the same computer name.
Failure Cause and Handling Suggestion	Failure cause: This item cannot be checked because the source database fails to be connected. Handling suggestion: Check whether the source database is connected.
	Failure cause: This item cannot be checked because the destination database failed to be connected. Handling suggestion: Check whether the destination database is connected.
	Failure cause: The source and destination databases cannot have the same computer name. Handling suggestion: Change the computer name of the source database and restart the computer for the modification to take effect.

1.2.58 Checking Whether the Length of the Source Database Name Exceeds 64

Microsoft SQL Server as the Source in Synchronization

Table 1-75 Checking whether the length of the source database name exceeds 64

Check Item	Whether the length of the source database name exceeds 64
Description	Check whether source database name contains more than 64 characters. If yes, the migration fails.
Item to Be Confirmed and Handling Suggestion	Failure cause: The source database name cannot contain more than 64 characters. Handling suggestion: Change the length of the source database names.

1.2.59 Synchronization Object Name Check

Microsoft SQL Server as the Source in Synchronization

Table 1-76 Synchronization object name check

Check Item	Synchronization object name check
Description	If the source database contains database names, schema names, or table names that do not meet requirements, the migration will fail.
Item to Be Confirmed and Handling Suggestion	**Failure cause**: The source database contains database names, schema names, or table names that do not meet requirements. The database names, schema names, and table names in the source database can contain only letters, underscores (_), hyphens (-), and digits. **Handling suggestion**: Change the object names that do not meet requirements.

1.2.60 Checking Whether the Source Database Contains Disabled Clustered Indexes

Microsoft SQL Server as the Source in Synchronization

Table 1-77 Checking whether the source database contains disabled clustered indexes

Check Item	Whether the source database contains disabled clustered indexes
Description	If the source database contains disabled clustered indexes, the migration fails.
Item to Be Confirmed and Handling Suggestion	Item to be confirmed: The source database contains disabled clustered indexes. Handling suggestion: Run the following command to enable the clustered indexes: **ALTER INDEX [*Index name*] ON [*Table name*] REBUILD**

1.2.61 Checking Whether the Source Database Is Empty

Microsoft SQL Server as the Source in Synchronization

Table 1-78 Checking whether the source database is empty

Check Item	Whether the source database is empty
Description	The source database cannot be empty.
Failure Cause and Handling Suggestion	Failure cause: This item cannot be checked because the source database failed to be connected. Handling suggestion: Check whether the source database is connected.
	Failure cause: The source database cannot be empty. Handling suggestion: Create a non-empty database on the source database.

MongoDB Migration

Table 1-79 Checking whether the source database is empty

Check Item	Whether the source database is empty
Description	The source database cannot be empty.
Failure Cause and Handling Suggestion	Failure cause: This item cannot be checked because the source database failed to be connected. Handling suggestion: Check whether the source database is connected.
	Failure cause: The source database cannot be empty. Handling suggestion: Create a non-empty database on the source database.

1.2.62 Checking Whether the Source Database Uses the Full Recovery Model

Microsoft SQL Server as the Source in Synchronization

Table 1-80 Checking whether the source database uses the full recovery model

Check Item	Whether the source database uses the full recovery model
Description	Check whether the source database uses the full recovery model.
Failure Cause and Handling Suggestion	Failure cause: A database does not use the full recovery model in the source database. Handling suggestion: Run the following SQL statements on each database that does not use the full recovery model: USE [master] GO ALTER DATABASE [*Database name*] SET RECOVERY FULL WITH NO_WAIT GO

1.2.63 Checking the Synchronization Objects

Microsoft SQL Server as the Source in Synchronization

Table 1-81 Checking synchronization objects

Check Item	Checking synchronization objects
Description	If the selected synchronization object does not exist in the source database, the check fails.
Failure Cause and Handling Suggestion	Failure cause: The objects to be synchronized do not exist in the source database. Handling suggestion: Reselect the objects to be synchronized.
	Failure cause: More than 1,000 tables are configured to be synchronized in a single task. Handling suggestion: Deselect tables that do not need to be synchronized or split the task into multiple synchronization tasks for execution.

Oracle Serving as the Source in Synchronization

Table 1-82 Checking synchronization objects

Check Item	Checking synchronization objects
Description	Check whether the objects selected from the source database meet requirements.
Failure Cause and Handling Suggestion	Failure cause: The objects to be synchronized do not exist in the source database. Handling suggestion: Deselect the objects to be synchronized.
	Failure cause: Due to the restrictions of Oracle Logminer, a schema name, table name, or column name of the selected table in the source database in the incremental synchronization phase cannot exceed 30 characters. **Handling suggestion**: Modify the schema name, table name, and column name that do not meet requirements to ensure that the length does not exceed 30 characters.

MySQL > PostgreSQL

Table 1-83 Checking synchronization objects

Check Item	Checking synchronization objects
Description	In the pre-check phase, the source database is disconnected when the synchronization object check is performed. As a result, the migration fails.
Failure Cause and Handling Suggestion	Failure cause: The source database is unavailable. Handling suggestions: Check that the source database is connected and try again later.

1.2.64 Checking Whether the Source Database Tables Contain Data Types Not Supported for Migration

Microsoft SQL Server as the Source in Synchronization

Table 1-84 Checking whether the source database tables contain data types not supported for migration

Check Item	Whether the source database tables contain data types not supported for migration
Description	The source database tables cannot contain the **SQL_VARIANT**, **GEOMETRY**, and **GEOGRAPHY** data types. Otherwise, the synchronization task fails.
Item to Be Confirmed and Handling Suggestion	Failure cause: The source database tables contain data types that are not supported. Handling suggestions: Check whether the tables to be migrated in the source database meet the synchronization requirements.

1.2.65 Checking Whether the SQL Server Agent of the Source Database Is Enabled

Microsoft SQL Server as the Source in Synchronization

Table 1-85 Check whether the SQL Server Agent of the source database is enabled

Check Item	Whether the SQL Server Agent of the source database is enabled
Description	If the SQL Server Agent of the source database is not enabled, the migration will fail.
Item to Be Confirmed and Handling Suggestion	Failure cause: The SQL Server Agent of the source database is not enabled. Handling suggestions: Enable the SQL Server Agent for the source database.

1.2.66 Checking Whether the Values of group_concat_max_len Are Consistent

MySQL Migration, Synchronization, and Disaster Recovery

Table 1-86 group_concat_max_len consistency check

Check Item	The **group_concat_max_len** value in the destination database is inconsistent with that in the source database.
Description	If the values of **group_concat_max_len** in the source and destination databases are different, the queried fields may be truncated. Change the parameter values to the same.
Item to Be Confirmed and Handling Suggestion	Item to be confirmed: If the values of group_concat_max_len in the source and destination databases are different, the queried fields may be truncated. Change the parameter values to the same. Handling suggestion: Change the parameter values to the same.

MariaDB Synchronization

Table 1-87 group_concat_max_len consistency check

Check Item	The **group_concat_max_len** value in the destination database is inconsistent with that in the source database.
Description	If the values of **group_concat_max_len** in the source and destination databases are different, the queried fields may be truncated. Change the parameter values to the same.
Item to Be Confirmed and Handling Suggestion	Item to be confirmed: If the values of group_concat_max_len in the source and destination databases are different, the queried fields may be truncated. Change the parameter values to the same. Handling suggestion: Change the parameter values to the same.

1.2.67 Checking Whether the table structures of the source database are consistent

Synchronization from Oracle to GaussDB(DWS)

Table 1-88 Checking whether the table structures of the source database are consistent

Check Item	Whether the table structures of the source database are consistent
Description	Synchronization failed because the source database table structures are inconsistent.
Failure Cause and Handling Suggestion	Details: A many-to-one synchronization cannot be performed because the structures of the tables in the source database are inconsistent. Handling suggestion: Modify the source table structures to ensure that they are consistent.

1.2.68 Checking Whether the Character Sets Are Compatible

Oracle Synchronization

Table 1-89 Character set compatibility check

Check Item	Character set compatibility check
Description	The character set of the destination database is incompatible with that of the source database.
Item to Be Confirmed and Handling Suggestion	Item to be confirmed: The character set of the destination database is incompatible with that of the source database. Handling suggestion: Change the character set of the destination database to be the same as that of the source database.

1.2.69 Whether There Are XA Transactions That Have Not Been Submitted for a Long Time in the Source Database

DDM as the Source

Table 1-90 Whether there are XA transactions that have not been submitted for a long time in the source database

Check Item	Whether there are XA transactions that have not been submitted for a long time in the source database
Description	There are XA transactions that have not been submitted for a long time in the source database. As a result, the data of these XA transactions may be missing.
Item to Be Confirmed and Handling Suggestion	Item to be confirmed: If there are XA transactions that have not been submitted for a long time in the source database. As a result, the data of these XA transactions may be missing. Handling suggestion: Check whether these XA transactions are correctly submitted.

1.2.70 Whether the Selected Objects Exist in the Destination Database

Oracle -> GaussDB Synchronization

Table 1-91 Whether the selected objects exist in the destination database

Check Item	Whether the selected objects exist in the destination database
Description	Check whether the destination database objects meet the synchronization requirements.
Failure Cause and Handling Suggestion	Failure cause: The selected schema does not exist in the destination database. Handling suggestion: Create the schema in the destination database. Statement for creating a schema: `CREATE SCHEMA schema_name;`
	Failure cause: Source database names are the same except for letter cases. Handling suggestion: Change the table name or return to the object selection page and deselect the tables with the same name. Statement for changing the table name in the Oracle database: `ALTER TABLE old_table_name RENAME TO new_table_name;`
	Failure cause: The selected table does not exist in the destination database or the table structure is inconsistent with that in the source database. Handling suggestion: Create a table in the destination database and ensure that the table structure is the same as that in the source database. Statement for creating a table: `CREATE TABLE table_name (column_name data_type);`
	Failure cause: The destination table contains data, which may cause data conflict or inconsistency. **Handling suggestion**: Run the following SQL statement to delete data from the table: `TRUNCATE TABLE table_name;`
	Failure cause: The source and destination databases cannot contain same materialized view names. **Handling suggestion**: Data operations cannot be directly performed on materialized views. Select base tables for data synchronization.

DB2 for LUW -> GaussDB Synchronization

Table 1-92 Whether the selected objects exist in the destination database

Check Item	Whether the selected objects exist in the destination database
Description	Check whether the destination database objects meet the synchronization requirements.
Failure Cause and Handling Suggestion	Failure cause: The destination database table does not exist and cannot be synchronized. Handling suggestion: If you do not synchronize the table structure, create the table to be synchronized in the destination database in advance. Statement for creating a table in the destination database: `CREATE TABLE table_name (column_name data_type);`
	Failure cause: Source database names are the same except for letter cases. Handling suggestion: Change the table name or return to the object selection page and deselect the tables with the same name. Statement for changing a table name in the DB2 for LUW database: `RENAME TABLE old_table_name to new_table_name;`

1.2.71 Destination Database Same Name Check

MySQL to Oracle Synchronization

Table 1-93 Destination database same name check

Check Item	Destination database same name check
Description	For synchronization from MySQL to Oracle, check whether there is a database table with the same name in the destination database. • If **Table structure** is selected, the destination database cannot contain tables whose names are the same as the source tables to be synchronized. • If **Table structure** is not selected, the destination database must have tables that match the source tables, and the table structure must be the same as the selected source table structures.

Failure Cause and Handling Suggestion	Failure cause: The table structure synchronization is selected, and there are tables to be synchronized in the destination database. Handling suggestion: To synchronize table structures, delete existing tables from the destination database.
	Failure cause: The table structure synchronization is not selected, and there are no tables to be synchronized in the destination database. Handling suggestion: Select **Table structure** in the previous step or create the corresponding tables in the destination database.
	Failure cause: The source table columns are not a subset of the destination columns. Handling suggestion: Return to the **Set Synchronization Task** page, select the tables that meet the requirements. Alternatively, create columns required in the destination table.
	Failure cause: Some databases cannot be synchronized because the databases with the same names do not exist in the destination databases. For synchronization tasks, you need to create the corresponding database (user) in the destination database in advance. Handling suggestion: Create these databases or users in the destination database or do not synchronize these databases. Statement for creating a user: `CREATE USER user_name IDENTIFIED BY password;`

1.2.72 Whether the Destination Database User (Schema) and Table Exist

GaussDB -> Oracle Synchronization

Table 1-94 Whether the destination database user (schema) and table exist

Check Item	Whether the destination database user (schema) and table exist
Description	To synchronize data from GaussDB to the Oracle database, you need to create the corresponding user (schema) and table in the destination database in advance.
Failure Cause and Handling Suggestion	Failure cause: The destination database user corresponding to the selected schema does not exist. Handling suggestion: Create a user with the same source database schema name in the destination database. Statement for creating a user: `CREATE USER user_name IDENTIFIED BY password;`

	Failure cause: Source database names are the same except for letter cases. Handling suggestion: Change the table name or return to the object selection page and deselect the tables with the same name. Statement for changing the table name: `ALTER TABLE old_table_name RENAME TO new_table_name;`

1.2.73 Whether the Maximum Number of Indexed Columns Has Been Reached

DB2 for LUW -> GaussDB Synchronization

Table 1-95 Whether the maximum number of indexed columns has been reached

Check Item	Whether the maximum number of indexed columns has been reached
Description	The number of indexed columns to be migrated in the source database cannot exceed 32.

Failure Cause and Handling Suggestion	Failure cause: The number of indexed columns to be migrated in the source database cannot exceed 32.
	Handling suggestion: Check the number of indexed columns in the source table and modify the indexes.
	Statement for viewing indexed columns:
	`SELECT T1.INDNAME ,T1.COLNAMES FROM SYSCAT.INDEXES AS T1 JOIN SYSCAT.INDEXCOLUSE AS T2 ON T1.INDNAME= T2.INDNAME WHERE T1. TABNAME='table_name' AND T1. INDNAME= 'index_name';`
	Statement for deleting an index:
	`DROP INDEX index_name;`
	Statement for creating an index:
	`CREATE INDEX index_name ON table_name(col1,col2);`

1.2.74 Checking the Length of the Index Column in the Source Database

Oracle to MySQL Synchronization

Table 1-96 Checking the length of the index column in the source database

Check Item	Checking the length of the index column in the source database
Description	Check whether the length of index column in the source database exceeds the limit.

Failure Cause and Handling Suggestion	Failure cause: The source database contains a data table with more than 64 indexes. Handling suggestion: Do not synchronize indexes or delete some indexes so that the number of indexes in a single table in the source database does not exceed 64. Statement for deleting an index: `DROP INDEX index_name;`

	Failure cause: There are indexes in the source database exceed the column length limit of the destination database.
	Handling suggestion: Deselect the table or change the index length.
	Statement for deleting an index:
	`DROP INDEX index_name;`
	Statement for creating an index:
	`CREATE INDEX index_name ON table_name(col1,col2);`

1.2.75 Whether the Table Structures (Including Primary Key Indexes and the Number of Columns) of the Source Oracle Database and Destination Database Middleware Are Aligned

Oracle to DDM Synchronization

Table 1-97 Whether the table structures (including primary key indexes and the number of columns) of the source Oracle database and destination database middleware are aligned

Check Item	Whether the table structures (including primary key indexes and the number of columns) of the source Oracle database and destination database middleware are aligned
Description	Check whether the table structures (including primary key indexes and the number of columns) of the source Oracle database and destination DDM database are aligned.

Failure Cause and Handling Suggestion	Failure cause: The redundant columns (columns that do not exist in the source database) of the destination database cannot contain not-null constraints. The not-null constraints will cause the migration to fail.
	Handling suggestion:
	1. Check the not-null constraints on the redundant columns in the destination database.
	`DESC [table_name];`
	2. Modify the non-null constraint on the redundant columns.
	`Alter Table table_name Modify column_name NULL;`

	Failure cause: Source database names are the same except for letter cases. Handling suggestion: Change the table name or return to the object selection page and deselect the tables with the same name. Statement for changing the table name: `ALTER TABLE old_table_name RENAME TO new_table_name;`

1.2.76 Whether Synchronization Objects Exist in the Destination Database

GaussDB -> MySQL Synchronization

Table 1-98 Whether synchronization objects exist in the destination database

Check Item	Whether synchronization objects exist in the destination database
Description	Check whether synchronization objects exist in the destination database.
Failure Cause and Handling Suggestion	Failure cause: Source database names are the same except for the letter case. Handling suggestion: Change the table name or deselect the tables with the same name on the object selection page. Statement for changing the table name: `ALTER TABLE old_table_name RENAME TO new_table_name;`

1.2.77 Whether the Source Database Contains Encrypted Objects

Microsoft SQL Server as the Source

Table 1-99 Whether the source database contains encrypted objects

Check Item	Whether the source database contains encrypted objects
Description	Check whether the source database contains encrypted objects.

Failure Cause and Handling Suggestion	Failure cause: The source database contains encrypted objects. Handling suggestion: Go back to the object selection page and select database objects that are not encrypted.

1.2.78 Checking Whether the Source Database Contains Unsupported Table Field Types

Oracle Synchronization

Table 1-100 Checking whether the source database contains unsupported table field types

Check Item	Whether the source database contains unsupported table field types
Description	Check whether the source database contains unsupported table field types.
Failure Cause and Handling Suggestion	Failure cause: The source database contains unsupported table field types. The following table field types are supported: VARCHAR, VARCHAR2, NVARCHAR2, NUMBER, FLOAT, LONG, DATE, BINARY_FLOAT, BINARY_DOUBLE, RAW, LONG RAW, CHAR, NCHAR, CLOB, NCLOB, BLOB, ROWID, TIMESTAMP, TIMESTAMP WITH TIME ZONE and TIMESTAMP WITH LOCAL TIME ZONE. Handling suggestion: Select other tables that can be synchronized.

MySQL -> GaussDB(DWS)

Table 1-101 Checking whether the source database contains unsupported table field types

Check Item	Whether the source database contains unsupported table field types
Description	Check whether the source database contains unsupported table field types.

Failure Cause and Handling Suggestion	Failure cause: The source database contains unsupported table field types. The following table field types are not supported: xml, geometry, point, lineString, polygon, geometrycollection, multipoint, multilinestring and multipolygon. Handling suggestion: Delete the columns containing the unsupported field types. Alternatively, do not synchronize the tables containing the unsupported table field types.

1.2.79 Checking Replication Attribute of Primary Key Columns

PostgreSQL as the Source

Table 1-102 Replication attribute check of primary key columns

Check Item	Replication attribute check of primary key columns
Description	During a full+incremental synchronization or an incremental synchronization task, the replication attribute of primary key columns in the source database table is checked.
Item to Be Confirmed and Handling Suggestion	Item to be confirmed: All primary key columns of the tables to be synchronized are columns whose storage attribute is plain, and the replication attribute of the tables is neither full nor default. Incremental synchronization may fail. Handling suggestion: Run the following SQL statement to change the replication attribute of the tables to default: `alter table schema.table replica identity default;`
	Item to be confirmed: The primary key columns of the tables to be synchronized contain columns whose storage attribute is not plain, and the replication attribute of the tables is neither full nor default. There is a high probability that incremental synchronization will fail. Handling suggestion: Run the following SQL statement to change the replication attribute of the tables to full: (If the replication attribute is changed to default, incremental synchronization may still fail.) `alter table schema.table replica identity full;`
	Item to be confirmed: The primary key columns of the tables to be synchronized contain columns whose storage attribute is not plain, and the replication attribute of the tables is not full. Incremental synchronization may fail. Handling suggestion: Run the following SQL statement to change the replication attribute of the tables to full: `alter table schema.table replica identity full;`

1.2.80 Whether There Are Tables Containing Fields of the longtext or longblob Type in the Synchronization Object

MySQL as the Source

Table 1-103 Whether there are tables containing fields of the longtext or longblob type in the synchronization object

Check Item	Whether there are tables containing fields of the longtext or longblob type in the synchronization object
Description	If there are tables containing fields of the longtext or longblob type in the synchronization object, DRS tasks with small specifications may fail.
Failure Cause and Handling Suggestion	Failure cause: There are tables containing fields of the longtext or longblob type in the synchronization object. Handling suggestion: If tables containing fields of the longtext or longblob type exist in the synchronization object, create a DRS task with large specifications.

MariaDB Synchronization

Table 1-104 Checking whether there are tables containing fields of the longtext or longblob type in the synchronization object

Check Item	Whether there are tables containing fields of the longtext or longblob type in the synchronization object
Description	If there are tables containing fields of the longtext or longblob type in the synchronization object, DRS tasks with small specifications may fail.
Failure Cause and Handling Suggestion	Failure cause: There are tables containing fields of the longtext or longblob type in the synchronization object. Handling suggestion: If tables containing fields of the longtext or longblob type exist in the synchronization object, create a DRS task with large specifications.

1.2.81 Checking Database Mapping Objects

MySQL to MySQL, MySQL to Gauss(for MySQL) and Gauss(for MySQL) to MySQL Synchronization

Table 1-105 Checking database mapping objects

Check Item	Whether the database mapping objects are supported
Description	Whether the database mapping objects are supported
Item to Be Confirmed and Handling Suggestion	Item to be confirmed: The source database contains objects that cannot be synchronized. Handling suggestion: After database mapping, the source database contains data types that cannot be synchronized, including functions, stored procedures, and views. All the preceding objects cannot be synchronized during database mapping. Check whether the objects to be synchronized meet service requirements.

1.2.82 Whether the Source Database Is the Standby Database of a GaussDB(for MySQL) Instance

GaussDB(for MySQL) Serving as the Source

Table 1-106 Whether the source database is the standby database of a GaussDB(for MySQL) instance

Check Item	Whether the source database is the standby database of a GaussDB(for MySQL) instance
Description	The source database is a standby database and does not contain binlogs.
Failure Cause and Handling Suggestion	Failure cause: The source database is a standby database and does not contain binlogs. Handling suggestion: Replace the source database and use the primary database of a GaussDB(for MySQL) instance as the source database.

1.2.83 Checking Whether Type Names Mapped to the Destination Database Are Valid

MySQL to CSS/ES and GaussDB(for MySQL) to CSS/ES Synchronization

Table 1-107 Checking whether type names mapped to the destination database are valid

Check Item	Whether type names mapped to the destination database are valid
Description	The type mapped to the destination end must meet the following requirements: • If the destination version is 5.x, an index can support multiple types. • If the destination version is 6.x or later, one index supports only one type.
Item to Be Confirmed and Handling Suggestion	Failure cause: In Elasticsearch 6.x, one index supports only one type. The recommended type name is **_doc** (In this way, APIs are compatible with 7.x or later). In Elasticsearch 7.x, **include_type_name** is set to **false**, and the index API formats are PUT /{index}/_doc/{id} and POST {index}/_doc. Handling suggestion: Return to the page for setting the synchronization task, edit index names and type names of the selected synchronization objects to ensure that one index supports only one type.

1.2.84 Checking Whether the Source and Destination Database Character Sets Are Consistent

MySQL->MySQL/DDM Migration

Table 1-108 Checking whether the source and destination database character sets are consistent

Check Item	Whether the source and destination database character sets are consistent
Description	Checking whether the source and destination database character sets are consistent

Item to Be Confirmed and Handling Suggestion	Item to be confirmed: The source database supports character sets of a later version. Handling suggestion: The source database supports character sets of a later version. Check whether the source database uses a character set of a later version and whether the destination database supports the character set.

DDM -> MySQL/DDM Synchronization

Table 1-109 Checking whether the source and destination database character sets are consistent

Check Item	Whether the source and destination database character sets are consistent
Description	Checking whether the source and destination database character sets are consistent
Item to Be Confirmed and Handling Suggestion	Item to be confirmed: The source database supports character sets of a later version. Handling suggestion: The source database supports character sets of a later version. Check whether the source database uses a character set of a later version and whether the destination database supports the character set.

MariaDB Synchronization

Table 1-110 Checking whether the source and destination database character sets are consistent

Check Item	Whether the source and destination database character sets are consistent
Description	Checking whether the source and destination database character sets are consistent

Item to Be Confirmed and Handling Suggestion	Item to be confirmed: The source database supports character sets of a later version. Handling suggestion: The source database supports character sets of a later version. Check whether the source database uses a character set of a later version and whether the destination database supports the character set.

1.2.85 Checking Whether Data Replication Is Enabled for the Source Database

Redis Migration

Table 1-111 Checking whether data replication is enabled for the source database

Check Item	Whether data replication is enabled for the source database
Description	Checking whether data replication is enabled for the source database
Failure Cause and Handling Suggestion	Failure cause: Data replication is not enabled on the source database. Handling suggestion: Connect to the source database and set **enable-replication** to **1** to enable data replication.

1.2.86 Checking Whether the Maximum Sequence Number of the Source Database is Less Than That of the Destination Database

Redis Migration

Table 1-112 Checking whether the maximum sequence number of the source database is less than that of the destination database

Check Item	Whether the maximum sequence number of the source database is less than that of the destination database

Description	Checking whether the maximum sequence number of the source database is less than that of the destination database
Item to Be Confirmed and Handling Suggestion	Item to Be Confirmed: The maximum sequence number of the source database to be migrated is greater than that of the destination database. If incremental data is generated in the database with the maximum sequence number, the migration task will fail. Handling suggestion: Increase the maximum sequence number of the destination database.

1.2.87 Checking Whether Interval Partitioned Tables Are Included in the Source Database

GaussDB Serving as the Source in Synchronization

Table 1-113 Checking whether interval partitioned tables are included in the source database

Check Item	Whether interval partitioned tables are included in the source database
Description	Checking whether interval partitioned tables are included in the source database
Failure Cause and Handling Suggestion	Failure cause: Interval partitioned tables cannot be synchronized. Handling suggestion: Go back to the **Synchronization Object** area and deselect the interval partitioned tables.

1.2.88 Oracle Account Check in the Source Database

Oracle Synchronization

Table 1-114 Oracle account check in the source database

Check Item	Oracle account check in the source database
Description	Check the source database account when Oracle is the source database in the incremental synchronization.

Failure Cause and Handling Suggestion	Failure cause: The source database account is an Oracle account, but not a user account. Incremental synchronization cannot be performed. Handling suggestion: Use a user account instead of the Oracle account.

1.2.89 Checking the Number of DNs in the Source Database

Self-built Distributed GaussDB Serving as the Source in Synchronization

Table 1-115 Checking the number of DNs in the source database

Check Item	Checking the Number of DNs in the Source Database
Description	Check whether the number of DNs entered by the user is the same as that in the source database.
Item to Be Confirmed and Handling Suggestion	Item to be confirmed: The number of DNs entered by the user is different from that in the source database. Handling suggestion: If the number of DNs entered by the user is different from that in the source database, there may be data inconsistencies. You must confirm the risky item before you continue.

1.2.90 Whether the Selected Objects Exist in the Destination Database

Oracle -> GaussDB Synchronization

Table 1-116 Whether the selected objects exist in the destination database

Check Item	Whether the selected objects exist in the destination database
Description	Check whether the objects in the source database are consistent with those in the destination database.

Failure Cause and Handling Suggestion	Failure cause: Object names will be converted to lowercase letters after being synchronized to the destination database. To avoid synchronization failures, ensure that the selected source database tables do not contain columns with the same name but different letter cases. Handling suggestion: Delete columns with the same name but different letter cases from the source database tables, or change the names of columns with the same name but different letter cases in the source database tables.
	Item to be confirmed: The selected table does not exist in the destination database or the table structure is inconsistent with that in the source database. Handling suggestion: If the selected table does not exist in the destination database, create the table in the destination database and ensure that the table structure is the same as that in the source database. Statement for creating a table: `CREATE TABLE table_name (column_name data_type);` If the table structure is inconsistent with that in the source database, create missing columns in the destination database table, convert the names of columns with the same name but different letter cases in the destination database table to lowercase letters, or delete redundant columns from the source database table.
Item to Be Confirmed and Handling Suggestion	Item to be confirmed: The constraints on the destination database are inconsistent with those on the source database. The synchronization may fail due to inconsistent constraints. Handling suggestion: Ensure that the constraints on the destination database are consistent with those on the source database, or confirm that inconsistent constraints do not adversely affect data migration.

1.2.91 Whether There Are Foreign Keys Containing Unsupported Reference Operations in the Source Database

MySQL and GaussDB(for MySQL) Serving as the Source in Full+Incremental or Incremental Migration and Synchronization, MySQL and GaussDB(for MySQL) Serving as the Source in DR

Table 1-117 Whether there are foreign keys containing unsupported reference operations in the source database

Check Item	Whether there are foreign keys containing unsupported reference operations in the source database

Description	In a synchronization object, there are foreign keys that contain reference operations such as CASCADE, SET NULL, and SET DEFAULT. These operations will cause the update or deletion of rows in parent tables and affect records in child tables. Also, operations related to child tables are not recorded in binlogs. The DRS cannot synchronize data, and data in child tables is inconsistent.
Failure Cause and Handling Suggestion	Failure cause: In a synchronization object, there are foreign keys that contain reference operations such as CASCADE, SET NULL, and SET DEFAULT. These operations will cause the update or deletion of rows in parent tables and affect records in child tables. Also, operations related to child tables are not recorded in binlogs. The DRS cannot synchronize data, and data in child tables is inconsistent. Handling suggestion: Delete foreign keys that contain reference operations such as CASCADE, SET NULL, and SET DEFAULT from child tables, or do not synchronize these child tables. Reference statement for deleting a foreign key: `ALTER TABLE table_name DROP FOREIGN KEY foreign_key_name`

1.2.92 Whether the Selected Table Contains Delay Constraints

PostgreSQL Serving as the Source in Synchronization

Table 1-118 Whether the selected table contains delay constraints

Check Item	Whether the selected table contains delay constraints
Description	Tables that contain delay constraints may fail to be synchronized.

Failure Cause and Handling Suggestion	Failure cause: Tables that contain delay constraints may fail to be synchronized.
	Handling suggestion: Remove the delay constraints.
	• SQL statement for deleting a constraint:
	`alter table Schema_name.Table_name drop CONSTRAINT Constraint_name`
	• SQL statement for adding a constraint:
	`alter table Schema_name.Table_name add CONSTRAINT Constraint_name Constraint_type (Field list) NOT DEFERRABLE`

1.2.93 Whether the Source Database Tables Contain Primary Keys

MySQL as the Source

Table 1-119 Checking whether the source database tables contain primary keys

Check Item	Whether the source database tables contain primary keys
Description	The tables to be synchronized in the source database do not contain primary keys.
Item to Be Confirmed and Handling Suggestion	**Item to be confirmed**: The tables to be synchronized in the source database do not contain primary keys. **Handling suggestion**: Create primary keys for the tables as the performance of a table without a primary key is lower than that of a table with a primary key.

1.2.94 Whether Foreign Keys Are Disabled or Tables to Be Synchronized Have Foreign Keys in the Destination Database

Oracle -> GaussDB Synchronization

Table 1-120 Checking whether foreign keys are disabled or tables to be synchronized have foreign keys in the destination database

Check Item	Whether foreign keys are disabled or tables to be synchronized have foreign keys in the destination database
Description	Check whether foreign keys are disabled or tables to be synchronized have foreign keys in the destination database.
Failure Cause and Handling Suggestion	**Failure cause**: Tables to be synchronized have foreign keys in the destination database and cannot be synchronized. **Handling suggestion**: Delete the foreign key, disable the trigger, or change the value of **session_replication_role** to **replica**.

