SAP Accelerator Packages

POC Guide

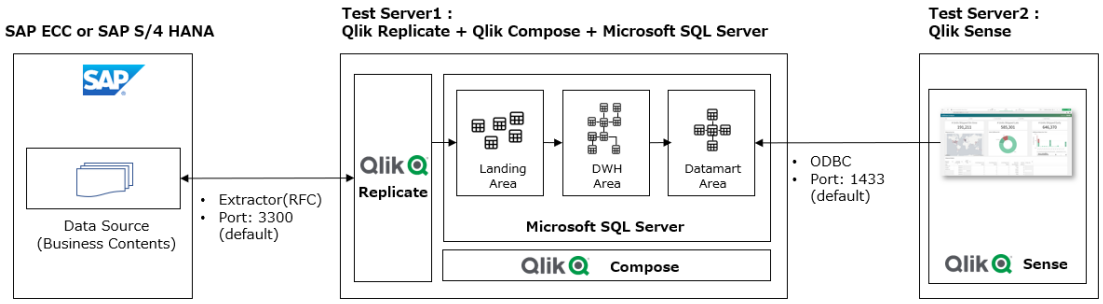
2024/7 V.3.3.3

Contents

1 Introduction

1.1 POC environment

The POC environment described in this guide assumes the following server environment in which the DWH is Microsoft SQL Server. Supplemental information on using Snowflake, Synapse, BigQuery, and Redshift as DWH is provided in this guide. However, these DWHs require separate configuration, which is not covered in this guide. Please refer to the product help site for details.



※ In a production environment, we recommend that Qlik Replicate, Qlik Compose, and DB/DWH servers be deployed on separate server instances.

※ If you use Snowflake, Synapse, BigQuery, or Redshift as DWH, you will need to configure them separately. Note that the Qlik Sense applications included in the SAP Accelerator Packages are not compatible with Redshift, only Replicate tasks and Compose projects work on Redshift.

※ The software versions used in the preparation of this guide are as follows:

- SAP S/4 HANA 2022 FPS02 / SAP ECC 6.0 EhP8
- Qlik Replicate November 2023 Release
- Qlik Compose May 2022 SR2 Release
- Qlik Sense SaaS
- Microsoft SQL Server 2019 Release

※ The test servers used in this guide are Windows Server 2019.

※ SAP Accelerator Packages in this procedure use the SAP ODP endpoint, which must meet the following version requirements to use the ODP API 2.0 available from the following SAP BASIS levels and above:

- PI_BASIS 730 SP 14 (part of SAP NetWeaver 7.30 SP 14)
- PI_BASIS 731 SP 16 (part of SAP NetWeaver 7.03 SP 16 and 7.31 SP 16)
- PI_BASIS 740 SP 11 (part of SAP NetWeaver 7.40 SP 11)
- SAP_BW 750 SP 0 (includes former PI_BASIS package)

※ PI_BASIS corresponds to the component name SAP_BASIS in the new system.

※ For more information, see SAP Note 1931427 - ODP Data Replication API 2.0 for more information.

※ For more information on Qlik Replicate ODP Endpoint prerequisites, please refer to Prerequisites | Qlik Replicate Help.

1.2 Supplemental information on this guide

- 2. Preparation summarizes the items to be prepared prior to POC implementation. Please check this section first.
- There are four SAP Accelerator Packages: Order to Cash, Inventory Management, Finance, and Procurement. This guide covers how to set up these four packages. We recommend that you first perform the validation on "Order to Cash", and then go through the steps before proceeding to the other types of validation.
- Basic configuration information for the package is described in 3. Qlik Replicate Setup - 13. Visualization with Qlik Sense.
- Some procedures explained in this document may be required only for specific types of packages. If this is the case, it will be indicated in the description of the procedure.
- Appendix 2: Creating User for Replicate explains how to create a SAP user for Replicate to perform data retrieval from SAP. However, it is recommended that a user with SAP_ALL (SAP administrator authority) execute the data retrieval test from Replicate first, since detailed authorization settings are required and incorrect settings are often made.
- Appendix 5: Performing change data update process in Qlik Compose explains the steps required to store the change data retrieved from SAP in the DWH and data mart after the DWH and data mart creation and initial full data load are complete.
- This guide describes a typical setup procedure in a SAP test environment. Therefore, the configuration method on the SAP side may vary depending on the environment and

existing configurations. It is recommended that the work in this guide be performed in consultation with and in the presence of an SAP specialist.

