User Guide **CUSTOMER**

Document Version: 2.0 – 2019-10-16

SAP Landscape Transformation Replication Server

Resuming Replication Without Initial Load After System Refresh or OS/DB Migration

Typographic Conventions

Type Style	Description
Example	Words or characters quoted from the screen. These include field names, screen titles, pushbuttons labels, menu names, menu paths, and menu options. Textual cross-references to other documents.
Example	Emphasized words or expressions.
`EXAMPLE`	Technical names of system objects. These include report names, program names, transaction codes, table names, and key concepts of a programming language when they are surrounded by body text, for example, SELECT and INCLUDE.
`Example`	Output on the screen. This includes file and directory names and their paths, messages, names of variables and parameters, source text, and names of installation, upgrade and database tools.
`Example`	Exact user entry. These are words or characters that you enter in the system exactly as they appear in the documentation.
`<Example>`	Variable user entry. Angle brackets indicate that you replace these words and characters with appropriate entries to make entries in the system.
`EXAMPLE`	Keys on the keyboard, for example, `F2` or `ENTER`.

Document History

Version	Date	Change
1.0	2019-05-06	Initial version available on help.sap.com
2.0	2019-10-16	Updated version

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1 Use Case

You are using SAP LT Replication Server to replicate data from an ABAP-based SAP source system to an SAP HANA database or to an ABAP-based SAP system connected by means of an RFC connection

Due to one of the following situations, your system landscape will comprise a new source and/or target system:

- You want to refresh your source and target systems by copying systems from your production landscape.
- You want to migrate your source system to another hardware alternative (OS/DB migration or Unicode migration).

Afterwards, you want to resume the replication for tables without having to perform an initial load again.

If the data in source system and the data in the target system is in sync for the relevant tables, you can reconnect the systems without having to perform a new initial load. This document describes the required steps to do this.

1.1 Restrictions

The procedure outlined in this guide is only relevant for ABAP-based SAP source systems that are connected to the SAP Landscape Transformation Replication Server system by means of an RFC connection.

The replication can only be resumed for tables that have the status *In Replication*. Any tables that have the status *Initial Load* must be stopped and restarted again.

In order to avoid data inconsistencies, you need to ensure that the data for the relevant tables is in sync between the source and target systems. If the source and target systems are part of a system landscape where data is being replicated by SAP LT Replication Server, then you must ensure that all delta data is replicated. In the SAP LT Replication Server system, you can check the status of any unprocessed records by using the expert function *View Unprocessed Logging Table Records* in the SAP LT Replication Server Cockpit (transaction `LTRC`).

Additional Considerations for Specific Target Scenarios

- If you are replicating data using the Operational Data Provisioning (ODP) Framework, the SAP LT Replication Server system and the relevant consumers must be copied at the same point in time. The reason for this is that the ODQ queue mechanism requires that requests are present in the system. If the SAP LT Replication Server system and target systems are not in sync with regard to these requests, a new initial load will be required.
- A system refresh is not possible if you are replicating Data to SAP BW PSA using Web Service DataSources.

1.2 Prerequisites

The add-on DMIS 2011 with at least SP06 is installed in the SAP Landscape Transformation Replication Server system. If DMIS 2011 SP06, SP07, or SP08 is installed in the SAP Landscape Transformation Replication Server system, you also need to implement SAP Note 2123494.

2 Process

Before you make any changes to the source or target systems, all SAP LT Replication Server configurations that use these systems must be stopped. You can stop the relevant configurations in the SAP LT Replication Server Cockpit (transaction `LTRC`). On the tab page *Administration Data*, choose the *Deactivate* pushbutton. In case of a source system exchange, make sure that all logging table records are completely processed, before you stop the configuration. You can check this in LTRS expert function "view unprocessed logging table records".

2.1 Prepare New Source System

This section is only relevant if there will be a new source system, as described in chapter 1, and the source system is connected by means of an RFC connection

The SAP LT Replication Server (DMIS) software versions can be different in the source system and in the SAP LT Replication Server system. You must ensure that the DMIS support package level in the new source system is supported by the SAP LT Replication Server system. For more information, see the compatibility matrix defined in the relevant SAP Note. You can find the relevant SAP Note by searching for the following short text:

`Release Information SLT - DMIS 2011 SPx` (where x is the relevant support package level).

`Release Information SLT - DMIS 2018 SPx` (where x is the relevant support package level).