1.2.95 Whether There Are Composite Hash Indexes in the Source Collection

Migration and Synchronization from MongoDB to DDS

Table 1-121 Checking whether there are composite hash indexes in the source collection

Check Item	Whether there are composite hash indexes in the source collection
Description	There are collections containing composite hash indexes in the source database.
Failure Cause and Handling Suggestion	**Failure cause**: The selected collections contain composite hash indexes. **Handling suggestion**: Deselect the preceding collections or create non-composite hash indexes in the source database.

1.2.96 Whether There Are Composite Hash Shard Keys in the Source Collection

Migration and Synchronization from MongoDB to DDS

Table 1-122 Checking whether there are composite hash shard keys in the source collection

Check Item	Whether there are composite hash shard keys in the source collection
Description	There are collections containing composite hash shard keys in the source database.
Failure Cause and Handling Suggestion	**Failure cause**: The selected collections contain composite hash shard keys. **Handling suggestion**: Deselect the preceding collections.

1.2.97 Whether the Source Table Structure Contains Newline Characters

MySQL Serving as the Source in Migration, Synchronization, and Disaster Recovery

Table 1-123 Checking whether the source table structure contains newline characters

Check Item	Whether the source table structure contains newline characters
Description	Check whether the source table structure contains newline characters.
Item to Be Confirmed and Handling Suggestion	**Potential problem**: A source database, table, column, index, or constraint object may contain newline characters. **Handling suggestion**: If a database, table, column, index, or constraint name contains newline characters, service problems may occur. Change the object name in the source database.

1.2.98 Whether There Are Tables Containing Fields of the bytea or text Type in the Synchronization Object

PostgreSQL Serving as the Source in Synchronization

Table 1-124 Checking whether there are tables containing fields of the bytea or text type in the synchronization object

Check Item	Whether there are tables containing fields of the bytea or text type in the synchronization object
Description	Fields of the bytea or text type may result in out of memory (OOM) during synchronization.
Item to Be Confirmed and Handling Suggestion	**Potential problem**: If there are tables containing fields of the bytea or text type in the synchronization object, fields of the bytea or text type may result in task OOM during synchronization. **Handling suggestion**: If there are tables containing fields of the bytea or text type in the synchronization object, create a DRS task with large specifications for synchronization.

1.2.99 Whether the Source Table Structure Contains Virtual Columns

Oralce Serving as the Source in Synchronization

Table 1-125 Checking whether the source table structure contains virtual columns

Check Item	Whether the source table structure contains virtual columns
Description	The source database contains virtual columns, but data in virtual columns cannot be migrated. As a result, the migrated data is incomplete.
Item to Be Confirmed and Handling Suggestion	**Item to be confirmed**: The source database contains virtual columns, but data in virtual columns cannot be migrated. As a result, the migrated data is incomplete. **Handling suggestion**: After the pre-check, create a table structure that contains virtual columns in the destination database.

1.2.100 Whether the max_allowed_packet Value of the Source Database Is Too Small

MySQL and GaussDB(for MySQL) Serving as the Source

Table 1-126 Checking whether the max_allowed_packet value of the source database is too small

Check Item	Whether the max_allowed_packet value of the source database is too small
Description	If the max_allowed_packet value of the source database is too small, data migration may fail.
Item to Be Confirmed and Handling Suggestion	**Potential problem**: If there is a lot of data to be migrated or there are too many fields to be migrated, and the max_allowed_packet value of the source database is too small, then the migration task may fail. **Handling suggestion**: Change the max_allowed_packet value of the source database to a value greater than 16777216.

1.2.101 Whether the Supplemental Log Level in the Source Database Is Correct

Oracle to Kafka Synchronization

Table 1-127 Checking whether the supplemental log level in the source database is correct

Check Item	Whether the supplemental log level in the source database is correct
Description	If all data is required for the synchronization object, all-level supplemental logging must be enabled.
Failure Cause and Handling Suggestion	**Failure cause**: All data is required for the synchronization object, but all-level supplemental logging is not enabled. **Handling suggestion**: Enable all-level supplemental logging. Commands for enabling all-level supplemental logging: Database level: alter database add supplemental log data (all) columns Table level: alter table *Schema_name*.*Table_name* add supplemental log data(all) columns

1.2.102 Whether Kafka Topics Have Been Created

GaussDB to Kafka Synchronization

Table 1-128 Checking whether Kafka topics have been created

Check Item	Whether Kafka topics have been created
Description	If you do not create topics in Kafka, DRS automatically creates them during incremental synchronization.
Item to Be Confirmed and Handling Suggestion	**Item to be confirmed**: If topics were not created in Kafka, DRS automatically creates them during incremental synchronization. **Handling suggestion**: Create the required topics in Kafka.

1.2.103 Whether the Source Database Kernel Encoding Supports Data Replication

Out-of-Cloud GeminiDB Redis Migration

Table 1-129 Checking whether the source database kernel encoding supports data replication

Check Item	Whether the source database kernel encoding supports data replication
Description	Check whether the source database kernel encoding supports data replication.
Failure Cause and Handling Suggestion	**Failure cause**: The source database kernel encoding does not support data replication. **Handling suggestion**: Contact GeminiDB Redis personnel.

1.2.104 block_encryption_mode Consistency Check

MySQL -> MySQL and MySQL -> GaussDB(for MySQL) Migration, Synchronization, and DR GaussDB(for MySQL) -> GaussDB(for MySQL) Synchronization and DR, GaussDB(for MySQL) -> MySQL and DDM->MySQL Synchronization, DDM-> DDM DR

Table 1-130 Checking whether the block_encryption_mode values of the source and destination databases are the same

Check Item	block_encryption_mode consistency check
Description	The **block_encryption_mode** values of the source and destination databases must be the same. Otherwise, the destination database will be unavailable after DRS completes data migration.
Failure Cause and Handling Suggestion	**Failure cause**: The **block_encryption_mode** values of the source and destination databases must be the same. **Handling suggestion**: Change the value of **block_encryption_mode** in the destination database to be the same as that in the source database.

1.2.105 Character Type and Sorting Rule Check in the Destination Database

PostgreSQL -> PostgreSQL Synchronization

Table 1-131 Checking the character type and sorting rule in the destination database

Check Item	Character type and sorting rule check in the destination database
Description	Check whether the destination database supports the value of **lc_ctype** or **lc_collate** in the database to be synchronized.
Item to Be Confirmed and Handling Suggestion	**Item to be confirmed**: The destination database does not support the value of **lc_ctype** or **lc_collate** in the database to be synchronized. **Handling suggestion**: Check whether the parameter **lc_ctype** or **lc_collate** can be set to the default value when a database is created in the destination database during full synchronization. The value of **lc_collate** affects the sorting rule of character strings, and the value of **lc_ctype** affects character type and conversion.

1.2.106 Column Name Check in the Source Database

Microsoft SQL Server as the Source in Synchronization

Table 1-132 Column name check in the source database

Check Item	Column name check in the source database
Description	Check whether the column names in the source database contain special characters.
Failure Cause and Handling Suggestion	**Failure cause**: The source database contains column names that do not meet requirements. The column names cannot contain the following special characters: []? **Handling suggestion**: Ensure that column names meet requirements.

1.2.107 Whether the Destination Schemas and Table Objects Are Consistent

Synchronization from GuassDB to GaussDB(DWS)

Table 1-133 Whether the destination schemas and table objects are consistent

Check Item	Whether the destination schemas and table objects are consistent
Description	Check whether the table structure objects in the destination database are the same as those in the source database.
Failure Cause and Handling Suggestion	**Failure cause**: The selected table does not exist in the destination database or the table structure is inconsistent with that in the source database. **Handling suggestion**: If the selected table does not exist in the destination database, create a table in the destination database and ensure that the table structure in the destination database is the same as that in the source database. Statement for creating a table: CREATE TABLE table_name(Column_name data_type); If the table structure is inconsistent with that in the source database, create missing columns in the destination database table, convert the names of columns with the same name but different letter cases in the destination database table to lowercase letters, or delete redundant columns from the source database table.
	Item to be confirmed: Primary key columns of the source tables are inconsistent with those of the destination tables. If the primary key columns are inconsistent, the synchronization may fail or data may be inconsistent. **Handling suggestion**: Change primary key columns of the destination tables to be consistent with those of the source tables. Reference command: alter table table_name add constraint pkey name primary key(c1, c2); **table_name** indicates the table name, **pkey_name** indicates the primary key name, and **c1** and **c2** indicate the primary key columns.

1.2.108 Source Encrypted Table Check

MySQL and GaussDB(for MySQL) Serving as the Source

Table 1-134 Source encrypted table check

Check Item	Source encrypted table check
Description	Check whether there are encrypted tables in the source database.
Failure Cause and Handling Suggestion	**Item to be confirmed**: The source database contains encrypted tables. Check whether the destination database supports encrypted tables. If the destination database does not support these tables, the task may fail. **Handling suggestion**: Check whether the destination database supports these tables. If not, deselect them from the synchronization objects.

1.2.109 Checking Whether the Source Table Replication Attribute Is Correct

Synchronization from PostgreSQL to GuassDB and from PostgreSQL to GaussDB(DWS)

Table 1-135 Checking whether the source table replication attribute is correct

Check Item	Whether the source table replication attribute is correct
Description	Check the replication attribute of the table in the source database.
Failure Cause and Handling Suggestion	**Item to be confirmed**: The source database table contains the primary key column, but the replication attribute is not FULL. When the source table data is updated, if the replication attribute of the table is not FULL, the source database logs may not record the old values of all columns, causing data loss. **Handling suggestion**: Run the following statements to change the replication attribute of the preceding tables to FULL: alter table sch1.t varchar replica identity full; alter table sch1.t char replica identity full;

1.2.110 Partition Table Check on the Source Database

Synchronization from PostgreSQL to GuassDB and from PostgreSQL to GaussDB(DWS)

Table 1-136 Partition table check on the source database

Check Item	Partition table check on the source database
Description	Check whether the source database has partition tables.
Failure Cause and Handling Suggestion	**Item to be confirmed**: If the source database contains partition tables and source partitions are modified or are deleted during data synchronization, partition data may fail to be synchronized or the synchronization may fail. **Handling suggestion**: The source partition must be a newly-created partition, and the partition name must be unique. This partition can be deleted from the source database only after all data is synchronized to the destination database.

1.3 Source DB Instance Statuses

1.3.1 Checking Whether the Source and Destination Databases Are of the Same Type

MongoDB Migration

Table 1-137 Checking whether the source and destination databases are of the same type

Check Item	Whether the source and destination databases are of the same type
Description	Check whether the source and destination databases are of the same type. If they are of different types, the migration fails.
Failure Cause and Handling Suggestion	Failure cause: The destination database is a cluster but the source database is a replica set. Handling suggestion: Change the type of the source or destination database.
	Failure cause: The destination database is a replica set but the source database is a cluster. Handling suggestion: Change the type of the source or destination database.

1.3.2 Checking Whether the ChangeStream API of the source DB instance is available

MongoDB-to-DDS Migration

Table 1-138 Checking whether the ChangeStream API of the source DB instance is available

Check Item	Whether the ChangeStream API of the source DB instance is available
Description	Check whether the ChangeStream API of the source database is available.
Failure Cause and Handling Suggestion	Failure cause: The source database cannot use the ChangeStream API. Handling suggestion: 1. Check whether the source database version is MongoDB 4.0 or later. 2. Check whether the WiredTiger storage engine is enabled for the source database. If not, you are advised to create a DRS task and select the oplog mode. Run the following command (on a shard node): `db.serverStatus().storageEngine.name;`
	Failure cause: The source database cannot use the ChangeStream API. Handling suggestion: Check whether the source database version is DDS 4.0 or later. If not, upgrade the source database to DDS 4.0 or later.

1.4 Destination DB Instance Statuses

1.4.1 Checking Whether the Destination Database Is Involved in Another Migration Task

MySQL

Table 1-139 Checking whether the destination database is involved in another migration task

Check Item	Whether the destination database is involved in another migration task
Description	Check whether the destination database is being used in another migration task. If more than one migration task uses the same destination database, the migration may fail.

Failure Cause and Handling Suggestion	Failure cause: The destination RDS DB instance is being used in another migration task. Handling suggestion: Wait for the migration task to complete. You can also stop or delete an unused migration task.

1.4.2 Checking Whether the Destination Database Has a Read Replica

MySQL

Table 1-140 Checking whether the destination database has a read replica

Check Item	Whether the destination database has a read replica
Description	Check whether the destination database has read replicas. If the destination database has read replicas, the incremental migration may fail.
Failure Cause and Handling Suggestion	Failure cause: In an incremental migration, the destination database cannot have read replicas. Handling suggestion: Delete the read replicas from the destination database. After the migration is complete, create read replicas.

1.4.3 Checking Whether the Destination Database Is Read-Only

MySQL Migration, Synchronization, and Backward DR

Table 1-141 Checking whether the destination database is read-only

Check Item	Whether the destination database is read-only
Description	The destination database is read-only, and data cannot be written to the destination database.

Failure Cause and Handling Suggestion	Failure cause: The destination database is read-only.
	Handling suggestion: Run the following commands to change the destination database to read/write and then, restart the database.
	Sample commands:
	set global read_only=0;
	set global super_read_only=0;

1.4.4 Checking Whether the Extensions Are Supported

PostgreSQL Synchronization

Table 1-142 Checking whether the extensions are supported

Check Item	Whether the extensions are supported
Description	Check whether the source database has plug-ins that are not installed on the destination database.
Failure Cause and Handling Suggestion	Failure cause: Extensions installed in the source database are not supported in the destination database. Handling suggestion: • If the source database services do not depend on those extensions, run the following statement to delete the extensions. Replace *plugin_name* with the name of the extension to be deleted. `drop extension plugin_name;` • Alternatively, use a destination database that supports these extensions.
	Failure cause: The source database has extensions that contain tables as members. Handling suggestion: Check whether the source database extensions contain metadata generated after the extensions are created. If yes, use the dedicated syntax of the extension to rebuild the metadata after the migration is complete.

	Failure cause: The destination database user does not have the permission to create extensions.
	Handling suggestion: Grant the permission to the user in the destination database as user root. Run the following SQL statements (replace *username* with the destination database username):
	`alter user username inherit;`
	`grant root to username;`

	Failure cause: The extension version supported by the destination database is earlier than that installed in the source database. Handling suggestion: Use the destination database that supports extensions of a later version (not earlier than the source database extension version) and create a synchronization task again.

1.4.5 Checking Whether Destination Contains the Configured Database

MySQL > PostgreSQL

Table 1-143 Checking whether destination contains the configured database

Check Item	Whether the destination contains the configured database.
Description	Databases and schemas cannot be migrated. You need to manually create databases and schemas on the destination database. Otherwise, the migration will fail.
Failure Cause and Handling Suggestion	Failure cause: Databases cannot be migrated from MySQL to PostgreSQL. Handling suggestion: In the destination database, manually create databases and schemas with the same names as those of the source database.
	Failure cause: The objects to be synchronized already exist in the destination database. Handling suggestions: Delete the tables to be synchronized from the destination database or select the tables that do not exist in the destination database for synchronization.

MySQL -> GaussDB Synchronization

Table 1-144 Checking whether destination contains the configured database

Check Item	**Whether the destination contains the configured database.**
Description	In the MySQL to GaussDB synchronization scenario, the mapped database must exist in the destination database. Otherwise, the synchronization fails.

Check Item	Whether the destination contains the configured database.
Failure Cause and Handling Suggestion	Failure cause: The destination database does not contain the configured database. Handling suggestion: Before the synchronization, manually create a mapped database in the destination database.

GaussDB->GaussDB Synchronization

Table 1-145 Checking whether destination contains the configured database

Check Item	Whether the destination contains the configured database.
Description	In the GaussDB to GaussDB synchronization scenario, the mapped database must exist in the destination database. Otherwise, the synchronization fails.
Failure Cause and Handling Suggestion	Failure cause: The configured database does not exist in the destination. Handling suggestion: Before the synchronization, manually create a configured database in the destination.

1.4.6 Checking Whether the Destination DB Instance Is Available

Table 1-146 Checking whether the destination DB instance is available

Check Item	Whether the destination DB instance is available
Description	Check whether the primary instance and read replicas are available in the destination database. If not, the migration fails.

Failure Cause and Handling Suggestion	Failure cause: The destination DB instance is not available. Handling suggestion: Repair the destination DB instance.
	Failure cause: Read replicas in the destination database are abnormal. Handling suggestion: Repair the abnormal read replicas in the destination database.
	Failure cause: The RDS service is abnormal. Try again later. Handling suggestion: Try again later.

1.4.7 Checking Whether the Destination Database Is Empty

MySQL

Table 1-147 Checking whether the destination database is empty

Check Item	Whether the destination database is empty
Description	Check whether the destination database is empty. If the destination database is not empty, disaster recovery will fail.
Failure Cause and Handling Suggestion	Failure cause: The destination database is not empty. Handling suggestion: Delete all the user-created databases from the destination database.

1.5 Database User Permissions

1.5.1 Whether the Source Database User Has Sufficient Permissions

MySQL Migration

Table 1-148 Whether the source database user has sufficient permissions

Check Item	Whether the source database user has sufficient permissions

Description	The source database user must have required permissions for full and incremental migrations. • In a full migration, the source database user must have the SELECT, SHOW VIEW, and EVENT permissions. • In an incremental migration, the source database user must have the following permissions: SELECT, SHOW VIEW, EVENT, LOCK TABLES, REPLICATION SLAVE, and REPLICATION CLIENT. If the permissions are insufficient, the migration will fail.
Failure Cause and Handling Suggestion	Failure cause: In a full migration, the source database user must have the SELECT, SHOW VIEW, and EVENT permissions. Handling suggestions: Grant the source database user the corresponding permissions.
	Failure cause: In an incremental migration, the source database user must have the following permissions: SELECT, SHOW VIEW, EVENT, LOCK TABLES, REPLICATION SLAVE, REPLICATION CLIENT, In the DR scenario, the following permissions are required: CREATE, ALTER, DROP, DELETE, INSERT, UPDATE, and INDEX. Handling suggestions: Grant the source database user the corresponding permissions.
	Failure cause: Insufficient user permissions Handling suggestion: Check whether the database user permissions meet the migration requirements. **NOTE** For details about the MySQL permissions and authorization operations required by DRS, see **Which MySQL Permissions Are Required for DRS?**

Microsoft SQL Server as the Source

Table 1-149 Whether the source database user has sufficient permissions

Check Item	Whether the source database user has sufficient permissions
Description	Check whether the source database user permissions meet the migration requirements. If the permissions are insufficient, the migration will fail.
Failure Cause and Handling Suggestion	Failure cause: This item cannot be checked because the source database fails to be connected. Handling suggestion: Check whether the source database is connected.

Failure Cause and Handling Suggestion	Failure cause: The source database user must have the db_owner or sysadmin permission.
	Handling suggestion: Grant the db_owner or sysadmin permission to the source database user.
	Statement for granting the db_owner permission:
	`exec sp_addrolemember 'db_owner', 'user_name';`
	Statement for granting the sysadmin permission:
	`EXECUTE sys.sp_addsrvrolemember`
	`@loginame = N'user_name',`
	`@rolename = N'sysadmin';`

PostgreSQL Synchronization

Table 1-150 Checking whether the source database user has sufficient permissions

Check Item	Whether the source database user has sufficient permissions
Description	Specific permissions are required for different synchronization task types. • **Full synchronization**: CONNECT permission for databases, USAGE permission for schemas, SELECT permission for tables, SELECT permission for sequences, and SELECT permission for system table **catalog pg_catalog.pg_authid** (used for synchronizing user passwords) • **Full+incremental synchronization**: CONNECT permission for databases, USAGE permission for schemas, SELECT permission for tables, SELECT permission for sequences, SELECT permission for system table **pg_catalog.pg_authid** (used for synchronizing user passwords), UPDATE, DELETE, and TRUNCATE permissions for tables that do not have primary keys, and the permission to create a replication connection If the permissions are insufficient, the migration will fail.
Failure Cause and Handling Suggestion	Failure cause: This item cannot be checked because the source database fails to be connected. Handling suggestion: Check whether the source database is connected.
	Failure cause: Insufficient user permissions Handling suggestion: Check whether the database user permissions meet the migration requirements.
	Failure cause: In a full migration, the source database user must have the SELECT, REFERENCES, TRIGGER, EXECUTE, and USAGE permissions. Handling suggestion: Change or authorize the migration account.

	Failure cause: The replication permission is not configured in **pg_hba.conf** for the replication instance and database user. Handling suggestion: Grant the replication permission to the user. Add the following to **pg_hba.conf**, and restart the database for the modification to take effect: **host replication** ****(dbuser)* **0.0.0.0/0** method After the migration is complete, delete this record and restart the database again.
	Failure cause: The **max_wal_senders** value in the source database is too small. Handling suggestion: In the **postgresql.conf** file, change the **max_wal_senders** value to a larger one, such as increasing it by 5 or 10.
	Failure cause: The database is unavailable. Handling suggestion: Contact Huawei technical support.
Item to Be Confirmed and Handling Suggestion	Item to be confirmed: The source database contains objects that can only be created by a superuser. The destination user is not a superuser, so the objects will be ignored. Handling suggestion: Use a superuser of the destination database or confirm that these objects can be ignored.

MongoDB Migration and Synchronization

Table 1-151 Checking whether the source database user has sufficient permissions

Check Item	Whether the source database user has sufficient permissions
Description	Check whether the source database user permissions meet the migration requirements. If the permissions are insufficient, the migration will fail.
Failure Cause and Handling Suggestion	Failure cause: This item cannot be checked because the source database fails to be connected. Handling suggestion: Check whether the source database is connected.

	Failure cause: The source database user must have the readAnyDatabase permission for the admin database and the read permission for the local database. Handling suggestion: Grant permissions to the source database user. `db.grantRolesToUser("Username",[{role:"readAnyDatabase",db:"admin"},{role:"read",db:"local"}])`
	Failure cause: The source database user must have the readAnyDatabase permission for the admin database and the read permission for the config database. Handling suggestion: Grant permissions to the source database user. `db.grantRolesToUser("Username",[{role:"readAnyDatabase",db:"admin"},{role:"read",db:"config"}])`

	Failure cause: The source mongos node user must have the readAnyDatabase permission for the admin database, and the read permission for the config database. The source shard node user must have the readAnyDatabase permission for the admin database, and the read permission for the local database.
	Handling suggestion: Grant permissions to the source database user.
	• Statement for mongos:
	`db.grantRolesToUser("Username",[{role:"readAnyDatabase",db:"admin"},{role:"read",db:"config"}])`
	• Statement for shard:
	`db.grantRolesToUser("Username",[{role:"readAnyDatabase",db:"admin"},{role:"read",db:"local"}])`

	Failure cause: The source database user must have the readAnyDatabase permission for the admin database. Handling suggestion: Grant permissions to the source database user. `db.grantRolesToUser("Username",[{role:"readAnyDatabase",db:"admin"}])`
	Failure cause: The source database user must have the read permission for the local database. Handling suggestion: Grant permissions to the source database user. `db.grantRolesToUser("Username",[{role:"read",db:"local"}])`
	Failure cause: The source database user must have the read permission for the config database. Handling suggestion: Grant permissions to the source database user. `db.grantRolesToUser("Username",[{role:"read",db:"config"}])`

Oracle Migration

Table 1-152 Checking whether the source database user has sufficient permissions

Check Item	Whether the source database user has sufficient permissions

Description	Check whether the source database user permissions meet the migration requirements. If the permissions are insufficient, the migration will fail.
Failure Cause and Handling Suggestion	Failure cause: The source database user does not have sufficient permissions. Handling suggestion: Grant the CREATE SESSION, SELECT ANY TRANSACTION, SELECT ANY TABLE, and SELECT ANY DICTIONARY permissions to the user and perform the check again. **NOTE** If the destination database is PostgreSQL, the SELECT ANY SEQUENCE permission is also required.

Synchronization from MySQL to PostgreSQL

Table 1-153 Checking whether the source database user has sufficient permissions

Check Item	Whether the source database user has sufficient permissions
Description	Check whether the source database user permissions meet the migration requirements. If the permissions are insufficient, the migration will fail.
Failure Cause and Handling Suggestion	Failure cause: The source database user does not have sufficient permissions. During the incremental synchronization, the SELECT permission on INFORMATION_SCHEMA is required. Handling suggestions: Grant the source database user the corresponding permissions. Run the following command: `grant select on [dbname];`

GaussDB Serving as the Source in Synchronization

Table 1-154 Checking whether the source database user has sufficient permissions

Check Item	Whether the source database user has sufficient permissions
Description	Check whether the source database user permissions meet the synchronization requirements. If the permissions are insufficient, the synchronization will fail.

Failure Cause and Handling Suggestion	Failure cause: Insufficient user permissions Handling suggestion: Check whether the database user permissions meet the synchronization requirements.

1.5.2 Checking Whether the Destination Database User Has Sufficient Permissions

MySQL Migration

Table 1-155 Checking whether the destination database user has sufficient permissions

Check Item	Whether the destination database user has sufficient permissions
Description	Check whether the destination database user permissions meet the migration requirements. If the permissions are insufficient, the migration will fail.
Failure Cause and Handling Suggestion	Failure cause: The destination database user must have the following permissions: SELECT, CREATE, DROP, DELETE, INSERT, UPDATE, INDEX, EVENT, CREATE VIEW, CREATE ROUTINE, TRIGGER, and WITH GRANT OPTION. If the destination database version is in the range from 8.0.14 to 8.0.18, the SESSION_VARIABLES_ADMIN permission is required. Handling suggestion: Check whether the destination database user permissions meet the migration requirements.
	Failure cause: Insufficient user permissions Handling suggestion: Check whether the database user permissions meet the migration requirements.

PostgreSQL Synchronization

Table 1-156 Checking whether the destination database user has sufficient permissions

Check Item	Whether the destination database user has sufficient permissions

Description	Different permissions are granted based on the scope of objects to be synchronized. ● **Database-level**: – If the destination database is not PostgreSQL, the CREATEDB permission is required. – If the destination database is PostgreSQL, the CONNECT and CREATE permissions on PostgreSQL databases and the USAGE and CREATE permissions on public schemas are required. ● **Table-level**: – To synchronize databases, the CREATEDB permission is required. – To synchronize a schema, the CONNECT and CREATE permissions for the database that contains the schema are required. – To synchronize objects in a schema, the CONNECT permission for the database that contains the schema, and the USAGE and CREATE permissions for the schema that contain the object are required. ● Synchronization user: The CREATEROLE permission is required. ● Synchronization user permissions: The default privilege cannot be modified. Otherwise, the object permissions of the destination database may be inconsistent with those of the source database.
Failure Cause and Handling Suggestion	Failure cause: The destination database user must have the CREATEDB permission. Handling suggestion: Grant the destination database user the CREATEDB permission. `alter role username with createdb;`
	Failure cause: The user does not have the USAGE permission for schemas. Handling suggestion: Grant the destination database user the CREATEDB permission. `grant usage on schema schemaname to username;`
	Failure cause: The user does not have the permission to create tales. Handling suggestion: Grant the destination database user the permission to create tables. `grant create on schema schemaname to username;`
	Failure cause: The user does not have the permission to create schemas. Handling suggestion: Grant the destination database user the permission to create schemas. `grant create on database to username;`

	Failure cause: During a database-level synchronization, if the destination database is PostgreSQL 15, full or incremental synchronization may fail due to insufficient default permissions on schema: public on the destination database. **Handling suggestion**: For table-level synchronization, create a database in the destination database. For database-level synchronization, grant the USAGE and CREATE permissions on schema: public on the destination database after the task enters the full synchronization state. The reference SQL statement is as follows: `grant usage,create on schema public to username;`

MongoDB Migration and Synchronization

Table 1-157 Checking whether the destination database user has sufficient permissions

Check Item	Whether the destination database user has sufficient permissions
Description	Check whether the destination database user permissions meet the migration requirements. If the permissions are insufficient, the migration will fail.
Failure Cause and Handling Suggestion	Failure cause: This item cannot be checked because the destination database fails to be connected. Handling suggestion: Check whether the destination database is connected.
	Failure cause: The destination database user must have the dbAdminAnyDatabase permission for the admin database, the read permission for the config database, and the readWrite permission for the destination database. Handling suggestion: Run the following statement to grant permissions to the destination database user. `db.grantRolesToUser("Username",[{role:"dbAdminAnyDatabase",db:"admin"}, {role:"read",db:"config"}, {role:"readWriteAnyDatabase",db:"admin"}])`
	Failure cause: The destination database user must have the readWrite permission for the databases to be migrated. Handling suggestion: Run the following statement to grant permissions to the destination database user. `db.grantRolesToUser("Username",[{role:"readWriteAnyDatabase",db:"admin"}])`
	Failure cause: The destination database user must have the read permission for the config database. Handling suggestion: Run the following statement to grant permissions to the destination database user. `db.grantRolesToUser("Username",[{role:"read",db:"config"}])`

	Failure cause: The destination database user must have the dbAdminAnyDatabase permission for the admin database. Handling suggestion: Run the following statement to grant permissions to the destination database user. `db.grantRolesToUser("Username",[{role:"dbAdminAnyDatabase",db:"admin"}])`
	Failure cause: The destination database user must have the clusterManager permission for the admin database. Handling suggestion: Run the following statement to grant permissions to the destination database user. `db.grantRolesToUser("Username",[{role:"clusterManager",db:"admin"}])`

Oracle -> MySQL/Oracle -> GaussDB(for MySQL) Synchronization

Table 1-158 Checking whether the destination database user has sufficient permissions

Check Item	Whether the destination database user has sufficient permissions
Description	Check whether the destination database user permissions meet the migration requirements. If the permissions are insufficient, the migration will fail.
Failure Cause and Handling Suggestion	Failure cause: The destination database user must have the following permissions: SELECT, CREATE, DROP, DELETE, INSERT, UPDATE, INDEX, EVENT, RELOAD, CREATE VIEW, CREATE ROUTINE, TRIGGER, and ALTER. Handling suggestion: Check whether the destination database user permissions meet the migration requirements.

Oracle -> PostgreSQL Synchronization

Table 1-159 Checking whether the destination database user has sufficient permissions

Check Item	Whether the destination database user has sufficient permissions
Description	Check whether the destination database user permissions meet the migration requirements. If the permissions are insufficient, the migration will fail.

Failure Cause and Handling Suggestion	Failure cause: The destination database user does not have sufficient permissions. Handling suggestions: Run the following command to grant the permissions of creating databases and tables on the destination database. Then, perform the check again. `ALTER ROLE targetUser WITH CREATEDB;` In the preceding command, **targetUser** indicates the current user of the destination database.

MySQL -> PostgreSQL Synchronization

Table 1-160 Checking whether the destination database user has sufficient permissions

Check Item	Whether the destination database user has sufficient permissions
Description	Check whether the destination database user permissions meet the requirements for MySQL to PostgreSQL synchronization. If the permissions are insufficient, the synchronization will fail.
Failure Cause and Handling Suggestion	Failure cause: Some tables in the destination database do not have the INSERT, SELECT, UPDATE, and DELETE permissions. Handling suggestion: Add the required permissions for the tables and try again. Example command: `GRANT INSERT,SELECT,UPDATE, DELETE ON db_name.table_name TO 'user'@'host';`

PostgreSQL > PostgreSQL Synchronization

Table 1-161 Checking whether the destination database user has sufficient permissions

Check Item	Whether the destination database user has sufficient permissions
Description	Check whether the destination database user permissions meet the requirements for PostgreSQL to PostgreSQL synchronization. If the permissions are insufficient, the synchronization will fail.