2 Preparation

The following preparations should be made in advance of the POC implementation.

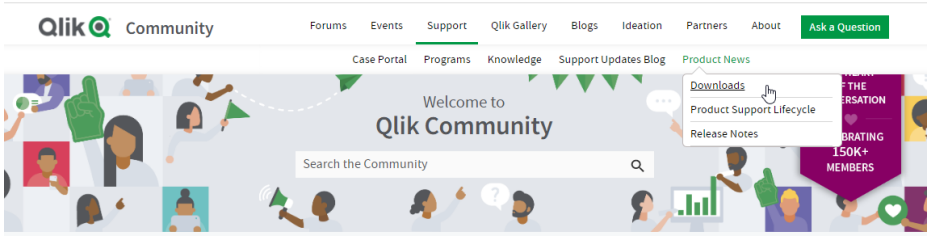
- Qlik Replicate and Qlik Compose installation files.
  - Follow the instructions in 2.1 Download Qlik Replicate and Qlik Compose Installation Media later in this section to download the files.
- License files for Qlik Replicate and Qlik Compose.
  - Please obtain a license file from a Qlik sales representative.
- Complete set of files in the Qlik Accelerator Packages
- SAP Java Connector
  - Follow the instructions in "2.2 Downloading the SAP Java Connector" later in this section to download the target file.
- Prepare test server (server running Qlik Replicate, Qlik Compose, and DB)
  - The test server in this guide uses Windows Server 2016. Prepare the server by referring to the following sites and documents:
    - Recommended hardware configuration #Recommended hardware configuration - Qlik Replicate
    - Preparing your system for Compose - Qlik Compose
  - Using a clean install server environment is highly recommended.
- Deployment of Microsoft SQL Server (Target DB)
  - Deploy Microsoft SQL Server on the test server according to the instructions provided by Microsoft.
  - SQL Server Management Studio (SSMS) needs to be installed.
  - On the SQL Server Configuration Manager tool, select "Network Configuration for SQL Server", enable the "TCP/IP" protocol, and restart the service beforehand.
- Microsoft SQL Server (Target DB) administrator user
  - An administrative user for the target DB to be used during test is required.
  - This guide uses the Microsoft SQL Server sa user.
- If you do not use Microsoft SQL Server as your DWH, and use Snowflake, Synapse, BigQuery, or Redshift instead, you will need to set up your DWH in advance by referring to help sites.
- SAP GUI
  - Install the SAP GUI to work on SAP configurations. Follow the instructions provided

by SAP to install the SAP GUI on the test server and verify the connection to the SAP system.

- Opening Server Ports
  - ➢ You need to release the inbound communication port for RFC communication from the verification server to the SAP system. The port number is 3300 (33NN where NN is the SAP instance ID), please refer to the following site for details.
    - ✧ TCP/IP Ports of All SAP Products - SAP Help Portal
  - ➢ You need to release the inbound communication port on the test server to access the DB server from Qlik Sense. 1433 is the default port number for Microsoft SQL Server.
  - ➢ Open inbound communication port 443 on the verification server for web browser access to the Qlik Replicate and Qlik Compose consoles.
- SAP_ALL (administrator) user preparation for SAP system
  - ➢ SAP users with SAP_ALL privileges to be used during test must be prepared in advance.
- Qlik Sense environment
  - ➢ Prepare a Qlik Sense Enterprise Client Managed, Qlik Sense Desktop, or Qlik Sense SaaS environment with access to the validation environment.
  - ➢ If you need a license, please obtain one from a Qlik sales representative.
- The installation procedures for Qlik Replicate and Compose are explained in this document, but please refer to the following documents for details on tasks and prerequisites.
  - ➢ Qlik Replicate Help: Welcome to the Qlik Replicate online help - Qlik Replicate
  - ➢ Qlik Compose Help: Welcome to the Qlik Compose online help - Qlik Compose