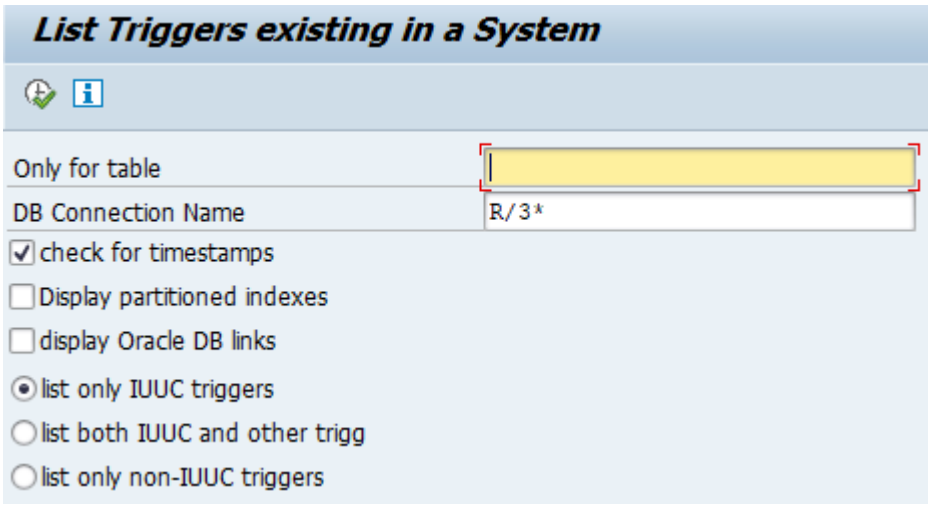
If the new source system was created from another system that was already connected to an SAP LT Replication Server system, there might be some SAP LT Replication Server objects in the source systems that have to be deleted:

- Database triggers
- Logging tables
- 1:N registrations

In order to delete these objects, you will require a user with the role SAP_IUUC_REPL_ADMIN in the source system.

2.1.1 Delete Existing Database Triggers

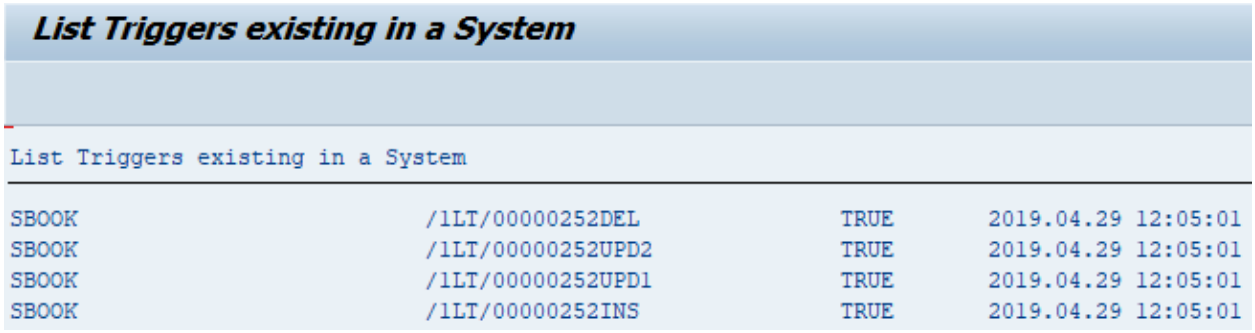
To display the existing SAP LT Replication Server triggers, call transaction `IUUC_REMOTE` in the new source system. On the tab page *Display Functions*, choose the pushbutton *List Triggers*. The system displays a screen that contains the following default selection parameters:



List Triggers

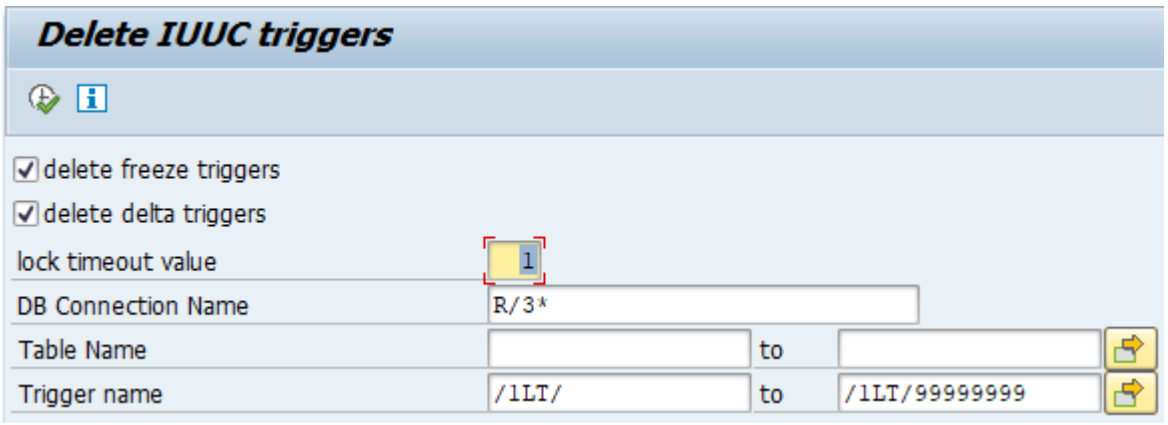
Execute the program using the default selection parameters.

