SAP HANA Installation Guide – Trigger-Based Data Replication

Using SAP LT (Landscape Transformation) Replication Server for SAP HANA

- SAP HANA Appliance Software SPS 04

Target Audience

- Consultants
- Administrators
- Others

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SAP AG
Dietmar-Hopp-Allee 16
69190 Walldorf
Germany
T +49/18 05/34 34 24
F +49/18 05/34 34 20
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`Example text`	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 text`	Exact user entry. These are words or characters that you enter in the system exactly as they appear in the documentation.
`<Example text>`	Variable user entry. Angle brackets indicate that you replace these words and characters with appropriate entries to make entries in the system.
`EXAMPLE TEXT`	Keys on the keyboard, for example, F2 or ENTER.

Icons

Icon	Meaning
	Caution
	Example
	Note
	Recommendation
	Syntax

Additional icons are used in SAP Library documentation to help you identify different types of information at a glance. For more information, see *Help on Help → General Information Classes and Information Classes for Business Information Warehouse* on the first page of any version of *SAP Library*.

Contents

1 Introduction

This guide details the installation and configuration of trigger-based replication for SAP HANA – the SAP Landscape Transformation Replication Server.

1.1 About this Document

This guide is intended for system administrators and consultants performing and initial install and configuration of SAP LT Replication Server for SAP HANA. Proficiency with SAP NetWeaver Basis is required to complete the installation.

This guide will take you through the required steps to:

- Decide on a suitable installation type based on the existing system landscape
- Install the SAP LT Replication Server
- Configure the source data system for RFC access from SAP LT Replication Server
- Configure your target SAP HANA system for access by SAP LT Replication Server
- Setup replication using the SAP HANA In-Memory studio
- Start replication from the source system to the target SAP HANA system

1.2 Before You Start

The following sections provide information about:

- SAP Notes for the Installation
- Information Available on SAP Service Marketplace
- Naming Conventions

1.2.1 SAP HANA Guides

For more information about SAP HANA landscape, security, installation and administration, see the resources listed in the table below.

Topic	Guide/Tool	Quick Link
SAP HANA Landscape, Deployment & Installation	*SAP HANA Knowledge Center on SAP Service Marketplace*	https://service.sap.com/hana ➔ SAP HANA Master Guide ➔ SAP HANA Installation Guide
SAP HANA Administration & Security	*SAP HANA Knowledge Center on SAP Help Portal*	http://help.sap.com/hana_appliance ➔ SAP HANA Technical Operations Manual ➔ SAP HANA Security Guide

1.2.2 SAP LT Replication Server Guides

The following table contains useful links to related guides:

Guide	Location
SAP HANA Security Guide - Trigger-Based Replication (SLT)	http://help.sap.com/hana -> *SAP HANA Appliance Software -> Security Information*
SAP LT for SAP HANA Technical Operations Manual	http://help.sap.com/hana -> *SAP HANA Appliance Software -> System Administration and Maintenance Information*

1.2.3 Key Terms

The following table contains key terms related to the SAP LT Replication Server for SAP HANA:

Term	Definition
Configuration	The definition of the parameters that the SAP LT Replication Server uses to replicate data from one or more source systems to one or more target systems. The configuration specifies the source system, the target system, and the relevant connections.
Configuration and Monitoring Dashboard	An application that runs on the SAP LT Replication Server that you use to specify configuration information (such as the source and target systems, and relevant connections) so that data can be replicated. You can also use it to monitor the replication status.
Database trigger	A piece of code that updates a database automatically in response to a certain event.
Data transfer Job	A job that is used for the data transfer process in the SAP LT Replication Server.
Initial load	A step within the trigger-based replication process that loads data from the source system to target system.
Initial load Job	A job that is used for the initial load process in the SAP LT Replication Server.
Logging table	A table in the source system that records any changes to a table that is being replicated. This ensures that the SAP LT Replication Server can replicate these changes to the target system.
Master job	A job that exists for each configuration that calls the initial load jobs and the data transfer jobs in the SAP LT Replication Server.
Reading type	A technique for reading data from tables in the target system during the initial load process.
SAP LT Replication Server	An SAP system that facilitates the replication of data from one or more source systems to one or more target systems. The source systems can be SAP or non-SAP systems.
Trigger-based replication	A technique for replicating data where an initial load is first performed that loads data from the source to the target system, and a replication phase begins whereby only changes to the source database (recorded by databases triggers) are replicated to the target database, thereby facilitating data replication in real-time.

1.2.4 SAP Notes for the Installation

You **must** read the following SAP Notes **before** you start the installation. These SAP Notes contain the most recent information on the installation, as well as corrections to the installation documentation.

Make sure that you have the up-to-date version of each SAP Note, which you can find in the *SAP Service Marketplace* at the Internet address: **`service.sap.com/notes`**.

SAP Note Number	Short Text	Description
19466	Downloading SAP Kernel patches	Downloading a kernel patch in the Service Marketplace, Software Distribution Center.
517484	Inactive services in the Internet Communication Framework	The Internet Communication Framework Services are inactive when you install the SAP Web Application Server.
1468391	Installation and delta upgrade of DMIS 2010_1	The SAP Landscape Transformation component part of DMIS.
1597627	HANA Connection	Activating a secondary connection to the SAP HANA In-Memory Database
1603660	Individual release 7.20 kernel on MaxDB for HANA LT	Using 7.20EXT kernel with MaxDB
1646371	HANA replication for 4.6C source systems	For 4.6C source systems
1605140	SAP HANA: Central Note - SAP LT Replication Server	Collective Note for all the relevant Notes for LT Replication Server for HANA
1759156	Installation / Upgrade LT Replication Server - DMIS 2010 SP8	This SAP Note describes the installation or upgrade of the LT Replication Server to DMIS SP08
1768805	Collective Note - non-SAP Sources	This SAP Note describes important considerations of the connection with non-SAP source systems.

2 Planning

2.1 Landscape Selection

Use

The SAP LT Replication Server is a replication technology to provide data from SAP systems in a SAP HANA environment. It acts as a key enabler for SAP HANA customers to supply their HANA environment with relevant data.

The following components are used in the technical system landscape:

SAP source system(s)

The source system tracks database changes by using database triggers. It records information about changes in the logging tables. Read modules (located on the SAP source system) transfer the data from the source system to the SAP LT Replication Server. The relevant data is read from the application tables.

Non-SAP source system(s)

The non-SAP source system tracks database changes by using database triggers. It records information about changes in the logging tables. Read modules (located at the SAP LT Replication Server) transfer the data from the non-SAP source system to the SAP LT Replication Server. The relevant data is read from the application tables.

SAP LT Replication Server

An SAP system that facilitates the replication of data from one or more source systems to one or more target systems. The source systems can be SAP or non-SAP systems.

SAP HANA system

The SAP HANA system contains the SAP HANA database. It is used to store the replicated data. The SAP LT Replication Server and the SAP HANA system communicate by means of a database connection.

The SAP LT Replication Server can be used for replication from SAP sources and non-SAP sources to the HANA system. For SAP sources, the SAP LT Replication Server can either be installed within the source system or in a separate SAP system.

The relevant information to create the connection between the source system, the SAP LT Replication Server, and the SAP HANA system is specified within the SAP LT Replication Server as *Configuration*. In the *Configuration & Monitoring Dashboard* (transaction *LTR*), you can define a new configuration.

Before beginning the installation it is important to understand the various system landscape options available. The SAP LT (Landscape Transformation) Replication Server can be used for replication from SAP sources and from non-SAP sources.

For SAP sources, the SAP LT Replication Server can be installed in one of two locations within the system landscape. In the following sub-sections we will examine each option along with their prerequisites and requirements.

It is important to understand that the SAP LT Replication Server system does not need to be a separate SAP system when you want to replicate from SAP sources, provided the source system is able to meet the prerequisites given below.

The SAP LT Replication Server uses background processing to replicate data. This can be an important factor in deciding where to install SAP LT Replication Server since background processing uses CPU cycles. Option 1, as described in section 2.1.1, ensures the background processes do not run on the source system. This option separates the software

maintenance activities (kernel upgrades/patch management and so on) from the source system.