Failure Cause and Handling Suggestion	Failure cause: The destination database user must have the CREATEDB permission. Handling suggestion: Grant the destination database user the CREATEDB permission. `ALTER ROLE role_name WITH CREATEDB;`

MySQL Disaster Recovery

Table 1-162 Checking whether the destination database user has sufficient permissions

Check Item	Whether the destination database user has sufficient permissions
Description	Check whether the destination database user permissions meet the migration requirements. If the permissions are insufficient, the disaster recovery will fail.
Failure Cause and Handling Suggestion	Failure cause: The source database user must have the GRANT permission. Handling suggestion: Grant user the required permission. `GRANT SELECT, CREATE, DROP, DELETE, INSERT, UPDATE, SHOW VIEW, EVENT, LOCK TABLES, REPLICATION SLAVE, REPLICATION CLIENT ON *.* TO 'u1' WITH GRANT OPTION;`

DDM -> Oracle Synchronization

Table 1-163 Checking whether the destination database user has sufficient permissions

Check Item	Whether the destination database user has sufficient permissions
Description	Check whether the destination database user permissions meet the requirements for DDM to Oracle synchronization. If the permissions are insufficient, the synchronization will fail.

Failure Cause and Handling Suggestion	Failure cause: The destination database user does not have sufficient permissions. Handling suggestion: Use an account with the DBA permission, or grant required permissions to the user.

GaussDB Serving as the Destination in Synchronization

Table 1-164 Checking whether the source database user has sufficient permissions

Check Item	Whether the source database user has sufficient permissions
Description	Check whether the source database user permissions meet the migration requirements.
Failure Cause and Handling Suggestion	Failure cause: The source database user does not have sufficient permissions. The user needs the select permission for the schema. Handling suggestion: Grant the missing permissions to the object owner or system administrator.
	Failure cause: When COPY APIs are used to synchronize data, the user does not have permissions on **public.gs_copy_summary** and **public.pgxc_copy_error_log**. **Handling suggestion**: Use the object owner or system administrator to grant permissions. Statement for granting permissions: `grant all privileges on table public.os copy summary.public.pgxc copy error_log to user1;`

1.5.3 Checking Whether the Destination Database Account Has Required Permissions to Migrate Definer

MySQL Migration

Table 1-165 Checking Whether the Destination Database Account Has Required Permissions to Migrate Definer

Check Item	Checking whether the destination database account has required permissions to migrate Definer
Description	To migrate Definers to the cloud, the source database user must have the all privileges permission.

Failure Cause and Handling Suggestion	Failure cause: The permission of the specified destination database account is insufficient. Handling suggestions: Migrate all Definers to the specified destination database account. Alternatively, do not migrate Definers to the specified destination database account and run the following command to grant the destination database account the all privileges permission. Example command: `grant all privileges on *.* to 'user' @' host'`
	Failure cause: The specified source database user does not have required permissions. Handling suggestion: 1. When configuring the destination database, select **Migrate Definer to User** to ensure that Definers of all the objects are under the specified user. 2. Retain the Definer settings and run the following command to grant the all privileges permission to the source database user. Example command: `grant all privileges on *.* to 'user' @' host'`

1.6 Database Versions

1.6.1 Checking Whether the Source Database Version Is Supported

MySQL Migration

Table 1-166 Checking whether the source database version is supported

Check Item	Whether the source database version is supported
Description	Check whether the source database version is MySQL 5.5.x, MySQL 5.6.x, MySQL 8.0.x, and MySQL 5.7.x.
Failure Cause and Handling Suggestion	Failure cause: The source database version is not supported. Handling suggestion: Export data and then import it following the instructions provided in the **Migrating MySQL Data Using mysqldump** section in the *Relational Database Service User Guide*.
	Failure cause: Insufficient user permissions Handling suggestion: Check whether the database user permissions meet the migration requirements.

	Failure cause: This item cannot be checked because the source database fails to be connected. Handling suggestion: Check whether the source database is connected.

Migration and Synchronization from MongoDB to DDS

Table 1-167 Checking whether the source database version is supported

Check Item	Whether the source database version is supported
Description	Check whether the source database version is MongoDB 3.2.x, 3.4.x, 3.6.x, 4.0.x, 4.2.x, or 4.4.x.
Failure Cause and Handling Suggestion	Failure cause: The source database version is not supported. Handling suggestion: Check whether the source database version is MongoDB 3.2x, 3.4.x, 3.6.x, 4.0.x, 4.2.x, or 4.4.x.
	Failure cause: This item cannot be checked because the source database fails to be connected. Handling suggestion: Check whether the source database is connected.
	Failure cause: The incremental data is obtained in changeStream mode but the source database version is earlier than 4.0. Handling suggestion: In changeStream mode, ensure that the source database version is 4.0 or later.

Migration from Redis to GeminiDB Redis

Table 1-168 Checking whether the source database version is supported

Check Item	Whether the source database version is supported
Description	Check whether the source database version meets the migration requirements from Redis to GeminiDB Redis.
Failure Cause and Handling Suggestion	Failure cause: The source database version is not supported. Handling suggestion: Check whether the source database version is supported. Currently, only Redis 2.8.x, 3.0.x, 4.0.x, and 5.0.x are supported.

Microsoft SQL Server as the Source in Synchronization

Table 1-169 Checking whether the source database version is supported

Check Item	Whether the source database version is supported
Description	Check whether the source database version meets the migration requirements.
Failure Cause and Handling Suggestion	Failure cause: The source database version is not supported. Currently, only Microsoft SQL Server Enterprise Edition 2012 or later and Standard Edition 2016 SP1 or later are supported. Handling suggestion: Use the supported database version.

PostgreSQL Serving as the Source in Synchronization

Table 1-170 Checking Whether the Source Database Version Is Supported

Check Item	Whether the source database version is supported
Description	Check whether the source database version is PostgreSQL 9.4, PostgreSQL 9.5, PostgreSQL 9.6, PostgreSQL 10.0, PostgreSQL 11.0, PostgreSQL 12.0, PostgreSQL 13.0, PostgreSQL 14.0, or PostgreSQL 15.0.
Failure Cause and Handling Suggestion	Failure cause: This item cannot be checked because the source database fails to be connected. Handling suggestion: Check whether the source database is connected.
	Failure cause: The source database version is not supported. Handling suggestion: Check whether the source database version is supported. Currently, only PostgreSQL 9.4, PostgreSQL 9.5, PostgreSQL 9.6, PostgreSQL 10.0, PostgreSQL 11.0, and PostgreSQL 12.0, PostgreSQL 13.0, PostgreSQL 14.0, and PostgreSQL 15.0 are supported.
	Failure cause: Insufficient user permissions Handling suggestion: Check whether the database user permissions meet the migration requirements.

Oracle Synchronization

Table 1-171 Checking whether source database version is supported

Check Item	Whether the source database version is supported
Description	Check whether the source database version is Oracle 10g, 11g, 12c, 18c, 19c, or 21c.
Failure Cause and Handling Suggestion	Failure cause: The source database version is not supported. Handling suggestion: Check whether the source database version is supported. Currently, only Oracle 10g, 11g, 12c, 18c, 19c, and 21c are supported.

MySQL -> PostgreSQL Synchronization

Table 1-172 Checking whether the source database version is supported

Check Item	Whether the source database version is supported
Description	Check whether the source database version meets the requirements for synchronization from MySQL to PostgreSQL.
Failure Cause and Handling Suggestion	Failure cause: The source database version is not supported. Handling suggestion: Check whether the source database version is supported. Currently, only MySQL 5.5, 5.6, 5.7, and 8.0 are supported.

Synchronization from TiDB to GaussDB(for MySQL)

Table 1-173 Checking whether the source database version is supported

Check Item	Whether the source database version is supported
Description	Whether the source database version meets the requirements.

Failure Cause and Handling Suggestion	Details: The source database version is not supported. TiDB 4.0.0 or later is supported (excluding development versions). Handling suggestion: Run **select version()** to query the source TiDB database version. Ensure that the source database version is 4.0.0 or later (excluding development versions).

1.6.2 Checking Whether the Destination Database Version Is Supported

MySQL Migration

Table 1-174 Checking whether the destination database version is supported

Check Item	Whether the destination database version is supported
Description	Check whether the destination database version is MySQL 5.6.x, MySQL 8.0.x, or MySQL 5.7.x.
Failure Cause and Handling Suggestion	Failure cause: The destination database version is not supported. Handling suggestion: Export data and then import it following the instructions provided in the **Migrating MySQL Data Using mysqldump** section in the *Relational Database Service User Guide*.
	Failure cause: Insufficient user permissions Handling suggestion: Check whether the database user permissions meet the migration requirements.
	Failure cause: This item cannot be checked because the destination database fails to be connected. Handling suggestion: Check whether the destination database is connected.

Migration and Synchronization from MongoDB to DDS

Table 1-175 Checking whether the destination database version is supported

Check Item	Whether the destination database version is supported
Description	Check whether the destination database version is MongoDB 3.4.x, 4.0.x, 4.2.x, or 4.4.x.

Failure Cause and Handling Suggestion	Failure cause: The destination database version is not supported. Handling suggestion: Check whether the destination database version is MongoDB 3.4.x, 4.0.x, 4.2.x, or 4.4.x.
	Failure cause: This item cannot be checked because the destination database fails to be connected. Handling suggestion: Check whether the destination database is connected.

Migration from Redis to GeminiDB Redis

Table 1-176 Checking whether the destination database version is supported

Check Item	Whether the destination database version is supported
Description	Check whether the destination database version meets the migration requirements from Redis to GeminiDB Redis.
Failure Cause and Handling Suggestion	Failure cause: The destination database version is not supported. Handling suggestion: Check whether the destination database version is supported. Currently, only Redis 2.8.x, 3.0.x, 4.0.x, and 5.0.x are supported.

CSS/ES Serving as the Destination in Synchronization

Table 1-177 Checking whether the destination database version is supported

Check Item	Whether the destination database version is supported
Description	Check whether the destination database version is ElasticSearch 5.5, 6.2, 6.5, 7.1, 7.6, 7.9 or 7.10.
Failure Cause and Handling Suggestion	Failure cause: The destination database version is not supported. Handling suggestion: Check whether the destination database version is supported. Currently, only ElasticSearch 5.5, 6.2, 6.5, 7.1, 7.6, 7.9, and 7.10 are supported.

Oracle -> MySQL Synchronization

Table 1-178 Checking whether the destination database version is supported

Check Item	Whether the destination database version is supported
Description	Check whether the destination database version meets the migration requirements.
Failure Cause and Handling Suggestion	Failure cause: The destination database version is not supported. Handling suggestion: Check whether the destination database version is supported. Currently, only MySQL 5.6.x and MySQL 5.7.x are supported.

Oracle to PostgreSQL Migration

Table 1-179 Checking whether the destination database version is supported

Check Item	Whether the destination database version is supported
Description	Check whether the destination database version meets the migration requirements.
Failure Cause and Handling Suggestion	Failure cause: The destination database version is not supported. Handling suggestion: Check whether the destination database version is supported. **Currently, only PostgreSQL Enhanced Edition is supported.**

MySQL -> PostgreSQL Synchronization

Table 1-180 Checking whether the destination database version is supported

Check Item	Whether the destination database version is supported
Description	Check whether the destination database version meets the requirements for synchronization from MySQL to PostgreSQL.

Failure Cause and Handling Suggestion	Failure cause: The destination database version is not supported. Handling suggestion: Check whether the destination database version is supported. Currently, only PostgreSQL 10.x is supported.

1.6.3 Checking Whether the Migration Is from an Earlier Database Version to the Same or a Later Version

MySQL Migration

Table 1-181 Checking whether the migration is from an earlier database version to the same or a later version

Check Item	Whether the migration is from an earlier database version to the same or a later version
Description	Check whether the source database version is earlier than or the same as the destination database version.
Failure Cause and Handling Suggestion	Failure cause: This item cannot be checked because the source database fails to be connected. Handling suggestion: Check whether the source database is connected.
	Failure cause: This item cannot be checked because the destination database fails to be connected. Handling suggestion: Check whether the destination database is connected.
	Failure cause: The source database version is not supported. Handling suggestion: Check whether the source database version is supported. Currently, only MySQL 5.5.x, MySQL 5.6.x, MySQL 8.0.x, and MySQL 5.7.x are supported.
	Failure cause: The destination database version is not supported. Handling suggestion: Check whether the destination database version is supported. Currently, only MySQL 5.6.x, MySQL 8.0.x, and MySQL 5.7.x are supported.
	Failure cause: Insufficient user permissions Handling suggestion: Check whether the database user permissions meet the migration requirements.

	Failure cause: The destination database version must be the same as or later than the source database version. Handling suggestion: Ensure the source database version is earlier than or the same as the destination database version.

Migration from Redis to GeminiDB Redis

Table 1-182 Checking whether the migration is from an earlier database version to the same or a later version

Check Item	Whether the migration is from an earlier database version to the same or a later version
Description	Check whether the source database version is earlier than or the same as the destination database version.
Failure Cause and Handling Suggestion	Failure cause: The destination database version does not meet the requirements. Handling suggestion: The source database version is later than the destination database version. Select another database.

PostgreSQL Synchronization

Table 1-183 Checking whether the migration is from an earlier database version to the same or a later version

Check Item	Whether the migration is from an earlier database version to the same or a later version
Description	Check whether the source database version is earlier than or the same as the destination database version.
Failure Cause and Handling Suggestion	Failure cause: This item cannot be checked because the source database fails to be connected. Handling suggestion: Check whether the source database is connected.
	Failure cause: This item cannot be checked because the destination database fails to be connected. Handling suggestion: Check whether the destination database is connected.
	Failure cause: Insufficient user permissions Handling suggestion: Check whether the database user permissions meet the migration requirements.

	Failure cause: The source database version is not supported. Handling suggestion: Check whether the source database version is supported. Currently, only PostgreSQL 9.4, PostgreSQL 9.5, PostgreSQL 9.6, PostgreSQL 10.0, PostgreSQL 11.0, and PostgreSQL 12.0, PostgreSQL 13.0, PostgreSQL 14.0, and PostgreSQL 15.0 are supported.
	Failure cause: The destination database version is not supported. Handling suggestion: Check whether the destination database version is supported. Currently, only PostgreSQL 9.5, 9.6, 10.0, 11.0, 12.0, 13.0, 14.0, and 15.0 are supported.
	Failure cause: The major versions of the source and destination databases must be the same and the minor version of the source database must be less than or equal to that of the destination database. Handling suggestion: Ensure the source database version is earlier than or the same as the destination database version.
	Failure cause: The destination database version and source database version do not meet the requirements of the selected migration mode. Handling suggestion: Check whether the versions of the destination database and source database meet the migration mode requirements.

MySQL Disaster Recovery

Table 1-184 Checking whether the migration is from an earlier database version to the same or a later version

Check Item	Whether the migration is from an earlier database version to the same or a later version
Description	Check whether the source database version is earlier than or the same as the destination database version.
Failure Cause and Handling Suggestion	Failure cause: The versions of the source and destination databases are inconsistent or do not meet the version requirements. Handling suggestion: The versions of the source and destination databases must be the same and be 5.6, , 5.7, or 8.0. Select the databases whose versions meet the version requirements.

MongoDB Migration and Synchronization

Table 1-185 Checking Whether the Source Database Version Is Supported

Check Item	Whether the migration is from an earlier database version to the same or a later version
Description	Check whether the source database version is earlier than or the same as the destination database version. The destination database version can be 4.4.x or earlier. The migration must be performed from an older database version to the same or a newer version Check whether the features of the newer version are used in the source database. If the new features are not supported in the destination database, the synchronization may fail.
Failure Cause and Handling Suggestion	Item to be confirmed: The versions of the source and destination databases are different. Potential problem: The source database version is 4.4.5 and the destination database version is 4.0.3, which does not comply with the migration version requirements. If the source database supports features of the newer version but the destination database does not, the synchronization may fail.
	Failure cause: The destination database version does not meet the requirements. Handling suggestion: Select version 4.0.x for the destination database because the source database version is later than 4.0.x and the destination database version is 3.4.x.

1.7 Networks

1.7.1 Checking Whether the Source Database Is Connected

MySQL Migration

Table 1-186 Checking whether the source database is connected

Check Item	Whether the source database is connected
Description	Check the connectivity and accuracy of the IP address, port number, username, and password of the source database.

Failure Cause and Handling Suggestion	Failure cause: The connection fails. Handling suggestion: See network preparations in the Data Replication Service Best Practices.
	Failure cause: Incorrect username or password Handling suggestion: Check whether the input username and password for the connection test are correct.
	Failure cause: The database account does not allow remote connections. Handling suggestion: Run the following command to create a user that allows remote connections. After the migration, delete this user. **CREATE USER** '*Account*' **@ '%' IDENTIFIED BY** '*Password*'
	Failure cause: The SSL CA root certificate is invalid. Handling suggestion: Upload a valid SSL CA certificate.
	Failure cause: No SSL CA root certificate exists. Handling suggestion: Contact Huawei technical support.
	Failure cause: The database is unavailable. Handling suggestion: Contact Huawei technical support.

PostgreSQL Synchronization

Table 1-187 Checking whether the source database is connected

Check Item	Whether the source database is connected
Description	Check the connectivity and accuracy of the IP address, port number, username, and password of the source database.
Failure Cause and Handling Suggestion	Failure cause: The IP address is inaccessible. Handling suggestion: See network preparations in the Data Replication Service Best Practices.
	Failure cause: The connection fails. Handling suggestion: See network preparations in the Data Replication Service Best Practices.

	Failure cause: The database account does not allow remote connections. Handling suggestion: Configure the remote connection permission for the user in the **pg_hba.conf** file. Open **pg_hba.conf**, add the following, and restart the database for the modification to take effect: `host all ***(dbuser) 0.0.0.0/0 method` After the migration is complete, delete this record and restart the database again.
	Failure cause: Failed to connect to the database. Handling suggestion: The **listen_addresses** parameter value or port number in the **postgres.conf** file is incorrect. In the **postgres.conf** file, set the **listen_addresses** value to **'*'** or set the port number to the correct value. Then, restart the database for the modification to take effect.
	Failure cause: Incorrect username or password Handling suggestion: Check whether the input username and password for the connection test are correct.
	Failure cause: The user does not have the login permission. Handling suggestion: Run the following command to grant the login permission to the user: **alter role** ****(dbuser)* **login**
	Failure cause: The postgres database does not exist in the source database. Handling suggestion: Create a postgres database.

MongoDB Migration

Table 1-188 Checking whether the source database is connected

Check Item	Whether the source database is connected
Description	Check the connectivity and accuracy of the IP address, port number, username, and password of the source database.

Failure Cause and Handling Suggestion	Failure cause: The connection fails. Handling suggestion: See network preparations in the Data Replication Service Best Practices.
	Failure cause: The username, password, or authentication database of the source database is incorrect. Handling suggestion: Check that the input username, password, and authentication database for the connection test are correct.
	Failure cause: The database is unavailable. Handling suggestion: Contact Huawei technical support.
	Failure cause: SSL connection parameters are not configured. Handling suggestion: Contact Huawei technical support.
	Failure cause: The source database cannot connect to the port of the replication instance. Handling suggestion: Modify the firewall, security group, or ACL configurations of the source and destination databases to enable the source database to connect to the port of the replication instance.

1.7.2 Checking Whether the Destination Database Is Connected

MySQL Migration and Synchronization

Table 1-189 Checking whether the destination database is connected

Check Item	Whether the destination database is connected
Description	Check the connectivity and accuracy of the IP address, port number, username, and password of the destination database.
Failure Cause and Handling Suggestion	Failure cause: The connection fails. Handling suggestion: See network preparations in the Data Replication Service Best Practices.
	Failure cause: Incorrect username or password Handling suggestion: Check whether the input username and password for the connection test are correct.
	Failure cause: The database account does not allow remote connections. Handling suggestion: Run the following command to create a user that allows remote connections. After the migration, delete this user. **CREATE USER** '*Account*' **@ '%' IDENTIFIED BY** '*Password*'

	Failure cause: The database is unavailable. Handling suggestion: Contact Huawei technical support.

PostgreSQL Synchronization

Table 1-190 Checking whether the destination database is connected

Check Item	Whether the destination database is connected
Description	Check the connectivity and accuracy of the IP address, port number, username, and password of the destination database.
Failure Cause and Handling Suggestion	Failure cause: The IP address is inaccessible. Handling suggestion: See network preparations in the Data Replication Service Best Practices.
	Failure cause: The connection fails. Handling suggestion: See network preparations in the Data Replication Service Best Practices.
	Failure cause: The database account does not allow remote connections. Handling suggestion: Grant the remote connection permission for the user in the **pg_hba.conf** file because the replication instance and user are not configured in the **pg_hba.conf** configuration file. Add the following to the **pg_hba.conf** configuration file. After the migration is complete, delete this record and restart the database for the modification to take effect. `host all ***(dbuser) 0.0.0.0/0 method`
	Failure cause: Failed to connect to the database. The failure may be caused by the incorrect **listen_addresses** parameter value or port number in **postgres.conf**. Handling suggestion: In the **postgres.conf** file, set **listen_addresses** to "*" or set the port number to the correct value. Then, restart the database for the modification to take effect.
	Failure cause: Incorrect username or password Handling suggestion: Check whether the input username and password for the connection test are correct.
	Failure cause: The user does not have the login permission. Handling suggestion: Run the following command to grant the login permission to the user: **alter role** ****(dbuser)* **login**

	Failure cause: The postgres database does not exist in the source database. Handling suggestion: Create a postgres database.

MongoDB Migration

Table 1-191 Checking whether the destination database is connected

Check Item	Whether the destination database is connected
Description	Check the connectivity and accuracy of the IP address, port number, username, and password of the destination database.
Failure Cause and Handling Suggestion	Failure cause: The connection fails. Handling suggestion: See network preparations in the Data Replication Service Best Practices.
	Failure cause: Incorrect username or password Handling suggestion: Check whether the input username and password for the connection test are correct.
	Failure cause: The database is unavailable. Handling suggestion: Contact Huawei technical support.
	Failure cause: SSL connection parameters are not configured. Handling suggestion: Contact Huawei technical support.

GaussDB Synchronization

Table 1-192 Checking whether the destination database is connected

Check Item	Whether the destination database is connected
Description	Check the connectivity and accuracy of the IP address, port number, username, and password of the destination database.
Failure Cause and Handling Suggestion	Failure cause: Incorrect username or password Handling suggestion: Check whether the input username and password for the connection test are correct.

	Failure cause: The database account does not allow remote connections. Handling suggestion: Run the following command to create a user that allows remote connections. After the migration, delete this user. **CREATE USER** '*Account*' **@ '%' IDENTIFIED BY** '*Password*'
	Failure cause: The database is unavailable. Handling suggestion: Contact Huawei technical support.

1.7.3 Checking Whether the Destination Database Can Connect to the Source Database

MySQL Migration and Synchronization

Table 1-193 Checking whether the destination database can connect to the source database

Check Item	Whether the destination database can connect to the source database
Description	Check whether the destination database can connect to the source database.
Failure Cause and Handling Suggestion	Failure cause: The destination database fails to connect to the source database. Handling suggestion: See network preparations in the Data Replication Service Best Practices.

1.8 Database Objects

1.8.1 Checking Whether the Source Database Contains a MyISAM Table

MySQL

Table 1-194 Checking whether the source database contains a MyISAM table

Check Item	Whether the source database contains a MyISAM table

Description	If the source database contains a MyISAM table, the migration will fail.
Item to Be Confirmed and Handling Suggestion	Item to be confirmed: The source database contains MyISAM tables that are not supported by the destination database, which may cause the migration to fail. Handling suggestion: Convert the tables in the source database to InnoDB tables and try again. Alternatively, contact technical support.

1.8.2 Checking Whether the Source Database Contains Unsupported Table Field Types

Oracle Migration and Synchronization

Table 1-195 Checking whether the source database contains unsupported table field types

Check Item	Whether the source database contains unsupported table field types
Description	Unsupported table field types are as follows: BFILE, XMLType, SDO_GEOMETRY, TIMESTAMP (x), INTERVAL DAY TO SECOND (x), and UROWID. The source database contains unsupported table field types, resulting in migration failures. **NOTE** • *x* indicates the precision. TIMESTAMP and INTERVAL DAY TO SECOND do not support the column type with precision between 7 to 9. • Due to internal restrictions, DRS cannot filter out special fields during data processing.
Failure Cause and Handling Suggestion	Failure cause: The source database contains unsupported table field types. Handling suggestion: Delete the columns containing the unsupported field types. Alternatively, do not migrate the tables containing the unsupported table field types.

MySQL -> PostgreSQL Synchronization

Table 1-196 Checking whether the source database contains unsupported table field types

Check Item	Whether the source database contains unsupported table field types
Description	The following table fields types are not supported: geometry, point, lineString, polygon, geometrycollection, multipoint, multilinestring, and multipolygon. The source database contains unsupported table field types, resulting in migration failures.
Failure Cause and Handling Suggestion	Failure cause: The source database contains unsupported table field types. Handling suggestion: Delete the columns containing the unsupported field types. Alternatively, do not migrate the tables containing the unsupported table field types.

1.8.3 Checking Whether the Source Database Contains the Functions or Stored Procedures that the Source Database User Is Not Authorized to Migrate

MySQL

Table 1-197 Checking whether the source database contains the functions or stored procedures that the source database user is not authorized to migrate

Check Item	Whether the source database contains the functions or stored procedures that the source database user is not authorized to migrate.
Description	The source database contains the functions or stored procedures that the source database user is not authorized to migrate.
Failure Cause and Handling Suggestion	Failure cause: The source database user does not have the permission to migrate functions and stored procedures. Handling suggestion: Ensure that the source database user has the highest-level right.

1.8.4 Checking Whether Objects with the Same Names Exist in the Source Database

MySQL -> PostgreSQL Synchronization

Table 1-198 Checking whether objects with the same names exist in the source database

Check Item	Whether objects with the same names exist in the source database
Description	Failure cause: The source databases selected are not mapped to the same database, or tables with same names exist in the selected databases.
Failure Cause and Handling Suggestion	Failure cause: PostgreSQL does not support synchronization of multiple databases, or objects have the same names in the source databases. Handling suggestion: Select one database for migration, or map the selected databases to the same database and ensure that the object in the databases have unique names.

1.8.5 Whether the Source Database Contains Unlogged Tables

PostgreSQL as the Source

Table 1-199 Whether the source database contains unlogged tables

Check Item	Whether the source database contains unlogged tables
Description	Check whether the source database contains unlogged tables. If yes, the synchronization fails.
Item to Be Confirmed and Handling Suggestion	Item to be confirmed: The source database contains unlogged tables and modifications to these tables are not recorded in logs. As a result, incremental data of unlogged tables cannot be synchronized. Handling suggestions: Check whether incremental data of the unlogged tables needs to be synchronized. If yes, run the following command to change the unlogged tables to logged: ALTER TABLE TABLE_NAME SET LOGGED."

1.8.6 Checking Whether the Names of Views to Be Migrated Are the Same

Oracle Migration and Synchronization

Table 1-200 Checking whether the source database meets integrity constraints

Check Item	Whether the source database meets constraint integrity
Description	Check the constraint integrity of the source database. If the check result does not meet the migration requirements, the migration fails.
Item to Be Confirmed and Handling Suggestion	Failure cause: Tables to be migrated are dependent but the referenced tables are not to be migrated. Handling suggestion: Select the referenced tables in the migration object list.
	Failure cause: Views that cannot be migrated are selected in the migration object list. Handling suggestions: Check all objects which the views reference and select them for migration.
	Failure cause: The names of the views to be migrated are the same except for letter cases. Handling suggestions: Change the view names or do not migrate these views.
	Failure cause: Source database constraint names are the same except for letter cases. Handling suggestions: Change the constraint names or do not migrate the constraints whose names are the same except for letter cases.

1.8.7 Checking Whether the _Id Fields in the Collection of the Source Database Have Indexes

MongoDB Migration

Table 1-201 Checking whether the **_id** fields in the collections of the source database have indexes

Check Item	Whether the **_id** fields in the collections of the source database have indexes
Description	Check whether the **_id** fields in the collections of the source database have indexes. If not, the migration fails.

Item to Be Confirmed and Handling Suggestion	Failure cause: The **_id** fields in the collections of the source database must have indexes. Handling suggestion: Run the **db.*Collection name*.ensureIndex({_id: 1})** command to add an index. If the index fails to be added and the system displays a message indicating that the **_id** value already exists, the collection cannot be migrated.

1.8.8 Checking Whether the Index Length of the Source Database Exceeds the Limit

Oracle -> MySQL/Oracle -> GaussDB(for MySQL) Migration and Synchronization

Table 1-202 Checking whether the index length of the source database exceeds the limit

Check Item	Whether the index length of the source database exceeds the limit
Description	The migration fails because the index length of the source database exceeds the column length limit of the destination database.
Failure Cause and Handling Suggestion	Failure cause: There are indexes in the source database exceed the column length limit of the destination database. Handling suggestion: 1. Delete the tables from the migration object. 2. Modify the index length.

MySQL Migration, Synchronization, and Disaster Recovery

Table 1-203 Checking whether the index length of the source database exceeds the column length limit

Check Item	Whether the index length of the source database exceeds the limit
Description	The migration fails because the index length of the source database exceeds the column length limit of the destination database.

Failure Cause and Handling Suggestion	Failure cause: There are indexes in the source database exceed the column length limit of the destination database. Handling suggestion: Set **innodb_large_prefix** of the destination database to **ON**, or return to the previous step and select the table to be migrated again.

1.8.9 Checking Whether the Source Database Tables Use Storage Engines Not Supported by the Destination Database

MySQL Migration and Synchronization

Table 1-204 Checking whether the source database tables use storage engines not supported by the destination database

Check Item	Whether the source database tables use storage engines not supported by the destination database
Description	Check whether the source database tables use storage engines not supported by the destination database. If yes, the migration fails.
Item to Be Confirmed and Handling Suggestion	Failure cause: The source database tables use the storage engines that are not supported by the destination database. Handling suggestion: Go back to the previous page and deselect the tables that use the storage engines not supported by the destination database. The pre-check fails because the storage engines of tables in the source database are not supported or are null. • Run the following SQL statement to query the engine of a table that does not meet requirements. In the statement, **test** indicates the table name, and **db** indicates the database name. `select engine from information_schema.`tables` where table_name='test' and table_schema = 'db';` • If the storage engine of a table is null, the structure of the table may be damaged or lost. You can run the **check table** *tableName* statement to check whether the table structure is valid.

1.8.10 Checking Whether the Database Names Mapped to the Destination DB Instance Contain Unsupported Characters

MySQL

Table 1-205 Checking whether the database names mapped to the destination database contain unsupported characters.

Check Item	Whether the database names mapped to the destination DB instance contain unsupported characters.
Description	The following characters are not supported in the database names mapped to the destination DB instance: .<>\'
Item to Be Confirmed and Handling Suggestion	Failure cause: The database names mapped to the destination DB instance contain unsupported characters. Handling suggestion: Go back to the object selection page and change the source database names to be mapped to the destination DB instance.

1.8.11 Checking Whether the Source Database Tables Contain Primary Keys

MySQL Migration and Disaster Recovery

Table 1-206 Checking whether the source database tables contain primary keys

Check Item	Whether the source database tables contain primary keys
Description	If tables to be migrated in the source database do not contain primary keys, the migration may fail.
Item to Be Confirmed and Handling Suggestion	Item to be confirmed: The tables to be migrated in the source database do not contain primary keys. Handling suggestion: Create a primary key for the table. If the table does not have a primary key to uniquely identify every row and the network connection is unstable, the data in the destination database may be inconsistent with that in the source database.