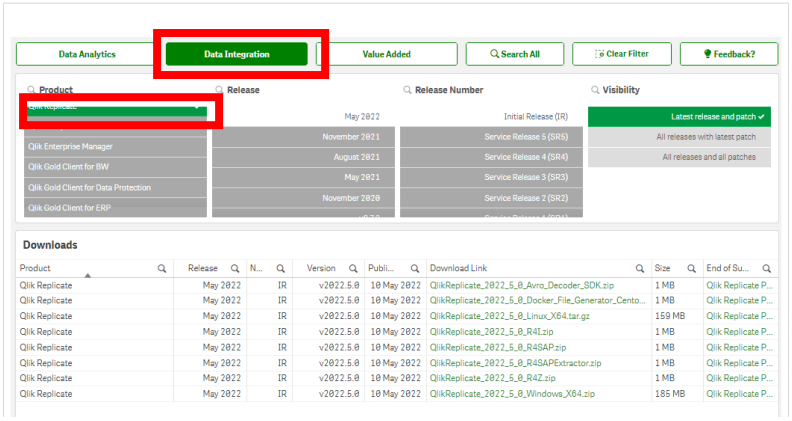
2.1 Download Qlik Replicate and Qlik Compose installation files

① Go to the Home | Qlik Community site, log on to the site and click on Support > Product News > Downloads. (You must be logged on as a user with a valid subscription to a Qlik product, if you do not have one, please contact a Qlik sales representative).

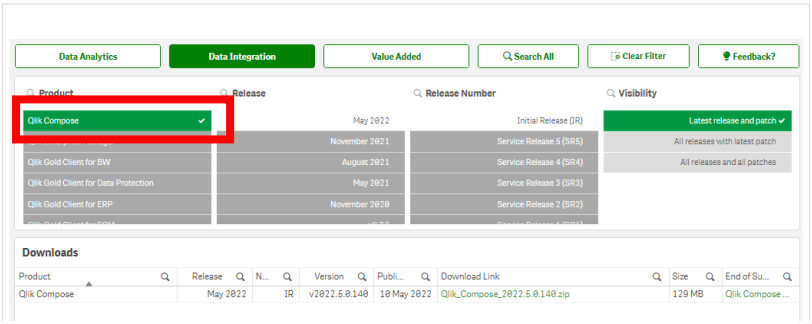


② Select "Data Integration", then "Qlik Replicate" from "Product" and download the following installation file from the download list:

- Qlik Replicate: QlikReplicate_<version>_Windows_x64.zip

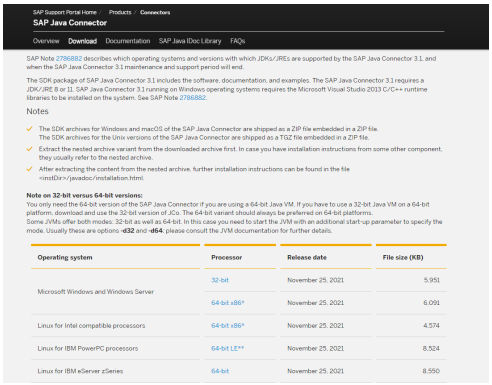


③ Similarly, select "Qlik Compose" and download the installation media.



2.2 Download SAP Java Connector

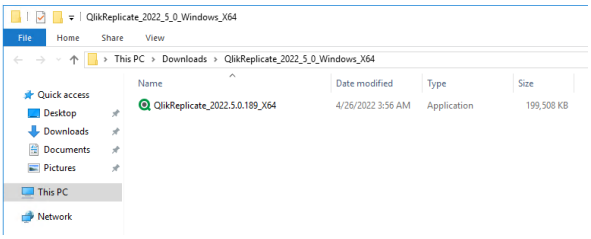
Download SAP Java Connector 3.1 from the SAP Java Connector site. (You will need an SAP ID with a valid subscription to download.)



