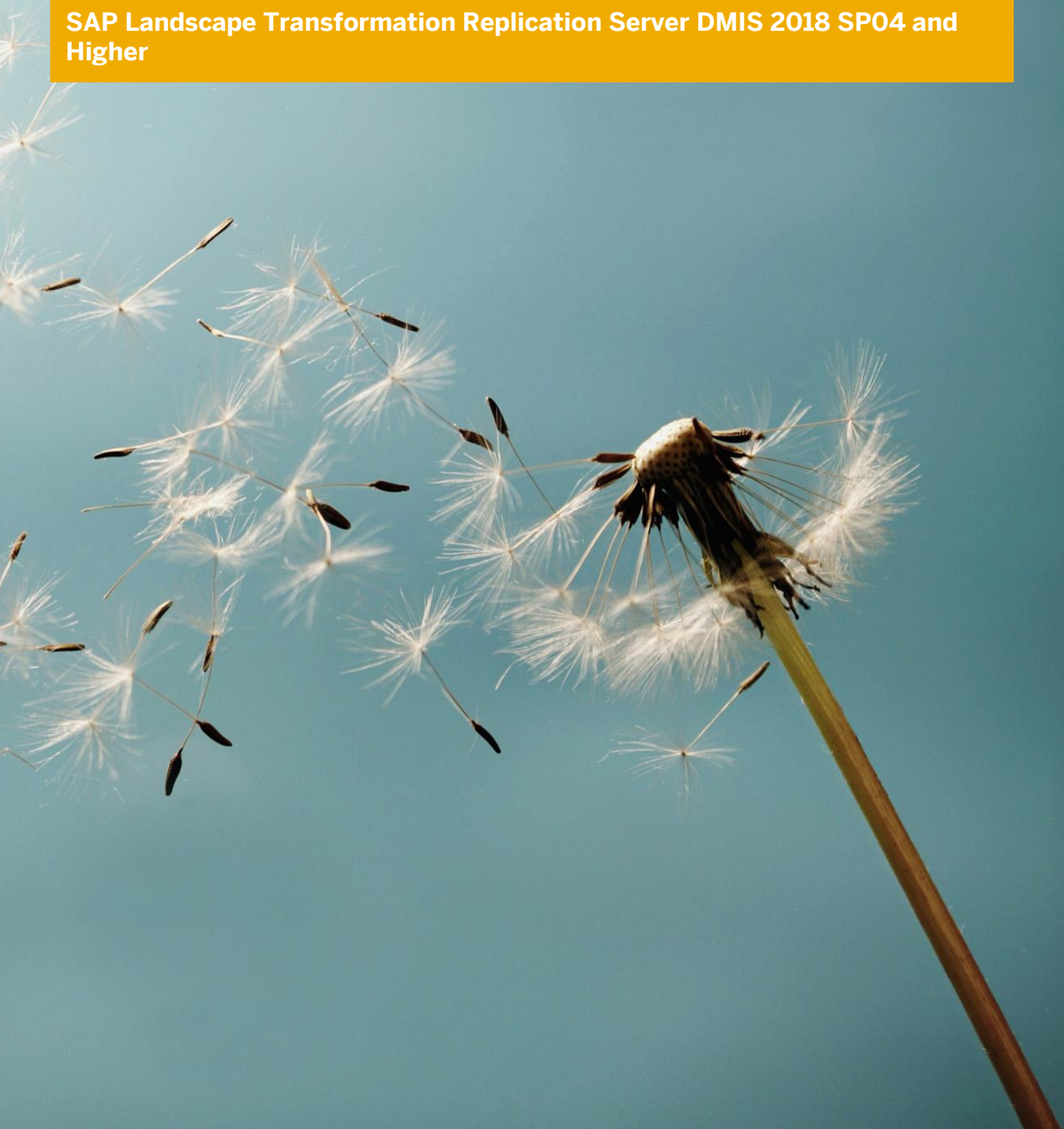


Document Version: 1.1 – 2020-09-30

# **Unscheduled Downtime - Recovery Guide**

**SAP Landscape Transformation Replication Server DMIS 2018 SP04 and Higher**



# Typographic Conventions

Type Style	Description
<i>Example</i>	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.
<b>Example</b>	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.
<b>Example</b>	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.