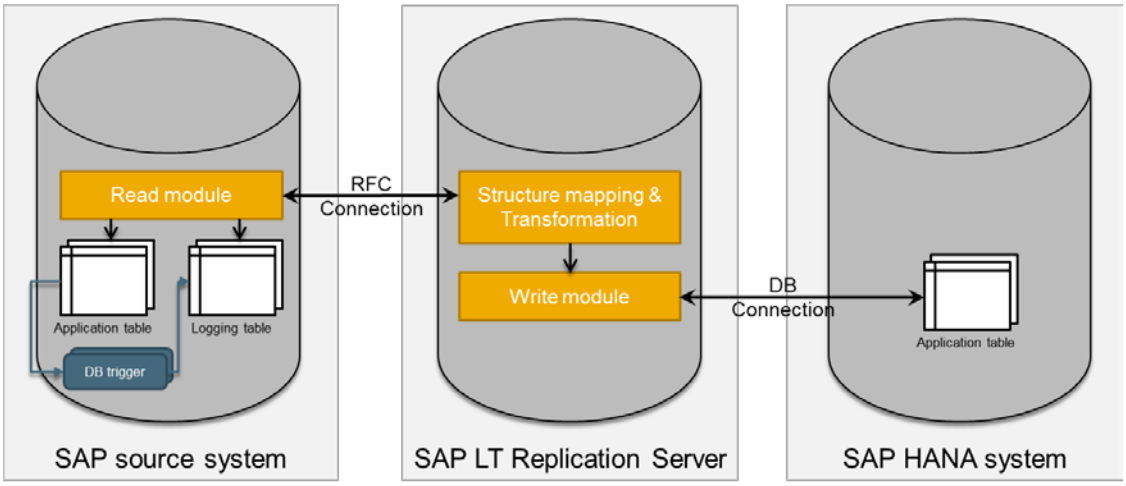
Replication from non-SAP sources requires that SAP LT Replication Server is installed on a separate system as outlined in section 2.3

Note:

- Each SAP source system can be configured as a source to multiple SAP LT Replication Server
- Each SAP LT Replication Server can be configured to more than one HANA database.
- Replication of non-sap sources require SAP LT Replication Server to be installed on a separate system
- The SAP LT Replication Server system must be a UNICODE system
- Ensure a good database performance. Less database performce can lead to bad SAP LT Replication Server performance.

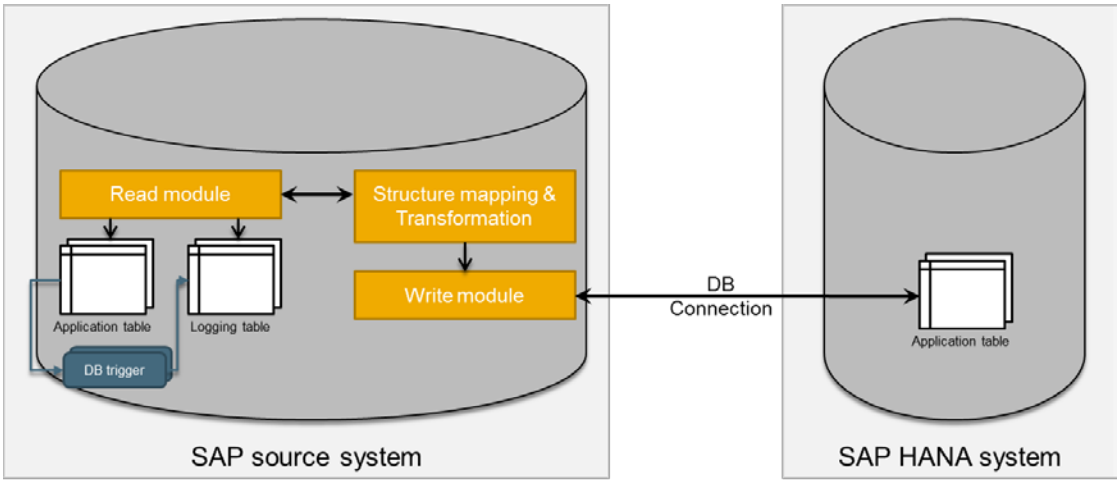
2.2 Installation for SAP source system

2.2.1 Option A - Separate SAP LT Replication Server



The diagram above shows the SAP LT Replication Server installed in a separate system. This 3-tier approach is useful when the source system does not conform to the required SAP kernel or SAP NetWeaver versions.

2.2.2 Option B - Installation in Source System



The diagram above shows the SAP LT Replication Server installed in the source ERP system. If the source system has the required SAP kernel and SAP NetWeaver versions to support the SAP LT Replication Server, the system architecture can be simplified to a 2-tier system as shown.

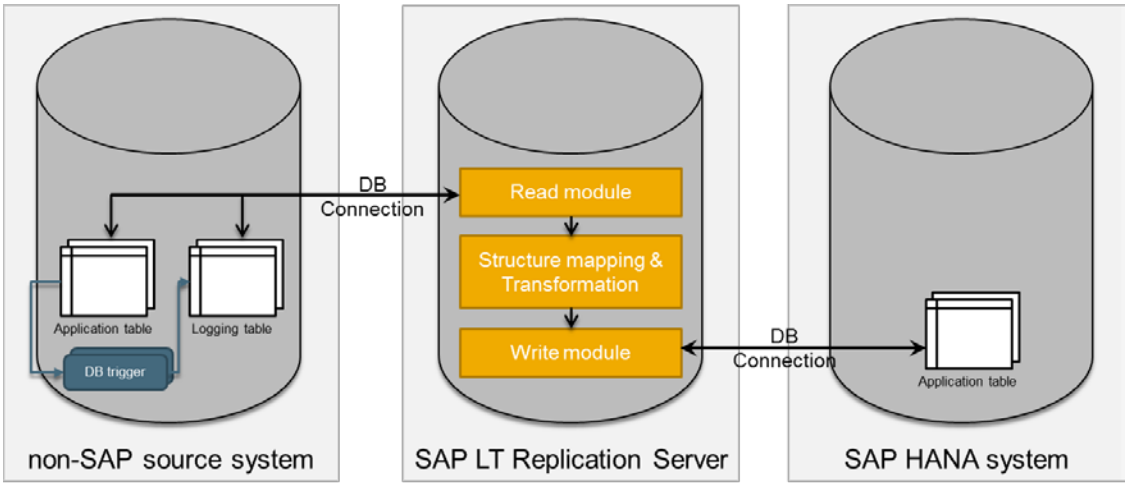
2.2.3 Differentiation between both Options

The following table outlines in detail the pro and cons of the different installation options:

	Source System (if SAP system)	**SAP Solution Manager**	**Dedicated System**
Advantages	• Simplified landscape and administration	• Re-use of existing NW instance	• No software maintenance dependencies • Flexibility
Disadvantages	• Performance impact • Potential software maintenance dependencies	• Performance impact • Potential software maintenance dependencies	• Investment and maintenance effort for separate server / NW instance

Experiences show that HANA customers using SAP LT Replication Server tend to use a dedicated SAP LT Replication Server for productive use. An SAP LT Replication Server sandbox or quality assurance system is installed sometimes on top of an appropriate SAP source system or on top of an SAP Solution Manager system.

2.3 Installation for non-SAP system



The diagram above shows the SAP LT Replication Server installed in a separate system. Compared to a setup with a SAP source, only the read modules are created in the SAP LT Replication Server (for SAP sources the read modules are located in the source system only). The connection from the SAP LT Replication Server to the non-SAP source system is established by means of a database connection.

Ensure that the database of your non-SAP source fullfils all prerequisites for usage with the SAP LT Replication Server. Since a database connection from the SAP LT Replication Server to a non-SAP system is required, the OS/DB restrictions of SAP NetWeaver 7.02 apply (see http://service.sap.com/pam).

For non-SAP source systems, the customer database license needs to cover a permanent database connection with 3rd party products such as the LT Replication Server.

3 Preparation

3.1 Source System(s) Preparation

Use

Use this section to check that the source system(s) for your replication data are suitable for installation.If you indent to run SAP LT Replication Server on you source system, you have to follow the procedure in chapter 3.2.

Prerequisites

The source system(s) must be compatible with an installation of the DMIS_2010 add-on.

Procedure

1. Find your source system SAP Basis version
2. Read SAP Note 1468391, and check that your SAP Basis and support pack version are supported.

3.2 SAP LT Replication Server System Preparation

Use

Use this section to check that the system where the SAP LT Replication Server is to be installed is suitable as an installation target.

Prerequisites

The system hosting the SAP LT Replication Server has to be an SAP system with SAP NetWeaver 7.02 (Basis Support Package 8) ABAP stack using SAP Kernel 7.20EXT (64BIT Unicode).

Note: The patch level for the secondary database connection (DBSL) needs to be at least patch level 110. See SAP Note 1597627.

The basis support package of the NW stack has to be at least 8.

Access http://service.sap.com/swdc to download SAP NetWeaver 7.00 with EHP 2.0. For more information, see the Master Guide for SAP NetWeaver 7.00.

The SAP LT Replication Server is based on a specific version of the DMIS add-on, DMIS_2010_700 with SP08.

The SAP LT Replication Server must have at least the following specification:

- File system: 100 GB
- RAM: 16-32 GB
- CPU: 2-4 cores
- Number of recommended background jobs available: 10

Procedure

1. Find the SAP Basis version of the candidate install system.
2. Read SAP Note 1468391 and check your SAP Basis and support pack version are supported.

3. Read SAP Note 1597627 to understand the setup of the secondary database connection and to check required SAP kernel prerequisites.
4. Download the current patch for the SAP kernel from SAP Service Marketplace. For more information on downloading and installing kernel patches please see SAP Note 19466.
5. If you want to use the 7.20EXT SAP kernel with MaxDB, see SAP Note 1603660.

3.3 Compatibility between different SP levels

The table below outlines the compatibility between the different SP levels of the source system, the SAP LT Replication Server and the HANA DB/Studio.

Source System	SAP LT Replication Server	HANA DB/Studio
DMIS 2010 SP3/4	DMIS 2010 SP4	HANA 1.0 SPS2
DMIS 2010 SP3-8	DMIS 2010 SP5-8	HANA 1.0 SPS3
DMIS 2010 SP3-8	DMIS 2010 SP5-8	HANA 1.0 SPS4

Note that you are only able to use all available SAP LT Replication Server features with the highest SP /SPS level. For more information, see SAP Note 1759156.