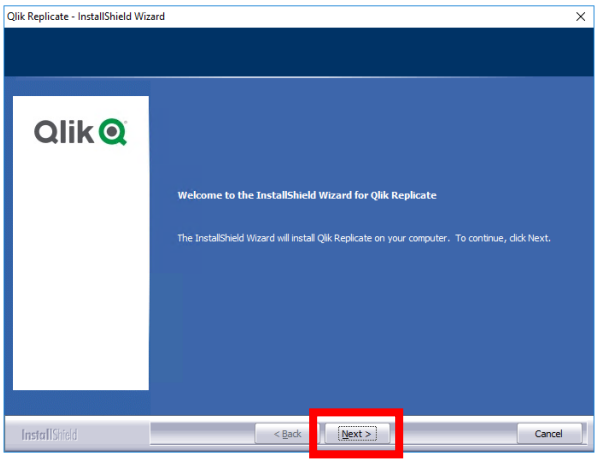
3 Qlik Replicate Setup

3.1 Installing Qlik Replicate

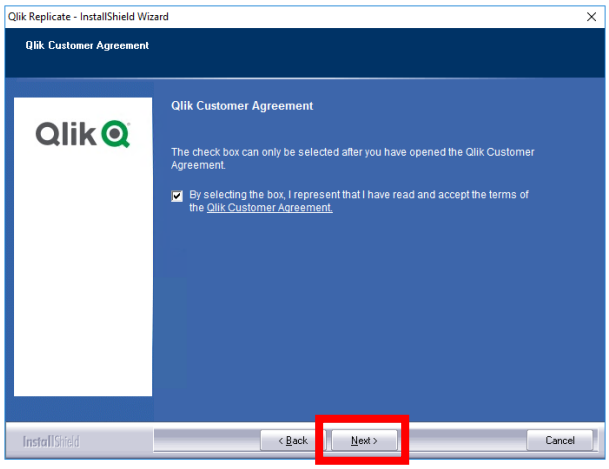
① Run the EXE file and follow the instructions in the setup wizard to install Qlik Replicate. If .NET Framework 4.8 or higher and Visual C++ Redistributable for Visual Studio 2015 are not already installed, the installation of these products will start to run.



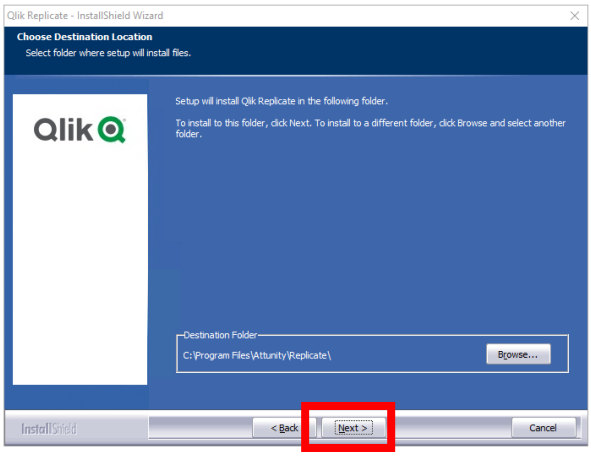
② Click [Next].



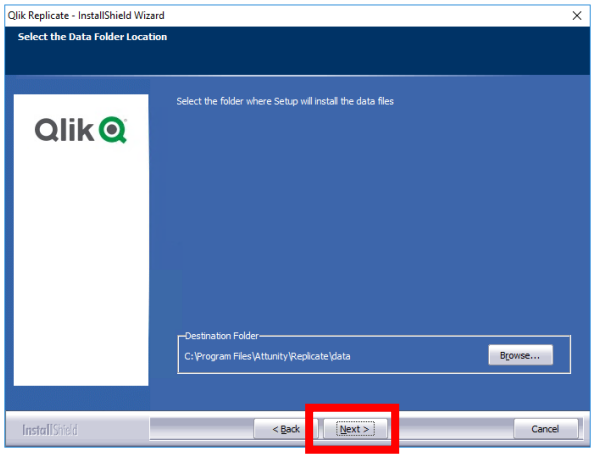
③ Click [Qlik License Agreement], review the contents, check the box [I have read ...] and click [Next].