The system displays a list of database triggers created by the SAP LT Replication Server. If no tables are listed here, then no additional action is required.



List of Database Triggers

In order to delete the existing triggers, call transaction `IUUC_REMOTE`. On the tab page *Expert Functions*, choose the pushbutton *Delete Triggers*. The system displays a screen that contains default selection parameters. Execute the program using these default selection parameters. Note that the system will display a warning, which you can confirm.

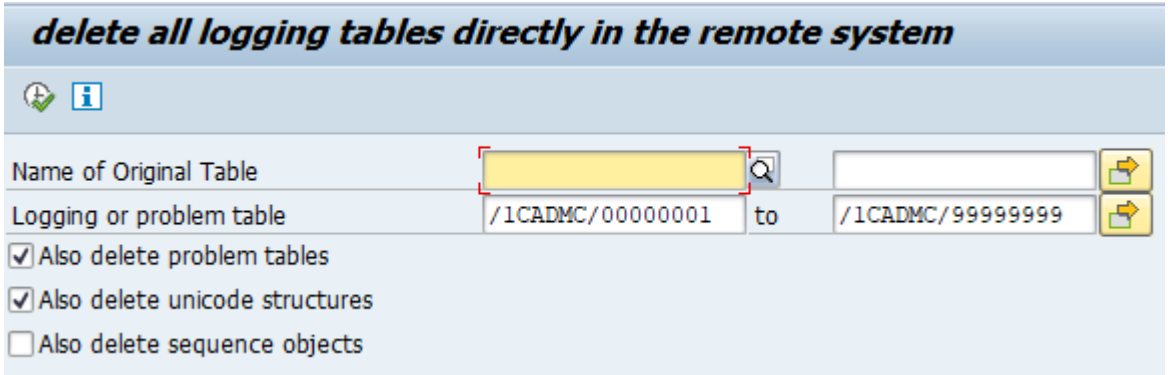


You can check whether the triggers have been deleted by choosing the pushbutton *List Triggers* again.

> **Caution**
>
> Deleting database triggers can result in serious data inconsistencies. Only delete triggers as part of this specific scenario, and not for any other scenario.

2.1.2 Delete Existing Logging Tables

In order to delete any logging tables that might exist, call transaction IUUC_REMOTE. On the tab page *Expert Functions*, choose the pushbutton *Delete Logging Tables*. The system displays a screen that contains default selection parameters. Execute the program using these default selection parameters.



Delete Logging Tables

2.1.3 Delete Existing 1:N Registrations

If data was previously replicated to multiple target system from the source system, there might be some registration entries that have to be deleted. In order to do this, you need to delete entries from the following tables in the source system:

- IUUC_1N_CONS_REG
- IUUC_POOL_REGIST
- IUUC_LOG_APPLTAB

Check whether the tables contain entries. If a table contains entries, delete the entries or truncate the table. You can do this by using report `IUUC_CLEAN_REMOTE_REGISTRATION` or by using the expert function "Clean remote registration" in transaction `IUUC_REMOTE`.

2.2 Considerations for the SAP LT Replication Server System

If you are using the add-on DMIS 2011 SP06 to SP14, you might get errors during the system refresh or OS/DB migration stating that one or more tables that are to be created already exist. This can occur for proxy tables starting with 1CADMC/* or /1LT/*. In the SAP LT Replication Server system, these proxy tables are created as tables in the ABAP Dictionary but exist as synonyms at database level.

To avoid this issue, follow the instructions in SAP Note 2584573 before the system refresh or OS/DB migration.

2.3 Prepare New Target System - SAP HANA Database

This section is only relevant if there will be a new target system as described in chapter 1, and the target system is an SAP HANA database.