3.4 Obtaining Required Software

Use

Use this section to find software sources for the installation.

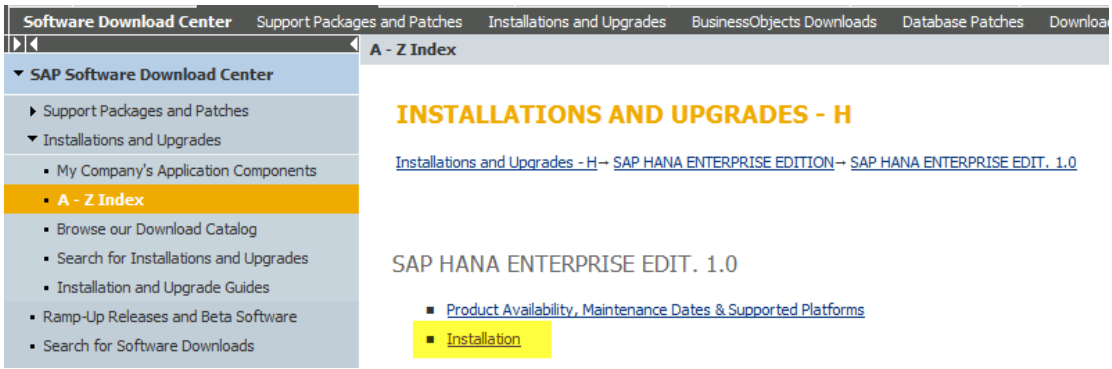
Prerequisites

Before beginning the installation procedure you should already have selected a system landscape option (section 2.1) and verify the versions of the SAP Basis and kernel versions of your systems.

Procedure

Access http://service.sap.com/swdc and download your required DMIS versions and support packages.

DMIS 2010



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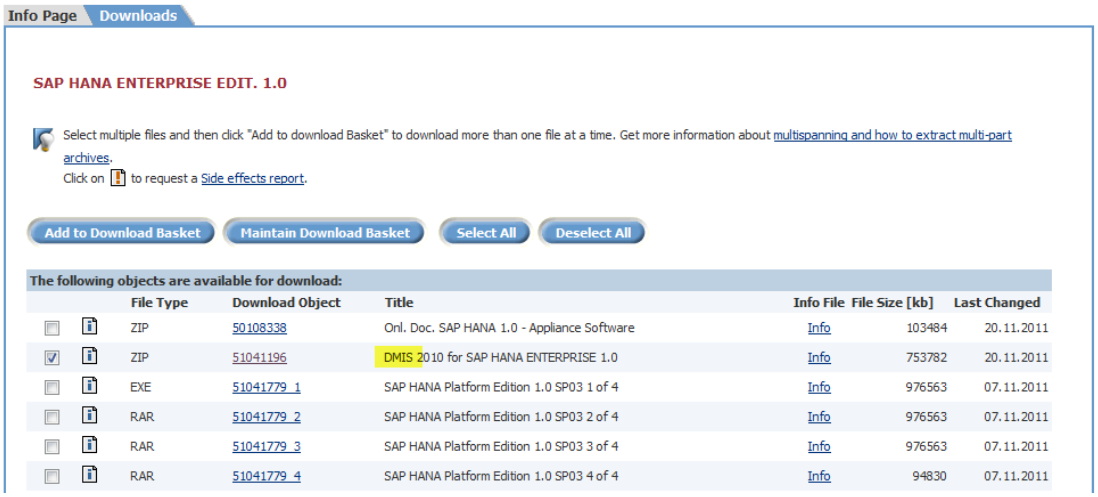
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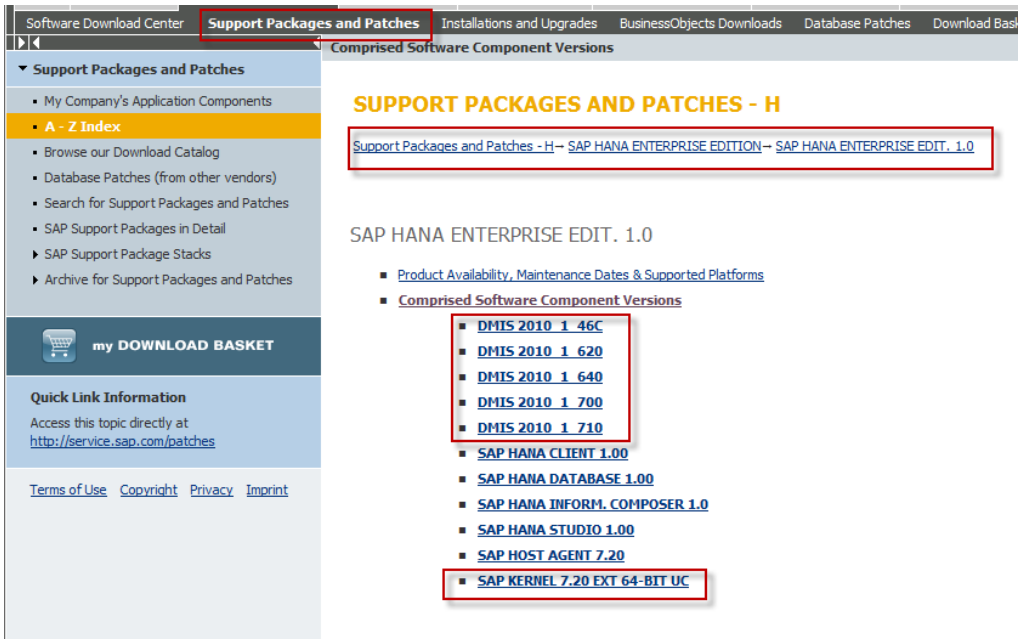
ZIP 50108338 Onl. Doc. SAP HANA 1.0 - Appliance Software Info 103484 20.11.2011
ZIP 51041196 DMIS 2010 for SAP HANA ENTERPRISE 1.0 Info 753782 20.11.2011
EXE 51041779_1 SAP HANA Platform Edition 1.0 SP03 1 of 4 Info 976563 07.11.2011
RAR 51041779_2 SAP HANA Platform Edition 1.0 SP03 2 of 4 Info 976563 07.11.2011
RAR 51041779_3 SAP HANA Platform Edition 1.0 SP03 3 of 4 Info 976563 07.11.2011
RAR 51041779_4 SAP HANA Platform Edition 1.0 SP03 4 of 4 Info 94830 07.11.2011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SAP HANA ENTERPRISE EDIT. 1.0
Product Availability, Maintenance Dates & Supported Platforms
Comprised Software Component Versions
DMIS 2010_1_46C
DMIS 2010_1_620
DMIS 2010_1_640
DMIS 2010_1_700
DMIS 2010_1_710
SAP HANA CLIENT 1.00
SAP HANA DATABASE 1.00
SAP HANA INFORM. COMPOSER 1.0
SAP HANA STUDIO 1.00
SAP HOST AGENT 7.20
SAP KERNEL 7.20 EXT 64-BIT UC

4 Installation

There are two parts to this installation section. If you are planning to include non-SAP sources, you only have to install the software on the SAP LT Replication Server. If you are planning to run the SAP LT Replication Server on the source system, you only have to follow the procedure which is described in 4.2.

4.1 SAP Source System Installation

Note: Download all required software components from the SAP Service Marketplace https://service.sap.com/swdc and install with SAP Add-On Installation Tool (SAINT). For more information about SAINT, see here.

If your source system is a non-SAP system, you do not have to follow the procedure described below for the source system.

Procedure

1. Download DMIS_2010 from the following path:

   Installations and Upgrades ➔ A-Z ➔ SAP HANA Enterprise ➔ SAP HANA Enterprise ➔ Installation ➔ DMIS 2010 for SAP HANA ENTERPRISE 1.0
2. Follow the DMIS_2010 installation procedure as described in SAP Note 1468391
3. Download latest available support packages from the following path:

   Support Packages and Patches ➔ A-Z ➔ SAP HANA Enterprise ➔ Comprised Software Component Versions ➔ relevant DMIS Add-on ➔ *Support Packages*

   Apply the latest available support packages on top of the DMIS installation.

4.2 SAP LT Replication Server System Installation

Use this section to install the required DMIS 2010_1_700 component in your SAP LT Replication Server host system.

Note: Download all required software components from the SAP Service Marketplace https://service.sap.com/swdc and install with SAP Add-On Installation Tool (SAINT). For more information about SAINT, see here.

Procedure

1. If the SAP kernel does not have the required version (see section 3.2), download the latest 7.20 Ext Kernel from the following path:

   Support Packages and Patches ➔ A-Z ➔ SAP HANA Enterprise ➔ Comprised Software Component Versions ➔ SAP KERNEL 7.20 EXT 64-BIT UC
2. Apply appropriate SAP kernel version and patch level 110 for secondary database connection (for DBSL) as described in SAP Note 1597627.
3. Download DMIS_2010 from the following path:

   Installations and Upgrades ➔ A-Z ➔ SAP HANA Enterprise ➔ SAP HANA Enterprise ➔ Installation ➔ DMIS 2010 for SAP HANA ENTERPRISE 1.0
4. Follow the DMIS_2010 installation procedure as described in SAP Note 1468391
5. Download latest available support packages from the following path:

   Support Packages and Patches ➔ A-Z ➔ SAP HANA Enterprise ➔ Comprised Software Component Versions ➔ relevant DMIS Add-on ➔ *Support Packages*

   Apply the latest available support packages on top of the DMIS installation.