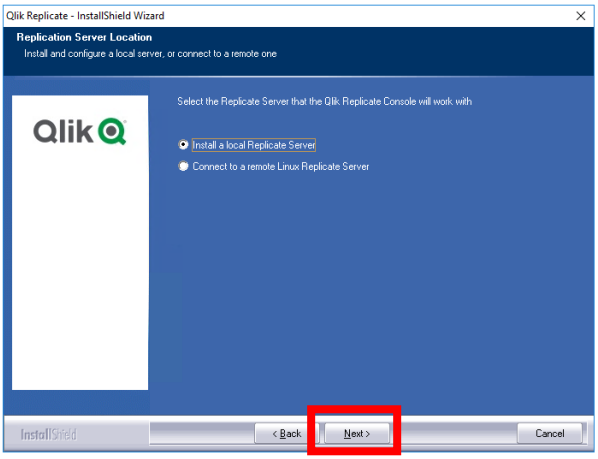
④ If you wish to place the installation directory in another location, specify that location here. Click [Next].



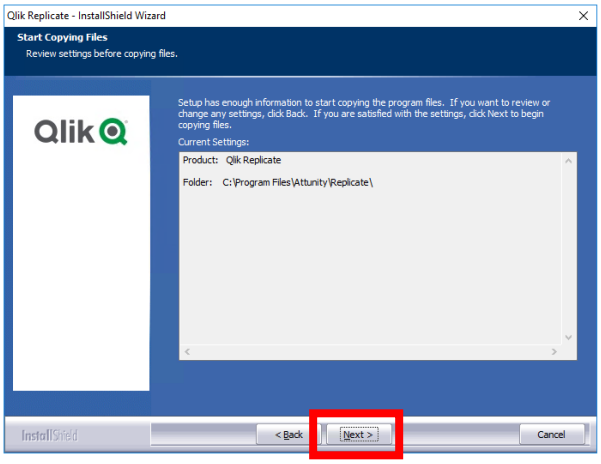
⑤ Configuration data created by the use of Qlik Replicate is stored in a directory named “data”. By default, this directory is located in the installation directory where Qlik Replicate is installed. If you wish to create the data directory in another location, specify that location here. Click [Next].



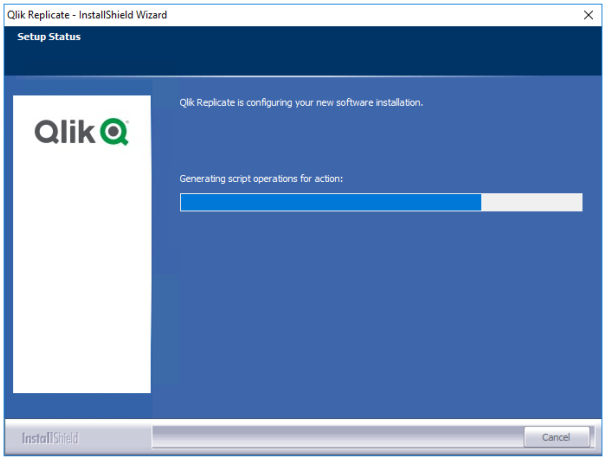
⑥ Select [Install a local Replicate Server].