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# Document History

Version	Date	Change
1.0	2018-04-10	Initial Version
1.1	2020-09-30	Updated version for DMIS 2018 SP04

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# 1 Introduction

SAP Landscape Transformation Replication Server facilitates the transfer of data from one or more source systems to one or more target systems. This guide outlines what will happen if the source system, SAP LT Replication Server system, or target system goes down. In addition, this guide outlines any necessary steps that should be taken in order to resume the replication as smoothly as possible as soon as the affected system is up and running again.

---

## 2 Source System is Down

### 2.1 Overview

If the source system goes down, recording of source system data changes is not affected since no data changes in the source system are missed while the source system is down. While the source system is down, the source system tables will have the status *Failed* on the *Participating Objects* tab in transaction `LTRC` in the SAP LT Replication Server system. However, the SAP LT Replication Server system will periodically try to replicate data from the source system, and once the connection to the source system can be established again, the replication will continue as usual.

To avoid error messages in the application log, all configurations can be deactivated until the source system is available again.

If an access plan calculation was in process for a table in the source system when the source system went down, the access plan calculation will fail and will need to be restarted. This can be done by stopping the load for the relevant table, and restarting the table (this will restart the access plan calculation for the table).

### 2.2 Manual Actions

- If an access plan calculation was in process for a table in the source system when the source system went down, stop and restart the relevant table; this will also restart the access plan calculation.
- Deactivate all affected configurations to avoid errors in the application log.

---

## 3 SAP LT Replication Server system is Down

### 3.1 Overview

If the SAP LT Replication Server system goes down, no data will be replicated to the target system. While the SAP LT Replication Server system is down, data changes will continue to be recorded in the source system as usual. Once the SAP LT Replication Server system is up and running again, the replication of data to the target system will resume automatically.

If the SAP LT Replication Server system is down, the logging tables in the source system will increase in size since no data is being replicated to the target system. This can be avoided by deleting the trigger manually in the source system for the relevant tables. Once the SAP LT Replication Server system is up and running again you need to stop these tables and then perform an initial load for them (since deleting a trigger for a table means that no changes are recorded for that table).

---

# 4 Target System is Down

## 4.1 Overview

If the target system goes down, no data can be written to the target system. In the SAP LT Replication Server system, on the *Participating Objects* tab in transaction `LTRC`, the status of the tables will be *Failed*. Once the target system is up and running again, the transfer of data will continue automatically.

If the target system is down, the logging tables will grow in size, since no data is being replicated to the target system. This can be avoided by stopping the relevant table and repeating the initial load once the target system is up and running again. This should only be considered for tables where performing a new initial load is feasible from a timing perspective.

To avoid error messages in the application log, all configurations can be deactivated until the target system is available again (you can do this in transaction `LTRC`). For deactivated configurations the change recording in the source system will continue as usual. After activating the configuration again, all recorded changes will be replicated to the target system.

## 4.2 Manual Actions

- To avoid increasing the size of the logging tables, stop the relevant tables and repeat the initial load once the target system is up and running again.
- Deactivate all affected configurations to avoid errors in application log.



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# 5 Avoiding Inconsistencies When Restoring the Source System from a Backup

## 5.1 Overview

If you need to restore your source system to a previous point in time, then some source system data may be lost. This data may already have been replicated to the target system.

To avoid data inconsistencies between the target system and the source system, the target tables should be truncated and the initial load or replication process should be repeated by stopping and starting the affected tables.

Depending on the connection to the target system, the process for truncating the target tables can be different:

- RFC Connection

Delete data manually. If the table only contains data that has been transferred from the affected source system, the contents of the table can be deleted. Otherwise only delete data that has been transferred from the source system affected by the outage.

- Database Connection

If the table only contains data that has been transferred from the source system affected by the outage, the table can be truncated. This can be done by ensuring that the Refresh Behavior (transaction `LTRS` -> [Table Settings](#) -> [Processing Settings](#) -> [Refresh Behavior](#)) is set to [Default](#), [Drop](#) or [Truncate](#) before stopping and restarting the initial load or replication process for the table. Otherwise, manually only delete data that has been transferred from the source system affected by the outage and ensure that the [Refresh Behavior](#) is set to [No Action](#).