MySQL Synchronization

Table 1-207 Checking whether the source database tables contain primary keys

Check Item	Whether the source database tables contain primary keys
Description	If tables to be synchronized in the source database do not contain primary keys, the synchronization may fail.
Failure Cause and Handling Suggestion	Failure cause: The tables to be synchronized in the source database do not contain primary keys. Handling suggestion: Create primary keys for the tables to improve performance.
	Failure cause: In a many-to-one task, tables with no primary key that have the same name as those in the destination database are not allowed in the source database. Handling suggestion: Modify tables without primary keys, delete tables with no primary key from the destination database, or do not migrate tables without primary keys.
Item to Be Confirmed and Handling Suggestion	Item to be confirmed: The tables to be synchronized in the source database do not contain primary keys. Handling suggestion: Create a primary key for the table. If the table does not have a primary key to uniquely identify every row and the network connection is unstable, the data in the destination database may be inconsistent with that in the source database.

Synchronization from Microsoft SQL Server to GaussDB(DWS)

Table 1-208 Whether the source database tables contain primary keys

Check Item	Whether the source database tables contain primary keys
Description	If the source database contains tables that do not have primary keys, a small amount of data may be inconsistent during synchronization.
Item to Be Confirmed and Handling Suggestion	Item to Be Confirmed: The table without a primary key lacks a unique identifier for rows. When the network is unstable, you may need to retry the task several times, or data inconsistency may occur. Handling suggestion: Add a primary key to a table, or do not synchronize the table that does not have a primary key. Statement for adding a primary key: `ALTER TABLE table_name ADD CONSTRAINT constraint-name PRIMARY KEY (column_name);`

Oracle Synchronization

Table 1-209 Checking whether the source database tables contain primary keys

Check Item	Whether the source database tables contain primary keys
Description	If the source database contains tables that do not have primary keys, a small amount of data may be inconsistent during synchronization.
Failure Cause and Handling Suggestion	Failure cause: The table without a primary key lacks a unique identifier for rows. When the network is unstable, you may need to retry the task several times, or data inconsistency may occur. Handling suggestion: Add a primary key to a table, or do not synchronize the table that does not have a primary key. Statement for adding a primary key: `ALTER TABLE table_name ADD CONSTRAINT constraint-name PRIMARY KEY (column_name);` To synchronize tables with primary keys, do not perform the ALTER TABLE MOVE, SPLIT/MERGE, FLASHBACK, or ALTER TABLE SHRINK SPACE operation during full synchronization. Otherwise, data duplication may increase.

1.8.12 Checking Whether the Source Database Contains Triggers or Events

MySQL Migration

Table 1-210 Checking whether the source database contains triggers or events

Check Item	Whether the source database contains triggers or events
Description	To prevent unexpected operations on the destination database automatically triggered by triggers or events, this task starts the trigger or event migration only after you stop the task. If you close or disconnect the source database connection during the task running, triggers or events are not migrated.
Item to Be Confirmed and Handling Suggestion	Item to be confirmed: The source database contains triggers or events. Handling suggestion: Stop the task first and then disconnect the network to ensure the completeness of the migration.

1.8.13 Checking Whether the Source Database Referenced Roles Pass the Check

MongoDB Migration

Table 1-211 Checking whether the source database referenced roles pass the check

Check Item	Whether the source database referenced roles pass the check
Description	If the roles referenced by accounts to be migrated are not migrated to the destination database, the migration may fail.
Failure Cause and Handling Suggestion	Failure cause: The databases referenced by source database roles do not exist in the destination database, and are not displayed in the object selection list. Handling suggestion: Select the databases referenced by roles for migration or do not migrate the roles.
	Failure cause: The roles referenced by source database roles do not exist in the destination database, and are not displayed in the role selection list. Handling suggestion: Select the referenced roles or do not migrate the roles that fail the check.

1.8.14 Checking Whether the Source Database Referenced Accounts Pass the Check

MongoDB Migration

Table 1-212 Checking whether the source database referenced accounts pass the check

Check Item	Whether the source database referenced accounts pass the check
Description	If the roles referenced by accounts to be migrated are not migrated to the destination database, the migration may fail.
Failure Cause and Handling Suggestion	Failure cause: The databases referenced by source database account do not exist in the destination database, and are not displayed in the object selection list. Handling suggestion: Select the roles referenced by accounts for migration or do not migrate the accounts.

	Failure cause: The databases referenced by source database account do not exist in the destination database, and are not displayed in the object selection list. Handling suggestion: Select the databases referenced by accounts for migration or do not migrate the accounts.

1.8.15 Checking Whether the Source Database Contains Schemas or Users Named cdc

Microsoft SQL Server as the Source

Table 1-213 Checking whether the source database contains schemas or users named cdc

Check Item	Whether the source database contains schemas or users named cdc
Description	In full+incremental mode, the source database contains a schema or user named cdc.
Failure Cause and Handling Suggestion	Failure cause: The source database contains a schema or user named cdc. Handling suggestion: Go back to the object selection page and deselect the schema and user named cdc.

1.8.16 Checking Whether Associated Objects Are Selected

PostgreSQL Serving as the Source in Synchronization

Table 1-214 Checking whether associated objects are selected

Check Item	Whether the associated objects are selected
Description	The associated objects must be selected for migration. Otherwise, the migration may fail.

Failure Cause and Handling Suggestion	Failure cause: Tables referenced by the foreign key in the table to be migrated are not selected for migration. Handling suggestion: Select the associated objects.
	Failure cause: The selected objects contain views associated with some tables or views that are not selected for migration. Handling suggestion: Select the associated objects.
	Failure cause: The tables associated with the child tables to be migrated are not selected for migration. Handling suggestion: Select the associated objects.

1.8.17 Checking Whether the Specified Objects Exist In the Destination Database

PostgreSQL to RDS PostgreSQL Migration and Synchronization, and PostgreSQL to GaussDB(DWS) Synchronization

Table 1-215 Checking whether the specified migration objects exist in the destination database.

Check Item	Whether the specified migration objects exist in the destination database.
Description	The objects with the same names as the source objects cannot exist in the destination database. Otherwise, the migration may fail.
Failure Cause and Handling Suggestion	Failure cause: The objects to be synchronized exist in the destination database. Handling suggestion: Delete the objects with the same names as the source objects and perform the verification again.

1.8.18 Checking Whether the Source Table Contains Column Types that Cannot Be Used as Distribution Keys

PostgreSQL to GaussDB(DWS) Synchronization

Table 1-216 Checking whether the source table contains column types that cannot be used as distribution keys

Check Item	Whether the source table contains column types that cannot be used as distribution keys
Description	The source table cannot contain column types used as distribution keys. Otherwise, the synchronization may fail.
Failure Cause and Handling Suggestion	Failure cause: The source table contains column types that cannot be used as distribution keys. Handling suggestion: Select another table that can be migrated.

1.8.19 Checking Whether the Source Table Contains Unsupported Table Field Types

PostgreSQL to GaussDB(DWS) Synchronization

Table 1-217 Checking whether the source table contains unsupported table field types

Check Item	Whether the source table contains unsupported table field types
Description	The source tables cannot contain unsupported field types. Otherwise, the synchronization fails.
Failure Cause and Handling Suggestion	Failure cause: The source database table contains unsupported table field types. Handling suggestion: Select another table that can be migrated.

1.9 Database Configuration Items

1.9.1 Checking Whether the Source Database Name Is Valid

MySQL Migration

Table 1-218 Checking whether the source database name is valid

Check Item	Whether the source database name is valid
Description	The source database name cannot contain invalid characters. It must contain 1 to 64 characters, including only lowercase letters, digits, hyphens (-), and underscores (_). If the source database name contains any invalid character, the migration fails.
Failure Cause and Handling Suggestion	Failure cause: This item cannot be checked because the source database fails to be connected. Handling suggestion: Check whether the source database is connected.
	Failure cause: The source database name cannot contain invalid characters. It must contain 1 to 64 characters, including only lowercase letters, digits, hyphens (-), and underscores (_). Handling suggestion: Change the source database names that contain unsupported characters or go back to the previous page and select the databases that do not contain unsupported characters.

MongoDB Migration

Table 1-219 Checking whether the source database name is valid

Check Item	Whether the source database name is valid
Description	If the source database name contains invalid characters, the migration fails.
	Failure cause: The source database names cannot contain the following special characters: .<>' Handling suggestion: Change the source database names that contain unsupported characters or go back to the previous page and select the databases that do not contain unsupported characters.

Oracle Migration

Table 1-220 Checking whether the source database name is valid

Check Item	Whether the source database name is valid
Description	The source database names cannot contain non-ASCII characters or special characters .><\`|,?'!" If the source database name contains invalid characters, the migration fails.
	Failure cause: The source database names contain unsupported characters. Handling suggestion: Change the source database names that contain unsupported characters or go back to the previous page and select the databases that do not contain unsupported characters.

1.9.2 Checking Whether the Source Database Table Name Is Valid

MySQL Migration

Table 1-221 Checking whether the source database table name is valid

Check Item	Whether the source database table name is valid
Description	If the source database table name contains invalid character, the synchronization task fails.
Failure Cause and Handling Suggestion	Failure cause: The source database table names contain unsupported characters, non-ASCII characters, or the following characters: ></\ Handling suggestion: To solve this problem, perform the following steps: Click **Previous** to return to the **Select Migration Type** page. Select a customized object and do not select the table that contains unsupported characters. Method 2: Change the table name.

PostgreSQL Migration

Table 1-222 Checking whether the source database table name is valid

Check Item	Whether the source database table name is valid

Description	The source database table name cannot contain single quotation marks ('), double quotation marks (''), and periods (.). Ensure that the source database table name does not contain invalid characters. Otherwise, the synchronization task fails.
Failure Cause and Handling Suggestion	Failure cause: The source database names contain unsupported characters. Handling suggestion: Run the following command to change the source database names that contain unsupported characters: `alter table old_name rename to new_name;`

Oracle Migration

Table 1-223 Checking whether the source database table name is valid

Check Item	Whether the source database table name is valid
Description	The source database names cannot contain non-ASCII characters or special characters .><\`|,?'!'' If the table name or view name of the source database contains any invalid character, the migration fails.

Failure Cause and Handling Suggestion	Failure cause: The table name or view name of the source database contains unsupported characters.
	Handling suggestion:
	• Run the following command to change the table name that contains unsupported characters:
	`alter table old_name rename to new_name;`
	• Run the following command to change the view name that contains unsupported characters:
	`rename old_view_name to new_view_name;`

1.9.3 Checking Whether the Source Database View Name Is Valid

MySQL

Table 1-224 Checking whether the source database contains view names with non-ASCII characters

Check Item	Whether the source database contains view names with non-ASCII characters

Description	If the source database contains non-ASCII characters, the migration will fail.
Item to Be Confirmed and Handling Suggestion	Failure cause: The source database view names contain unsupported characters, non-ASCII characters, or the following characters: ></\ Handling suggestion: To solve this problem, perform the following steps: Method 1: Click **Previous** to return to the **Select Migration Type** page. Select a customized object and do not select the view name that contains unsupported characters. Method 2: Change the view name.

1.9.4 Checking Whether the Source Database Collection Name Is Valid

MongoDB Migration

Table 1-225 Checking whether the source database collection name is valid

Check Item	Whether the source database collection name is valid
Description	The source database collection names cannot contain slashes (/) or backslashes (\).
	Failure cause: The source database collection names cannot contain the following characters: ,<> Handling suggestion: Modify the source database collection names that contain invalid characters or go back to the **Select Migration Type** page and select the collections that do not contain invalid characters.

1.9.5 Checking Whether the Shard Key Can Be Obtained from the Source Database

MongoDB Migration

Table 1-226 Checking whether the shard keys can be obtained from the source database

Check Item	Whether the shard keys can be obtained from the source database

Description	Check whether the destination database user permissions meet the migration requirements. If the permissions are insufficient, the migration will fail.
Failure Cause and Handling Suggestion	Item to be confirmed: The source database is a replica set but the shard keys have not been configured in the destination database. Handling suggestion: If the destination database cannot obtain the shard keys of the source database, the data in the source database will be migrated to the primary shard node of the sharded cluster in the destination database. To fully utilize the read/write performance, storage capability, and high availability of the cluster, see **FAQs**.
	Item to be confirmed: The source database type is unknown, and the shard keys have not been configured in the destination database. Handling suggestion: If the destination database cannot obtain the shard keys of the source database, the data in the source database will be migrated to the primary shard node of the sharded cluster in the destination database. To fully utilize the read/write performance, storage capability, and high availability of the cluster, see **FAQs**.
	Item to be confirmed: The source database contains collections that do not have shard keys configured. Handling suggestion: If the destination database cannot obtain the shard keys of the source database, the data in the source database will be migrated to the primary shard node of the sharded cluster in the destination database. To fully utilize the read/write performance, storage capability, and high availability of the cluster, see **FAQs**.

1.9.6 Checking Whether the Source Database Schema Name Is Valid

PostgreSQL

Table 1-227 Checking whether the source database schema name is valid

Check Item	Whether the source database schema name is valid
Description	The source database schema name cannot contain single quotation marks ('), double quotation marks ("), and periods (.). Ensure that the source database schema name does not contain invalid characters. Otherwise, the synchronization task fails.
Failure Cause and Handling Suggestion	Failure cause: The source database schema names contain unsupported characters. Handling suggestion: Run the following command to change the source database schema names that contain unsupported characters: `alter schema old_name rename to new_name;`

1.9.7 Checking Whether the Maximum Number of Chunks in the Destination Database Is Sufficient

MongoDB Migration

Table 1-228 Checking whether the maximum number of chunks in the destination database is sufficient

Check Item	Whether the maximum number of chunks in the destination database is sufficient
Description	The maximum number of chunks in the destination database is insufficient to support sharding and splitting of the source database. If the maximum number of chunks is reached, chunks are not split and the write performance is negatively affected.
Failure Cause and Handling Suggestion	Item to be confirmed: The maximum number of chunks in the destination database is insufficient to support sharding and splitting of the source database. If the maximum number of chunks is reached, chunks are not split and the write performance is negatively affected. Handling suggestion: Select a destination DB instance of higher specifications.

1.9.8 Checking Whether Archive Logs Are Enabled on the Source Oracle Database

Oracle -> MySQL Migration and Synchronization

Table 1-229 Checking whether archive logs are enabled on the source Oracle database

Check Item	Whether archive logs are enabled on the source Oracle database
Description	During incremental migration from Oracle to MySQL, archive logs must be enabled on the source Oracle database.
Failure Cause and Handling Suggestion	Failure cause: Archive logs are not enabled on the source Oracle database. Handling suggestion: Run the **alter database archivelog** command to enable archive logs on the source Oracle database.

1.9.9 Checking Whether Supplemental Logging Is Correctly Enabled on the Source Database

Oracle Serving as the Source in Synchronization

Table 1-230 Checking whether supplemental logging is correctly enabled on the source database

Check Item	Checking whether supplemental logging is correctly enabled on the source database
Description	The supplemental logging level of the source Oracle database does not meet requirements. The synchronization fails.

Failure Cause and Handling Suggestion	Failure cause: A supplemental logging alarm for the source database is generated. Enabling primary key or unique key logging at the database level for the source database may lead to the loss of column data when data is updated.
	Handling suggestion: Enable all supplemental logging at the database or table level.
	• Statement for enabling all supplemental logging:
	`alter database add supplemental log data (all) columns;`
	• Statement for viewing all supplemental logging:
	`select supplemental_log_data_all as allLog from v$database;`

1.10 Conflicts

1.10.1 Checking Whether the Names of the Source and Destination Databases Are the Same

MySQL Migration

Table 1-231 Checking whether the names of the source and destination databases are the same

Check Item	Whether the names of the source and destination databases are the same
Description	Check whether the names of the source and destination databases are the same.

Failure Cause and Handling Suggestion	Failure cause: This item cannot be checked because the source database fails to be connected. Handling suggestion: Check whether the source database is connected.
	Failure cause: This item cannot be checked because the destination database fails to be connected. Handling suggestion: Check whether the destination database is connected.
	Failure cause: Insufficient user permissions Handling suggestion: Check whether the database user permissions meet the migration requirements.
	Handling suggestion: • If you are migrating data to the cloud, determine whether to delete the databases with the same names as the source databases or specify a new destination DB instance based on site requirements. • If you are migrating data out of the cloud, determine whether to use the original destination database or specify a new destination DB instance based on site requirements.
	Failure cause: During an incremental migration, the source and destination databases cannot have the same names. Handling suggestion: Determine whether to retain these databases in the destination RDS DB instance or specify another destination RDS DB instance.

Migration from Redis to GeminiDB Redis

Table 1-232 Checking whether the names of the source and destination databases are the same

Check Item	Whether the names of the source and destination databases are the same
Description	Check whether the names of the source and destination databases are the same.
Failure Cause and Handling Suggestion	Failure cause: The destination instance cannot contain databases with the same names as those in the source. Handling suggestion: Determine whether to retain these databases in the destination instance or specify another destination instance.

Oracle -> MySQL/Oracle -> GaussDB(for MySQL) Synchronization

Table 1-233 Checking Whether the Names of the Source and Destination Databases Are the Same

Check Item	Whether the names of the source and destination databases are the same
Description	The mapping names of the tables to be synchronized in the source databases are the same as the names of the destination database tables.
Failure Cause and Handling Suggestion	Failure cause: Source database names are the same except for letter cases. Handling suggestion: Change the table name or return to the object selection page and deselect the tables with the same name. Statement for changing the table name: `ALTER TABLE old_table_name RENAME TO new_table_name;`
	Failure cause: The destination database contains a table to be synchronized. The table name is the same as the mapping name of the table to be synchronized in the source database. Handling suggestion: Delete the destination database table. Statement for deleting a table: `DROP TABLE table_name;`

Oracle -> PostgreSQL Synchronization

Table 1-234 Checking whether the names of the source and destination databases are the same

Check Item	Whether the names of the source and destination databases are the same
Description	The migration fails when the names of the source and destination databases are different.
Failure Cause and Handling Suggestion	Failure cause: The source and destination databases must have the same names, except that the destination database must use only lowercase letters. Handling suggestion: Create a database with name in lowercase letters in the destination database.
	Failure cause: The names of the objects to be migrated are the same except for letter cases. Handling suggestion: Select only one database among the databases whose names are the same except for letter cases.

	Failure cause: The names of the tables to be migrated are the same except for letter cases. Handling suggestion: Change table names or do not migrate the tables with the same names.
	Failure cause: The names of the tables to be migrated are the same as those in the destination database and use only lowercase letters. Handling suggestion: Change table names or do not migrate the tables with the same names.
	Failure cause: The destination database contains a table to be synchronized. The table name is the same as the mapping name of the table to be synchronized in the source database. Handling suggestion: Delete the destination database table. Statement for deleting a table: `DROP TABLE table_name;`

PostgreSQL > PostgreSQL Synchronization

Table 1-235 Checking whether the names of the source and destination databases are the same

Check Item	Whether the names of the source and destination databases are the same
Description	Check whether the source and destination databases have the same names to prevent existing databases from being overwritten. If the source and destination databases have the same name, the migration cannot be performed.
Failure Cause and Handling Suggestion	Failure cause: The destination database names cannot be the same. Handling suggestion: Change the destination database names to prevent the database from being overwritten.

PostgreSQL to GaussDB(DWS) Synchronization

Table 1-236 Checking whether the names of the source and destination databases are the same

Check Item	Whether the names of the source and destination databases are the same

Description	Check whether the source and destination databases have the same names to prevent existing databases from being overwritten. If the source and destination databases have the same name, the migration cannot be performed.
Failure Cause and Handling Suggestion	Failure cause: The destination database names cannot be the same. Handling suggestion: Change the destination database names to prevent the database from being overwritten.

DDM -> Oracle Synchronization

Table 1-237 Checking whether the names of the source and destination databases are the same

Check Item	Whether the names of the source and destination databases are the same
Description	To synchronize data from DDM to Oracle, you need to create the corresponding database (user) in the destination database in advance. Otherwise, the synchronization fails.
Failure Cause and Handling Suggestion	Failure cause: Some databases cannot be synchronized because the databases with the same names do not exist in the destination databases. Handling suggestion: Create these databases or users in the destination database or do not migrate these databases. Statement for creating a user: `CREATE USER user_name IDENTIFIED BY password;`

1.10.2 Checking Whether the Same View Names Exist in Both the Source and Destination Databases

Migration from MongoDB to DDS

Table 1-238 Checking whether the same view names exist in both the source and destination databases

Check Item	Whether the same view names exist in both the source and destination databases

Description	Check whether the source and destination databases have the same view names to prevent existing views from being overwritten. If view of the same name exists in the destination database, the migration cannot be performed.
Failure Cause and Handling Suggestion	Failure cause: The same view names exist in both the source and destination databases. Handling suggestions: Delete the destination database views that have the same names as those in the source database. Alternatively, do not migrate the views with the same names.

1.10.3 Checking Whether the Destination Database Contains a Non-Empty Collection with the Same Name As the Source Database

MongoDB Migration

Table 1-239 Checking whether the destination database contains a non-empty collection with the same name as the source database

Check Item	Whether the destination database contains a non-empty collection with the same name as the source database
Description	Check whether the source and destination databases have the same non-empty collections to prevent existing databases from being overwritten. If the source and destination databases have the same collections, the migration cannot be performed.
Failure Cause and Handling Suggestion	Failure cause: This item cannot be checked because the source database failed to be connected. Handling suggestion: Check whether the source database is connected.
	Failure cause: This item cannot be checked because the destination database failed to be connected. Handling suggestion: Check whether the destination database is connected.
	Failure cause: The same non-empty collections exist in both the source and destination databases. Handling suggestion: Determine whether to delete the same non-empty collections from the destination DB instance or specify a new destination DB instance.

1.10.4 Checking Whether Destination Database Contains the Same Table Names As the Synchronization Objects

MySQL Synchronization

Table 1-240 Checking whether destination database contains the same table names as the synchronization objects

Check Item	Whether destination database contains the same table names as the synchronization objects. (table name conflicts)
Description	The destination database contains objects with the same name as those in the source database. If table of the same name exists in the destination database, the migration cannot be performed. Exceptions: If the names and structures of tables in the source and destination databases are the same, the system determines that no conflict occurs.
Failure Cause and Handling Suggestion	Failure cause: The source and destination database tables cannot have the same names. Handling suggestions: Check whether the tables with the same names need to be retained. If yes, select another object for synchronization. If no, delete the tables with the same names.
	Failure cause: The destination database contains the same table names as those of the synchronization objects. Handling suggestions: Check whether the tables with the same names need to be retained. If yes, select another object for synchronization. If no, delete the tables with the same names.
	Failure cause: Both the source and destination databases are RDS DB instance and do not have mapped databases. Handling suggestion: Create mappings for the databases that are not mapped.
	Item to be confirmed: The destination database contains tables whose SRIDs are different from those in the source database. Handling suggestion: Check whether the geographic coordinate system used by the destination database table meets requirements. If the attribute of the geographic coordinate system has been specified at the source end, modify the structure of the destination database table to be the same as that at the source end.

MariaDB Synchronization

Table 1-241 Whether destination database contains the same table names as those of the synchronization objects.

Check Item	Whether destination database contains the same table names as the synchronization objects. (table name conflicts)
Description	The destination database contains objects with the same name as those in the source database. If table of the same name exists in the destination database, the migration cannot be performed. Exceptions: If the names and structures of tables in the source and destination databases are the same, the system determines that no conflict occurs.
Failure Cause and Handling Suggestion	Failure cause: The source and destination database tables cannot have the same names. Handling suggestions: Check whether the tables with the same names need to be retained. If yes, select another object for synchronization. If no, delete the tables with the same names.
	Failure cause: The destination database contains the same table names as those of the synchronization objects. Handling suggestions: Check whether the tables with the same names need to be retained. If yes, select another object for synchronization. If no, delete the tables with the same names.
	Failure cause: Both the source and destination databases are RDS DB instance and do not have mapped databases. Handling suggestion: Create mappings for the databases that are not mapped.

1.10.5 Checking Whether the Destination Database Contains Objects with the Same Name As Those in the Source Database

MySQL -> PostgreSQL Synchronization

Table 1-242 Checking whether the destination database contains objects with the same name as those in the source database

Check Item	Whether destination database contains objects with the same name as those in the source database
Description	The destination database contains objects with the same name as those in the source database. If a table of the same name exists in the destination database, the migration cannot be performed.

Failure Cause and Handling Suggestion	Failure cause: The source and destination database tables cannot have the same names. Handling suggestions: Check whether the tables with the same names need to be retained. If yes, select another object for synchronization. If no, delete the tables with the same names.
	Failure cause: The destination database contains the same table names as those of the synchronization objects. Handling suggestions: Check whether the tables with the same names need to be retained. If yes, select another object for synchronization. If no, delete the tables with the same names.

Synchronization from Oracle to GaussDB(DWS)

Table 1-243 Checking Whether the Destination Database Contains Objects with the Same Name As Those in the Source Database

Check Item	Whether the destination database contains objects with the same name as those in the source database
Description	The destination database contains tables with the same name as those in the source database.
Failure Cause and Handling Suggestion	Failure cause: The destination database table does not exist and cannot be synchronized. Handling suggestion: If you do not synchronize the table structure, create the table to be synchronized in the destination database in advance or synchronize the table structure. Statement for creating a table in the destination database: `CREATE TABLE table_name (column_name data_type);`

Oracle to GaussDB(DWS)/Oracle to PostgreSQL Synchronization

Table 1-244 Checking whether the destination database contains objects with the same name as those in the source database

Check Item	Whether the destination database contains objects with the same name as those in the source database
Description	The destination database contains objects with the same name as those in the source database.

Failure Cause and Handling Suggestion	Failure cause: The destination database contains the data and indexes of the table to be synchronized.
	Handling suggestion: Delete data and indexes from the destination database table. Otherwise, data inconsistency may occur.
	• Statement for clearing data in a table:
	`TRUNCATE TABLE table_name1;`
	• Statement for deleting an index:
	`DROP INDEX index_name ;`

	Failure cause: The source database contains encrypted objects. Handling suggestion: Go back to the object selection page and select database objects that are not encrypted.
	Failure cause: Source database names are the same except for letter cases. Handling suggestion: Change the table name or return to the object selection page and deselect the tables with the same name. Statement for changing the table name: `ALTER TABLE old_table_name RENAME TO new_table_name;`

Microsoft SQL Server as the Source in Synchronization

Table 1-245 Checking whether the destination database contains objects with the same name as those in the source database

Check Item	Whether the destination database contains objects with the same name as those in the source database
Description	The destination database contains objects with the same name as those in the source database. • If **Table structure** is selected, the destination database cannot contain objects with the same name as those in the source database. • If **Table structure** is not selected, create the corresponding table structure in the destination database in advance.
Failure Cause and Handling Suggestion	Failure cause: The destination database table does not exist and cannot be synchronized. Handling suggestion: If you do not synchronize the table structure, create the table to be synchronized in the destination database in advance or synchronize the table structure. Statement for creating a table in the destination database: `CREATE TABLE table_name (column_name data_type);`
	Failure cause: The table to be synchronized has been mapped to the destination database. Handling suggestion: Return to the **Set Synchronization Task** page, select the tables that meet the requirements. Alternatively, change the mapping names of the tables to be synchronized.

	Failure cause: The table to be synchronized has not been mapped to the destination database. Handling suggestion: Select **Table structure** to create a database table, or create the corresponding table structure in the destination database. If the table structure was not missing, check whether the name of the mapped table is correct.

Table-Level Synchronization from PostgreSQL to PostgreSQL

Table 1-246 Checking whether destination database contains objects with the same name as those in the source database

Check Item	Whether destination database contains objects with the same name as those in the source database
Description	The destination database contains objects with the same name as those in the source database If the same object names exist, the migration cannot be performed.
Failure Cause and Handling Suggestion	Failure cause: The destination database contains objects with the same name as those in the source database. Handling suggestions: Check whether the objects with the same names need to be retained. If yes, select another object for migration. If no, delete the objects with the same names.

1.10.6 Checking Whether Collections in Both the Source and Destination Databases Are Not Capped

MongoDB Migration

Table 1-247 Checking whether collections in both the source and destination databases are not capped

Check Item	Whether collections in both the source and destination databases are not capped
Description	Check whether collections in both the source and destination databases are not capped. If not, the migration fails.

Failure Cause and Handling Suggestion	Failure cause: the destination database has a collection whose name is the same as that of the capped collection of the source database. Handling suggestion: To ensure data consistency, you can delete the collection in the destination database with the same name as the capped collection in the source database. Alternatively, you can choose not to migrate the capped collection that will contradict with that in the destination database.
	Failure cause: The collections to be migrated are capped collections and already exist in the destination database. Handling suggestion: To ensure data consistency, you can delete the collection in the destination database with the same name as the capped collection in the source database. Alternatively, you can choose not to migrate the capped collection that will contradict with that in the destination database.

1.11 SSL Connections

1.11.1 Checking Whether the SSL Connection Is Correctly Configured

MySQL

Table 1-248 Checking whether the SSL connection is correctly configured

Check Item	Whether the SSL connection is correctly configured
Description	Check whether the SSL connection is correctly configured for the source database.
Failure Cause and Handling Suggestion	Failure cause: This item cannot be checked because the source database fails to be connected. Handling suggestion: Check whether the source database is connected.
	Failure cause: Insufficient user permissions Handling suggestion: Check whether the database user permissions meet the migration requirements.
	Failure cause: The database is unavailable. Handling suggestion: Contact Huawei technical support.
	Item to be confirmed: The source database user must have the REQUIRE SSL permission when using the SSL connection. Handling suggestion: This alarm does not affect the migration process. If you require the SSL connection, you are advised to grant the REQUIRE SSL permission to the source database user.

	Item to be confirmed: The destination database user must have the REQUIRE SSL permission when using the SSL connection. Handling suggestion: This alarm does not affect the migration process. If you require the SSL connection, you are advised to grant the REQUIRE SSL permission to the destination database user.
	Failure cause: The source database user has the REQUIRE SSL permission but did not upload the encryption certificate. The SSL connection cannot be used. Handling suggestion: On the **Configure Source and Destination Databases** page, enable the SSL connection and upload the certificate, or change the source database user.
	Failure cause: The destination database user has the REQUIRE SSL permission but did not upload the encryption certificate. The SSL connection cannot be used. Handling suggestion: On the **Configure Source and Destination Databases** page, enable the SSL connection and upload the certificate, or change the destination database user.
	Item to be confirmed: Currently, the SSL connection is not enabled. DRS must ensure that the source database account allows non-SSL connections to the source database. Handling suggestion: Manually check whether the source database account allows non-SSL connections, or try to perform a migration. (By default, the source database account allows non-SSL connections.)
	Failure cause: The SSL connection is enabled for the source database but no certificate has been uploaded. Handling suggestion: On the **Configure Source and Destination Databases** page, upload a certificate or disable the SSL connection for the source database.

MongoDB Migration

Table 1-249 Checking whether the SSL connection is enabled for the source database

Check Item	Whether the SSL connection is enabled for the source database
Description	Check whether the SSL connection is enabled for the source database.

Failure Cause and Handling Suggestion	Failure cause: SSL is enabled for the source database but no certificate has been uploaded. Handling suggestion: Upload a certificate on the **Configure Source and Destination Databases** page, or disable SSL for the source database.

1.11.2 Checking Whether the SSL Connection Is Enabled for the Source Database

PostgreSQL

Table 1-250 Checking whether the SSL connection is enabled for the source database

Check Item	Whether the SSL connection is enabled for the source database
Description	Check whether the SSL connection is enabled for the source database.
Failure Cause and Handling Suggestion	Failure cause: The source database SSL connection is disabled. Handling suggestion: In the **postgresql.conf** file, set **ssl_ca_file** to the directory of an SSL root CA certificate and set **ssl** to **on** to enable the SSL connection. Then, restart the database for the modifications to take effect.

