SAP Best Practices

SAP HANA 1.0 SP05

SAP Landscape Transformation SP04

October 2013

English

SAP Landscape Transformation for SAP HANA (HA1)

Building Block Configuration Guide

SAP AG
Dietmar-Hopp-Allee 16
69190 Walldorf
Germany

Copyright

Icons

Icon	Meaning
	Caution
	Example
	Note
	Recommendation
	Syntax

Typographic Conventions

Type Style	Description
Example text	Words or characters that appear on the screen. These include field names, screen titles, pushbuttons as well as menu names, paths and options. Cross-references to other documentation.
`Example text`	Emphasized words or phrases in body text, titles of graphics and tables.
EXAMPLE TEXT	Names of elements in the system. These include report names, program names, transaction codes, table names, and individual key words of a programming language, when surrounded by body text, for example, SELECT and INCLUDE.
`Example text`	Screen output. This includes file and directory names and their paths, messages, source code, names of variables and parameters as well as names of installation, upgrade and database tools.
`EXAMPLE TEXT`	Keys on the keyboard, for example, function keys (such as `F2`) or the `ENTER` key.
`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. Pointed brackets indicate that you replace these words and characters with appropriate entries.

Contents

SAP Landscape Transformation for SAP HANA

Note for authors:
This Configuration Guide is provided as a content fixed template to use as-is. Package-specific configuration information is added to your package's Quick Guide. Review this configuration carefully and eliminate any green text before publishing this document.

1 Purpose

The purpose of this document is to describe the general configuration steps between SAP Landscape Transformation server and SAP HANA.

2 Prerequisites

Before you start installing this scenario, you must install the prerequisite building blocks. For more information, see the Building Block Prerequisites Matrix for your rapid-deployment solution. You find this document in the content library, attached to the Step-by-Step Guide.

This scenario also assumes that SAP LT component is installed before proceeding with the following sections. The trigger-based replication can be activated and monitored with the Synchronization Monitor. For more information, see the *SAP HANA 1.0 Installation Guide - Trigger-based Replication* on the SAP Help Portal, http://help.sap.com/hana/.

All required SAP Notes must be applied (as consistent in collective SAP Note **1605140**) in sequence (from lower number to higher number) in your SAP LT system (via SNOTE).

Do NOT try to include the code fix by means of importing transport requests from other systems.
If you encounter warnings message *Corrections incompletely copied* during the Note installation, please also mark the yellow objects and continue with the installation.

3 Configuration

3.1 Activating SAP LT Service

Use

This step is required when your SAP LT service is not activated. After installation of SAP LT Replication Server, all required WebDynpro SAP LT Replication Server services are initially disabled. You must enable these services to run the SAP LT Replication Server user interface.

Procedure

1. Logon to your SAP LT system.
2. Access the transaction choosing the following navigation option:

Transaction code	SICF

3. Input value **`SERVICE`** for *Hierarchy Type* and choose Run.
4. Navigate to the node *default_host/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\

If you cannot find iuuc_repl_mon_schema_oif service, you need to perform the following to activate this Web Dynpro:

a. Go to transaction code SE80, open package CNV_IUUC_REPLICATION
b. Navigate to *CNV_IUUC_REPLICATION / Web Dynpro / Web Dynpro Components / IUUC_REPL_REPL_MON_SCHEMA_OIF / Web Dynpro Applications / iuuc_repl_mon_schema_oif*
c. Double click on iuuc_repl_mon_schema_oif and then in the menu bar choose *Goto → HTTP Service Maintenance*
d. Choose *Yes* on dialog box *Create ICF Node*.
e. Activate iuuc_repl_mon_schema_oif in *SICF.*

3.2 Access SAP LT installation Wizard

Use

After enabling the SAP LT services in the previous step, add an access point to the SAP LT installation wizard for the Web Dynpro of the system containing the SAP LT component.

Procedure

1. Logon to your SAP LT system.
2. Right click on Favorites
3. You choose Add other objects
4. Choose the Web Dynpro application
5. In the Web Dynpro application dialog you type IUUC_REPLICATION_CONFIG as the *Web Dynpro Applicat.* and add a suitable description. Then choose *Continue*.

You can also use transaction code – `LTR` to open Web Dynpro page.

3.3 Creating a user in your source system(s) with the roles

Use

For the SAP LT Replication Server to operate, you must create replication user in SAP source system(s).

Procedure

1. Logon to your source ERP system.
2. Access the transaction choosing the following navigation option:

Transaction code	SU01

3. Input user name and go to user maintenance.
4. Create a user and ensure following role is assigned.
   - SAP_IUUC_REPL_REMOTE

Do not us the DDIC user. This role is not generated by default. Generate and assign this role to the newly created user.