You must ensure that the SAP HANA revision in the new target system is supported by the SAP LT Replication Server system. For more information, see the compatibility matrix defined in the relevant SAP Note. You can find the relevant SAP Note by searching for the following short text:

`Release Information SLT - DMIS 2011 SPx` (where x is the relevant support package level).

`Release Information SLT - DMIS 2018 SPx` (where x is the relevant support package level).

In addition, we recommend updating the SAP HANA client library to the corresponding level in case the new target is installed on a higher level.

If the target system was created from another system that was already connected to an SAP LT Replication Server system, it might be necessary to delete existing public synonyms.

In order to identify the relevant synonyms that have to be deleted, you can execute the following SQL statement in the SAP HANA studio:

```
SELECT SYNONYM_NAME FROM "SYS"."SYNONYMS" WHERE SYNONYM_NAME LIKE '/1CADMC/%' OR
SYNONYM_NAME LIKE '/1LT/%'
```

All synonyms that are returned in the result set must be deleted using the following SQL statement. You need to replace **<synonym_name>** with the names of the previous result set.

```
DROP PUBLIC SYNONYM "<synonym_name>"
```

> **Caution**
>
> If multiple source systems are connected to the target system, then deleting the synonyms will affect all configurations. You must therefore ensure that the reset steps for the target system are implemented for all configurations.

2.4 Prepare New Target System - Target connected by RFC Connection

This section is only relevant if there will be a new target system, as described in chapter 1 and the target system is an ABAP-based SAP system connected by means of an RFC connection.

You must ensure that the DMIS version in the new target system is supported by the SAP LT Replication Server system. For more information, see the compatibility matrix defined in the relevant SAP Note. You can find the relevant SAP Note by searching for the following short text:

Release Information SLT - DMIS 2011 SPx (where x is the relevant support package level).

Release Information SLT - DMIS 2018 SPx (where x is the relevant support package level).

There are no other actions necessary in the target system.

2.5 Reconnect SAP LT Replication Server

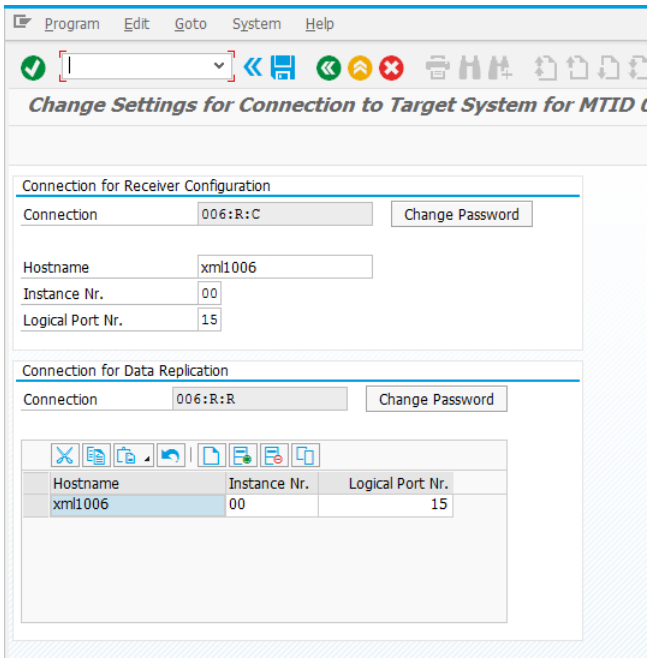
If the preparatory steps have been completed successfully, the relevant configurations can be connected to the new source and/or target systems. In addition, the replication objects have to be adjusted to the new environment.

2.5.1 Adjust Connection to Source System

If the connection data (for example the server name or user logon data) to the source system has changed, the respective RFC destination must be adjusted. In the SAP LT Replication Server Cockpit (transaction `LTRC`), you can find the RFC destination name on the *Administration Data* tab page. You must adjust the setting of the used RFC destination in transaction SM59, as the RFC destination name cannot be changed in an existing configuration.

2.5.2 Adjust Connection to Target System - SAP HANA Target

If the host name or instance number of the target system has changed, the existing database connections must be adjusted accordingly. You can do this in the SAP LT Replication Server Cockpit (transaction `LTRC`). On the tab page *Expert Functions*, choose the expert function *Change Settings for Connection to Target System*.



Change Settings for Connection to Target System

2.5.3 Adjust Connection to Target System - Target connected by RFC Connection

If the connection data (for example the server name or user logon data) to the target system has changed, the respective RFC destination must be adjusted. In the SAP LT Replication Server Cockpit (transaction `LTRC`), you can find the RFC destination name on the *Administration Data* tab page. You must adjust the setting of the used RFC destination in transaction `SM59`, as the RFC destination name cannot be changed in an existing configuration.