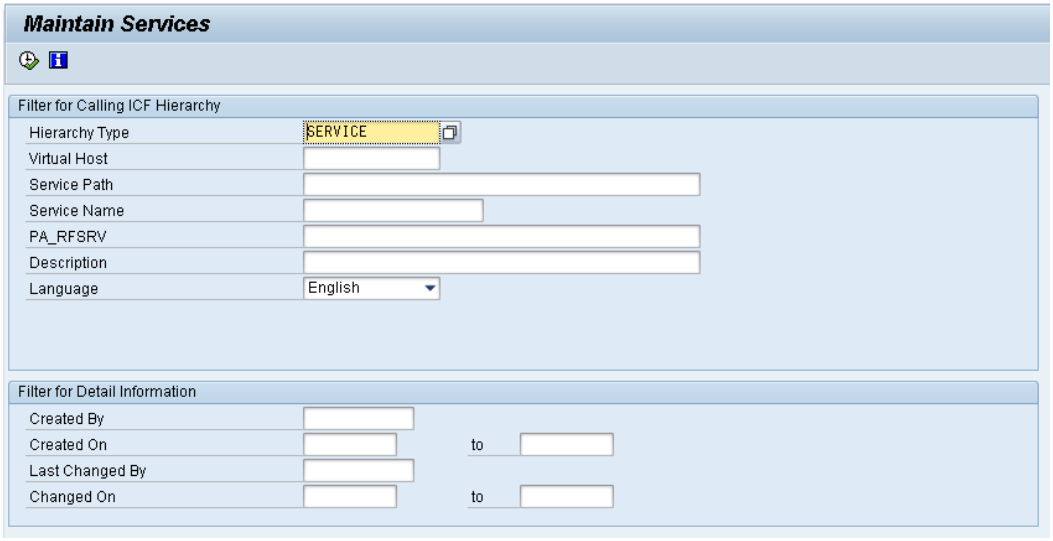
5 Post-Installation

5.1 Activation of Web Dynpro and relevant Services

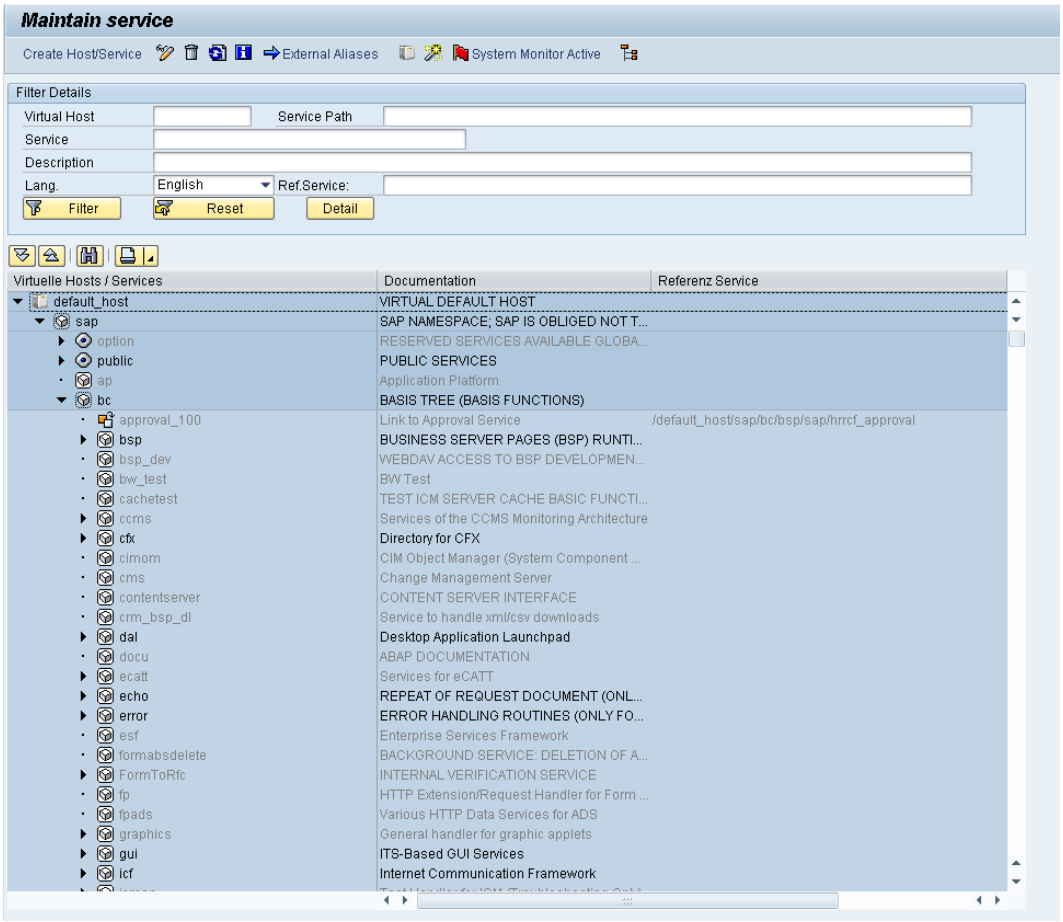
After the installation of SAP LT Replication Server, all required Web Dynpro SAP LT Replication Server services are initially disabled. You must enable these services in order to run the SAP LT Replication Server user interface.

Procedure

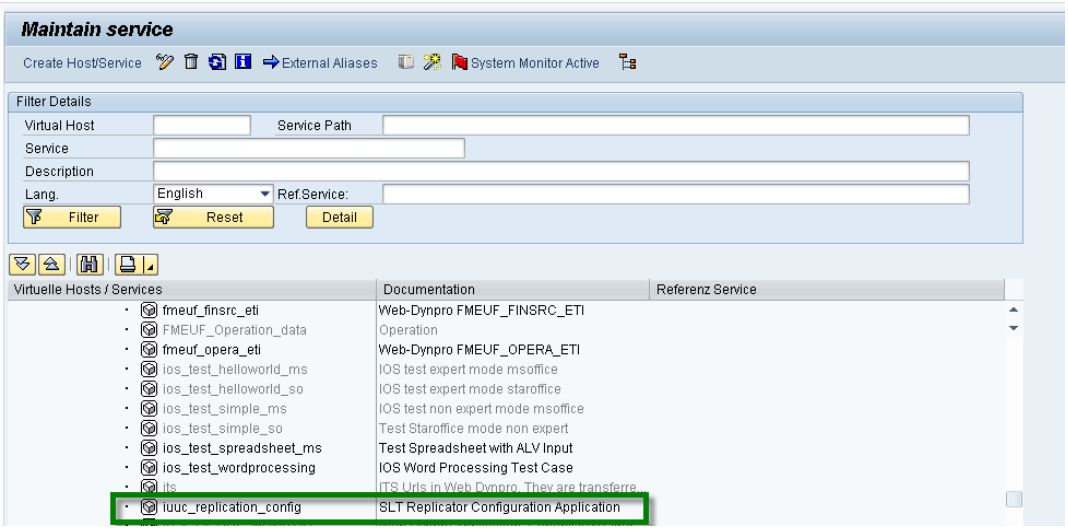
1. Activate Web Dynpro services as described here: Active Services in SICF
2. In the rest of this procedure, we will activate the SAP LT Replication Server services. To begin the procedure, use transaction SICF.
3. Enter the *Hierarchy Type* SERVICE, and choose *Run.*