3.4 Generation of Roles in SAP Source System(s)

Use

After you assign the role SAP_IUUC_REPL_REMOTE to replication user, you must to generate and activate this role in PFCG.

Procedure

1. Logon to your source ERP system.
2. Access the transaction choosing the following navigation option:

Transaction code	PFCG

3. In Role Maintenance screen, input `SAP_IUUC_REPL_REMOTE` for *Role* and choose *Edit*.
4. In *Change Role* screen, generate the profile for this role in the *Authorization* tab page.
5. After the profile is generated, choose *Edit* before *Change Authorization Data*.
6. In *Change role: Authorizations* screen, choose *Generate* 
7. Press F3 to go back, you should see green light on the *Authorization* tab page.
8. Switch to the *User* tab page and press the button *User comparison*.
9. In the pop-up window *Compare Role User Master Record*, choose *Complete Comparison*.
10. Both *Authorization* and *User* tab pages have a green light now.
11. Choose the *Save* button.

3.5 Creating RFC Connection

Use

For the SAP LT Replication Server to operate, you must create RFC connection to the source system(s).

Procedure

1. Logon to your SAP LT system.
2. Access the transaction choosing the following navigation option:

SAP menu	*Tools* → Administration → *Administration* → *Network* → *RFC Destinations*
Transaction code	SM59

3. In the *Configuration of RFC Connections* screen, choose *ABAP connection* and choose *Creat*.
4. Input following values to create an RFC connection:

Field name	Comment
RFC Destination	<Destination name>
Description	
Target Host	<Host of ERP system>
System Number	<System number of ERP system>
Client	Default – empty Specify the client in case you want to replicate data from certain client

User	
Password	

5. Choose *Save* to save the connection.
6. Choose *Connection Test* to test the connection.

3.6 Setup SAP LT Connection

Use

In the SAP LT system, you define a configuration set that defines a connection between the source system, the SAP LT system and the SAP HANA system. This defines the database tables to be replicated from the source system to the target SAP HANA system.

Procedure

1. In the SAP LT system, double click on the node you created in the previous section (or open T-Code `LTR`).
2. The web page *Configuration and Monitoring Dashboard for HANA* will be opened.
3. Choose *New* button to create a new configuration.
4. In Create a New Configuration dialog box, you specify the configuration as follows:

Field name	Comment
Configuration Name*	Define a configuration name. This name is also used for the automatically created physical schema name on the HANA System
Application	This field is not relevant for a HANA configuration
No. of Data Transfer Jobs*	The jobs to retrieve data, as a basic starting point you should configure 1 job per 20 tables(maximum)
SAP System / Non-SAP System*	SAP System
RFC Destination*	The RFC connection to the source system (you created in previous steps)
Allow Multiple Usage	The source system can be used for several target systems
Read from Single Client	The initial load and thereplication only read data from the client which is specified in the choose RFC Desination (SM59)
User Name*	SYSTEM (Default using SYSTEM user to setup SAP LT connection. In case you want to use specific HANA user, you have to follow HA2 HANA Security and Roles configuration guide)
Password*	Corresponding password of HANA user name
Host name*	Specify the hostname of the HANA database. This field is limited to 13 characters.
Instance Number*	Specify the Instance Number of the HANA database
Replication Options*	Real Time – For real time, instant replication Scheduled – For interval scheduled replication Scheduled by time – For daily, fixed time replication

5. To complete your schema configuration, choose *OK*.

To accelerate initial load, you can increase the Initial Load Jobs by following

below steps:

- Choose *Configuration Name* in web page *Configuration and Monitoring Dashboard for HANA*
- Choose *Jobs and Connections* tab, choose *Edit* and Stop *Master Jo*b via *Stop* option under *Actio*n button.
- Save your changes.
- After several minutes, when all jobs stopped. Choose *Settings* tab and choose *Edit*.
- Increasing number of *Initial Load Jobs.*
- *Save* changes and Restart jobs in *Jobs and Connections* tab.

Additional Information of Replication Concept:

- Only tables with a primary key can be replicated.
- Standard roles and target schema will be created atomically during replication.
- It may take several minutes to synchronize the change SAP to HANA system. Ensure DD02L and DD02T tables are created in the target schema of HANA.

4 Initial Load and Replication

Once configuration is created in the SAP LT Replication Server, you can use the SAP HANA Studio to initiate and control the table-based replication process of the SAP LT Replication Server. Depending on the size of the data that is being loaded to SAP HANA server, the initial load process can take some time to complete.