2.5.4 Advanced Replication Settings

If the source and/or target system was already connected to an SAP LT Replication server system, there might be some obsolete advanced replication settings. The advanced replication settings (for example table structure deviations) must fit to the settings of the current SAP LT Replication Server system.

2.5.5 Reset Replication Objects

For the new source and/or target system, some actions have to be executed again (depending on which system has been changed). The following steps have to be done for every configuration that is connected to the new source and/or target system.

2.5.5.1 Prerequisites - Handling Pooled and Cluster Tables

Note that this section is only relevant if the old source system was not using an SAP HANA database and uses pooled or cluster tables.

This step is required if the pooled and cluster tables will become transparent tables in the new source system (as is usually the case for a new SAP HANA system). You implement this step before the steps outlined in following sections.

If you have replicated data from any pooled or cluster tables, proceed as follows (depending on your DMIS add-on level):

DMIS Add-On is Lower Than Support Package 13

In the SAP Landscape Transformation Replication Server system, for every configuration that refers to the old source system, execute the following statement:

```
UPDATE iuuc_tables
  SET tabclass = 'TRANSP'
  sqltab = space
  WHERE mt_id = <the mass transfer ID of your configuration>
    AND sqltab NE space.
```

DMIS Add-On is Support Package 13

Download report `ZSLT_OBJ_ADJUST_TABCLASS` from SAP Note 1933605. In the SAP Landscape Transformation Replication Server system, execute this report for any configurations that replicated data from pooled or cluster tables in the old source system but will now replicate data from transparent tables in the new source system.

DMIS Add-On is Support Package 14 or Higher (or any Support Package for DMIS 2018)

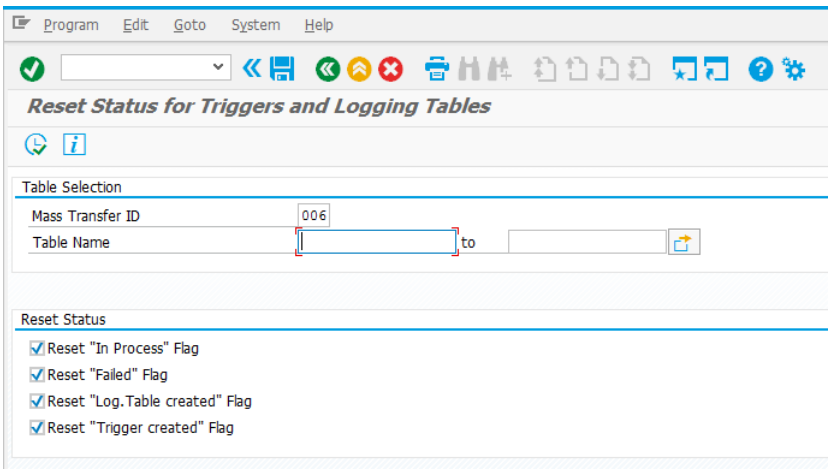
In the SAP Landscape Transformation Replication Server system, execute report `IUUC_OBJ_ADJUST_TABCLASS` for any configurations that replicated data from pooled or cluster tables in the old source system but will now replicate data from transparent tables in the new source system.

2.5.5.2 Steps Required if there is a New Source System

This section is only relevant if there will be a new source system, as described in chapter 1.

If you have completed all the preparatory steps described above, the corresponding status flags for the SAP LT Replication objects have to be reset.

To reset the trigger and logging table status, execute the expert function *Reset Status for Triggers and Logging Tables* in the LT Replication Server cockpit (transaction LTRC). Enter the relevant mass transfer ID, and select all the checkboxes under *Reset Status*. You do not need to enter table names, as the reset has to be executed for all tables.



Reset Status for Triggers and Logging Tables

You can check the results on the tab page *Table Overview*. For all tables, the flag in column *Log. Tab. Created* should be reset, the *Logging Table* column should be empty and none of the tables should have status *Activated* in the column *Trigger Status*.

As the last step for this scenario the logging tables and triggers need to be recreated.

To create the logging table, execute the processing step *Create Logging Tables* in the LT Replication Server cockpit (transaction LTRC). You can check the results on the tab page *Table Overview*. For all tables, the flag in column *Log. Tab. Created* should be set. Additionally, the column *Logging Table* should contain the respective logging table name.

To create the triggers, execute the processing step *Create Database Triggers* in the LT Replication Server cockpit (transaction LTRC). You can check the results on the tab page *Table Overview*. For all tables, the *Trigger Status* column should have the status *Activated*.