1.11.3 Checking Whether the SSL Certificate of the Source Database Exists

MySQL > MySQL

Table 1-251 Checking whether the SSL certificate of the source database exists

Check Item	Whether the SSL certificate of the source database exists
Description	Check whether the SSL certificate type of the source database is correct during MySQL to MySQL synchronization. Otherwise, the synchronization fails.

Failure Cause and Handling Suggestion	Failure cause: The source database uses SSL to encrypt connections but the SSL certificate does not exist. Handing suggestion: On the **Configure Source and Destination Databases** page, enable SSL connection for the source database and upload an encryption certificate that contains only one beginning tag **BEGIN CERTIFICATE** and one end tag **END CERTIFICATE**.
	Failure cause: The SSL certificate type of the source database is not supported. Handing suggestion: On the **Configure Source and Destination Databases** page, enable SSL connection for the source database and upload an encryption certificate that contains only one beginning tag **BEGIN CERTIFICATE** and one end tag **END CERTIFICATE**.

1.11.4 Checking Whether the SSL Certificate of the Destination Database Exists

MySQL

Table 1-252 Checking whether the SSL certificate of the destination database exists

Check Item	Whether the SSL certificate of the destination database exists
Description	Check whether the SSL certificate type of the destination database is correct during migration. Otherwise, the migration fails.
Failure Cause and Handling Suggestion	Failure cause: The SSL certificate of the destination database does not exist. Handing suggestion: On the **Configure Source and Destination Databases** page, enable SSL connection for the destination database and upload an encryption certificate that contains only one beginning tag **BEGIN CERTIFICATE** and one end tag **END CERTIFICATE**.
	Failure cause: The SSL certificate type of the destination database is not supported. Handing suggestion: On the **Configure Source and Destination Databases** page, enable SSL connection for the destination database and upload an encryption certificate that contains only one beginning tag **BEGIN CERTIFICATE** and one end tag **END CERTIFICATE**.

1.11.5 Checking Whether Both the Source and Destination Databases Use SSL

MongoDB Migration

Table 1-253 Checking whether both the source and destination databases use SSL to encrypt connections

Check Item	Whether both the source and destination databases use SSL to encrypt connections
Description	Check whether both the source and destination databases use SSL to encrypt connections.
Failure Cause and Handling Suggestion	Failure cause: Both the source and destination databases use SSL to encrypt connections. Handling suggestion: When migrating data to the cloud, disable SSL on the destination database. When migrating data out of the cloud, disable SSL on the source database. To disable SSL, go to the DDS basic information page.

1.12 Object Dependencies

1.12.1 Checking Whether the Objects Referenced by Views Are Selected for Migration

Migration from MongoDB to DDS

Table 1-254 Checking whether the objects referenced by views are selected for migration

Check Item	Whether the objects referenced by views are selected for migration
Description	The views and referenced objects should be migrated together. Otherwise, the migration fails.

Item to Be Confirmed and Handling Suggestion	Failure cause: The views to be migrated have dependencies on the objects that are not to be migrated. Handling suggestion: Select the referenced objects in the migration object list. Alternatively, do not migrate the dependent views.

1.12.2 Checking Whether Referenced Tables Are Selected for Migration

MySQL Migration and Synchronization

Table 1-255 Checking whether the tables referenced by the foreign key in the table to be migrated are selected for migration.

Check Item	Whether the tables referenced by the foreign key in the table to be migrated are selected for migration.
Description	The tables referenced by the foreign key in the table to be migrated are not selected for migration.
Item to Be Confirmed and Handling Suggestion	Failure cause: Tables referenced by the foreign key in the table to be migrated are not selected for migration. Handling suggestion: Select the referenced tables.

MariaDB Synchronization

Table 1-256 Checking whether the tables referenced by the foreign key in the table to be migrated are selected for migration.

Check Item	Whether the tables referenced by the foreign key in the table to be migrated are selected for migration.
Description	The tables referenced by the foreign key in the table to be migrated are not selected for migration.

Item to Be Confirmed and Handling Suggestion	Failure cause: Tables referenced by the foreign key in the table to be migrated are not selected for migration. Handling suggestion: Select the referenced tables.

1.13 Source Database Information

1.13.1 Checking Whether the Shards and Mongos Are in the Same Cluster

MongoDB Migration

Table 1-257 Checking whether the shards and mongos are in the same cluster

Check Item	Whether the shards and mongos are in the same cluster
Description	If the shards and mongos are not in the same cluster, the migration will fail.
Item to Be Confirmed and Handling Suggestion	Failure cause: The shards are in different clusters from mongos. Handling suggestion: On the connection test page, enter the shards which are in the same cluster as the mongos.

1.13.2 Checking Whether the Balancers of the Source Database Is Enabled

MongoDB Migration

Table 1-258 Checking whether the balancers of the source database is enabled

Check Item	Whether the balancers of the source database are enabled

Description	If the source database contains the collections whose balancers are enabled, the migration will fail.
Item to Be Confirmed and Handling Suggestion	Failure cause: Balancers are enabled for the collections in the source database. Handling suggestions: Disable balancers for the collections.

1.13.3 Checking Whether the Source and Destination Database Types Match

MongoDB Migration

Table 1-259 Checking whether the source and destination database types match

Check Item	Whether the source and destination database types match
Description	If the source database type does not match the destination database type, the migration task will fail.
Failure Cause and Handling Suggestion	Failure cause: The source and destination database types do not match. Handling suggestion: If the source DB instance type is cluster, ensure that the object type corresponding to the input IP address and port of the source database cluster is mongos, the source shard database type is replica set, and the destination database type is cluster.

2 Failure Cases

2.1 Case Overview

Table 2-1 Overview

Data Flow	Related Documents
Real-Time Migration from MongoDB to DDS	Full Migration Error: Prematurely reached end of stream
	Full Migration Error: not authorized on *** to execute command {***}
	Full Migration Error: GC overhead limit exceeded
	Full Migration Error: The background process is unavailable. Maybe it has been killed manually or by the operating system. Please restart the task if possible or wait for restarting by itself within 5 minutes."
	Full Migration Error: Timed out after 60000 ms while waiting to connect
	Full or Incremental Migration Error: Timed out after 60000 ms while waiting to connect
	Full or Incremental Migration Error: Invalid BSON field name ***
	Incremental Migration Error: Timed out after 60000 ms while waiting for a server that matches com.mongodb.client.internal
	Incremental Migration Error: Command failed with error *** (***):***. The full response is {***}"

Data Flow	Related Documents
Real-Time Migration and Synchronization from MySQL to MySQL	Full Phase Error: Table *** doesn't exist
	Full Phase Error: The background process is unavailable
	Full Phase Error: Communications link failure The last packet sent successfully to the server was 0 milliseconds ago. The driver has not received any packets from the server.
	Full Phase Error: Error writing file *** (errno: 28 - No space left on device)
	Full Phase Error: The MySQL server is running with the --super-read-only option so it cannot execute this statement
	Full Phase Error: The table *** is full
	Full Phase Error: Unknown column *** in 'field list'
	Full Phase Error: Lock wait timeout exceeded; try restarting transaction
	Full Phase Error: Java heap space
	Full Phase Error: Table *** already exists
	Full Phase Error: temp table: *** not exist
	Full Phase Error: failed to create new session
	Full Phase Error: load table: *** failed
	Full Phase Error: extract table structure failed!
	Full Phase Error: read table=*** failed
	Full Phase Error: CANNOT UPDATE USER WITH NULL PASSWORD
	Full Phase Error: Access denied for user *** to database ***
	Full Phase Error: The MySQL server is running with the --super-read-only option so it cannot execute this statement
	Full Phase Error: Temporary file write failure.
	Full Phase Error: Incorrect prefix key; the used key part isn't a string, the used length is longer than the key part, or the storage engine doesn't support unique prefix keys
	Full Phase Error: Unknown database ***
	Full Phase Error: Access denied; you need (at least one of) the SUPER privilege(s) for this operation
	Full Phase Error: retry structures failed events and Table *** doesn't exist

Data Flow	Related Documents
	Full Phase Error: shard table=*** failed
	Full Phase Error: error when split table shard occur!
	Full Phase Error: Column name 'AUTO_PK_ROW_ID' is reserved.
	Full Phase Error: transfer account failed, can not find password from src DB
	Full Phase Error: Failed to add the foreign key constraint '***' to system tables
	Full Phase Error: Too many keys specified; max 64 keys allowed
	Full Phase Error: Unknown collation: 'utf8mb4_0900_ai_ci'
	Full or Incremental Phase Error: Access denied for user ***
	Full or Incremental Phase Error: binlog is not existed
	Full or Incremental Phase Error: database log download failed
	Full or Incremental Phase Error: Can not read response from server
	Full or Incremental Phase Error: Communications link failure
	Full or Incremental Phase Error: EOF Packet received, master disconnected
	Full or Incremental Phase Error: Extract db create sql failed
	Full or Incremental Phase Error: load database structure failed in source database
	Full or Incremental Phase Error: load table: *** failed
	Full or Incremental Phase Error: Reached end of input stream
	Full or Incremental Phase Error: Read timed out
	Full or Incremental Phase Error: The background process is unavailable
	Full or Incremental Phase Error: Duplicate entry *** for key 'PRIMARY'
	Full or Incremental Phase Error: cause by: Index: ***, Size: ***
	Full or Incremental Phase Error: The offset and file name between src and parser is inconsistency
	Full or Incremental Phase Error: core process is not healthy or crashed

Data Flow	Related Documents
	Full or Incremental Phase Error: table info of table `***` from metadata miss
	Full or Incremental Phase Error: binlog parse fail, data dictionary may be not complete!
	Full or Incremental Phase Error: table *** record field size for insert/delete dml
	Full or Incremental Phase Error: service *** failed, cause by: Unable to connect to DBMS: ***
	Full or Incremental Phase Error: The binlog fetch connection may be interrupted
	Full or Incremental Phase Error: Received error packet: errno - 1047, solstate - HY000 errmsg = Unknown command
	Incremental Phase Error: not equals to target db column count
	Incremental Phase Error: The MySQL server is running with the --super-read-only option
	Incremental Phase Error: you need (at least one of) the SUPER privilege(s) for this operation
	Incremental Phase Error: Can't DROP ***; check that column/key exists
	Incremental Phase Error: Can't find file: *** (errno: 2 - No such file or directory)
	Incremental Phase Error: Data truncation: Data too long for column
	Incremental Phase Error: Failed to read file header from
	Incremental Phase Error: Lock wait timeout exceeded
	Incremental Phase Error: Must seek before attempting to read next event
	Incremental Phase Error: Table *** already exists
	Incremental Phase Error: Table *** doesn't exist
	Incremental Phase Error: Table *** not found in database
	Incremental Phase Error: source has more columns than target
	Incremental Phase Error: Unknown storage engine
	Incremental Phase Error: Unknown table
	Incremental Phase Error: You have an error in your SQL syntax

Data Flow	Related Documents
	Incremental Phase Error: not illegal for mariaDb gtid position
	Incremental Phase Error: without PK execute failed
	Incremental Phase Error: Deadlock found when trying to get lock
	Incremental Phase Error: current serverUUID not equals to this session
	Incremental Phase Error: Slave has more GTIDs than the master has, using the master's SERVER_UUID.
	Incremental Phase Error: Operation not allowed when innodb_force_recovery > 0
	Incremental Phase Error: filter data in config condition filter error
Real-Time Migration and Synchronization from MySQL to GaussDB(for MySQL)	Full or Incremental Phase Error: Illegal mix of collations (utf8mb4_0900_ai_ci,IMPLICIT) and (utf8mb4_general_ci,IMPLICIT) for operation
Real-Time Synchronization from MySQL to GaussDB(DWS)	Full Synchronization Error: Table *** not found in database
	Full Synchronization Error: column 'database_table' of relation *** does not exist
	Full Synchronization Error: value too long for type character varying
	Full Synchronization Error: int1 has not implemented
	Full Synchronization Error: column name 'tid' conflicts with a system column name
	Full Synchronization Error: date/time field value out of range
	Full or Incremental Synchronization Error: service LOGMANAGER failed
	Full or Incremental Synchronization Error: service CAPTURER failed
	Full or Incremental Synchronization Error: ERROR: pooler

Data Flow	Related Documents
	Full or Incremental Phase Error: service *** failed, cause by: Unable to connect to DBMS: ***
	Full or Incremental Phase Error: The binlog fetch connection may be interrupted
	Incremental Synchronization Error: dn_***: column *** contains null values
	Incremental Synchronization Error: source has more columns than target
	Incremental Synchronization Errors: Connection to *.*.*.98:8000 refused. Check that the hostname and port are correct and that the postmaster is accepting TCP/IP connections
	Incremental Synchronization Error: Table *** not found in target database
	Incremental Synchronization Error: in a read-only transaction
	Incremental Synchronization Error: relation *** does not exist
	Incremental Synchronization Error: *** doesn't in the target table
	Incremental Synchronization Error: syntax error at or near
	Incremental Synchronization Error: schema *** does not exist
	Incremental Synchronization Error: Check whether dws supports the DDL
	Incremental Synchronization Error: PL/pgSQL function *** line *** at SQL statement
Real-Time Synchronization from MySQL to CSS/ES	Incremental Synchronization Error: write table *** failed: null
Real-Time Synchronization from PostgreSQL to PostgreSQL	Full Synchronization Error: function *** does not exist
	Full Synchronization Error: relation *** does not exist
	Full Synchronization Error: GC overhead limit exceeded
	Full Synchronization Error: Java heap space
	Full Synchronization Error: column *** of relation *** does not exist

Data Flow	Related Documents
	Full Synchronization Error: column *** does not exist
	Full Synchronization Error: type 'hstore' does not exist
	Full Synchronization Error: type 'geometry' does not exist
	Full Synchronization Error: Check that the hostname and port are correct and that the postmaster is accepting TCP/IP connections
	Full Synchronization Error: invalid locale name
	Full Synchronization Error: password must not equal user name
	Full Synchronization Error: permission denied for schema ***
	Full or Incremental Phase Error: service *** failed, cause by: Unable to connect to DBMS: ***
	Full or Incremental Phase Error: Initialize logical replication stream failed, the source database may have a long transaction
	Full or Incremental Phase Error: memory required is *** MB, maintenance_work_mem is *** MB
	Full or Incremental Phase Error: temporary file size exceeds temp_file_limit
	Incremental Synchronization Error: Table *** not found in target database
	Incremental Synchronization Error: remaining connection slots are reserved
	Incremental Synchronization Error: PL/pgSQL function *** line *** at SQL statement
Real-Time Synchronization with Oracle Serving as the Source	Full Synchronization Error: has date/datetime: *** which is outside of dest allowed range
	Full or Incremental Phase Error: Got minus one from a read call
	Incremental Synchronization Error: Source supplemental log level is PK/UI. Missing column data at delete+insert on ***"
	Incremental Synchronization Error: timeout when get next file log, maybe has been deleted, please check it.
	Incremental Synchronization Error: Failed to construct kafka producer.
	Incremental Synchronization Error: Topic *** not present in metadata after 300000 ms

Data Flow	Related Documents
Real-Time DR with MySQL Serving as the Source	DR Error: A dml without pk write target db fail
Backup Migration	Backup Migration Failed Because Backup Files Cannot Be Found
	Backup Migration Failed Because a Backup Database Cannot Be Found in the Backup Files
	Backup Migration Failed Because the Database with the Same Name Already Exists
	Backup Migration Failed Because an Incremental Backup File Is Used
	Backup Migration Failed Because an Log Backup File Is Used
	Backup Migration Failed Because the Backup File Verification Failed
	Backup Migration Failed Because of Insufficient Space
	Backup Migration Failed Because Database Names Are Not Specified
	Backup Migration Failed Because a Full Backup File Is Used
	Backup Migration Failed Because the LSNs of Incremental Backup Files Are Inconsecutive
	Backup Migration Failed Because the Number of Databases to Be Restored Exceeds the Destination Database Threshold
Traffic Replay	Parsing Failed, and a Message Is Displayed Indicating That the OBS Connection Failed
Data-Level Comparison	Data-Level Comparison Error: service SDV failed! cause by: the size of records in one shard[***] of target database, exceeds the max size 200000

2.2 Real-Time Migration from MongoDB to DDS

2.2.1 Full Migration Error: Prematurely reached end of stream

Scenarios

During real-time MongoDB-to-DDS migration, an error is reported during full migration. The log information is as follows: service DATAMOVE failed, cause by: Prematurely reached end of stream.

Possible Causes

The number of connections to the source or destination database is insufficient. Check the maximum number of connections to the source or destination database and the number of used connections. Generally, the number of connections used by DRS is about 10 on the source database and 20 on the destination database.

Solution

Step 1 Adjust the number of connections to the database.

- For DDS, query and adjust the number of connections to a database by referring to **DDS User Guide**.
- For MongoDB, adjust the number of connections to a database by referring to the official document.

Step 2 After the adjustment is complete, click **Resume** in the **Operation** column to resume the task.

Step 3 If the fault persists, choose **Service Tickets > Create Service Ticket** in the upper right corner of the management console and contact DRS customer service.

----End

2.2.2 Full Migration Error: not authorized on *** to execute command {***}

Scenarios

During real-time migration from MongoDB to DDS, an error is reported during full migration. The log information is as follows: service DATAMOVE failed, cause by: apply event=[type=table_data, batch_index_in_shard=1, table_schema=***, table_name=***, record_num=2720] occur error, msg=Command failed with error 13 (Unauthorized): 'not authorized on *** to execute command {***}.

Possible Causes

The migration account used by DRS does not have the write permission on the destination database.

Solution

Step 1 Grant the destination database write permission to the DRS migration account. For details, see the MongoDB official documents or DDS user guide.

Step 2 After the adjustment is complete, click **Resume** in the **Operation** column to resume the task.

----End

2.2.3 Full Migration Error: GC overhead limit exceeded

Scenarios

During real-time migration from MongoDB to DDS, an error is reported during full migration. The log information is as follows: service DATAMOVE failed, cause by: GC overhead limit exceeded.

Possible Causes

- The size of a single data record in the source database is too large.
- The replication instance specifications are too small.

Solution

Step 1 Check whether the task is normal.

- If the task is normal, this error is recorded in the log and no further action is required.
- If the task is abnormal, go to **Step 2**.

Step 2 In the upper right corner of the console, choose **Service Tickets > Create Service Ticket** and contact customer service.

----End

2.2.4 Full Migration Error: The background process is unavailable. Maybe it has been killed manually or by the operating system. Please restart the task if possible or wait for restarting by itself within 5 minutes."

Scenarios

During real-time migration from MongoDB to DDS, an error is reported during full migration. The log information is as follows: service DATAMOVE failed, cause by: The background process is unavailable. Maybe it has been killed manually or by the operating system. Please restart the task if possible or wait for restarting by itself within 5 minutes.

Possible Causes

- The synchronization process is abnormal.

Solution

No further operation is required. The DRS daemon process automatically resumes the task. The migration and synchronization services are not affected, and data is

resumed from the breakpoint. If the task is abnormal, click **Resume** in the **Operation** column to resume the task.

2.2.5 Full Migration Error: Timed out after 60000 ms while waiting to connect

Scenarios

During real-time migration from MongoDB to DDS, an error is reported during full migration. The log information is as follows: service DATAMOVE failed, cause by: [reason]:Failed to connect to database due to network, check the network between the DRS and the database or try again later.[message]:apply event=[type=table_data, batch_index_in_shard=144, table_schema=***, table_name=***, record_num=8510] occur error, msg=Timed out after 60000 ms while waiting to connect. Client view of cluster state is {type=UNKNOWN, servers=[{*** type=UNKNOWN, state=CONNECTING, exception={com.mongodb.MongoSocketOpenException: Exception opening socket}, caused by {java.net.ConnectException: Connection refused (Connection refused)}}].

Possible Causes

- The network is unstable. As a result, the connection times out when data is written to the destination database.
- The destination database is busy. As a result, the connection times out.

Solution

1. Check whether the destination database is running properly.
2. Check whether packet loss or retransmission occurs on the network between the DRS replication instance and the destination database.
3. Contact Huawei engineers to change the default timeout interval.

2.2.6 Full or Incremental Migration Error: Timed out after 60000 ms while waiting to connect

Scenarios

During real-time migration from MongoDB to DDS, an error is reported during full or incremental migration. The log information is as follows: service LOGMANAGER failed, cause by: [reason]:Failed to connect to database due to network, check the network between the DRS and the database or try again later.[message]:Timed out after 60000 ms while waiting to connect. Client view of cluster state is {type=UNKNOWN, servers=[{***, type=UNKNOWN, state=CONNECTING, exception={com.mongodb.MongoSocketOpenException: Exception opening socket}, caused by {java.net.ConnectException: Connection refused (Connection refused)}}]

Possible Causes

- The network is unstable. As a result, the connection to the source database times out.

- The source database is busy. As a result, the connection times out.

Solution

1. Check whether the source database is running properly.
2. Check whether packet loss or retransmission occurs on the network between the DRS replication instance and the source database.
3. Contact Huawei engineers to change the default timeout interval.

2.2.7 Full or Incremental Migration Error: Invalid BSON field name ***

Scenarios

During real-time migration from MongoDB to DDS, an error is reported during full or incremental migration. The log information is as follows: service DATAMOVE failed, cause by: apply event=[type=table_data, batch_index_in_shard={***}, table_schema={***}, table_name={***}, record_num={***}] occur error, msg=Invalid BSON field name {***}

Possible Causes

The field contains invalid characters, such as periods (.) and dollar signs ($).

Solution

Check and remove invalid symbols in the source database. In the task list, locate the target task and click **Resume** in the **Operation** column to resume the task.

2.2.8 Incremental Migration Error: Timed out after 60000 ms while waiting for a server that matches com.mongodb.client.internal

Scenarios

During real-time migration from MongoDB to DDS, an error is reported during incremental migration. The log information is as follows: service INCREMENT failed, cause by: [reason]:Failed to connect to database due to network, check the network between the DRS and the database or try again later.[message]:Timed out after 60000 ms while waiting for a server that matches com.mongodb.client.internal.MongoClientDelegate$1@27105e1a. Client view of cluster state is {type=REPLICA_SET, servers=[{address=***, type=UNKNOWN, state=CONNECTING, exception={com.mongodb.MongoSocketOpenException: Exception opening socket}, caused by {java.net.ConnectException: Connection timed out (Connection timed out)}}, {address=***, type=UNKNOWN, state=CONNECTING, exception={com.mongodb.MongoSocketOpenException: Exception opening socket}, caused by {java.net.NoRouteToHostExceptio.

Possible Causes

- The network is unstable. As a result, the connection times out when data is written to the destination database.
- The destination database is busy. As a result, the connection times out.

Solution

1. Check whether the destination database is running properly.
2. Check whether packet loss or retransmission occurs on the network between the DRS replication instance and the destination database.
3. Contact Huawei engineers to change the default timeout interval.

2.2.9 Incremental Migration Error: Command failed with error *** (***):***. The full response is {***}"

Scenarios

During real-time migration from MongoDB to DDS, an error is reported during incremantal migration. The log information is as follows: service INCREMENT failed, cause by: [reason]:The database returns an error.[message]:Command failed with error *** (***):***. The full response is {***}.

Possible Causes

The destination database returns an error. Common error codes are as follows:

- Error 91: The destination database service is abnormal.
- Error 133: The destination database shard is abnormal.
- Error 10107: The primary node of the destination database is abnormal.

Solution

Contact destination database engineers to locate and rectify the fault.

2.3 Real-Time Migration and Synchronization from MySQL to MySQL

2.3.1 Full Phase Error: Table *** doesn't exist

Scenarios

During a full migration or synchronization, an error is reported, and the log information is as follows: service DATAMOVE failed, cause by: Table '***' doesn't exist.

Possible Causes

During the full phase, DDL statements are executed in the source database to delete tables.

Solution

Solution 1

During the full migration and synchronization phases, the DELETE command cannot be performed. For details about how to recreate a task, see **From MySQL to MySQL**.

Solution 2

Create a table with the same structure as the deleted table in the source database. In the task list on the **Online Migration Management** page, locate the task and click **Resume** in the **Operation** column.

2.3.2 Full Phase Error: The background process is unavailable

Scenarios

During a full migration or synchronization, an error is reported, and the log information is as follows: service DATAMOVE failed, cause by: The background process is unavailable. Maybe it has been killed manually or by the operating system. Please restart the task if possible or wait for restarting by itself within 5 minutes.

Possible Causes

During the full migration or synchronization phase, the DRS process is terminated unexpectedly.

Solution

No further operation is required. The DRS daemon process automatically resumes the task. The migration and synchronization services are not affected, and data is resumed from the breakpoint. If the task is abnormal, click **Resume** in the **Operation** column to resume the task.

2.3.3 Full Phase Error: Communications link failure The last packet sent successfully to the server was 0 milliseconds ago. The driver has not received any packets from the server.

Scenarios

During a full migration or synchronization, an error is reported, and the log information is as follows: service DATAMOVE failed, cause by: Unable to connect to DBMS: url=jdbc:mysql://*** user=root, Caused by: Communications link failure The last packet sent successfully to the server was 0 milliseconds ago. The driver has not received any packets from the server.

Possible Causes

The connection to the source or destination database fails to be established.

Solution

1. Check whether the source or destination database is running properly.
2. Check whether the network connection between the DRS instance and the source or destination database is normal.
3. Check whether the whitelist of the source or destination database allows access from DRS instance IP addresses.

2.3.4 Full Phase Error: Error writing file *** (errno: 28 - No space left on device)

Scenarios

During a full migration or synchronization, an error is reported, and the log information is as follows: service DATAMOVE failed, cause by: apply data of table=` %s`.` %s` failed: Error writing file '***' (errno: 28 - No space left on device).

Possible Causes

The destination database storage space is insufficient. As a result, data fails to be written to the destination database.

Solution

Step 1 Adjust the storage space of the destination database.

- If RDS for MySQL is used, see **RDS for MySQL Performance Tuning** or contact RDS customer service to adjust the destination database storage space.
- If an on-premises MySQL database or a MySQL database built on another cloud is used, contact database O&M engineers to check and adjust the destination database storage space.

Step 2 After the adjustment is complete, click **Resume** in the **Operation** column to resume the task.

----End

2.3.5 Full Phase Error: The MySQL server is running with the --super-read-only option so it cannot execute this statement

Scenarios

During a full migration or synchronization, an error is reported, and the log information is as follows: service DATAMOVE failed, cause by: apply data of table=` %s`.` %s` failed: The MySQL server is running with the --super-read-only option so it cannot execute this statement.

Possible Causes

The destination database is read-only. The possible cause is that the space of the destination database is insufficient.

Solution

Step 1 Adjust the storage space of the destination database and restore the destination database to the Read/Write state.

- If RDS for MySQL is used, see **RDS for MySQL Performance Tuning** or contact RDS customer service to adjust the destination database storage space.
- If an on-premises MySQL database or a MySQL database built on another cloud is used, contact database O&M engineers to check and adjust the destination database storage space.

Step 2 After the adjustment is complete, click **Resume** in the **Operation** column to resume the task.

----End

2.3.6 Full Phase Error: The table *** is full

Scenarios

During a full migration or synchronization, an error is reported, and the log information is as follows: service DATAMOVE failed, cause by: apply event=[type=table_data, batch_index_in_shard=1, table_schema=%s, table_name=%s, record_num=%s,] occur error, msg=apply data of table=`%s`.`%s` failed: The table *** is full.

Possible Causes

The destination database storage space is insufficient. As a result, data fails to be written to the destination database.

Solution

Step 1 Adjust the storage space of the destination database.

- If RDS for MySQL is used, see **RDS for MySQL Performance Tuning** or contact RDS customer service to adjust the destination database storage space.
- If an on-premises MySQL database or a MySQL database built on another cloud is used, contact database O&M engineers to check and adjust the destination database storage space.

Step 2 After the adjustment is complete, click **Resume** in the **Operation** column to resume the task.

----End

2.3.7 Full Phase Error: Unknown column *** in 'field list'

Scenarios

During a full migration or synchronization, an error is reported, and the log information is as follows: service DATAMOVE failed, cause by: apply event=[type=table_data, batch_index_in_shard=1, table_schema= %s, table_name= %s, record_num=5] occur error, msg=apply data of table=` %s`.` %s` failed: Unknown column ' %s' in'field list'.

Possible Causes

The table structures of the source and destination databases are inconsistent. The possible cause is that DDL is executed on the columns of the destination database table during full synchronization or the table consistency check is skipped during pre-check.

Solution

Step 1 Contact the O&M personnel to change the table structure of the destination database to be the same as that of the source database.

Step 2 After the change is complete, click **Resume** in the **Operation** column to resume the task.

----End

2.3.8 Full Phase Error: Lock wait timeout exceeded; try restarting transaction

Scenarios

During a full migration or synchronization, an error is reported, and the log information is as follows: service DATAMOVE failed, cause by: apply event=[type=table_data, batch_index_in_shard=***, table_schema= %s, table_name= %s, record_num=***] occur error, msg=apply data of table=` %s `.` %s ` failed: Lock wait timeout exceeded; try restarting transaction.

Possible Causes

- The service connection of the destination database holds the lock for a long time.
- The performance of the destination database is insufficient or the load is heavy, and the execution is slow.

Solution

Step 1 Contact the O&M personnel to check the lock usage, slow SQL statements, or load status of the destination database.

Step 2 After the destination database is restored, click **Resume** in the **Operation** column to resume the task.

----End

2.3.9 Full Phase Error: Java heap space

Scenarios

During a full migration or synchronization, an error is reported, and the log information is as follows: service DATAMOVE failed, cause by: apply event=[type=table_data, batch_index_in_shard=***, table_schema= %s, table_name= %s, record_num=***] occur error, msg=apply data of table=` %s `.` %s ` failed: Java heap space.

Possible Causes

The size of a single record exceeds 50 MB.

Solution

Contact Huawei technical support engineers.

2.3.10 Full Phase Error: Table *** already exists

Scenarios

During a full migration or synchronization, an error is reported, and the log information is as follows: service DATAMOVE failed, cause by: apply event=[type=table_rename_or_copy, index=null, schema_name= %s, object_name= %s] occur error, msg=rename table %s. %s error: Table '%s ' already exists.

Possible Causes

The table without a primary key already exists in the destination database.

Solution

Step 1 Contact the O&M engineers to delete the tables that do not have primary keys from the destination database.

Step 2 In the task list, locate the target task and click **Resume** in the **Operation** column to resume the task.

----End

2.3.11 Full Phase Error: temp table: *** not exist

Scenarios

During a full migration or synchronization, an error is reported, and the log information is as follows: service DATAMOVE failed, cause by: apply

event=[type=table_rename_or_copy, index=null, schema_name= %s, object_name= %s] occur error, msg=temp table: %s. %s not exist

Possible Causes

An exception occurred when a table without a primary key is being migrated.

Solution

Contact Huawei technical support engineers.

2.3.12 Full Phase Error: failed to create new session

Scenarios

During a full migration or synchronization, an error is reported, and the log information is as follows: service DATAMOVE failed, cause by: com.continuent.tungsten.replicator.ReplicatorException: Unable to connect to DBMS: url=jdbc:mysql://*** user=***, Caused by: failed to create new session.

Possible Causes

The connection to the source or destination database fails to be established.