Note that due to the system reset the replication statistics may no longer be accurate.

## 5.2 Manual Actions

- Truncate the relevant tables in the target system.
- Stop and start the initial load or replication process for all tables to avoid data inconsistencies between the source system and the target system.

---

# 6 Avoiding Inconsistencies When Restoring the SAP LT Replication Server System from a Backup

## 6.1 Overview

If you need to restore your SAP LT Replication Server system to a previous point in time, then the SAP LT Replication Server system may not have up to date information about tables that are replicated to the target system.

For example, even though the replication of a table was triggered in the SAP LT Replication Server system, the SAP LT Replication Server system may no longer have information about this.

In this case logging tables, target tables, database triggers, and synonyms might already have been created in source and target systems, but there is no record of these objects in the SAP LT Replication Server system.

This means that the following objects need to be deleted manually in the source system:

- Logging tables
- Database triggers
- 1:N Registration tables:
  - IUUC\_1N\_CONS\_REG
  - IUUC\_POOL\_REGIST
  - IUUC\_LOG\_APPLTAB

In the target system, the target table synonyms need to be deleted. For the target tables, you need to decide whether the data in the table should be deleted or not. For example, if you do not delete the data, and repeat the initial load, duplicate key errors could occur.

Note that due to the system reset the replication statistics might not be accurate anymore.

## 6.2 Manual Actions

- In the source and target systems, delete the relevant objects as described above.
- Restart the initial load or replication process for the affected tables

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# 7 Avoiding Inconsistencies When Restoring the Target System from a Backup

## 7.1 Overview

If you need to restore your target system to a previous point in time, then some data that has been transferred to the target system may have been lost.

For small tables, the best solution is to stop and restart the initial load or replication process such that the initial load will be repeated and data between the source and the target is consistent again. To avoid duplicate key errors during the initial load, we recommend truncating the target tables before starting the initial load of the table. Depending on the connection to the target system, the process for truncating the target tables can be different:

- RFC connection  
Delete data manually. If the table only contains data that has been transferred from the affected source system, the table can be truncated. Otherwise only delete data that has been transferred from the source system affected by the outage.
- DB connection  
If the table only contains data that has been transferred from the source system affected by the outage the table can be truncated. This can be done by ensuring that the Refresh Behavior (transaction `LTRS` -> [Table Settings](#) -> [Processing Settings](#) -> [Refresh Behavior](#)) is set to *Default*, *Drop* or *Truncate* before stopping and starting the table. Otherwise manually only delete data that has been transferred from the source system affected by the outage and ensure that the [Refresh Behavior](#) is set to *No Action*.

Note that due to the system reset the replication statistics might not be accurate anymore.

## 7.2 Replication Logging

If the replication logging feature has been activated (transaction `LTRS` (Advanced Replication Settings) in the [Replication Logging section](#)), you can easily repeat the replication process. This is especially useful for large tables where performing a new initial load is not feasible from a timing perspective.

When a table is replicated to the target system, the replicated data can also be saved to database tables in the SAP LT Replication Server system for a configurable period of time. This means if any data is missing from the target system (for instance after a point-in-time recovery of the target system to a previous state), you can view this data and replicate it again from the SAP LT Replication Server system to the target system.

To do this, navigate to [Expert Functions](#) -> [Logged Replication Data](#) to repeat the replication.

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## Note

Replication logging only works for target systems that are connected to the SAP LT Replication Server system by means of a database connection. It is therefore not possible for scenarios with RFC connected target systems such as Central Finance and BW scenarios such as ODP.

The replication logging feature can be used as a precaution for a possible target system reset. You should therefore ensure that the retention period specified in transaction `LTRS` is sufficient for a recovery after a target system reset.

### 7.2.1 Prerequisites

This activity is relevant only for configurations for which the checkbox *Activate Replication Logging* was selected when the configuration was created. If you choose this option, the replicated data packages from all tables which are in replication mode within this configuration will be saved in the SAP LT Replication Server system.