4. Navigate to the node /sap/bc/webdynpro/sap



5. Activate the iuuc_replication_config service



6. Similarly, activate the following services :
   - iuuc_repl_mon_powl
   - iuuc_helpcenter

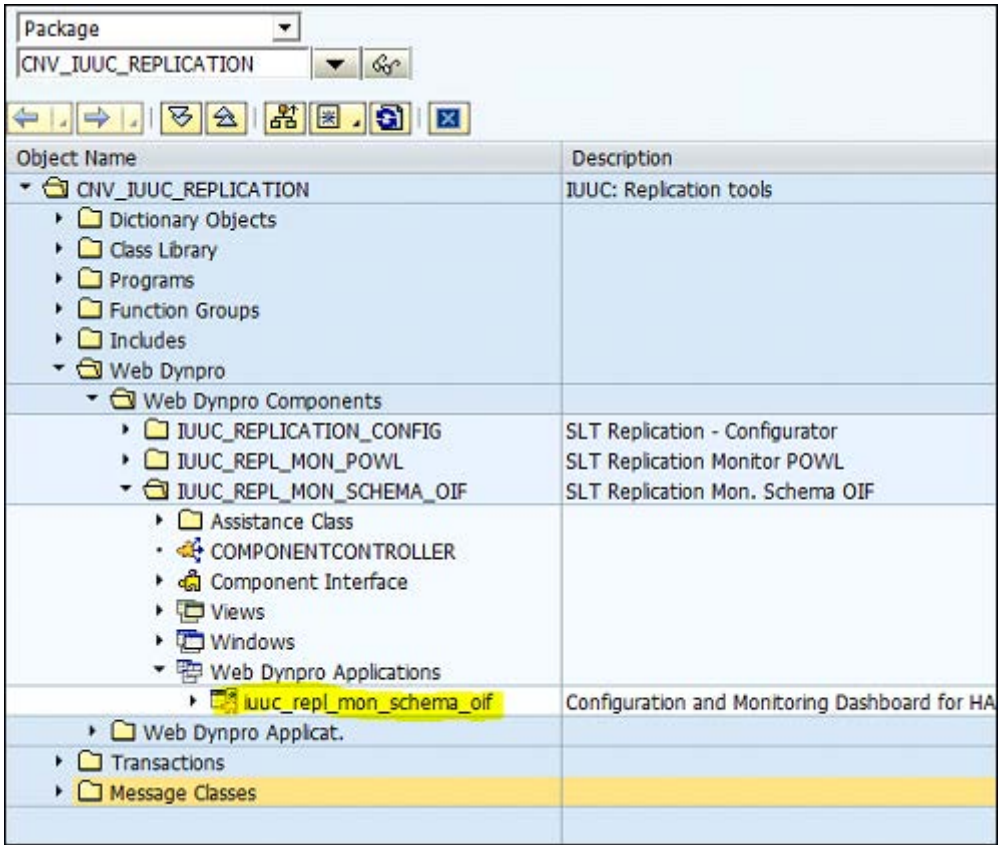
- iuuc_helpcenter_document
- /sap/public/bc
- /sap/public/bc/ur
- /sap/public/mysso/cntl
- /sap/bc/webdynpro/sap/iuuc_repl_mon_schema_oif
- /sap/public/bc/icons
- /sap/public/bc/icons_rtl
- /sap/public/bc/webicons
- /sap/public/bc/pictograms
- /sap/public/bc/webdynpro

Service iuuc_repl_mon_schema_oif cannot be found directly in transaction SICF. You need to perform the following to activate this Web Dynpro:

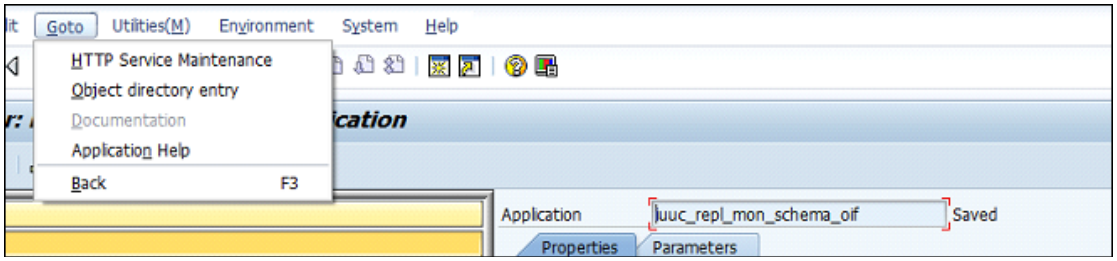
Go to transaction SE80, open package CNV_IUUC_REPLICATION.

Navigate in the object tree with the following path:

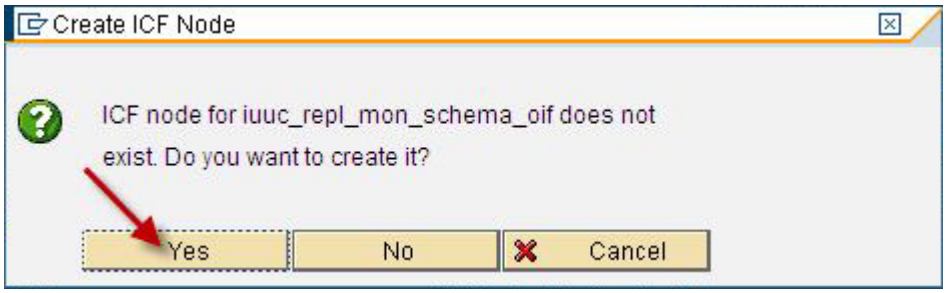
Web Dynpro->Web Dynpro Components->iuuc_repl_mon_schema_oif->Web Dynpro Applications



Double click on iuuc_repl_mon_schema_oif and then in the menu bar choose Goto -> HTTP Service Maintenance.



The system displays a dialog box that states that there is no such a service, and provides the option to create it:



Note that after you choose the *Yes* pushbutton, you may be required to assemble this change in a workbench request.
Finally, double check if this Web Dynpro is activated (by using transaction SICF, path /sap/bc/webdynpro/sap/iuuc_repl_mon_schema_oif).

5.2 User Creation and Connection for a SAP Source System

In order for the SAP LT Replication Server to operate, you must create an RFC connection to the source system(s). Also you will need to have a user in the SAP HANA In-Memory Database so that replication data can be stored.

Prerequisites

Refer to the SAP user administration guide for RFC user creation. Refer to the SAP HANA documentation for user creation information for the SAP HANA In-Memory Database.

Procedure

1. Create a user (of type Dialog or System) in your source system(s), generate and assign the following role to this user:
   - SAP_IUUC_REPL_REMOTE

   Note: Do not use user DDIC, it will not work. The role SAP_IUUC_REPL_REMOTE is not generated by default. Generate and assign this role to the newly created user.
2. Create an RFC connection (type 3 – ABAP) from the SAP LT Replication Server to the source system with the above created user (if both systems are Unicode, specify this RFC connection as Unicode).

   Note: Do not use DDIC for the RFC connection, as this will result in errors. If the source system and the SAP LT Replication Server are the same system, create an RFC connection and do not use the RFC connection *NONE*.
3. Create a user in the SAP HANA In-Memory Database. This user is necessary to setup the connection from the SAP LT Replication Server to the HANA system during the schema creation (see chapter 5).

Generation of Roles

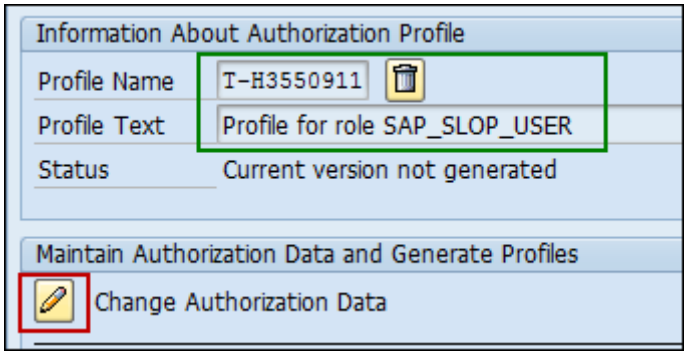
To generate the role (transaction PFCG), perform the following steps for the role SAP_IUUC_REPL_REMOTE:

Note: In the following screenshots, the role SAP_SLOP_USER is used as an example. With SPS04, the role SAP_IUUC_REPL_REMOTE is sufficient.

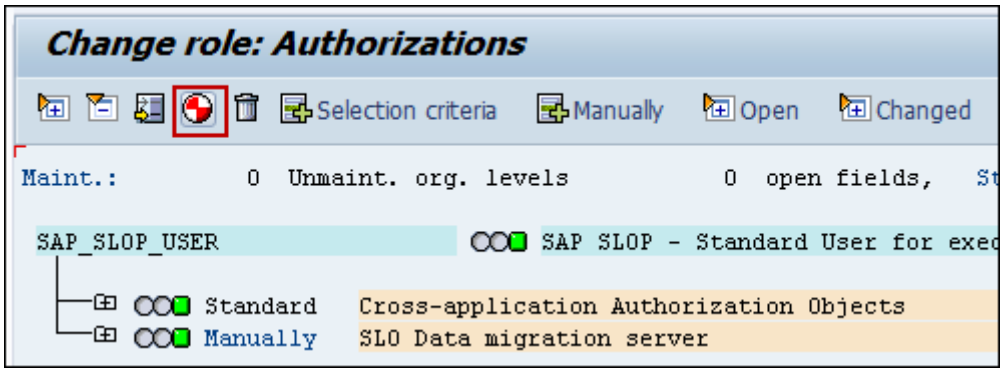
a) Switch to change mode.

b) Generate the profile for this role in the *Authorization* tab page.