Solution

1. Check whether the source or destination database is running properly.
2. Check whether the network connection between the DRS instance and the source or destination database is normal.
3. Check whether the whitelist of the source or destination database allows access from the IP address of the DRS instance.

2.3.13 Full Phase Error: load table: *** failed

Scenarios

During a full migration or synchronization, an error is reported, and the log information is as follows: service DATAMOVE failed, cause by: load table: `%s`.`%s` failed.

Possible Causes

The table structure of the source database fails to be loaded. The possible cause is that the user deletes tables during synchronization or the source database user does not have required permissions.

Solution

1. Contact the O&M engineers to check whether the table structure of the source database is normal. The common commands are as follows:
   ```
   SELECT * FROM `%s`.`%s` LIMIT 1
   SHOW CREATE TABLE `%s`.`%s`
   ```


2. Contact the source database administrator to check whether the source database and tables have been deleted. If they were deleted, recreate the task by referring to **Precautions**.
3. Check whether the migration account has the SHOW CREATE TABLE permission on the source database tables. If the account does not have the permission, grant the permission to the source database migration account by referring to **Precautions**. Then, in the task list, click **Resume** in the **Operation** column to resume the task.

2.3.14 Full Phase Error: extract table structure failed!

Scenarios

During a full migration or synchronization, an error is reported, and the log information is as follows: service DATAMOVE failed, cause by:extract table structure failed! Table is %s. message is %s.

Possible Causes

The table structure of the source database fails to be loaded. The possible cause is that the user deletes tables during synchronization or the source database user does not have required permissions.

Solution

1. Contact the O&M engineers to check whether the table structure of the source database is normal. The common commands are as follows:
```
SELECT * FROM `%s`.`%s` LIMIT 1
SHOW CREATE TABLE `%s`.`%s`
```
2. Contact the source database administrator to check whether the source database and tables have been deleted. If they were deleted, recreate the task by referring to **Precautions**.
3. Check whether the migration account has the SHOW CREATE TABLE permission on the source database tables. If the account does not have the permission, grant the permission to the source database migration account by referring to **Precautions**. Then, in the task list, click **Resume** in the **Operation** column to resume the task.

2.3.15 Full Phase Error: read table=*** failed

Scenarios

During a full migration or synchronization, an error is reported, and the log information is as follows: service DATAMOVE failed, cause by: read table=` %s`.` %s` failed.

Possible Causes

Failed to read table data from the source database due to poor source database performance or unstable network connection.

Solution

Step 1 Contact Huawei technical support to adjust the timeout interval for accessing the source database.

Step 2 After the adjustment is complete, click **Resume** in the **Operation** column to resume the task.

----End

2.3.16 Full Phase Error: CANNOT UPDATE USER WITH NULL PASSWORD

Scenarios

During a full migration or synchronization, an error is reported, and the log information is as follows: service DATAMOVE failed, cause by: retry structures failed events=the fail structures are [type=account, index=0, schema_name=mysql, object_name='***']reason:[CANNOT UPDATE USER WITH NULL PASSWORD].

Possible Causes

The source database account password is empty.

Solution

Step 1 Contact the O&M engineers to add a password for the account that reports the error in the source database.

Step 2 In the task list, locate the target task and click **Resume** in the **Operation** column to resume the task.

----End

2.3.17 Full Phase Error: Access denied for user *** to database ***

Scenarios

During a full migration or synchronization, an error is reported, and the log information is as follows: service DATAMOVE failed, cause by: retry structures failed events=the fail structures are [type=account, index=0, schema_name=mysql, object_name='***']reason:[Access denied for user '***' to database '***']

Possible Causes

The DRS migration account does not have sufficient permissions on the destination database.

Solution

Step 1 Contact the O&M engineers to add the schema permission to the migration account in the destination database.

Step 2 In the task list, locate the target task and click **Resume** in the **Operation** column to resume the task.

----End

2.3.18 Full Phase Error: The MySQL server is running with the --super-read-only option so it cannot execute this statement

Scenarios

During a full migration or synchronization, an error is reported, and the log information is as follows: service DATAMOVE failed, cause by: retry structures failed events=the fail structures are [type=constraint_data, index=0, schema_name= %s, object_name= %s]reason:[The MySQL server is running with the --super-read-only option so it cannot execute this statement]

Possible Causes

When DRS migrates indexes, the destination database is in the read-only state. The possible cause is that the space of the destination database is insufficient.

Solution

Step 1 Contact the O&M engineers to check the status of the destination database and rectify the database fault.

Step 2 After the destination database is restored, click **Resume** in the **Operation** column to resume the task.

----End

2.3.19 Full Phase Error: Temporary file write failure.

Scenarios

During a full migration or synchronization, an error is reported, and the log information is as follows: service DATAMOVE failed, cause by: retry structures failed events=the fail structures are [type=constraint_data, index=0, schema_name= %s, object_name= %s]reason:[Temporary file write failure.]

Possible Causes

The temporary space of the destination database is insufficient when DRS migrates indexes.

Solution

Step 1 Adjust the temporary space of the destination database.

- If an RDS for MySQL instance is used, perform the following operations to adjust the temporary space:
  a. Scale up the space by referring to **RDS for MySQL Performance Tuning**.

b. Check whether the temporary space increases.

- If yes, go to **Step 2**.
- If no, in the upper right corner of the management console, choose **Service Tickets > Create Service Tickets** and contact RDS customer service to adjust the temporary space of the destination database.

- If an on-premises MySQL database or a MySQL database built on another cloud is used, contact database O&M engineers to check and adjust the destination database temporary space.

Step 2 After the adjustment is complete, click **Resume** in the **Operation** column to resume the task.

Step 3 If the fault persists, choose **Service Tickets > Create Service Ticket** in the upper right corner of the management console and contact DRS customer service.

----End

2.3.20 Full Phase Error: Incorrect prefix key; the used key part isn't a string, the used length is longer than the key part, or the storage engine doesn't support unique prefix keys

Scenarios

During a full migration or synchronization, an error is reported, and the log information is as follows: service DATAMOVE failed, cause by: retry structures failed events=the fail structures are [type=constraint_data, index=106, schema_name= %s, object_name= %s]reason:[Incorrect prefix key; the used key part isn't a string, the used length is longer than the key part, or the storage engine doesn't support unique prefix keys]

Possible Causes

Table structures in the source and destination databases are inconsistent.

Solution

Step 1 Contact the O&M engineers to change the table structure of the destination database to be the same as that of the source database.

Step 2 In the task list, locate the target task and click **Resume** in the **Operation** column to resume the task.

----End

2.3.21 Full Phase Error: Unknown database ***

Scenarios

During a full migration or synchronization, an error is reported, and the log information is as follows: service DATAMOVE failed, cause by: retry structures failed events=the fail structures are [type=***, index=***, schema_name=***, object_name=***]reason:[Unknown database '***']

Possible Causes

- The database corresponding to the destination database structure does not exist.
- The database in which objects to be migrated or synchronized reside is not in the object selection list.

Solution

Step 1 Check whether the database specified in the error information exists in the destination database.

- If no, manually create a specified database in the destination database and ensure that the structure of the database is the same as that of the source database. Then, in the task list, locate the row that contains the target task and click **Resume** in the **Operation** column to submit the task again.
- If yes, go to **Step 2**.

Step 2 Check whether the database specified in the error information exists in the source database.

- If yes, select the database again.
- If no, the database in which objects reside may have been deleted or DRS does not have the permission to read the database. In this case, objects cannot be migrated. Re-create the task and do not select the objects that reside in the deleted database.

----End

2.3.22 Full Phase Error: Access denied; you need (at least one of) the SUPER privilege(s) for this operation

Scenarios

During a full migration, an error is reported, and the log information is as follows: service DATAMOVE failed, cause by: retry structures failed events=the fail structures are [type=function, index=2, schema_name= %s, object_name= %s]reason:[Access denied; you need (at least one of) the SUPER privilege(s) for this operation]

Possible Causes

The user retained the definer for migration, but the migration account does not have the super permission.

Solution

Grant the super permission to the destination database user and submit the task again. For details, see **RDS FAQs**. Alternatively, you can choose not to migrate definers when recreating a task.

2.3.23 Full Phase Error: retry structures failed events and Table *** doesn't exist

Scenarios

During a full migration, an error is reported, and the log information is as follows: service DATAMOVE failed, cause by: retry structures failed events=the fail structures are [type=view, index=2, schema_name= %s, object_name= %s]reason: [Table ' %s. %s' doesn't exist]

Possible Causes

The user retained the definer for migration, but the definer is abnormal or does not exist.

Solution

Recreate a task and do not migrate definers.

2.3.24 Full Phase Error: shard table=*** failed

Scenarios

During a full migration or synchronization, an error is reported, and the log information is as follows: service DATAMOVE failed, cause by: shard table=`%s`.` %s` failed

Possible Causes

The source database performance is insufficient or the network is unstable. As a result, the source database sharding times out.

Solution

Step 1 Check whether the task is normal.

- If the task is normal, this error is recorded in the log and no further action is required.
- If the task is abnormal, go to **Step 2**.

Step 2 In the upper right corner of the console, choose **Service Tickets > Create Service Ticket** and contact DRS customer service.

----End

2.3.25 Full Phase Error: error when split table shard occur!

Scenarios

During a full migration or synchronization, an error is reported, and the log information is as follows: service DATAMOVE failed, cause by: error when split table shard occur! Table is %s .Error code is %s.

Possible Causes

The source database performance is insufficient or the network is unstable. As a result, the source database sharding times out.

Solution

Step 1 Check whether the task is normal.

- If the task is normal, this error is recorded in the log and no further action is required.
- If the task is abnormal, go to **Step 2**.

Step 2 In the upper right corner of the console, choose **Service Tickets > Create Service Ticket** and contact DRS customer service.

----End

2.3.26 Full Phase Error: Column name 'AUTO_PK_ROW_ID' is reserved.

Scenarios

An error is reported during full migration or synchronization, and the following log information is as follows: service LOGMANAGER failed, cause by: create table *** error. Column name 'AUTO_PK_ROW_ID' is reserved. Operation 'CREATE' is not permitted.

Possible Causes

The **AUTO_PK_ROW_ID** column name is a reserved column name for the RDS for MySQL database and cannot be created by users.

Solution

- Check the tables whose column names contain **AUTO_PK_ROW_ID** in the source database, change the column names, and resume the task.
- Create a task again and do not select the tables whose column names contain **AUTO_PK_ROW_ID**.

2.3.27 Full Phase Error: transfer account failed, can not find password from src DB

Scenarios

During a full migration, an error is reported, and the log information is as follows: service DATAMOVE failed, cause by: transfer account failed, can not find password from src DB.

Possible Causes

The RDS security policy does not allow the user password to be empty. However, if the source database is an on-premises MySQL database, the user password can be empty.

Solution

Step 1 Run the following SQL statement in the source database to query users whose passwords are empty:

- MySQL 5.7 or later versions:
  ```
  SELECT USER,HOST,authentication_string FROM MYSQL.user WHERE authentication_string IS NULL OR authentication_string='';
  ```
- MySQL 5.6 and earlier versions
  ```
  SELECT USER,HOST,`password` FROM MYSQL.user WHERE `password` IS NULL OR `password`='';
  ```

Step 2 Run the following SQL statement to delete the users whose passwords are empty from the source database or set passwords for the users:

- Delete a user whose password is empty.
  ```
  DROP USER ***@***;
  ```
- Set a password for a user.
  ```
  ALTER USER ***@*** IDENTIFIED BY ***;
  ```

----End

2.3.28 Full Phase Error: Failed to add the foreign key constraint '***' to system tables

Scenarios

During a full migration or synchronization, an error is reported, and the log information is as follows: Failed to add the foreign key constraint '***' to system tables

Possible Causes

During the full phase, the destination database has foreign key constraints with the same name.

Solution

1. Run the following SQL statement to delete or rename the foreign key constraints with the same name in the destination database:
   ```
   select * from information_schema.REFERENTIAL_CONSTRAINTS where CONSTRAINT_NAME = 'foreign_key_name';
   ```
2. In the task list, locate the target task and click **Resume** in the **Operation** column to resume the task.

2.3.29 Full Phase Error: Too many keys specified; max 64 keys allowed

Scenarios

During a full migration or synchronization, an error is reported, and the log information is as follows: service DATAMOVE failed, cause by: retry structures failed events=the fail structures are [type=constraint_data, index=0, schema_name=DB, object_name=TABLE]reason:[Too many keys specified; max 64 keys allowed]

Possible Causes

A maximum of 64 secondary indexes can be created for a single MySQL table. The total number of new and existing indexes in the destination database exceeds 64.

Solution

1. After manually creating the required indexes in the destination database, contact DRS O&M personnel to skip the migtation of secondary indexes in the table.
2. In the task list, locate the target task and click **Resume** in the **Operation** column to resume the task.

2.3.30 Full Phase Error: Unknown collation: 'utf8mb4_0900_ai_ci'

Scenarios

During a full migration or synchronization, an error is reported, and the log information is as follows: retry structures failed events=the fail structures are [type=table_structure, index=0, schema_name=m825, object_name=t1]reason: [Unknown collation: 'utf8mb4_0900_ai_ci']

Possible Causes

The source database version is later than the destination database version, or the source database is of a special type and supports the utf8mb4_0900_ai_ci collation, but the destination MySQL database does not support this collation. The DRS task fails to synchronize the table structure because the destination database does not support the collation.

Solution

Step 1 Manually create a table structure in the destination database and modify the collation rule.

Step 2 Create a DRS task again, deselect the table structure for synchronization, and perform full synchronization again.

----End

2.3.31 Full or Incremental Phase Error: Access denied for user ***

Scenarios

During a full or incremental migration or synchronization, an error is reported. The log information is as follows: service %s failed, cause by: Unable to connect to DBMS: url=***?useUnicode=true&allowLoadLocalInfile=false&characterEncoding=UTF-8&connectTimeout=5000&useSSL=false&allowPublicKeyRetrieval=true&verifyServerCertificate=false&serverTimezone=UTC user=%s, Caused by: Access denied for user %s

Possible Causes

The connection to the source or destination database fails to be established.

Solution

1. Check whether the source or destination database is running properly.
2. Check whether the password for connecting to the source or destination database is correct.
3. Check whether the network connection between the DRS instance and the source or destination database is normal.
4. Check whether the IP address of the DRS instance is allowed to access the source or destination database.

2.3.32 Full or Incremental Phase Error: binlog is not existed

Scenarios

During a full or incremental migration or synchronization, an error is reported, and the log information is as follows: service LOGMANAGER failed, cause by: binlog is not existed

Possible Causes

The binlog files in the source database were deleted. DRS cannot obtain logs from the source database.

Solution

Recreate a DRS task.

2.3.33 Full or Incremental Phase Error: database log download failed

Scenarios

During a full or incremental migration or synchronization, an error is reported, and the log information is as follows: service LOGMANAGER failed, cause by: database log download failed, error code is %s.

Possible Causes

The binlog files in the source database were deleted. DRS cannot obtain logs from the source database.

Solution

Recreate a DRS task.

2.3.34 Full or Incremental Phase Error: Can not read response from server

Scenarios

During a full or incremental migration or synchronization, an error is reported, and the log information is as follows: service LOGMANAGER failed, cause by: Can not read response from server. Expected to read 4 bytes, read 0 bytes before connection was unexpectedly lost.

Possible Causes

- The network bandwidth between the DRS replication instance and the source database is too small or unstable.
- The source database is overloaded.

Solution

Contact the source database O&M personnel to check the source database load and check whether packet loss occurs on the network between the source database and the replication instance.

2.3.35 Full or Incremental Phase Error: Communications link failure

Scenarios

During a full or incremental migration or synchronization, an error is reported, and the log information is as follows: service %s failed, cause by: Communications link failure The last packet sent successfully to the server was 0 milliseconds ago. The driver has not received any packets from the server.

Possible Causes

The connection to the source or destination database fails to be established.

Solution

1. Check whether the source or destination database is running properly.
2. Check whether the network connection between the DRS instance and the source or destination database is normal.
3. Check whether the IP address of the DRS instance is allowed to access the source or destination database.

2.3.36 Full or Incremental Phase Error: EOF Packet received, master disconnected

Scenarios

During a full or incremental migration or synchronization, an error is reported, and the log information is as follows: service LOGMANAGER failed, cause by: EOF Packet received, master disconnected

Possible Causes

- The source database is abnormal.
- The binlog file is abnormal.

Solution

Step 1 Contact the source database O&M personnel to check whether the source database is running properly.

Step 2 After the source database is restored, click **Resume** in the **Operation** column to resume the task.

----End

2.3.37 Full or Incremental Phase Error: Extract db create sql failed

Scenarios

During a full or increment migration or synchronization, an error is reported, and the log information is as follows: service LOGMANAGER failed, cause by: Extract db create sql failed, dbName = %s

Possible Causes

- During full migration, the user deleted databases from the source.
- The source database user does not have the permission to perform operations on the source database.

Solution

- Contact the source database administrator to check whether the source database has been deleted. If the source database was deleted, recreate the task by referring to the related section in the product documentation.
- Check whether the source database user has the SHOW CREATE TABLE permission on the source database table. If the user does not have the permission, grant the permission to the user and retry the DRS task.

2.3.38 Full or Incremental Phase Error: load database structure failed in source database

Scenarios

During a full or incremental migration or synchronization, an error is reported, and the log information is as follows: service LOGMANAGER failed, cause by: load database structure failed in source database, The failed %s is: type=%s, schema_name=%s, object_name=%s, errorcode=%s, message=%s"

Possible Causes

- During full migration, the user deleted databases from the source.
- The source database user does not have the permission to perform operations on the source database.

Solution

- Contact the source database administrator to check whether the source database has been deleted. If the source database was deleted, recreate the task by referring to the related section in the product documentation.
- Check whether the source database user has the SHOW CREATE TABLE permission on the source database table. If the user does not have the permission, grant the permission to the user and retry the DRS task.

2.3.39 Full or Incremental Phase Error: load table: *** failed

Scenarios

During a full or incremental migration or synchronization, an error is reported, and the log information is as follows: service LOGMANAGER failed, cause by: load table: ` %s`.` %s` failed

Possible Causes

- During full migration, the user deleted databases or tables from the source.
- The source database user does not have the permission to perform operations on the source database or table.

Solution

1. Contact the source database administrator to check whether the databases and tables in the source database have been deleted. If they were deleted, recreate the task by referring to **Precautions**.

2. Check whether the migration account has the SHOW CREATE TABLE permission on the source database tables. If the account does not have the permission, grant the permission to the source database migration account by referring to **Precautions**. Then, in the task list, click **Resume** in the **Operation** column to resume the task.

2.3.40 Full or Incremental Phase Error: Reached end of input stream

Scenarios

During a full or incremental migration or synchronization, an error is reported, and the log information is as follows: service LOGMANAGER failed, cause by: Reached end of input stream

Possible Causes

- The source database is abnormal.
- The binlog file is abnormal.

Solution

Step 1 Contact the source database administrator to check whether the source database is running properly.

Step 2 After the source database is restored, click **Resume** in the **Operation** column to resume the task.

----End

2.3.41 Full or Incremental Phase Error: Read timed out

Scenarios

During a full or incremental migration or synchronization, an error is reported, and the log information is as follows: service LOGMANAGER failed, cause by: Read timed out

Possible Causes

The possible causes are as follows:

- Failed to connect to the source database.

Solution

1. Check whether the source database is running properly.
2. Check whether the network connection between the DRS instance and the source database is normal.

2.3.42 Full or Incremental Phase Error: The background process is unavailable

Scenarios

During a full or incremental migration or synchronization, an error is reported, and the log information is as follows: service %s failed, cause by: The background process is unavailable. Maybe it has been killed manually or by the operating system. Please restart the task if possible or wait for restarting by itself within 5 minutes.

Possible Causes

During the migration, the DRS process stops unexpectedly.

Solution

No further operation is required. The DRS daemon process automatically resumes the task. The migration and synchronization services are not affected, and data is resumed from the breakpoint. If the task is abnormal, click **Resume** in the **Operation** column to resume the task.

2.3.43 Full or Incremental Phase Error: Duplicate entry *** for key 'PRIMARY'

Scenarios

During a full or incremental migration or synchronization, an error is reported, and the log information is as follows: service CAPTURER failed, cause by: Duplicate entry '120' for key 'PRIMARY'.

Possible Causes

- **binlog_format** in the source database is not set to **ROW**.
- The **binlog_format** setting of the source database does not take effect immediately.

Solution

Step 1 Log in to the source database using the MySQL official client or other tools.

Step 2 Run the following command for setting global parameters in the source database.

```
set global binlog_format = ROW;
```

Step 3 Run the following command on the source database and check whether the preceding operation is successful:

```
select @@global.binlog_format;
```

Step 4 You can use either of the following methods to ensure that the modified binlog format of the source database takes effect immediately:

Method 1

1. Select a non-service period to disconnect all service connections on the current database.
   a. Run the following command to query all service threads (excluding all binlog dump threads and current threads) in the current database:
      ```
      show processlist;
      ```
   b. Stop all the service threads queried in the previous step.

   NOTE

   Do not create or start a migration task before the preceding operations are complete. Otherwise, data may be inconsistent.
2. To prevent the binlog format of the source database from becoming invalid due to database restart, add or modify the **binlog_format** parameter in the startup configuration file (**my.ini** or **my.cnf**) of the source database and save the modification.
   ```
   binlog_format=ROW
   ```

Method 2

1. To prevent the binlog format of the source database from becoming invalid due to database restart, add or modify the **binlog_format** parameter in the startup configuration file (**my.ini** or **my.cnf**) of the source database and save the modification.
   ```
   binlog_format=ROW
   ```
2. Ensure that the **binlog_format** parameter is successfully added or modified. Then, restart the source database at a non-service period.

----End

2.3.44 Full or Incremental Phase Error: cause by: Index: ***, Size: ***

Scenarios

During a full or incremental migration or synchronization, an error is reported, and the log information is as follows: service CAPTURER failed, cause by: Index: 8, Size: 7

Possible Causes

- **binlog_format** in the source database is not set to **ROW**.
- The binlog_format setting of the source database does not take effect immediately.

Solution

Step 1 Log in to the source database using the MySQL official client or other tools.

Step 2 Run the following command for setting global parameters in the source database.
```
set global binlog_format = ROW;
```

Step 3 Run the following command on the source database and check whether the preceding operation is successful:
```
select @@global.binlog_format;
```


Step 4 You can use either of the following methods to ensure that the modified binlog format of the source database takes effect immediately:

Method 1

1. Select a non-service period to disconnect all service connections on the current database.
   a. Run the following command to query all service threads (excluding all binlog dump threads and current threads) in the current database:
   ```
   show processlist;
   ```
   b. Stop all the service threads queried in the previous step.

   NOTE

   Do not create or start a migration task before the preceding operations are complete. Otherwise, data may be inconsistent.
2. To prevent the binlog format of the source database from becoming invalid due to database restart, add or modify the **binlog_format** parameter in the startup configuration file (**my.ini** or **my.cnf**) of the source database and save the modification.
   ```
   binlog_format=ROW
   ```

Method 2

1. To prevent the binlog format of the source database from becoming invalid due to database restart, add or modify the **binlog_format** parameter in the startup configuration file (**my.ini** or **my.cnf**) of the source database and save the modification.
   ```
   binlog_format=ROW
   ```
2. Ensure that the **binlog_format** parameter is successfully added or modified. Then, restart the source database at a non-service period.

----End

2.3.45 Full or Incremental Phase Error: The offset and file name between src and parser is inconsistency

Scenarios

During a full or incremental migration or synchronization, an error is reported, and the log information is as follows: service CAPTURER failed, cause by: The offset and file name between src and parser is inconsistency

Possible Causes

- The source database is abnormal.
- The binlog file is abnormal.

Solution

Step 1 Contact the source database administrator to check whether the source database is running properly.

Step 2 After the source database is restored, click **Resume** in the **Operation** column to resume the task.

----End

2.3.46 Full or Incremental Phase Error: core process is not healthy or crashed

Scenarios

During a full or incremental migration or synchronization, an error is reported, and the log information is as follows: service CAPTURER failed, cause by: core process is not healthy or crashed

Possible Causes

During the migration, the DRS process stops unexpectedly.

Solution

No further operation is required. The DRS daemon process automatically resumes the task. The migration and synchronization services are not affected, and data is resumed from the breakpoint. If the task is abnormal, click **Resume** in the **Operation** column to resume the task.

2.3.47 Full or Incremental Phase Error: table info of table `***` from metadata miss

Scenarios

During a full or incremental migration or synchronization, an error is reported, and the log information is as follows: service CAPTURER failed, cause by: table info of table `%s`.`%s` from metadata miss

Possible Causes

The table may fail to be created due to DDL syntax incompatibility.

Solution

Step 1 Check whether the task is normal.

- If the task is normal, this error is recorded in the log and no further action is required.
- If the task is abnormal, go to **Step 2**.

Step 2 In the upper right corner of the console, choose **Service Tickets > Create Service Ticket** and contact customer service.

----End

2.3.48 Full or Incremental Phase Error: binlog parse fail, data dictionary may be not complete!

Scenarios

During a full or incremental migration or synchronization, an error is reported, and the log information is as follows: service CAPTURER failed, cause by: tbinlog parse fail, data dictionary may be not complete! tableName: %s, databaseName:%s

Possible Causes

The table may fail to be created due to DDL syntax incompatibility.

Solution

Contact Huawei technical support engineers.

2.3.49 Full or Incremental Phase Error: table *** record field size for insert/delete dml

Scenarios

During a full or incremental migration or synchronization, an error is reported, and the log information is as follows: service CAPTURER failed, cause by: table[%s.%s]record field size for insert/delete dml=%s, the column size in dictionary=%s

Possible Causes

Full image is not enabled for the source database binlog.

Solution

For details, see **How Do I Set binlog_row_image=FULL to Take Effect Immediately?**

2.3.50 Full or Incremental Phase Error: service *** failed, cause by: Unable to connect to DBMS: ***

Scenarios

During a full or incremental migration or synchronization, an error is reported, and the log information is as follows: service *** failed, cause by: Unable to connect to DBMS: ***

Possible Causes

The connection to the source or destination database fails to be established.

Solution

1. Check whether the source or destination database is running properly.
2. Check whether the network connection between the DRS instance and the source or destination database is normal.
3. Check whether the IP address of the DRS instance is allowed to access the source or destination database.

2.3.51 Full or Incremental Phase Error: The binlog fetch connection may be interrupted

Scenarios

During a full or incremental migration or synchronization, an error is reported, and the log information is as follows: The binlog fetch connection may be interrupted

Possible Causes

DRS is disconnected from the source database to obtain binlogs. The possible cause is that the source database status has changed or the network is abnormal.

Solution

1. Check whether the source database is running properly.
2. Check whether the network connection between the DRS instance and the source database is normal.
3. In the task list, locate the target task and click **Resume** in the **Operation** column to resume the task.

2.3.52 Full or Incremental Phase Error: Received error packet: errno - 1047, solstate - HY000 errmsg = Unknown command

Scenarios

During a full or incremental migration or synchronization, an error is reported, and the log information is as follows: service LOGMANAGER failed, cause by: Received error packet: errno - 1047, solstate - HY000 errmsg = Unknown command

Possible Causes

DRS failed to obtain binlogs. The source database may be a MySQL proxy node whose binlogs cannot be obtained.

Solution

1. Edit the DRS task and replace the source database with a node whose binlogs can be obtained.
2. In the task list, locate the target task and click **Resume** in the **Operation** column to resume the task.

2.3.53 Incremental Phase Error: not equals to target db column count

Scenarios

During an incremental migration or synchronization, an error is reported, and the log information is as follows: service INCREMENT failed, cause by: write table %s. %s failed: table= %s. %s has field list size=[***] not equals to target db column count= %s

Possible Causes

DDL is executed on the destination database table, causing the table structure in the destination database to be inconsistent with that in the source database.

Solution

Step 1 Contact the destination database O&M engineers to change the table structure of the destination database to be the same as that of the source database.

Step 2 In the task list, locate the target task and click **Resume** in the **Operation** column to resume the task.

----End

2.3.54 Incremental Phase Error: The MySQL server is running with the --super-read-only option

Scenarios

During an incremental migration or synchronization, an error is reported, and the log information is as follows: service INCREMENT failed, cause by: write table %s. %s failed: record tid: %s,seqno: %s with PK applied failed in table %s. %s, The MySQL server is running with the --super-read-only option so it cannot execute this statement

Possible Causes

The destination database is in the read-only state. Generally, the destination database storage is insufficient.

Solution

Step 1 Contact the O&M engineers to check the running status and disk space of the destination database.

Step 2 After the destination database is restored, click **Resume** in the **Operation** column to resume the task.

----End

2.3.55 Incremental Phase Error: you need (at least one of) the SUPER privilege(s) for this operation

Scenarios

During an incremental migration, an error is reported, and the log information is as follows: service INCREMENT failed, cause by: Access denied; you need (at least one of) the SUPER privilege(s) for this operation; sql is: CREATE DEFINER= %s

Possible Causes

The user retained the definer for migration, but the definer is abnormal or does not exist.

Solution

Recreate a task and do not migrate definers.

2.3.56 Incremental Phase Error: Can't DROP ***; check that column/key exists

Scenarios

During an incremental migration or synchronization, an error is reported, and the log information is as follows: service INCREMENT failed, cause by: Can't DROP '%s'; check that column/key exists; sql is %s

Possible Causes

DDL is executed on the destination database table, causing the table structure in the destination database to be inconsistent with that in the source database.

Solution

Step 1 Contact the destination database O&M engineers to change the table structure of the destination database to be the same as that of the source database.

Step 2 In the task list, locate the target task and click **Resume** in the **Operation** column to resume the task.

----End

2.3.57 Incremental Phase Error: Can't find file: *** (errno: 2 - No such file or directory)

Scenarios

During an incremental migration or synchronization, an error is reported, and the log information is as follows: service INCREMENT failed, cause by: Can't find file: '%s' (errno: 2 - No such file or directory); sql is: %s

Possible Causes

The destination database table file is damaged.

Solution

Step 1 Contact the destination database O&M engineers to check whether the corresponding table exists and is normal.

Step 2 In the task list, locate the target task and click **Resume** in the **Operation** column to resume the task.

----End

2.3.58 Incremental Phase Error: Data truncation: Data too long for column

Scenarios

During an incremental migration or synchronization, an error is reported, and the log information is as follows: service INCREMENT failed, cause by: Data truncation: Data too long for column ' %s' at row %s; sql is: %s

Possible Causes

The DDL statement fails to be executed because data is too long.

Solution

Step 1 Contact the destination database O&M engineers to check the structure of the table where the synchronization error is reported, adjust the length of the column where the error is reported, and adjust the column data type in the destination database.

Step 2 In the task list, locate the target task and click **Resume** in the **Operation** column to resume the task.

----End

2.3.59 Incremental Phase Error: Failed to read file header from

Scenarios

During an incremental migration or synchronization, an error is reported, and the log information is as follows: service INCREMENT failed, cause by: Failed to read file header from thl.data.0000000011

Possible Causes

The format of the DRS data file is damaged.

Solution

Step 1 Check whether the task is normal.

- If the task is normal, this error is recorded in the log and no further action is required.
- If the task is abnormal, go to **Step 2**.

Step 2 In the upper right corner of the console, choose **Service Tickets > Create Service Ticket** and contact customer service.

----End

2.3.60 Incremental Phase Error: Lock wait timeout exceeded

Scenarios

During an incremental migration or synchronization, an error is reported, and the log information is as follows: service INCREMENT failed, cause by: Lock wait timeout exceeded; try restarting transaction

Possible Causes

The lock wait times out when the destination database is accessed.