2.5.5.3 Steps Required if there is a New SAP HANA Target System

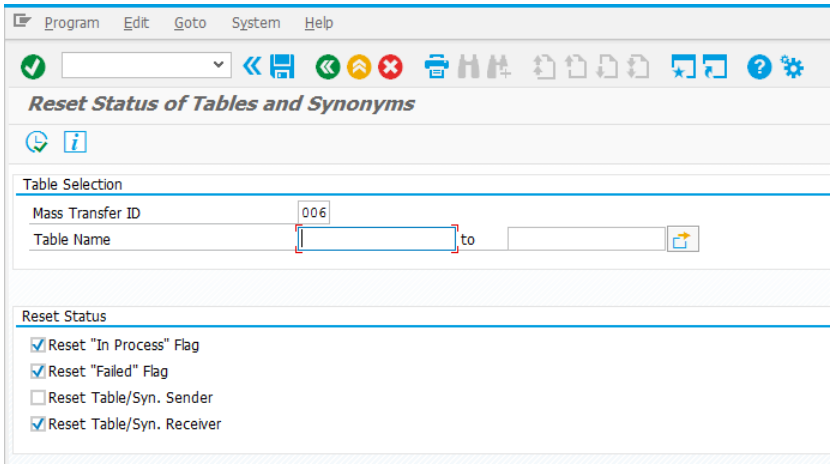
This section is only relevant if there will be a new target system, as described in chapter 1 and the target system is an SAP HANA database.

If you have completed all the preparatory steps described above, the corresponding status flags for the SAP LT Replication objects have to be reset.

To reset the synonym status, execute the expert function *Reset Status of Tables and Synonyms* in the LT Replication Server cockpit (transaction LTRC). Enter the relevant mass transfer ID, and select the following checkboxes:

- Reset “In Process” Flag
- Reset “Failed” Flag
- Reset Table/Syn. Receiver

You do not need to enter table names, as the reset has to be executed for all tables.



Reset Status of Tables and Synonyms

You can check the results on the tab page *Table Overview*. For all tables, the flag in column *Synonym Receiver* should be reset.

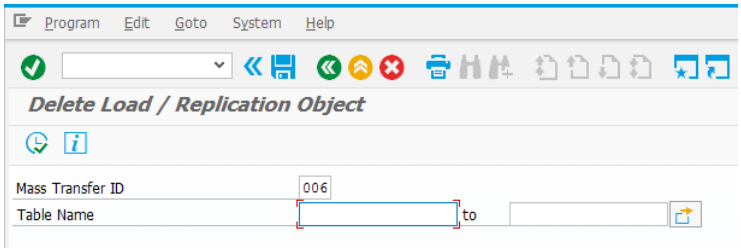
2.5.5.4 Steps Required if there is a New Target connected by means of RFC connection

No action is required.

2.5.5.5 General Reset Steps

To ensure that the replication objects are setup correctly, the existing replication objects are deleted so that they will be recreated. You can do this by using the function *Delete Load/Replication Objects* on the tab page *Processing Steps*.

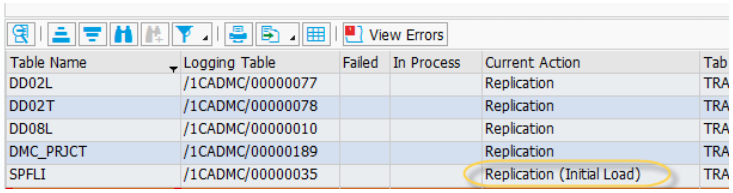
Enter the relevant mass transfer ID, and choose the *Execute* pushbutton. You do not need to enter table names, as the relevant load objects must also be deleted.



Delete Load/Replication Objects

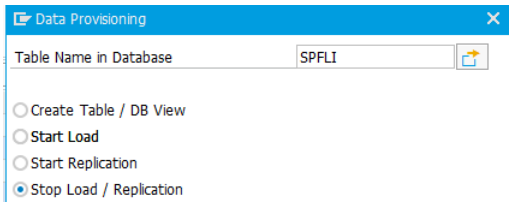
On the tab page *Data Transfer Monitor*, you can check the results. All flags (*Defined*, *Generated*, *Calculated*, and *Loaded*) should be reset for all tables. If the flag *Failed* or *In Process* is set for one of the tables, the respective replication object cannot be reset. You need to reset the flags manually on the tab page *Data Transfer Monitor*, and execute the function *Delete Load/Replication Objects* again.