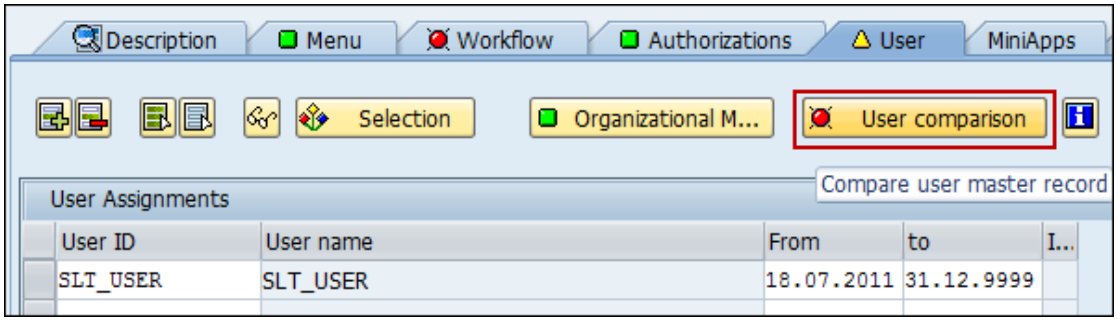
c) After the profile is generated, change authorization data as follows:



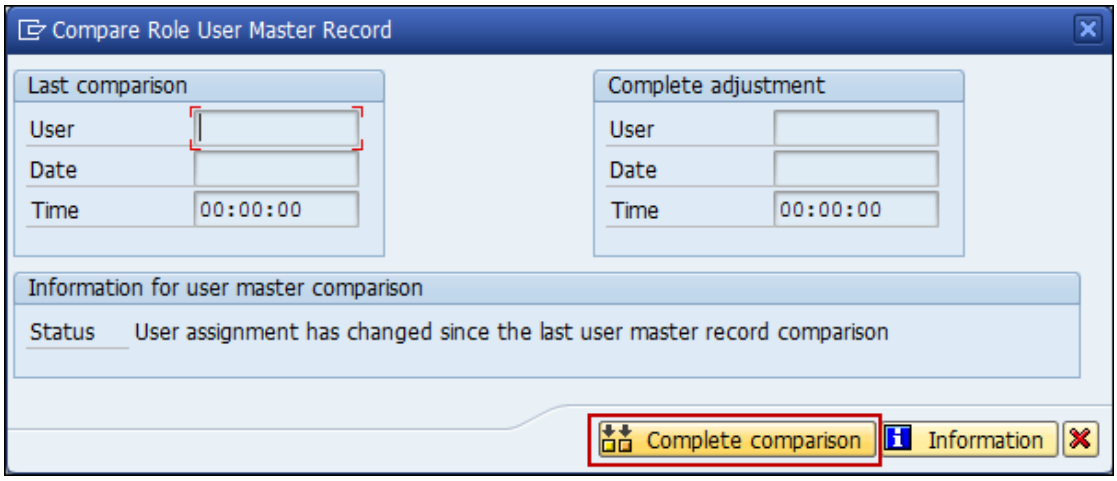
d) Click the *Generate* pushbutton:



e) Press F3 to go back, and you should see green light on the *Authorization* tab page. Switch to the *User* tab page, and press the pushbutton *User comparison*:



f) In the pop-up window, choose *Complete comparison*:



g) Now both *Authorization* and *User* tab pages have a green light, choose the *Save* pushbutton.

If you use a new client after the DMIS add-on is applied, you must transport the necessary roles from client 000 into your target client.

Note: Roles will be available after add-on and SP installation.

For more details about the roles and authorization concept of SAP LT Replication Server, see the Security Guide for SAP LT Replication Server for SAP HANA.

5.3 User Creation for a SAP LT Replication Server System

The SAP LT Replication Server is delivered with an own role SAP_IUUC_USER. To activate the role, follow the procedure described in 5.2

For more details about the roles and authorization concept of SAP LT Replication Server, see the Security Guide for SAP LT Replication Server for SAP HANA.

5.4 User Creation and Connection for a non-SAP Source System

To establish a secondary database connection from an SAP system to an external database, the connection data and the user data of a user are required. This user must be authorized to establish a connection to the external database The SAP system connects to a specific schema from the database. To perform the replication and initially load a specific table from a given schema, the database user must have privileges for the following actions:

- Selecting from the table
- Creating a table in the given schema (for creating the logging table)
- Selecting from the logging table
- Deleting the logging table
- Creating database triggers for the table
- Deleting the triggers
- Creating synonyms for the specific table
- Deleting the synonyms

Depending on the specific external database system, the process of granting privileges to a user can vary.

You find more details about the roles and authorization concept of SAP LT Replication Server in the Security Guide.

5.5 User Creation and Connection for an SAP HANA System

A DB user with authorization as for user SYSTEM is able to establish a connection between SAP LT Replication Server and HANA system. A respective replication user is automatically generated.

You find more details about the roles and authorization concept of SAP LT Replication Server in the Security Guide for SAP LT Replication Server for SAP HANA.

5.6 Separate Tablespace for Logging Tables

It is possible (but not essential) to store the source system replication log tables in a separate table space. The decision to do this or not rests with the system administrator. One advantages of having the log tables in their own table space is that you can easily monitor the size of the log tables.

As each database system has its own method of providing this functionality, refer to your database documentation for this procedure.

If you use own data classes and tablespaces, see SAP Note 46272.

Chapter 5 describes how to make your tablespace known to the configuration in the SAP LT Replication Server.

5.7 Access Configuration & Monitoring Dashboard

With the *Configuration & Monitoring Dashboard*, the SAP LT Replication Server can provide different status information (for example trigger active, job monitor, status load and replication with error alert, system connection) and statistical information (for example lowest/highest/average speed rate of a replication).

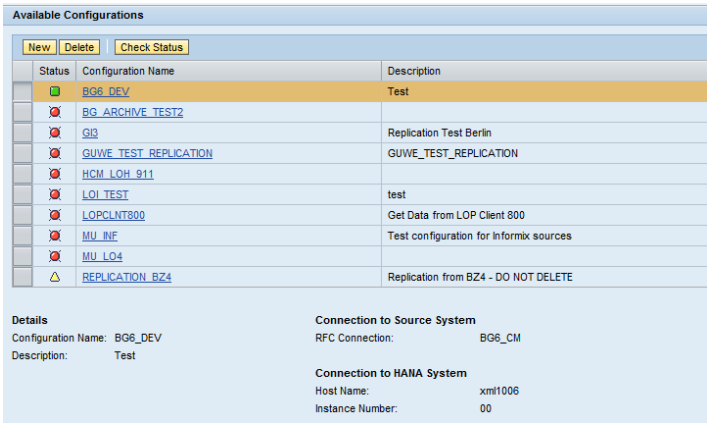
You can access the *Configuration & Monitoring Dashboard* by using transaction LTR.

5.7.1 Specify Configuration

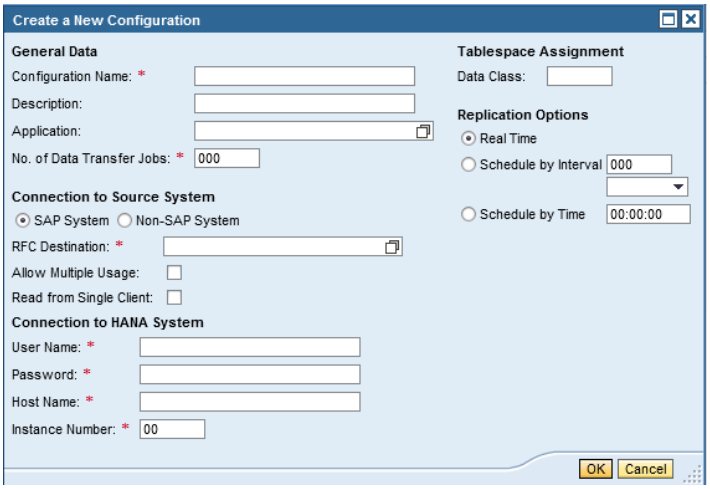
In the SAP LT Replication Server system, you define define a connection between the source system, the SAP LT Replication Server and the SAP HANA system. This connection is saved as a configuration.

Procedure

1.) Choose *New* to create a new configuration.



2.) Specify the configuration



a. General Data

i. **Configuration Name**: Define a configuration name. This name is also used for the automatically created schema on the HANA system.

ii. **Description**: Define a description for the configuration.

iii. **Application**: This field is not relevant for a HANA configuration.

iv. **Number of Data Transfer Jobs**: This value specifies the number of data transfer jobs which will run in the SAP LT Replication Server to replicate the tables of the RFC connection to the SAP HANA system. You find more details about the recommenden number in the Application Operations Guide.

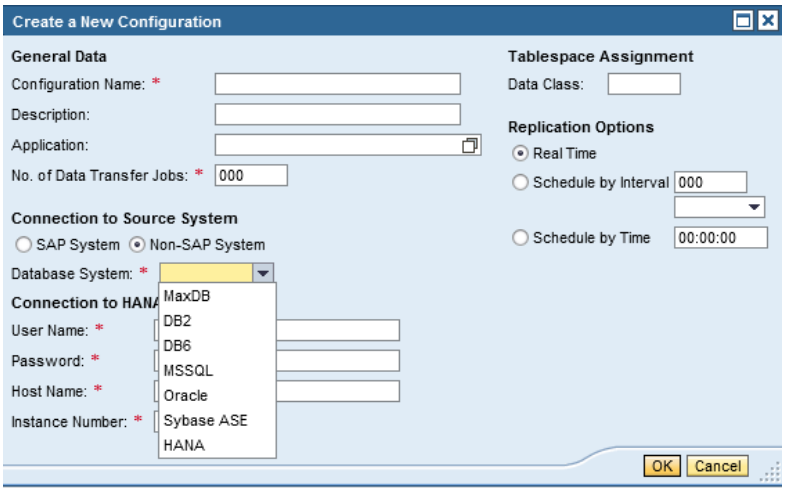
b. Connection to Source System

i. Choose **SAP System** or **Non-SAP System** as your source system

ii. **SAP System - RFC Destination**: Enter the RFC connection you defined to the SAP source system.