Solution

Step 1 Contact destination database O&M engineers to check the status and load of the destination database.

Step 2 In the task list, locate the target task and click **Resume** in the **Operation** column to resume the task.

----End

2.3.61 Incremental Phase Error: Must seek before attempting to read next event

Scenarios

During an incremental migration or synchronization, an error is reported, and the log information is as follows: service INCREMENT failed, cause by: Extract THL file fail! Must seek before attempting to read next event

Possible Causes

The task is interrupted for a long time. Historical DRS data files were deleted and the task cannot be continued.

Solution

Contact the user to re-create the task.

2.3.62 Incremental Phase Error: Table *** already exists

Scenarios

During an incremental migration or synchronization, an error is reported, and the log information is as follows: service INCREMENT failed, cause by: Table ' %s' already exists

Possible Causes

A table has been created in the destination database. As a result, an error is reported when the DDL statement for creating a table in the source database is executed.

Solution

Step 1 Contact destination database O&M engineers to delete the corresponding table from the destination database.

Step 2 In the task list, locate the target task and click **Resume** in the **Operation** column to resume the task.

----End

2.3.63 Incremental Phase Error: Table *** doesn't exist

Scenarios

During an incremental migration or synchronization, an error is reported, and the log information is as follows: service INCREMENT failed, cause by: Table ' %s' doesn't exist; sql is: create %s like matches

Possible Causes

Tables are deleted from the destination database. As a result, the synchronization statement reports an error.

Solution

Step 1 Contact destination database O&M engineers to create a table in the destination database based on the table structure of the source database.

Step 2 After the table is created, click **Resume** in the **Operation** column to resume the task.

----End

2.3.64 Incremental Phase Error: Table *** not found in database

Scenarios

During an incremental migration or synchronization, an error is reported, and the log information is as follows: service INCREMENT failed, cause by: Table %s not found in database

Possible Causes

The possible causes are as follows:

- Tables are deleted from the destination database. As a result, the synchronization statement reports an error.
- **Incremental DDLs** is not selected for **Synchronize** during task creation. After a table is created in the source database, DDL statements are filtered out. As a result, an error is reported during synchronization.

Solution

Contact the destination database O&M engineers to create a table in the destination database based on the table structure of the source database. After the table is created, click **Resume** in the **Operation** column to resume the task.

2.3.65 Incremental Phase Error: source has more columns than target

Scenarios

During an incremental migration or synchronization, an error is reported, and the log information is as follows: service INCREMENT failed, cause by: Check table structure consistency fail! Table %s in source has more columns than target

Possible Causes

The table structure is modified in the destination database. As a result, the synchronization statement reports an error.

Solution

Step 1 Contact destination database O&M engineers to change the table structure of the destination database to be the same as that of the source database.

Step 2 After the change is complete, click **Resume** in the **Operation** column to resume the task.

----End

2.3.66 Incremental Phase Error: Unknown storage engine

Scenarios

During an incremental migration or synchronization, an error is reported, and the log information is as follows: service INCREMENT failed, cause by: Unknown storage engine 'FEDERATED'; sql is: %s

Possible Causes

When the DDL table creation statement of the source database is replayed in destination database, the source DB engine is not supported by the destination database.

Solution

Step 1 Contact the user to create a table that supports the destination DB engine in the source database.

Step 2 Contact Huawei technical support to skip the DDL statement that reports the error.

Step 3 In the task list, locate the target task and click **Resume** in the **Operation** column to resume the task.

----End

2.3.67 Incremental Phase Error: Unknown table

Scenarios

During an incremental migration or synchronization, an error is reported, and the log information is as follows: service INCREMENT failed, cause by: Unknown table ' %s'; sql is %s

Possible Causes

The table does not exist in the destination database.

Solution

Step 1 Contact the user to create the table in the destination database based on the table structure of the source database.

Step 2 In the task list, locate the target task and click **Resume** in the **Operation** column to resume the task.

----End

2.3.68 Incremental Phase Error: You have an error in your SQL syntax

Scenarios

During an incremental migration or synchronization, an error is reported, and the log information is as follows: service INCREMENT failed, cause by: You have an error in your SQL syntax; check the manual that corresponds to your MySQL server version for the right syntax to use near'START TRANSACTION' at line 39

Possible Causes

During the pre-check, the system skips version check. The syntax of the later version fails to be executed in the earlier version.

Solution

Step 1 Contact the user to modify the statement based on the destination database syntax and run the statement in the destination database.

Step 2 Contact Huawei engineers to skip this error.

Step 3 In the task list, locate the target task and click **Resume** in the **Operation** column to resume the task.

----End

2.3.69 Incremental Phase Error: not illegal for mariaDb gtid position

Scenarios

During an incremental migration or synchronization, an error is reported, and the log information is as follows: service INCREMENT failed, cause by: %s not illegal for mariaDb gtid position

Possible Causes

The gtid mode is changed during task creation.

Solution

Contact the user to recreate the task.

2.3.70 Incremental Phase Error: without PK execute failed

Scenarios

During an incremental migration or synchronization, an error is reported, and the log information is as follows: service INCREMENT failed, cause by: record tid: %s,seqno: %s without PK execute failed in table %s

Possible Causes

A conflict occurs during data synchronization for tables that do not have primary keys.

Solution

Step 1 Check whether the task is normal.

- If the task is normal, this error is recorded in the log and no further action is required.
- If the task is abnormal, go to **Step 2**.

Step 2 In the upper right corner of the console, choose **Service Tickets > Create Service Ticket** and contact customer service.

----End

2.3.71 Incremental Phase Error: Deadlock found when trying to get lock

Scenarios

During an incremental migration or synchronization, an error is reported, and the log information is as follows: service INCREMENT failed, cause by: record tid: %s,seqno: %s with PK applied failed in table %s, Deadlock found when trying to get lock; try restarting transaction

Possible Causes

A deadlock occurs in the destination database.

Solution

Step 1 Contact destination database O&M engineers to check the status and load of the destination database.

Step 2 In the task list, locate the target task and click **Resume** in the **Operation** column to resume the task.

----End

2.3.72 Incremental Phase Error: current serverUUID not equals to this session

Scenarios

During an incremental migration or synchronization, an error is reported, and the log information is as follows: service INCREMENT failed, cause by: write table %s failed: current serverUUID not equals to this session

Possible Causes

The destination database had a switchover.

Solution

Step 1 Contact destination database O&M engineers to check the destination database status.

Step 2 In the task list, locate the target task and click **Resume** in the **Operation** column to resume the task.

----End

2.3.73 Incremental Phase Error: Slave has more GTIDs than the master has, using the master's SERVER_UUID.

Scenarios

During an incremental migration or synchronization, an error is reported, and the log information is as follows: service LOGMANAGER failed, cause by: Received error packet: errno = 1236, sqlstate = HY000 errmsg = Slave has more GTIDs than the master has, using the master's SERVER_UUID. This may indicate that the end of the binary log was truncated or that the last binary log file was lost, e.g., after a power or disk failure when sync_binlog != 1. The master may or may not have rolled back transactions that were already replicated to the slave. Suggest to replicate any transactions that master has rolled back from slave to master, and/or commit empty transactions on master to account for transactions that have been.

Possible Causes

The source database position is rolled back, or the source database position is reset by running the **reset master** command.

Solution

In the task list, locate the target task and click **Reset** in the **Operation** column to reset the task. Alternatively, create a DRS task again.

2.3.74 Incremental Phase Error: Operation not allowed when innodb_force_recovery > 0

Scenarios

During an incremental migration or synchronization, an error is reported, and the log information is as follows: service INCREMENT failed, cause by: write table ****.**** failed: Operation not allowed when innodb_force_recovery > 0.

Possible Causes

The destination DB instance is abnormal. When the system variable **innodb_force_recovery** is set to be greater than **0** in the destination database, the INSERT, UPDATE, and DELETE operations are disabled in the destination database.

Solution

Step 1 Contact destination database O&M engineers to check the destination database status.

Step 2 After the destination database is restored, click **Resume** in the **Operation** column to resume the task.

----End

2.3.75 Incremental Phase Error: filter data in config condition filter error

Scenarios

During an incremental migration or synchronization, an error is reported, and the log information is as follows: service INCREMENT failed, cause by: filter data in config condition filter error!

Possible Causes

The data filtering conditions of the DRS synchronization task are incorrectly configured. As a result, the incremental data fails to be filtered.

Solution

Filtering rules cannot be modified for tables that have been synchronized. Create a synchronization task again.

2.4 Real-Time Migration and Synchronization from MySQL to GaussDB(for MySQL)

2.4.1 Full or Incremental Phase Error: Illegal mix of collations (utf8mb4_0900_ai_ci,IMPLICIT) and (utf8mb4_general_ci,IMPLICIT) for operation

Scenarios

During a full or incremental migration or synchronization, an error is reported, and the log information is as follows: Illegal mix of collations (utf8mb4_0900_ai_ci,IMPLICIT) and (utf8mb4_general_ci,IMPLICIT) for operation

Possible Causes

The sorting rule of the source MySQL 5.* character set utf8mb4 is utf8mb4_general_ci, and that of the destination GaussDB(for MySQL) character set utf8mb4 is utf8mb4_0900_ai_ci. An error is reported, indicating that the sorting rules are inconsistent.

Solution

- Solution 1
  a. Run the SQL statement in the destination database to change the character set sorting rule of the corresponding column to utf8mb4_0900_ai_ci. For example, to change the character set sorting rule of column **c1** in table **test_collation_1** to utf8mb4_0900_ai_ci, run the following command:
  ```
  ALTER TABLE test_collation_1 MODIFY COLUMN c1 VARCHAR(16) COLLATE utf8mb4_0900_ai_ci;
  ```
  b. In the task list, locate the target task and click **Resume** in the **Operation** column to resume the task.
- Solution 2
  a. Delete all columns containing collate utf8mb4_general_ci from the source database table.
  b. In the task list, locate the target task and click **Reset** in the **Operation** column to reset the task. Alternatively, create a DRS task again.
- Solution 3
  a. Run the SQL statement in the destination database to change the character set sorting rule of the destination database to utf8mb4_0900_ai_ci.
  ```
  SET GLOBAL default_collation_for_utf8mb4='utf8mb4_general_ci';
  ```
  b. In the task list, locate the target task and click **Reset** in the **Operation** column to reset the task. Alternatively, create a DRS task again.

2.5 Real-Time Synchronization from MySQL to GaussDB(DWS)

2.5.1 Full Synchronization Error: Table *** not found in database

Scenarios

During full synchronization, an error is reported, and the log information is as follows: service DATAMOVE failed, cause by: apply event=[type=table_data, batch_index_in_shard=1, table_schema= %s, table_name= %s, record_num= %s] occur error, msg=Table %s. %s not found in database. Unable to generate a valid statement.

Possible Causes

The destination database table is not created. As a result, the synchronization statement reports an error.

Solution

Step 1 Contact destination database O&M engineers to create the corresponding table in the destination database.

Step 2 After the table is created, click **Resume** in the **Operation** column to resume the task.

----End

2.5.2 Full Synchronization Error: column 'database_table' of relation *** does not exist

Scenarios

During full synchronization, an error is reported, and the log information is as follows: service DATAMOVE failed, cause by: apply event=[type=table_data, batch_index_in_shard= %s, table_schema= %s, table_name= %s, record_num= %s] occur error, msg=apply to %s failed: ERROR: column 'database_table' of relation ' %s' does not exist.

Possible Causes

No additional column is added when a table is created in the destination database.

Solution

Step 1 Contact destination database O&M engineers to add additional columns to the destination database table.

Step 2 In the task list, locate the target task and click **Resume** in the **Operation** column to resume the task.

----End

2.5.3 Full Synchronization Error: value too long for type character varying

Scenarios

During full synchronization, an error is reported, and the log information is as follows: service DATAMOVE failed, cause by: apply event=[type=table_data, batch_index_in_shard= %s, table_schema= %s, table_name= %s, record_num= %s] occur error, msg=apply to %s failed: ERROR: value too long for type character varying(%s) Where: COPY %s, line 1, column remarks.

Possible Causes

The length of the varchar column in the user-defined table in the destination database is insufficient. MySQL and GaussDB(DWS) define the length of the varchar data type differently. MySQL defines the length of the varchar data type as the number of characters, while GaussDB(DWS) defines the length of the varchar data type as the number of bytes.

Solution

Step 1 Contact destination database O&M engineers to increase the field precision in the destination database table.

Step 2 In the task list, locate the target task and click **Resume** in the **Operation** column to resume the task.

----End

2.5.4 Full Synchronization Error: int1 has not implemented

Scenarios

During full synchronization, an error is reported, and the log information is as follows: service DATAMOVE failed, cause by: apply event=[type=table_data, batch_index_in_shard= %s, table_schema= %s, table_name= %s, record_num= %s] occur error, msg=apply to %s failed: column: %s, invalid value: %s, int1 has not implemented, type is %s.

Possible Causes

User-defined table fields in the destination database do not support int1.

Solution

Step 1 Contact destination database O&M engineers to create a table in the destination database based on the data flow mappings.

Step 2 After the table is created, click **Resume** in the **Operation** column to resume the task.

----End

2.5.5 Full Synchronization Error: column name 'tid' conflicts with a system column name

Scenarios

During full synchronization, an error is reported, and the log information is as follows: service DATAMOVE failed, cause by: retry structures failed events=the fail structures are [type=table_structure, index=%s, schema_name=%s, object_name=%s]reason:[ERROR: column name 'tid' conflicts with a system column name]

Possible Causes

tid is a reserved character of GaussDB(DWS) and exists in the source database table.

Solution

Step 1 This scenario is not supported due to the restrictions of the destination database. Change the column names of the source database table.

Step 2 After the change is complete, click **Resume** in the **Operation** column to resume the task.

----End

2.5.6 Full Synchronization Error: date/time field value out of range

Scenarios

During full synchronization, an error is reported, and the log information is as follows: service DATAMOVE failed, cause by: retry structures failed events=the fail structures are [type=table_structure, index= %s, schema_name= %s, object_name= %s]reason:[ERROR: date/time field value out of range: '0000-00-00 00:00:00'].

Possible Causes

GaussDB(DWS) does not support 0000-00-00 00:00:00.

Solution

Step 1 This scenario is not supported due to the restrictions of the destination database. Change the column names of the source database table.

Step 2 After the change is complete, click **Resume** in the **Operation** column to resume the task.

----End

2.5.7 Full or Incremental Synchronization Error: service LOGMANAGER failed

Scenarios

During full or incremental synchronization, an error is reported, and the log information is as follows: service LOGMANAGER failed, ***.

Solution

For synchronization from MySQL to GaussDB(DWS), the cause of the LOGMANAGER error is the same as that of the MySQL to MySQL synchronization. You can rectify the fault based on the error keyword.

- **Full Phase Error: Column name 'AUTO_PK_ROW_ID' is reserved.**
- **Full or Incremental Phase Error: database log download failed**
- **Full or Incremental Phase Error: Can not read response from server**
- **Full or Incremental Phase Error: EOF Packet received, master disconnected**
- **Full or Incremental Phase Error: load database structure failed in source database**
- **Full or Incremental Phase Error: Reached end of input stream**
- **Full or Incremental Phase Error: Read timed out**

2.5.8 Full or Incremental Synchronization Error: service CAPTURER failed

Scenarios

During full or incremental synchronization, an error is reported, and the log information is as follows: service CAPTURER failed, ***.

Solution

For synchronization from MySQL to GaussDB(DWS), the cause of the CAPTURER error is the same as that of the MySQL to MySQL synchronization. You can rectify the fault based on the error keyword.

- **Full or Incremental Phase Error: Duplicate entry *** for key 'PRIMARY'**
- **Full or Incremental Phase Error: cause by: Index: ***, Size: *****
- **Full or Incremental Phase Error: The offset and file name between src and parser is inconsistency**
- **Full or Incremental Phase Error: core process is not healthy or crashed**
- **Full or Incremental Phase Error: table info of table `***` from metadata miss**
- **Full or Incremental Phase Error: table *** record field size for insert/delete dml**

2.5.9 Full or Incremental Synchronization Error: ERROR: pooler

Scenarios

During full or incremental synchronization, an error is reported, and the log information is as follows: service INCREMENT failed, cause by: %s failed:tid: %s, sqno: %s, ERROR: pooler: %s.

Possible Causes

The GaussDB(DWS) database returns an error.

Solution

Contact the destination GaussDB(DWS) database O&M engineers to rectify the fault.

2.5.10 Full or Incremental Phase Error: service *** failed, cause by: Unable to connect to DBMS: ***

Scenarios

During a full or incremental synchronization, an error is reported, and the log information is as follows: service *** failed, cause by: Unable to connect to DBMS: ***

Possible Causes

The connection to the source or destination database fails to be established.

Solution

1. Check whether the source or destination database is running properly.
2. Check whether the network connection between the DRS instance and the source or destination database is normal.
3. Check whether the IP address of the DRS instance is allowed to access the source or destination database.

2.5.11 Full or Incremental Phase Error: The binlog fetch connection may be interrupted

Scenarios

During a full or incremental synchronization, an error is reported, and the log information is as follows: The binlog fetch connection may be interrupted

Possible Causes

DRS is disconnected from the source database to obtain binlogs. The possible cause is that the source database status has changed or the network is abnormal.

Solution

1. Check whether the source database is running properly.
2. Check whether the network connection between the DRS instance and the source database is normal.
3. In the task list, locate the target task and click **Resume** in the **Operation** column to resume the task.

2.5.12 Incremental Synchronization Error: dn_***: column *** contains null values

Scenarios

During incremental synchronization, an error is reported, and the log information is as follows: service INCREMENT failed, cause by: table %s execute the ddl failed ERROR: dn_ %s_ %s: column ' %s' contains null values.

Possible Causes

The destination GaussDB(DWS) database has the NOT NULL constraint, so the default value needs to be set.

Solution

Modify the DDL statement and manually run it in the destination database. Then contact Huawei engineers to skip the synchronization of this DDL statement.

2.5.13 Incremental Synchronization Error: source has more columns than target

Scenarios

During incremental synchronization, an error is reported, and the log information is as follows: service INCREMENT failed, cause by: Check table structure consistency fail! Table %s in source has more columns than target, the columns is= [%s, %s]

Possible Causes

- The filter conditions of DDL statements for adding columns in the source database are not synchronized to the destination database.
- As a result, columns are deleted in the destination database.

Solution

Step 1 Supplement the missing columns in the destination database based on the table structure of the source database.

Step 2 In the task list, locate the target task and click **Resume** in the **Operation** column to resume the task.

----End

2.5.14 Incremental Synchronization Errors: Connection to *.*.*.98:8000 refused. Check that the hostname and port are correct and that the postmaster is accepting TCP/IP connections

Scenarios

During incremental synchronization, an error is reported, and the log information is as follows: service INCREMENT failed, cause by: Unable to connect to DBMS: url=jdbc:dws://*.*.*.115:8000,*.*.*.98:8000,*.*.*.133:8000/tanzhou_prod?client_encoding=UTF-8&loadBalanceHosts=true&targetServerType=any&reWriteBatchedInserts=true&socketTimeout=600&connectTimeout=300&binaryTransfer=true&ssl=false&sslmode=prefer user=dbadmin, Caused by: Connection to *.*.*.98:8000 refused. Check that the hostname and port are correct and that the postmaster is accepting TCP/IP connections

Possible Causes

The connection to the source or destination database fails to be established.

Solution

1. Check whether the source or destination database is running properly.
2. Check whether the network connection between the DRS replication instance and the source or destination database is normal.
3. Check whether the IP address of the DRS instance is allowed to access the source or destination database.

2.5.15 Incremental Synchronization Error: Table *** not found in target database

Scenarios

During incremental synchronization, an error is reported, and the log information is as follows: service INCREMENT failed, cause by: Check table structure consistency fail! Table %s not found in target database

Possible Causes

- The filter conditions of DDL statements for creating tables in the source database are not synchronized to the destination database.
- As a result, tables are deleted from the destination database.
- Some DDL statements (such as rename) are filtered out during online DDL.

Solution

- For the first two causes, create a table in the destination database based on the table structure in the source database.
- If some DDLs are filtered out, rename the temporary table to the correct table name in the destination database.

2.5.16 Incremental Synchronization Error: in a read-only transaction

Scenarios

During incremental synchronization, an error is reported, and the log information is as follows: service INCREMENT failed, cause by: insert %s failed:tid: %s, sqno: %s, ERROR: dn_ %s_ %s: cannot execute INSERT in a read-only transaction.

Possible Causes

The destination database is in read-only mode. The possible cause is that the disk space is full.

Solution

Step 1 Contact GaussDB (DWS) O&M personnel to restore the destination database.

Step 2 In the task list, locate the target task and click **Resume** in the **Operation** column to resume the task.

----End

2.5.17 Incremental Synchronization Error: relation *** does not exist

Scenarios

During incremental synchronization, an error is reported, and the log information is as follows: service INCREMENT failed, cause by: insert %s failed:tid: %s, sqno: %s, ERROR: relation ' %s' does not exist.

Possible Causes

- The filter conditions of the DDL statement for creating tables in the source database are not executed in the destination database during synchronization. As a result, the tables do not exist in the destination database.
- The tables are deleted from the destination database.
- Filtering conditions are set for DDL statements during synchronization. Some DDL statements (such as rename) are filtered out. As a result, the destination database table does not exist.

Solution

- For the first two causes, create a table in the destination database based on the table structure in the source database.
- If some DDL statements are filtered out, rename the temporary table to the correct table name in the destination database.

2.5.18 Incremental Synchronization Error: *** doesn't in the target table

Scenarios

During incremental synchronization, an error is reported, and the log information is as follows: service INCREMENT failed, cause by: insert %s failed: %s doesn't in the target table: %s.

Possible Causes

- The filter conditions of DDL statements for adding columns in the source database are not synchronized to the destination database.
- Columns are deleted in the destination database.

Solution

Step 1 Supplement the missing columns in the destination database based on the table structure of the source database.

Step 2 In the task list, locate the target task and click **Resume** in the **Operation** column to resume the task.

----End

2.5.19 Incremental Synchronization Error: syntax error at or near

Scenarios

During incremental synchronization, an error is reported, and the log information is as follows: service INCREMENT failed, cause by: Check whether dws supports the DDL. For support, please contact dws Services. DDL: CREATE TABLE *** like ***. failed by:ERROR: syntax error at or near '%s'

Possible Causes

The DDL statement conversion in the source database does not comply with the syntax of the destination database.

Solution

DRS does not convert the syntax for incremental DDL synchronization from MySQL to GaussDB(DWS). The DDL executed in the MySQL database will be executed in GaussDB(DWS). Contact Huawei technical support.

2.5.20 Incremental Synchronization Error: schema *** does not exist

Scenarios

During incremental synchronization, an error is reported, and the log information is as follows: service INCREMENT failed, cause by: update %s failed: ERROR: schema ' %s' does not exist.

Possible Causes

- The filter conditions of DDL statements for adding tables in the source database are not synchronized to the destination database.
- Schemas are deleted from the destination database.

Solution

Step 1 Create schemas in the destination database based on the source database structure.

Step 2 In the task list, locate the target task and click **Resume** in the **Operation** column to resume the task.

----End

2.5.21 Incremental Synchronization Error: Check whether dws supports the DDL

Scenarios

During incremental synchronization, an error is reported, and the log information is as follows: service INCREMENT failed, cause by: Check whether dws supports the DDL. For support, please contact dws Services. DDL:alter table gltest01.t_pk4 add column a3 int after c1. failed by:ERROR: FIRST/AFTER is not yet supported.

Possible Causes

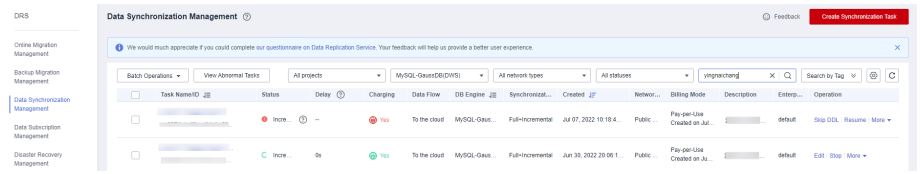
The destination GaussDB(DWS) instance does not support a specified DDL statement.

Solution

Step 1 Contact GaussDB(DWS) technical support to execute this statement with the same semantics in the destination database and the statement must comply with the syntax of the destination database.

Step 2 After the statement is executed on the destination database, click **Skip DDL** in the **Operation** column to skip the error.

Figure 2-1 Skip DDL



----End

2.5.22 Incremental Synchronization Error: PL/pgSQL function *** line *** at SQL statement

Scenarios

During incremental synchronization, an error is reported, and the log information is as follows: service INCREMENT failed, cause by: *** failed:tid: ***, sqno: ***, ERROR: dn_***_***: concurrent update under Stream mode is not yet supported here: SQL statement *** PL/pgSQL function *** line *** at SQL statement.

Possible Causes

A trigger exists in the destination database. After data is written to DRS, the trigger automatically starts to execute some SQL operations. However, an error is reported during the execution.

Solution

Disable or delete the trigger and wait until the DRS task restores.

2.6 Real-Time Synchronization from MySQL to CSS/ES

2.6.1 Incremental Synchronization Error: write table *** failed: null

Scenarios

During incremental synchronization, an error is reported, and the log information is as follows: service INCREMENT failed cause by: write table *** failed: null

Possible Causes

During incremental synchronization, the SSL connection is disabled for the destination database. As a result, the DRS task fails.

Solution

Step 1 Enable the SSL connection for the destination database.

Step 2 In the task list, locate the target synchronization task and click **Resume** in the **Operation** column.

----End

2.7 Real-Time Synchronization from PostgreSQL to PostgreSQL

2.7.1 Full Synchronization Error: function *** does not exist

Scenarios

During full synchronization, an error is reported, and the log information is as follows: service DATAMOVE failed, cause by: apply event=[type=table_structure, index=%s, schema_name=%s, object_name=%s] occur error, msg=ERROR: function *** does not exist Hint: No function matches the given name and argument types. You might need to add explicit type casts.

Possible Causes

Functions on which the table structure depends are not created in the destination database in advance. In table-level synchronization from PostgreSQL to PostgreSQL, functions and plugin objects cannot be synchronized. Therefore, you need to manually create functions on which the table structure depends in the destination database.

NOTE

You can log in to the corresponding database in the destination RDS for PostgreSQL and run the following SQL statement to check whether there is the function. In the command, *f_name* indicates the function name.

```
select n.nspname,p.proname,pg_get_functiondef(p.oid) as funcdef from pg_proc p left join pg_namespace n on p.pronamespace=n.oid where proname ='f_name';
```

Solution

The missing function may belong to a plugin or is a user-defined function. Perform the following steps to check the source of the function in the source database, create the corresponding plugin or function in the destination database, and retry the DRS task.

Step 1 Log in to the source database and run the following SQL statement to query the plugin to which the function belongs (*f_name* indicates the function name):

```
select extname, nspname, proname,pg_get_function_arguments(c.oid) as funcargs from pg_extension e join pg_depend d on (d.refobjid=e.oid) join pg_proc c on (d.objid=c.oid) join pg_namespace n on c.pronamespace=n.oid where proname ='f_name';
```

- If a query result is displayed, the function belongs to a plugin. The **extname** field in the query result indicates the plugin name. Go to **Step 2**.
- If no query result is displayed, the function does not belong to any plugin and is a user-defined function. Go to **Step 3**.

Step 2 If the function belongs to a plugin, click **Plugins** on the destination RDS for PostgreSQL management page and install the plugin.

Step 3 If the function is user-defined function, create the same function in the destination database as that in the source database. For details about the function definition statement, see the execution result of the following SQL statement in the source database. *f_name* indicates the function name.

```
select n.nspname,p.proname,pg_get_functiondef(p.oid) as funcdef from pg_proc p left join pg_namespace n on p.pronamespace=n.oid where proname ='f_name';
```

Step 4 Retry the DRS task.

----End

2.7.2 Full Synchronization Error: relation *** does not exist

Scenarios

During full synchronization, an error is reported, and the log information is as follows: service DATAMOVE failed, cause by: ERROR: relation '%s' does not exist Position: 15

Possible Causes

During table-level synchronization, objects with dependencies are not synchronized. For example, the source database contains tables A and B and table A depends on table B, but only table A is synchronized.

Solution

Step 1 Clear data in the destination database.

Step 2 Create a synchronization task again and select the objects to be synchronized and all dependent objects.

Step 3 Start the synchronization task.

----End

2.7.3 Full Synchronization Error: GC overhead limit exceeded

Scenarios

During full synchronization, an error is reported, and the log information is as follows: service DATAMOVE failed, cause by: GC overhead limit exceeded.

Possible Causes

Too many large objects exist in the service. As a result, the memory usage of the synchronization task exceeds the threshold.

Solution

Contact Huawei technical support.

2.7.4 Full Synchronization Error: Java heap space

Scenarios

During full synchronization, an error is reported, and the log information is as follows: service DATAMOVE failed, cause by: Java heap space.

Possible Causes

A large number of fields exist in the service. As a result, the memory usage of the synchronization task exceeds the threshold.

Solution

Step 1 Check whether the task is normal.

- If the task is normal, this error is recorded in the log and no further action is required.
- If the task is abnormal, go to **Step 2**.

Step 2 In the upper right corner of the console, choose **Service Tickets > Create Service Ticket** and contact customer service.

----End

2.7.5 Full Synchronization Error: column *** of relation *** does not exist

Scenarios

During full synchronization, an error is reported, and the log information is as follows: service DATAMOVE failed, cause by: apply event=[type=table_data, batch_index_in_shard= %s, table_schema= %s, table_name= %s, record_num= %s] occur error, msg=apply table %s data failed: %s: ERROR: column ' %s' of relation ' %s' does not exist Position: 1043 Call getNextException to see other errors in the batch.

Possible Causes

- During the full synchronization, DDL operations are executed in the destination database. As a result, the table structure in the destination database is inconsistent with that in the source database.
- During the full synchronization, DDL operations are executed in the source database. As a result, the table structure in the destination database is inconsistent with that in the source database.

Contact the customer to confirm whether they executed DDL operations.

Solution

Create a synchronization task again. During the full synchronization, ensure that no DDL operation is executed on the source database and no data is written to

the destination database. Otherwise, data may be inconsistent or the synchronization may fail.

2.7.6 Full Synchronization Error: column *** does not exist

Scenarios

During full synchronization, an error is reported, and the log information is as follows: service DATAMOVE failed, cause by: retry structures failed events=the fail structures are [type=function, index=0, schema_name= %s, object_name=' %s']reason:[ERROR: column ' %s' does not exist Position: %s].

Possible Causes

- During the full synchronization, DDL operations are executed in the destination database. As a result, the table structure in the destination database is inconsistent with that in the source database.
- During the full synchronization, DDL operations are executed in the source database. As a result, the table structure in the destination database is inconsistent with that in the source database.

Contact the customer to confirm whether they executed DDL operations.

Solution

Create a synchronization task again. During the full synchronization, ensure that no DDL operation is executed on the source database and no data is written to the destination database. Otherwise, data may be inconsistent or the synchronization may fail.

2.7.7 Full Synchronization Error: type 'hstore' does not exist

Scenarios

During full synchronization, an error is reported, and the log information is as follows: service DATAMOVE failed, cause by: retry structures failed events=the fail structures are [type=operator, index=2, schema_name=public, object_name=?|]reason:[ERROR: type 'hstore' does not exist].

Possible Causes

The hstore plug-in is not installed on the destination database.