### 7.2.2 Changing the Replication Logging Settings

You can use transaction `LTRS` (Advanced Replication Settings) to activate replication logging for an existing configuration. You can also deactivate replication logging here.

Under *Replication Logging*, you can specify settings for replication logging. If replication logging is active, the system saves the replicated data entries in the SAP LT Replication Server system. This means that if any data is missing from the target system, you can view this data and replicate it again from the SAP LT Replication Server system to the target system.

By default, replication logging applies to all tables in a configuration. Under *Table-Specific Settings*, you can activate replication logging for specific tables in a configuration. You can also change the recording interval for the tables.

### 7.2.3 Operational Considerations

Replicated data packages are stored in database tables in the SAP LT Replication Server for a configurable period of time. The default retention time is 3 days. Data packages which have been read from SAP cluster tables are stored in table `IUUC_RL_DATA_CL`. All other data packages (originating from transparent and SAP pool tables) are stored in table `IUUC_RL_DATA`.

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## **i** Note

Storing the replicated data packages in the SAP LT Replication server system requires sufficient space in the underlying database. Data growth in the tables mentioned above needs to be carefully monitored and managed and is dependent from the number of tables that are in replication logging state, the chosen data retention period, and the volume of data changes on the concerned source tables.

### 7.2.4 Display and Retransfer Replicated Data Packages

You can display and, if necessary, retransfer already replicated data packages by the expert function [Logged Replication Data](#) in the SAP LT Replication Server Cockpit. To view the documentation for this activity, select it and choose the [Documentation](#) pushbutton.

## 7.3 Manual Actions

- Truncate the relevant tables in the target system.
- Restart the initial load or replication process for the affected tables.
- If possible, use the Replication Logging feature to replicate data again.

# 8 Special Considerations when Replicating Data to Central Finance

## 8.1 Overview

When replicating data to Central Finance, SAP LT Replication Server system uses table `DMC_FM_RESTART`. This table keeps track of all documents that have already been posted to the SAP S/4HANA target system during the initial load phase. Documents which have been successfully transferred to the target system during an initial load are marked as successfully transferred in table `DMC_FM_RESTART`. Documents that are marked as successfully transferred in `DMC_FM_RESTART` will not be loaded or replicated again.

Therefore, some additional considerations apply for the scenarios outlined in the chapters above, specifically:

- Source System is Down / SAP LT Replication Server System is Down

It might happen that the documents have been successfully transferred to the target system, but if the source system or the SAP LT Replication Server system went down just before the documents could be marked as successfully transferred in the logging table. This might lead to a retransfer of the documents once the source system is up and running again. Transferring the data again will lead to duplicate errors in the Application Interface Framework (AIF). These errors are not critical and can be confirmed.

- Avoiding Inconsistencies When Restoring the Source System from a Backup

Note the following considerations:

- It might happen that records which have already been replicated are replicated again if the source system is reset to a previous point in time. These records would be transferred again since records in table `DMC_FM_RESTART` are only written during an initial load and thus no record of a successful transfer exists. In this case, duplicate errors will occur in the Application Interface Framework (AIF). These errors are not critical and can be confirmed.
- To repeat the replication of previously replicated documents, function module `IUUC_ADD_LOGTAB_ENTRIES` can be used to manually add documents to the logging table in the source system.

- Avoiding Inconsistencies When Restoring the SAP LT Replication Server System from a Backup

If the SAP LT Replication Server system is reset, it might happen that records that have already been transferred successfully are no longer marked as such in table `DMC_FM_RESTART`. This would result in these records being transferred again. In this case, duplicate errors will occur in the Application Interface Framework (AIF). These errors are not critical and can be confirmed.

- Avoiding Inconsistencies When Restoring the Target System from a Backup

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As the replication logging feature cannot be used when replicating data to Central Finance, function module `IUUC_ADD_LOGTAB_ENTRIES` can be used to replicate data again. If a record is marked as successfully transferred in table `DMC_FM_RESTART`, and needs to be transferred again, the success flag in `DMC_FM_RESTART` must be reset for that record.



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**Material Number: NA**