1. **Allow Multiple Usage**: The source system can be used for serveral target systems.
2. **Read from Single Client**: The initial load and the replication only read data from the client which is specified in the selected RFC Destination (SM59).

iii. **Non-SAP System**: To replicate from non-SAP source system select *Non-SAP System* and the affected database system. Depending on the databases system, additional required information may be required (for example for DB2 specify the database connection and the tablespace name).



Note: HANA as a target is only supported on project basis.

c. Connection to HANA System: Supply the in-memory database connection information.

User Name: Specify the username that will be used to create the schema in the HANA database. Usually this is the system user in the HANA system.

Host Name: Specify the hostname of the HANA database. This field is limited to 13 characters. A FQDN (Fully Qualified Domain Name) is not necessary. Ensure that the hostname corresponds to the correct IP address.

Instance Number: This is the instance number of the HANA database.

d. Tablespace Assignment: If you chose to configure a separate log table space (see section 3.2) you can optionally supply this information.

e. Replication: You can select:

i. Real time - For real time, instant replication

ii. Scheduled – For interval scheduled replication

iii. Scheduled by time – For daily, fixed time replication

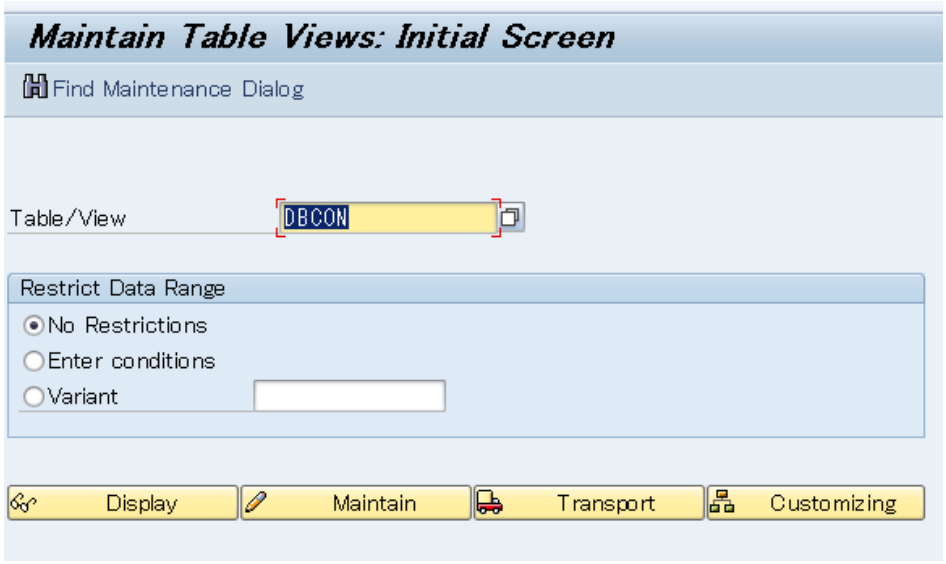
3.) To complete your schema configuration, choose *OK*.

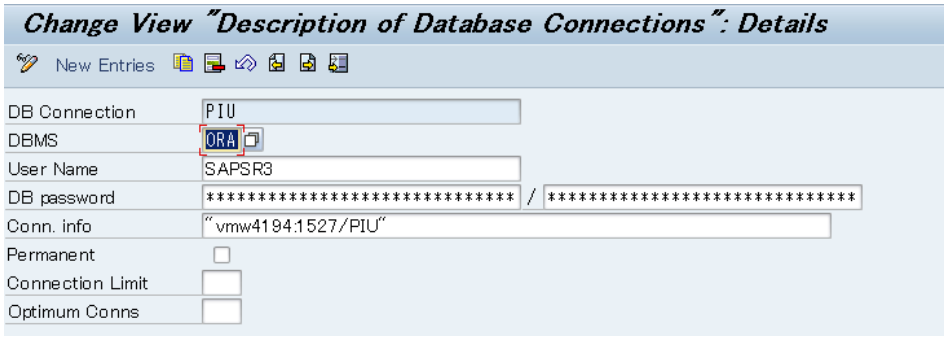
Non-SAP Specific Information:

If you are replicating from non-SAP source systems, the user you specify need authorizations as described in SAP LT Replication Server – Security Guide.

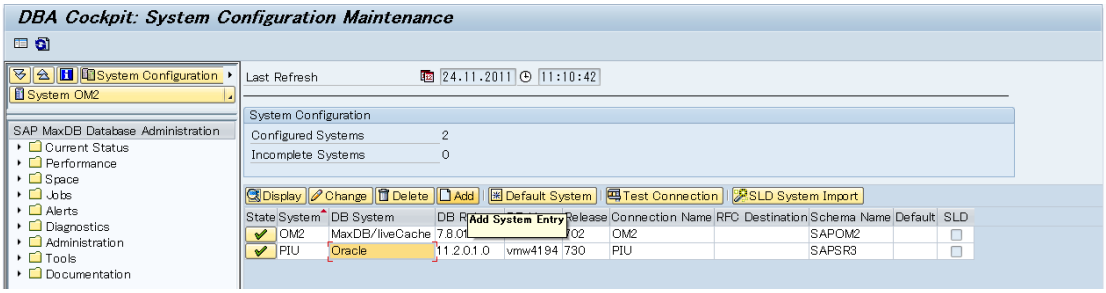
The actual privilege to be granted to the database user depends on the database system (Oracle/DB2/MSSQL and so on). For example, if you want to configure an Oracle database as a non-SAP source system, the following steps apply:

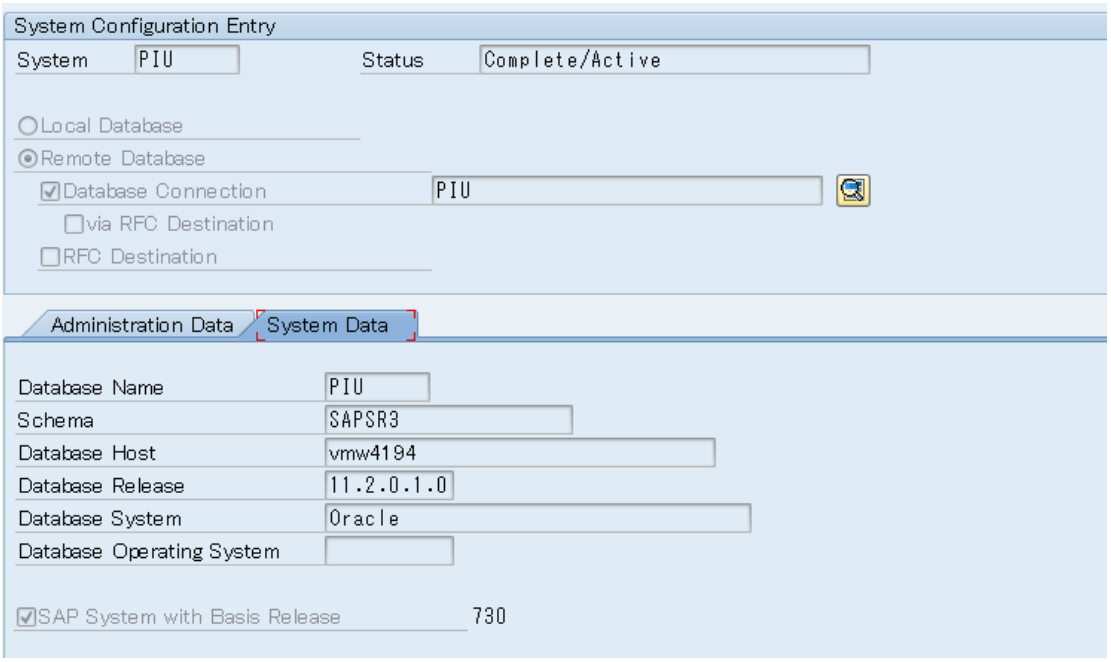
- Install the Oracle instant client on the SAP LT Replication Server (if your SAP LT Replication Server is not based on Oracle).
- Install the DBSL database dependent library for the 7.20 EXT Kernel.
- Create the database connection in table DBCON (via transaction SM30)



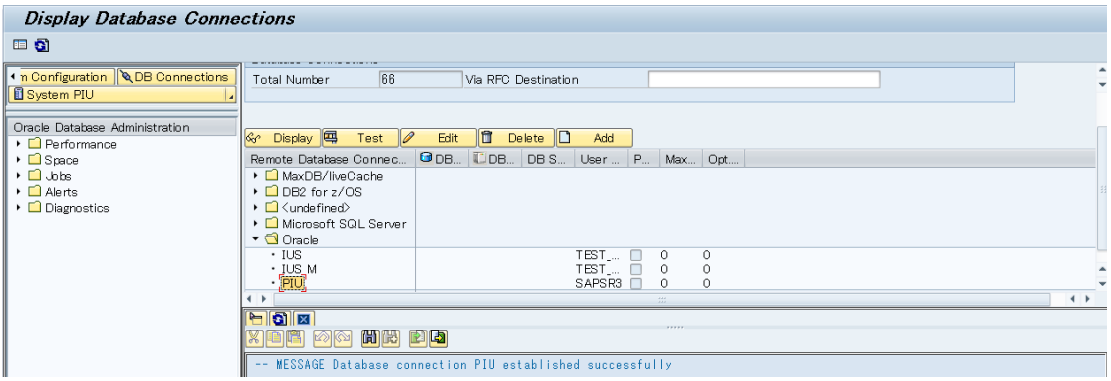


Add the database connection in transaction DBACOCKPIT:

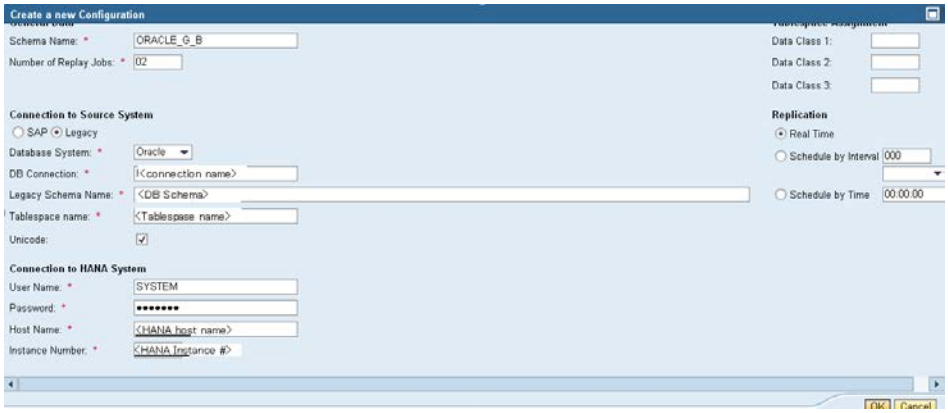




- Test the database connection:



- In the SAP LT Replication Server, use transaction LTR to complete configuration of the non-SAP source system.



- Consider that only tables with a primary key can be replicated.
- Details for tables DD002L and DD002T cannot desplayed within the Configuration & Monitoring Dashboard, because these tables do not exist physically in the non-SAP source system
- However, the metadata from the non-SAP system will be loaded into both SAP LT Replication Server and HANA as ‘initial load’ (means: No automatic update will occur for the metadata tables)
- The metadata information is represented as table DD002L and DD002T on the HANA system.

Note:
You find important considerations about non-SAP sources in the collective SAP Note 1768805.

5.7.2 Data Provisioning

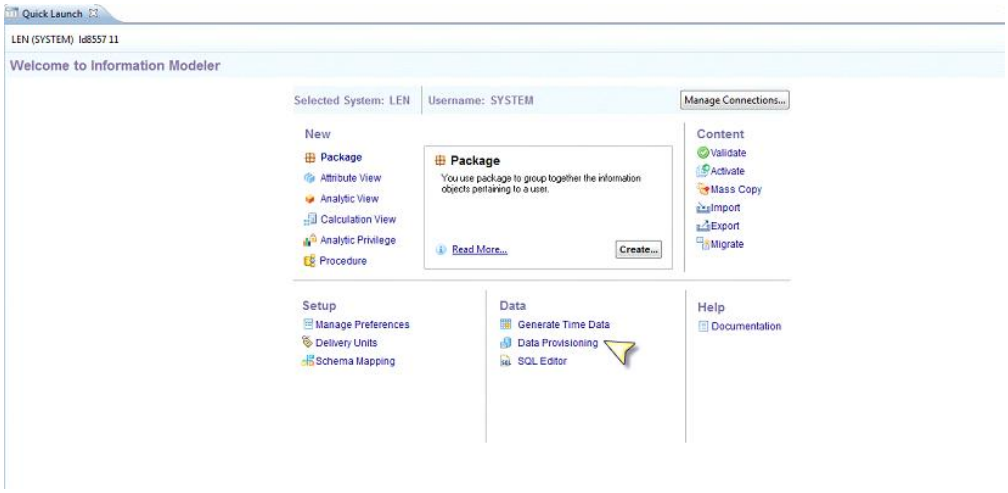
You use the SAP In-Memory Studio to control the replication process of the SAP LT Replication Server. There are some unique factors for the configuration using the Trigger-Based replication; they are covered in this section.

Note:

The version of the HANA studio has to at least match the revision level of the HANA software installed.

Procedure

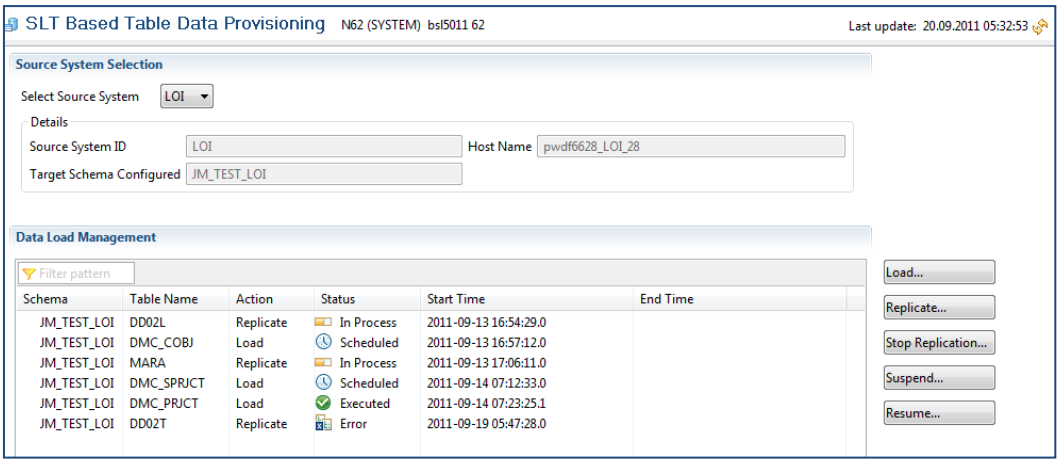
1. Using the SAP In-Memory Studio access the information modeler. Select *Data Provisioning*.



2. In the SAP LT Replication Server Based Table *Data Provisioning* screen, you can control the SAP LT Replication Server.

   Select Source System: This is the system ID of the source system retrieved by the RFC connection you configured in section 5.1.

   Details: This information is automatically populated from the schema configuration.



3. You can use the *Load*, *Replicate*, *Stop Replication*, *Suspend* and *Resume* pushbuttons to control the replication for the selected source system.

Load: Starts and initial load of replication data from the source system. The replication is a onetime event, and after completion further changes to the source system database will not be replicated.

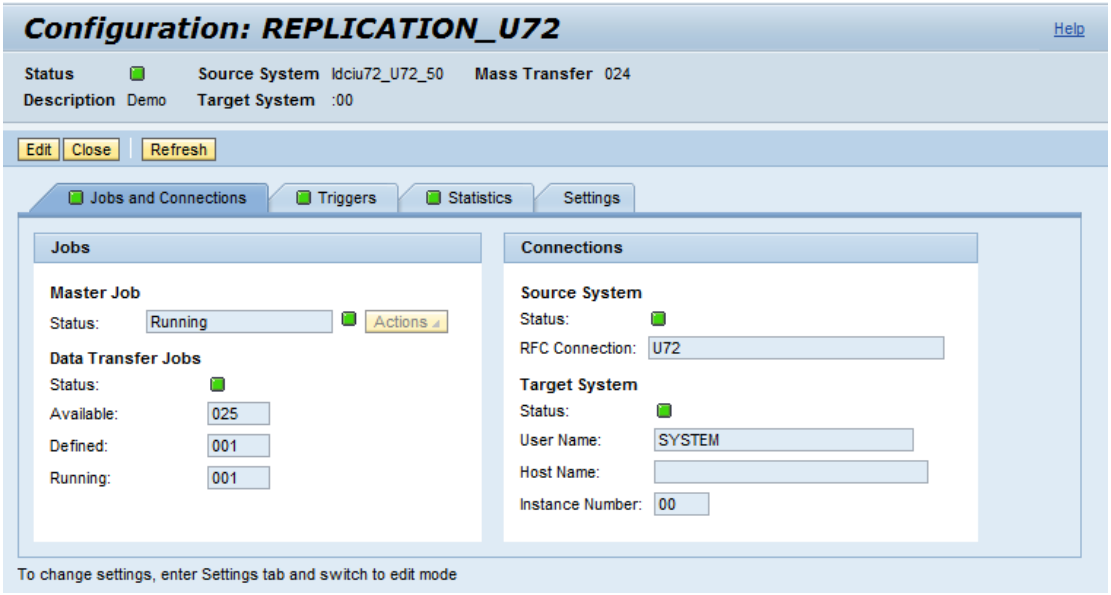
Replicate: Starts an initial load procedure and then begins the continuous or scheduled replication procedure appropriate to the schema configuration.

Stop Replication: Stops any current load or replicate processes.

Suspend: Pause a table from a running replication. The trigger will not be deleted from the source system. The delta will still be stored in log tables in the source system

Resume: Restart replication for a suspended table. Previous suspended replication will be resumed (no new initial load required).

5.7.3 Monitoring



The Configuration & Monitoring Dashboard includes several information you can use to monitor and identify potential replication issues.

You can access the Configuration & Monitoring Dashboard by using transaction *LTR*.

You find all details in the Application Operations Guide.