NOTE

Run the following SQL statement in the destination RDS PostgreSQL database:

```
select * from pg_extension where extname = 'hstore';
```

Solution

Extensions are not synchronized. Before synchronization, install the corresponding extension in the destination database. Perform the following steps to install the extension and retry the DRS task:

Step 1 Log in to the destination RDS PostgreSQL database as the **root** user.

Step 2 Run the following SQL statements to install hstore:

```
create extension "hstore";
```

Step 3 Retry the DRS task.

----End

2.7.8 Full Synchronization Error: type 'geometry' does not exist

Scenarios

During full synchronization, an error is reported, and the log information is as follows: service DATAMOVE failed, cause by: retry structures failed events=the fail structures are [type=operator, index=2, schema_name=public, object_name=?|]reason:[ERROR: type 'geometry' does not exist].

Possible Causes

The postgis plug-in is not installed on the destination database.

NOTE

Run the following SQL statement in the destination RDS for PostgreSQL database:

```
select * from pg_extension where extname = 'postgis';
```

Solution

Extensions are not synchronized. Before synchronization, install the corresponding extension in the destination database. Perform the following steps to install the extension and retry the DRS task:

Step 1 Log in to the destination RDS for PostgreSQL database as the **root** user.

Step 2 Run the following SQL statements to install postgis:

```
create extension "postgis";
```

Step 3 Retry the DRS task.

----End

2.7.9 Full Synchronization Error: Check that the hostname and port are correct and that the postmaster is accepting TCP/IP connections

Scenarios

During full synchronization, an error is reported, and the log information is as follows: service DATAMOVE failed, cause by: source engine postgresql client initialize failed, detail: Unable to connect to DBMS: url= %s/position3.0?client_encoding=UTF-8&ssl=false&sslmode=prefer user= %s, Caused by:

Connection to %s refused. Check that the hostname and port are correct and that the postmaster is accepting TCP/IP connections.

Possible Causes

The connection to the source or destination database fails to be established.

Solution

Perform the following operations:

1. Check whether the source or destination database is running properly.
2. Check whether the DRS instance IP address is allowed by the listening port of the source or destination database.
   - For DRS tasks performed over a public network, the source database must allow access from the DRS instance EIP, and the destination database must allow access from the private IP address of the DRS instance.
   - For DRS tasks performed in a VPC, VPN, or Direct Connect network, both the source and destination databases must allow access from the private IP addresses of DRS instance.

2.7.10 Full Synchronization Error: invalid locale name

Scenarios

During full synchronization, an error is reported, and the log information is as follows: service DATAMOVE failed, cause by: target engine postgresql client initialize failed, detail: Unable to connect to DBMS: url= %s/position3.0?client_encoding=UTF-8&autosave=always&stringtype=unspecified&ssl=false&sslmode=prefer user= %s, Caused by: ERROR: invalid locale name:'Chinese (Simplified)_China.936'.

Possible Causes

The source database region type is not supported by the destination database.

Solution

Contact the customer to check whether the region type can be changed to another one (UTF-8 by default). The region type may affect the sorting rules of different languages. If the encoding format can be changed to UTF-8, contact Huawei technical support.

2.7.11 Full Synchronization Error: password must not equal user name

Scenarios

During full synchronization, an error is reported, and the log information is as follows: service DATAMOVE failed, cause by: retry structures failed events=the fail

structures are [type=account, index=0, schema_name=dummy, object_name=%s]reason:[ERROR: password must not equal user name].

Possible Causes

For RDS for PostgreSQL synchronization, the password cannot be the same as the username. If the password is the same as the username in the source database, an error will be reported when data is synchronized to the destination database.

Solution

Manually create the user in the destination database and click **Resume** on the DRS task management page to continue the synchronization.

2.7.12 Full Synchronization Error: permission denied for schema ***

Scenarios

During full synchronization, an error is reported, and the log information is as follows: service DATAMOVE failed, cause by: retry structures failed events=the fail structures are [type=table_structure, index=0, schema_name=%s, object_name=%s]reason:[ERROR: permission denied for schema %s]

Possible Causes

The destination database user does not have the create permission on the schema.

Solution

Step 1 Run the following SQL statement in the destination database to grant the create permission on the schema to which the table owner belongs:

```
grant create on schema <schema_name> to <table_owner_in_source>;
```

Step 2 On the **Data Synchronization Management** page, click **Resume** to resume the synchronization task.

----End

2.7.13 Full or Incremental Phase Error: service *** failed, cause by: Unable to connect to DBMS: ***

Scenarios

During a full or incremental synchronization, an error is reported, and the log information is as follows: service *** failed, cause by: Unable to connect to DBMS: ***

Possible Causes

Failed to connect to the source or destination database.

Solution

1. Check whether the source or destination database is running properly.
2. Check whether the network connection between the DRS instance and the source or destination database is normal.
3. Check whether the IP address of the DRS instance is allowed to access the source or destination database.

2.7.14 Full or Incremental Phase Error: Initialize logical replication stream failed, the source database may have a long transaction

Scenarios

During a full or incremental synchronization, an error is reported, and the log information is as follows: service LOGMANAGER failed, cause by: Initialize logical replication stream failed, the source database may have a long transaction: ***

Possible Causes

A logical replication slot fails to be created in the source database.

Solution

Step 1 Check whether the number of replication slots in the source database reaches the upper limit. If yes, delete replication slots that are no longer used from the source database or increase the value of **max_replication_slots** and restart the source database.

- Run the following command to query the number of logical replication slots:
  ```
  select count(1) from pg_replication_slots;
  ```
- Run the following command to query the maximum number of logical replication slots:
  ```
  select setting as number from pg_settings where name = 'max_replication_slots';
  ```

Step 2 Check whether the source database has long transactions that are not submitted. If yes, slot creation times out. As a result, the task fails.

- Run the following command to query a transaction status:
  ```
  select pid, datname, state, backend_xid, xact_start, (now() - xact_start) as cost from pg_stat_activity where backend_xid is not null order by xact_start;
  ```
- Run the following command to stop a long transaction:
  ```
  select pg_terminate_backend(pid);
  ```

----End

2.7.15 Full or Incremental Phase Error: memory required is *** MB, maintenance_work_mem is *** MB

Scenarios

During a full or incremental synchronization, an error is reported, and the log information is as follows: retry structures failed events=the fail structures are

[type=index, index=***, schema_name=***, object_name=***]reason:[ERROR: memory required is *** MB, maintenance_work_mem is *** MB]

Possible Causes

When an index is created in the destination database, the required memory is greater than the value of **maintenance_work_mem** configured for the database.

Solution

Step 1 Change the value of **maintenance_work_mem** in the destination database RDS for PostgreSQL to an approprite value. For details, see**Modifying RDS for PostgreSQL Instance Parameters**.

Step 2 Restart the database to apply the change. Then, On the **Data Synchronization Management** page, locate the target task and click **Resume** in the **Operation** column to resume the task.

----End

2.7.16 Full or Incremental Phase Error: temporary file size exceeds temp_file_limit

Scenarios

During a full or incremental synchronization, an error is reported, and the log information is as follows: retry structures failed events=the fail structures are [type=index, index=0, schema_name=fossbot, object_name=scan_mr5_file_union]reason:[ERROR: temporary file size exceeds temp_file_limit (20000000kB)]

Possible Causes

The size of the temporary table generated during SQL execution exceeds the upper limit of the temporary tablespace in the system.

Solution

Step 1 Increase the value of the **temp_file_limit** parameter in the destination database by referring to **Modifying RDS for PostgreSQL Instance Parameters**

Step 2 Restart the database to apply the change. Then, On the **Data Synchronization Management** page, locate the target task and click **Resume** in the **Operation** column. After the synchronization task is complete, change the value to the original value. Otherwise, the DB instance disk may be full due to large temporary tablespace.

----End

2.7.17 Incremental Synchronization Error: Table *** not found in target database

Scenarios

During incremental synchronization, an error is reported, and the log information is as follows: service INCREMENT failed, cause by: Check table structure consistency fail! Table %s not found in target database

Possible Causes

- The user did not select to synchronize DDL, so the CREATE TABLE statement is not synchronized to the destination database.
- The user selected to synchronize DDL, but the source database uses the DDL statement that is not supported by DRS to create a table.
- The table is deleted from the destination database.

Solution

- Method 1: Create a task again and comply with the following DRS usage rules:
  - If you select to synchronize DDL, do not execute DDL statements that are not supported by DRS in the source database.
  - If you do not synchronize DDL, do not execute DDL statements in the source database, or execute DDL statements in the destination database before executing the same DDL statements in the source database.
  - During full and incremental synchronization, do not write data to the destination database. Otherwise, data may be inconsistent or the synchronization may fail.
- Method 2: Perform the following operations to restore the DRS task:
  - **Possible cause:** The user did not select to synchronize DDL, so the CREATE TABLE statement in the source database is not synchronized to the destination database.

    Solution: Create a table in the destination database based on the table structure of the source database and retry the DRS task.
  - **Possible cause:** The user selected to synchronize DDL, but the source database uses the DDL statement that is not supported by DRS to create a table.

    Solution: Create a table in the destination database based on the table structure of the source database and retry the DRS task.
  - **Possible cause:** The table is deleted from the destination database.

    Solution: Re-create the table in the destination database based on the structure of the deleted table and retry the DRS task.

    NOTE

    If both the table and the data in the table are deleted, re-creating the table may lead to data inconsistency or cause the task to fail again.

2.7.18 Incremental Synchronization Error: remaining connection slots are reserved

Scenarios

During incremental synchronization, an error is reported, and the log information is as follows: service INCREMENT failed, cause by: Unable to connect to DBMS: url= %s user= %s, Caused by: FATAL: remaining connection slots are reserved for non-replication superuser connections.

Possible Causes

The number of user connections to the destination database reaches the upper limit. As a result, the connection to the destination database fails to be established.

NOTE

Log in to the destination RDS PostgreSQL database and run the following SQL statement:

- View max_connections.
  ```
  show max_connections;
  ```
- Check the current number of connections.
  ```
  select count(*) from pg_stat_activity;
  ```

Solution

On the destination RDS PostgreSQL database console, change the value of **max_connections** to a larger value and make it take effect. Each DRS task requires about 100 connections.

2.7.19 Incremental Synchronization Error: PL/pgSQL function *** line *** at SQL statement

Scenarios

During incremental synchronization, an error is reported, and the log information is as follows: service INCREMENT failed, cause by: insert %s failed:tid: %s, sqno: %s, ERROR: %s' PL/pgSQL function %s line %s at SQL statement.

Possible Causes

The destination database **session_replication_role** is not set to **replica**, and the destination database trigger is not disabled.

NOTE

You can log in to the destination database RDS PostgreSQL and run the following SQL statement to check the value of **session_replication_role**:

```
show session_replication_role;
```


Solution

Step 1 On the RDS PostgreSQL console, change the value of **session_replication_role** to **replica** and apply the changes.

Step 2 Retry the DRS task.

----End

2.8 Real-Time Synchronization with Oracle Serving as the Source

2.8.1 Full Synchronization Error: has date/datetime: *** which is outside of dest allowed range

Scenarios

During a full synchronization from Oracle to MySQL, an error is reported, and the log information is as follows: service DATAMOVE failed, cause by: java.lang.InterruptedException: Database: ***, Table: ***, Column: *** has date/datetime: *** 0:0:0 which is outside of dest allowed range.

Possible Causes

Oracle and MySQL heterogeneous databases support different time types. You can run the following SQL statement in the Oracle database to view data:

```
select to_char(column_name, 'SYYYY-MM-DD') from table_name;
```

Solution

Contact Huawei technical support. After the fault is rectified, DRS writes data based on the following rules:

- If the destination database stores DATE data, 0000-01-01 00:00:00 is written.
- If the destination database stores TIMESTAMP data, 1970-01-01 00:00:01 is written.

2.8.2 Full or Incremental Phase Error: Got minus one from a read call

Scenarios

During a full or incremental synchronization with Oracle serving as the source, an error is reported, and the log information is as follows: service LOGMANAGER failed, cause by: Unable to connect to DBMS: url=jdbc:oracle:thin:@(DESCRIPTION=(ADDRESS=(PROTOCOL=TCP)(HOST=*.*.*.*)(PORT=1521))(CONNECT_DATA=*)) user=*, Caused by: IO Error: Got minus one from a read call.

Possible Causes

- The source database server rejects access from the IP address of the DRS task.
- The source database connection information has changed.
- The number of connections to the source database has reached the upper limit.

Solution

Step 1 Modify the **sqlnet.ora** file in **$ORACLE_HOME/network/admin** to allow the IP address of the DRS task to access the source database.

- If a whitelist is used, **TCP.INVITED_NODES** must contain the DRS task IP address.
- If a blacklist is used, **TCP.EXCLUDED_NODES** cannot contain the DRS task IP address.

Step 2 Check whether the source database information (such as the IP address, port number, or service name/sid) is modified. If the source database information is modified, perform the following operations:

- Restore the modified source database information. The DRS task will automatically retry to continue the synchronization task.
- Create a synchronization task again.

Step 3 Run the following commands to check whether the number of connections to the source database has reached the upper limit.

- Run the following command to check the current number of connections:
  ```
  select count(*) from v$process;
  ```
- Run the following command to check the maximum number of connections:
  ```
  select value from v$parameter where name ='processes';
  ```

If the number of connections to the source database has reached the upper limit, run the following command to change the maximum number of connections allowed by the database:

```
alter system set processes = 300 scope = spfile;
```

Restart the database for the modification to take effect.

----End

2.8.3 Incremental Synchronization Error: Source supplemental log level is PK/UI. Missing column data at delete+insert on ***"

Scenarios

During an incremental synchronization from Oracle to PostgreSQL, GaussDB(DWS), or GaussDB, an error is reported, and the log information is as follows: service INCREMENT failed, cause by: Source supplemental log level is PK/UI. Missing column data at delete+insert on ***

Possible Causes

The supplemental log level of the source Oracle database is PK/UI. The **update** operation of the source database is not hit in the traffic replay of the destination database. DRS converts the update operation to **delete** and **insert** operations by default. During the **insert** operation, the log does not contain data of other columns. As a result, an error is reported.

Solution

Change the supplemental log level of the source database to **ALL**. Then, in the task list, click **Reset** in the **Operation** column to submit the task again.

2.8.4 Incremental Synchronization Error: timeout when get next file log, maybe has been deleted, please check it.

Scenarios

During an incremental synchronization with Oracle serving as the source, an error is reported, and the log information is as follows: service CAPTURE failed, cause by: get next Oracle log file error. The next file is: 1.log, errorcode = 'code': '01300', 'name': 'LOGS_NOT_EXIST', 'retry': false, 'reset': false, 'level': 3, message = timeout when get next file log, maybe has been deleted, please check it.

Possible Causes

1. The source Oracle database is a physical standby database. The logs of the source database where the incremental startup position is located are not archived. As a result, DRS cannot obtain the logs.
2. There are problems about nodes and logs in the source database. As a result, DRS fails to obtain logs and reports an error.
3. The network is unstable, affecting the speed of obtaining logs from the source database. As a result, reading logs times out.

Solution

Step 1 After a DRS task is started, wait for about 10 minutes, click the task name, and check whether the error log is displayed on the **Synchronization Logs** page.

- If no, DRS has obtained logs.
- If yes, go to **Step 2**.

Step 2 If an error is reported for the LOGMANAGER process on the **Synchronization Logs** page, contact Huawei technical support.

----End

2.8.5 Incremental Synchronization Error: Failed to construct kafka producer.

Scenarios

During an incremental synchronization from Oracle to Kafka, an error is reported, and the log information is as follows: service INCREMENT failed, cause by: Failed to construct kafka producer.

Possible Causes

If the destination Kafka instance is deployed across multiple AZs and an AZ fails, the preceding error may be reported when the Kafka client produces or consumes messages.

Solution

Step 1 Check and restore the Kafka partitioning.

Step 2 In the task list, locate the target task and click **Reset** in the **Operation** column to submit the task again.

----End

2.8.6 Incremental Synchronization Error: Topic *** not present in metadata after 300000 ms

Scenarios

During an incremental synchronization from Oracle to Kafka, an error is reported, and the log information is as follows: service INCREMENT failed, cause by: Topic *** not present in metadata after 300000 ms

Possible Causes

If the destination Kafka instance is deployed across multiple AZs and an AZ fails, the preceding error may be reported when the Kafka client produces or consumes messages.

Solution

Step 1 Check and restore the Kafka partitioning.

Step 2 In the task list, locate the target task and click **Reset** in the **Operation** column to submit the task again.

----End

2.9 Real-Time DR with MySQL Serving as the Source

2.9.1 DR Error: A dml without pk write target db fail

Scenarios

During a DR task with MySQL serving as the source, an error is reported, and the log information is as follows: A dml without pk write target db fail

Possible Causes

- If a table does not have a primary key to uniquely identify every row and the network connection is unstable, data written to the table without a primary key may be inconsistent with that in the source database.
- The source is RDS for MySQL of an earlier version (5-5.7.23). Tables that have no primary key contain hidden primary keys in the source database. As a result, the DRS task reports an error indicating that the update or delete operation is not hit.

Solution

- If the table does not have a primary key, create a primary key for the table and create a DRS DR task again.
- If the source is RDS for MySQL of an earlier version (5-5.7.23) and there are hidden primary keys in the tables having no primary key, perform the following steps:

  a. Use an account with the process permission to run the following SQL statement at the source end to query table information. In the statement, *database/table* indicates the database name and table name of a table without a primary key. If the table is a partition table, use the **like** statement.

  ```
  select * from information_schema.INNODB_SYS_TABLES  where name = 'database/table';
  ```

  ```
  mysql> select * from information_schema.INNODB_SYS_TABLES  where name = 'test1/nopk1';
  +----------+------------+------+--------+-------+-------------+------------+---------------+------------+
  | TABLE_ID | NAME       | FLAG | N_COLS | SPACE | FILE_FORMAT | ROW_FORMAT | ZIP_PAGE_SIZE | SPACE_TYPE |
  +----------+------------+------+--------+-------+-------------+------------+---------------+------------+
  |       44 | test1/nopk1 |   33 |      7 |    29 | Barracuda   | Dynamic    |             0 | Single     |
  +----------+------------+------+--------+-------+-------------+------------+---------------+------------+
  1 row in set (0.00 sec)
  ```

  b. Run the following SQL statement to query the column information of the table without a primary key based on *TABLE_ID* obtained in **a**:

  ```
  select * from information_schema.INNODB_SYS_COLUMNS where TABLE_ID = 44;
  ```

  ```
  mysql> select * from information_schema.INNODB_SYS_COLUMNS where TABLE_ID = 44;
  +----------+----------------+-----+--------+---------+-----+
  | TABLE_ID | NAME           | POS | MTYPE  | PRTYPE  | LEN |
  +----------+----------------+-----+--------+---------+-----+
  |       44 | name1          |   0 |     12 | 2949135 | 128 |
  |       44 | name3          |   1 |     12 | 2949135 | 128 |
  |       44 | AUTO_PK_ROW_ID |   2 |      6 |    1288 |   8 |
  |       44 | name4          |   3 |     12 | 2949135 | 128 |
  +----------+----------------+-----+--------+---------+-----+
  4 rows in set (0.00 sec)
  ```

  c. According to the query result, the third column whose **POS** is **2** is the hidden auto-increment primary key column. If the hidden primary key column in binlog is not the last column, DRS synchronization will fail.

  d. Log in to the RDS console and **upgrade the minor kernel version** or contact RDS customer service to upgrade the version.

  e. Create a DRS task again.

2.10 Backup Migration

2.10.1 Backup Migration Failed Because Backup Files Cannot Be Found

Scenarios

When you migrate full backups from self-built OBS buckets to clouds, the following error message is displayed: restore:null.

Possible Causes

The possible causes are as follows:

- Backup files are deleted after you submit a backup migration task.
- When you upload backup files to a self-built OBS bucket, you select **Archive** for **Storage Class**. OBS archive storage offers cloud storage for rarely accessed data. An archive file uploaded for the first time is in the **Not restored** status. As a result, a Microsoft SQL Server DB instance cannot download the file.

Solutions

Based on the previous analysis, solutions are provided as follows:

Solution 1

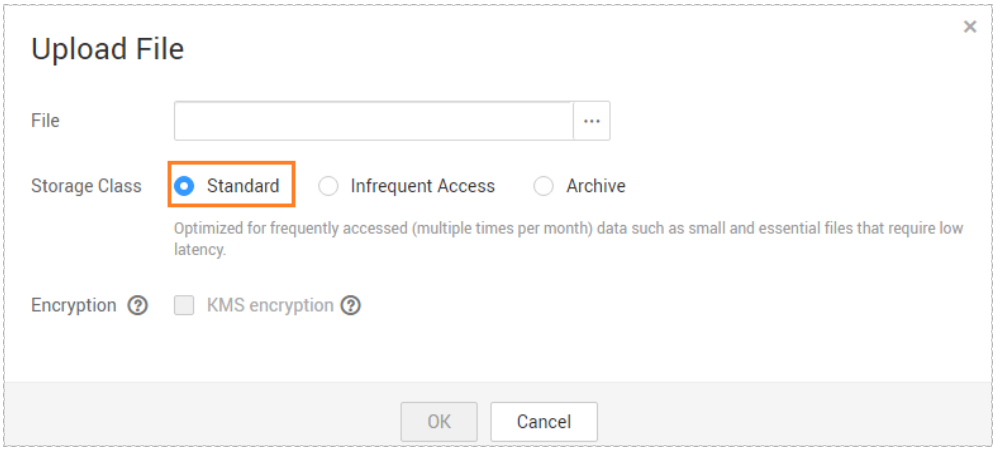
If the migration fails because you delete the backup files, you can upload the deleted backup files again to a self-built OBS bucket and select **Standard** for **Storage Class**. For details, see the **Uploading a File or Folder** section in the *Object Storage Service Console Operation Guide*.

Solution 2

- If the migration failed because the storage class of your backup files is **Archive**, perform the following steps. If the size of backup files is small, upload the backup files again to an OBS bucket and select **Standard** for **Storage Class**.

  For details, see the **Uploading a File or Folder** section in the *Object Storage Service Console Operation Guide*.

Figure 2-2 Uploading a file



- If the backup files are large in size, log in to the OBS console and click the bucket to which the backup files are uploaded. On the displayed page, choose **Objects** in the navigation pane on the left. On the **Objects** page, select the object to be restored and click **Restore** above the file list. After the status of the backup files becomes **Restored**, submit an offline migration task again.

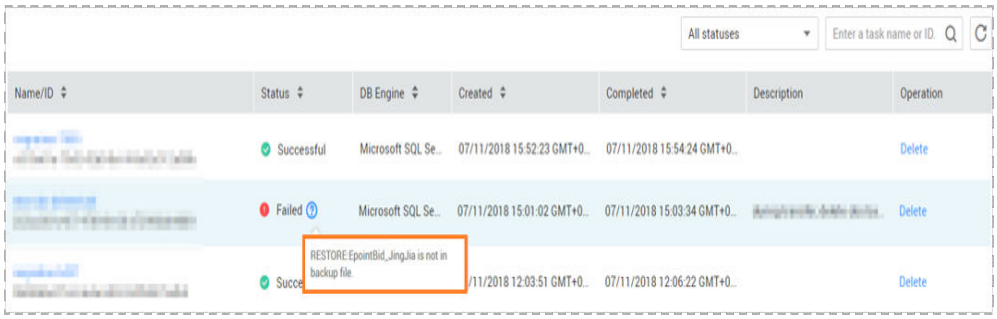
  For details, see the **Restoring an Archive File on OBS** section in the *Object Storage Service Console Operation Guide*.

2.10.2 Backup Migration Failed Because a Backup Database Cannot Be Found in the Backup Files

Scenarios

When you migrate full backups from self-built OBS buckets to clouds, the system displays an error message indicating that the migration failed because the source database cannot be found in the backup files.

Figure 2-3 Backup migration



Possible Cause

The name of a .bak backup file uploaded to a self-built OBS bucket is too long.

Solution

Based on the previous analysis, a solution is provided as follows:

Step 1 Check the name of the backup file to be uploaded to an OBS bucket by referring to **Preparing Backup Files** in the *Backup Migration*.

Step 2 Change the name of the backup file in the local database and upload the file to a self-built OBS bucket again.

----End

2.10.3 Backup Migration Failed Because the Database with the Same Name Already Exists

Scenarios

When you migrate full backup data to the cloud, the following error message is displayed: The restore database already exists in the destination DB instance

Possible Causes

To ensure data security, RDS for SQL Server does not support migrating databases with the same name to the cloud.

Solution

If you want to overwrite the data in the existing database, back up the existing data and delete the database with the same name. Alternatively, set **Overwrite Data** to **Yes** when creating a backup migration task, and then migrate the data again.

2.10.4 Backup Migration Failed Because an Incremental Backup File Is Used

Scenarios

When you migrate full backup data to the cloud, the following error message is displayed: In full mode, incremental file restoration is not supported. To restore incremental files, perform full restoration first.

Possible Causes

The selected backup file is an incremental backup file instead of a full backup file. Only full backup files can be migrated to the cloud at a time. Differential backup is not supported.

Solution

Incremental files cannot be used for full data restoration. To restore incremental files, perform full restoration first or use full backup files to migrate data.

2.10.5 Backup Migration Failed Because an Log Backup File Is Used

Scenarios

When you migrate full backup data to the cloud, the following error message is displayed: Target database has been restored,can not restore for transaction log

Possible Causes

The backup file selected during task creation is a log backup file instead of a full backup file. Only full backup files can be migrated to the cloud at a time. Log backup is not supported.

Solution

Log files cannot be used for full data restoration. Select a full backup file for data migration.

2.10.6 Backup Migration Failed Because the Backup File Verification Failed

Scenarios

When you create a backup migration task, the following error message is displayed: Failed to obtain the restoration file information

Possible Causes

The backup file is damaged or incomplete, and the backup file verification fails.

Solution

Select a complete full backup file and perform the migration again.

2.10.7 Backup Migration Failed Because of Insufficient Space

Scenarios

When you create a backup migration task, a message is displayed indicating that the space is insufficient. The following error information may be displayed:

1. The disk space of the target database is insufficient.
2. The disk space of the destination database must be 1.5 times larger than the size of the backup file.
3. The disk space of the destination database is insufficient. Check whether the backup is compressed.

Possible Causes

- The remaining space of the destination database must be greater than 1.5 times the size of the backup file.
- The backup file is compressed. As a result, the storage space of the destination database is insufficient.

Solution

Scale up the storage space by referring to **Scaling up Storage Space**, or contact RDS customer service to change the destination database space and perform the migration again.

2.10.8 Backup Migration Failed Because Database Names Are Not Specified

Scenarios

If you choose to restore some databases, the following error message is displayed: If you choose to restore a partial database, specify the database name.

Possible Causes

If the restoration file contains multiple databases and you select some databases for restoration on the GUI, the names of the databases to be restored are not specified.

Solution

If you select some databases for restoration, specify the names of the databases to be restored and perform the migration again.

2.10.9 Backup Migration Failed Because a Full Backup File Is Used

Scenarios

When you migrate incremental backup data to the cloud, the following error message is displayed: Full files cannot be restored in incremental mode.

Possible Causes

During an incremental backup, after the full backup file is restored, only transaction log backup files can be used. If you select a full backup file again, this error is reported.

Solution

Full files cannot be used for incremental data restoration. Select a backup file and a backup mode based on site requirements.

2.10.10 Backup Migration Failed Because the LSNs of Incremental Backup Files Are Inconsecutive

Scenarios

When you migrate incremental backup data to the cloud, the following error message is displayed: In incremental restoration mode, the incremental .bak file is not continuous with the previous full restoration file.

Possible Causes

In a SQL Server database, the LSN of the differential backup or log backup must continuously follow the LSN of the backup file restored last time. Otherwise, this error is reported.

Solution

Select the corresponding LSN backup file for incremental backup based on the backup time sequence. Ensure that the LSN of the selected backup file can continuously follow the LSN of the last restoration file.

2.10.11 Backup Migration Failed Because the Number of Databases to Be Restored Exceeds the Destination Database Threshold

Scenarios

When you migrate backup data to the cloud, the following error message is displayed: The number of the recovery database exceeds the threshold of the target database.

Possible Causes

The number of databases to be restored exceeds the threshold of the destination database.

Solution

Select another RDS for SQL Server DB instance as the destination database, or delete unnecessary databases from the destination database and then perform the migration.

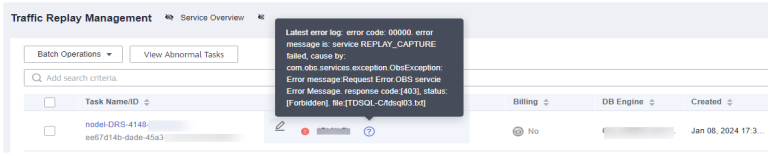
2.11 Traffic Replay

2.11.1 Parsing Failed, and a Message Is Displayed Indicating That the OBS Connection Failed

Scenarios

When you create a to-the-cloud traffic replay task and obtain traffic files in the OBS bucket using an AK/SK, traffic files failed to be parsed and a message is displayed indicating that the OBS connection failed.

Figure 2-4 Parsing failed



Possible Causes

The possible causes are as follows:

1. The AK, SK, bucket name, or endpoint is incorrect.
2. You do not have the permission to read files in the OBS bucket.

Solution

Based on the previous analysis, a solution is provided as follows:

Step 1 Click the task name. The **Basic Information** page is displayed.

Step 2 In the **Connection Information** area, check whether the AK, SK, bucket name, and endpoint information is correct.

If **a temporary AK/SK** is used, you also need to check the permissions and validity period of the temporary AK/SK and security token.

- If the connection information is correct, go to **Step 3**.
- If the connection information is incorrect, click **Pause** in the **Operation** column of the task. After the task is paused, click **Edit** in the **Operation** column. On the **Configure Source and Destination Databases** page, enter information about the source database and task settings, and start the task.

Step 3 Check whether you have the permission to read files in the OBS bucket. For details about how to grant users the permission to read files in OBS buckets, see **OBS Permissions Management**.

----End

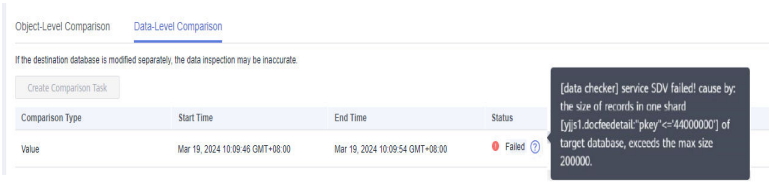
2.12 Data-Level Comparison

2.12.1 Data-Level Comparison Error: service SDV failed! cause by: the size of records in one shard[***] of target database, exceeds the max size 200000

Scenarios

During a value comparison task, an error is reported, and the log information is as follows: service SDV failed! cause by: the size of records in one shard[***.***] of target database, exceeds the max size 200000

Figure 2-5 Comparison failed



Possible Causes

The data model of the table to be compared is special. As a result, automated sharding cannot be performed for the comparison task, and the task fails.

Solution

Create a value comparison task again and deselect the table for which the error is reported.

Step 1 Click the task name. The **Basic Information** page is displayed.

Step 2 Take a synchronization task as an example. Choose **Synchronization Comparison**.

Step 3 Click the **Data-Level Comparison** tab and click **Create Comparison Task**.

Step 4 Deselect the table where the error is reported and click **OK** to submit the comparison task again.

Step 5 If the fault persists, choose **Service Tickets > Create Service Ticket** in the upper right corner of the management console and contact DRS customer service.

----End