4.1 Initial Load and Replication of Tables

Prerequisite

The SAP LT configuration has been setup successfully. Please **make sure DD02L and DD02T tables are created and data is replicated completely**. As they include important metadata information.

Procedure

1. Choose *Start* → *All Programs* → *SAP HANA* → *SAP HANA Studio* to open your SAP HANA studio.
2. In the Quick Launch view, choose *Select System* and choose the correct HANA server.
3. From the *Quick Launch* tab page, choose *Data Provisioning* link.
4. In the *Data Provisioning* Page, using the drop-down list *Select Source System* box, choose your source system. The target schema will be selected automatically.
5. Choose button *Replicate*.

Load: Starts an initial load of replication data from the source system. The procedure is a one-time event. After it is completed, further changes to the source system database will not be replicated.

Replicate: Combines an initial load procedure and the subsequent replication procedure (real-time or scheduled).

Stop Replication: Stops any current load or replication process of a table. The stop function will remove the database trigger and related logging tables completely. Only use this function if you do not want to continue a selected table otherwise you must initially load the table again to ensure data consistency.

Suspend: Pauses a table from a running replication. The database trigger will not

be deleted from the source system. The recording of changes will continue, and related information is stored in the related logging tables in the source system.

Resume: Restarts the replication for a suspended table. The previous suspended replication will be resumed (no new initial load required).

6. In the *Replicate Request* dialog, input required table name and choose button ***Add*** to make it in the selected section.

For more information about the required table list, see the Appendix of Quick Guide for your rapid-deployment solution.

Since replication for large tables takes time, we recommend loading large tables as the last step. Examples of large tables: BSEG, BKPF, FAGLFLEXA

7. To start replication, click *Finish* button.

4.2 Schema Mapping (Optional)

Use

In HANA, there are 2 schema types: Authoring Schema and Physical Schema.

Authoring Schema is the schema name that is defined in SAP HANA models (attribute view, analytics view, calculation view). This name will be included in final exported XML file.

Physical Schema is the schema name used to create SAP LT connection. All physical tables which you replicated from source system will be stored under this schema.

If you use a different physical schema as authoring schema which included in SAP HANA models, the following procedure is used to create schema mapping.

Procedure

1. Choose *Start* → *All Programs* → *SAP HANA* → *SAP HANA Studio* to open your SAP HANA studio.
2. From the *Quick Launch* page, choose *Schema Mapping*.
3. In the *Schema Mapping* dialog, input following values:

Field	Value
Authoring Schema	<Authorizing Schema Name>
Physical Schema	<Your SAP LT replication schema name>

For more information about the Authoring Schema Name, see the Appendix of the Quick Guide of your repid-deployment solution.

4. Choose *OK*.
5. Check table **M_SCHEMA_MAPPING** in schema **_SYS_BI** to confirm the proper mapping

5 Appendix

5.1 Helpful Documents

For information about SAP HANA landscape, deployment, installation, administration, and security, see the resources listed in the table:

Guide	Location	Quick Link

Guide	Location	Quick Link
SAP HANA Installation Guide- Trigger-Based Replication (SLT)	*SAP HANA Appliance Software on the SAP Help Portal*	http://help.sap.com/hana_appliance/#section2 ➔Installation and Upgrade Information ➔ Data Replication Installation Guides
SAP HANA Security Guide – Trigger-Based Replication	*SAP HANA Appliance Software on the SAP Help Portal*	http://help.sap.com/hana_appliance/#section3 ➔Security Information ➔ Database Replication Security Guides
Application Operation Guide – Trigger-Based Data Replication Using SAP Landscape Transformation Replication Server	*SAP HANA Appliance Software on the SAP Help Portal*	http://help.sap.com/hana_appliance/#section4 ➔System Administration and Maintenance Information ➔ SAP LT for SAP HANA Technical Operations Manual
Sizing Guide for SAP Landscape Transformation (SAP LT) Replication Server for SAP HANA, SPS 05	*SAP Service Marketplace Installation and Upgrade Information*	http://service.sap.com/instguides ➔Alphabetical Index – L ➔ SAP Landscape Transformation Replication Server

(Access to areas of the SAP Service Marketplace requires a user account.)

5.2 Useful Infomation

Component Name for service ticket

When encountering an issue not addressed by the guides, open a support ticket under component **BC-HAN-LTR**.

Monitoring Replication Status

In SAP LT Replication Server, the tool IUUC Synchronization Cockpit was developed so that the loading and replication can be better monitored. Use transaction code **`IUUC_SYNC_MON`** (or using **`LTRC`** after DMIS 700 SP9) to monitor replication status.