All tables that have the status *Replication (Initial Load)* have to be restarted as the initial load cannot be finalized after the new system is connected. The same applies for tables that have the status *In Replication*, but for which data is not in sync between the source and target systems.



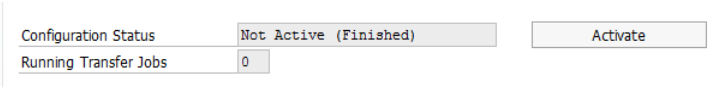
Viewing the Status of a Table

You can restart the tables by using the *Data Provisioning* pushbutton in the SAP LT Replication Server Cockpit (transaction `LTRC`).



The Data Provisioning Screen

Once all steps have been executed, the configuration can be activated again so that all objects that have been deleted or adjusted can be recreated. You can activate the configuration on the *Administration Data* tab.



Activating a Configuration

You need to monitor the configuration until all tables have the status *In Replication* again.

Caution

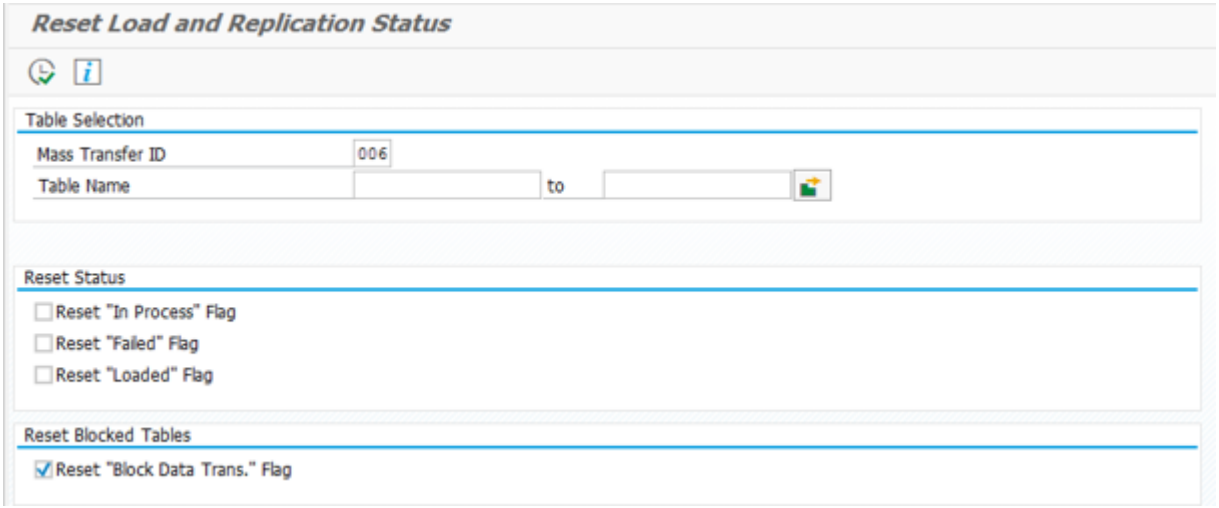
If you are switching to a new source system, make sure that the triggers are active again before the source system is made available for business users, and before any activities that change data that must be recorded and replicated are started - otherwise changes will not be recorded and replicated to the target system.

Caution

If the system checks whether the database triggers exist before they have been recreated, then it will block the relevant tables from the replication process.

You can check whether tables are blocked in the SAP LT Replication Server Cockpit (transaction `LTRC`), on the tab *Data Transfer Monitor* (column *Blocked Processing Steps*).

If tables are blocked, you can resume the replication process by using the expert function *Reset Load and Replication Status*. Under *Reset Blocked Tables*, select the *Reset Block Data Transfer* checkbox.



Reset Load and Replication Status

3 Use Case: The SAP LT Replication Server system is Exchanged

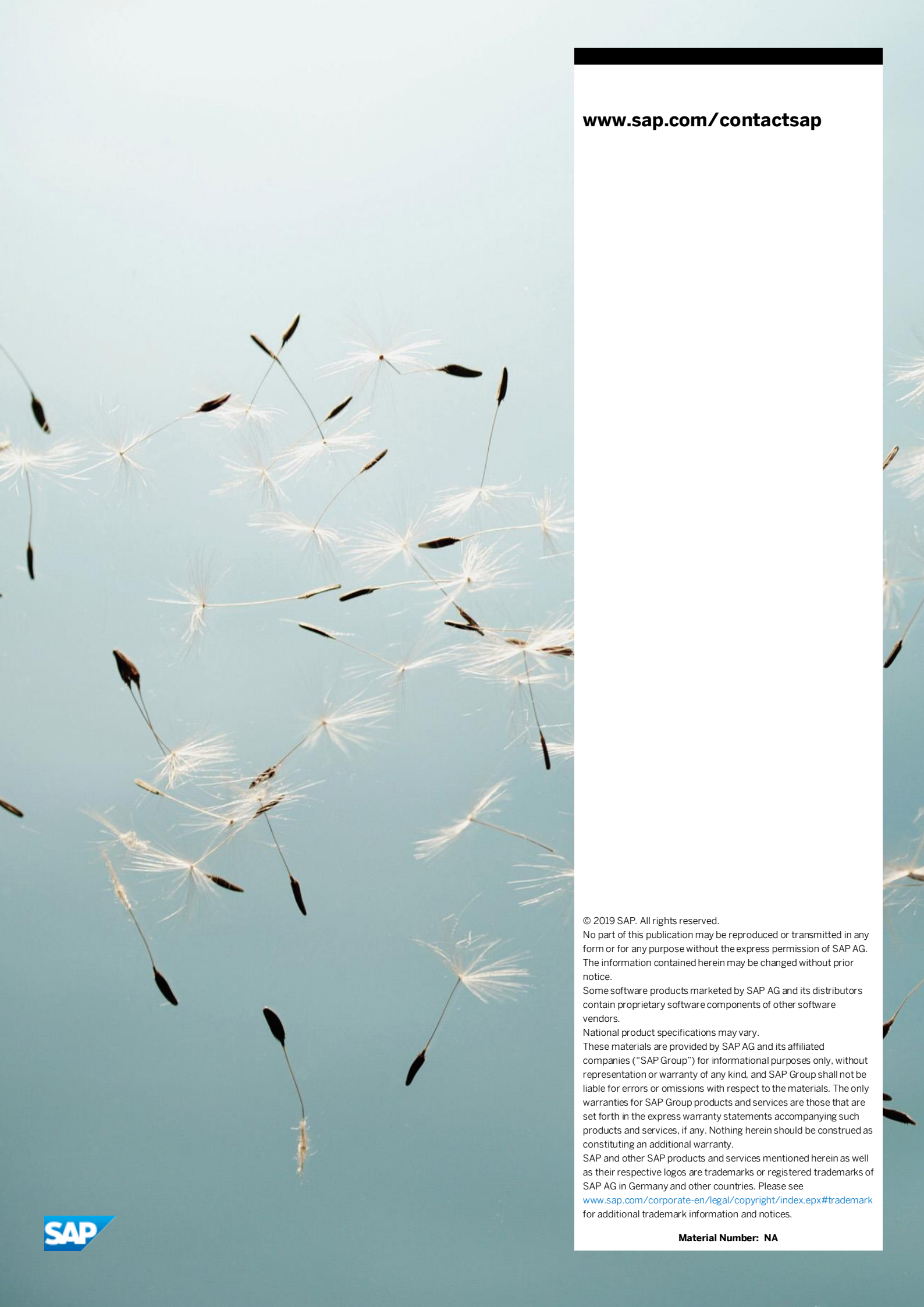
If the SAP LT Replication Server system is exchanged, the process is simpler than described above.

If the source system is changed, then the RFC connection from the SAP LT Replication Server system to the source system must be adjusted as described in section 2.5.1

If the target system is changed, and is connected by means of a database connection, the connection to the SAP HANA target system must be adjusted as described in 2.5.2. If the If the target system is changed, and is connected by means of an RFC connection, the connection to target system must be adjusted as described in 2.5.3.

Normally, no further activities are required, unless there is also a change at the same time from a source system that has pooled and cluster tables to a new source system which do not have such tables. If this is the case, proceed as described in section 2.5.5.1.

Also note that starting with DMIS 2011 SP11, the names of the generated function modules include the system ID. This is of particular importance if you change your system landscape. If the system ID of the SAP LT Replication Server system is different from the original system ID, you must regenerate the runtime objects before the replication process can be started in the new system landscape. To do this, proceed as described in SAP Note 2109952. Before doing so, we recommend that you remove all previously generated function modules that refer to the old system ID. To delete these objects, use transaction `IUUC_REMOTE`. On the tab *Expert Functions*, execute function *Delete IUUC function groups*, and confirm the warning popup. You need to do this in the SAP LT Replication Server system, the source system and in case the target system is an SAP system, also in the target system.



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