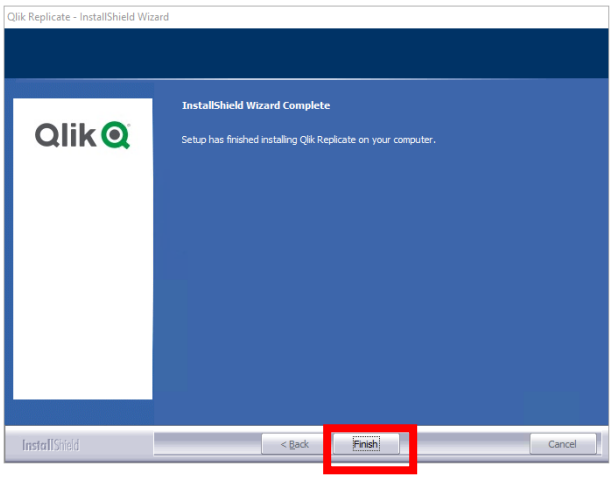
⑦ Click [Next].



⑧ Installation will begin.

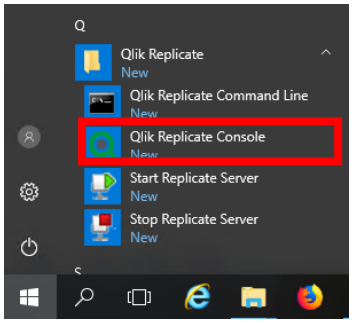


⑨ Click [Finish] when installation is complete.

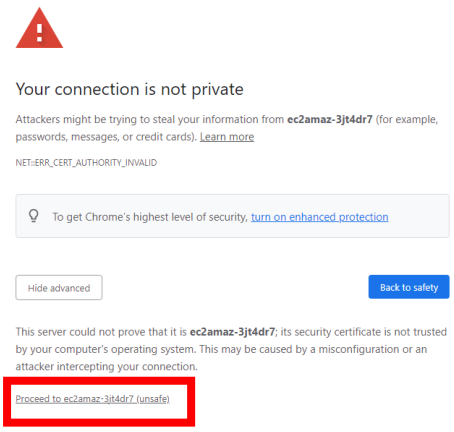


3.2 Accessing the Qlik Replicate Console

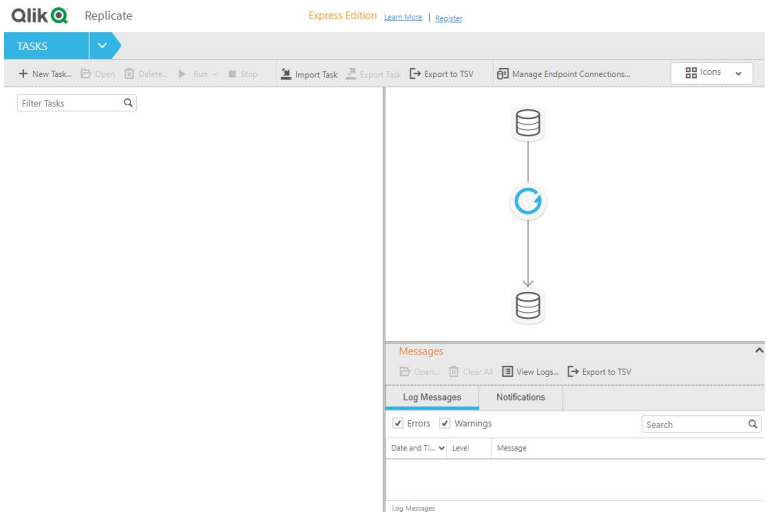
① From the Start menu on Windows, click on [Qlik Replicate] > [Qlik Replicate Console].



② Since a self-signed certificate is used in the initial installation of Qlik Replicate, the following warning will be displayed when accessing the site with a browser. Continue to access the site.

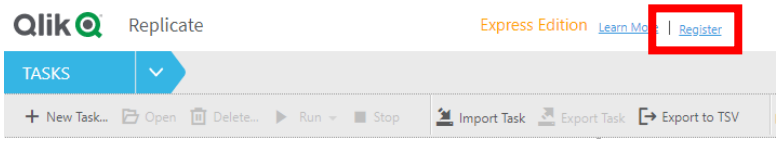


③ The Qlik Replicate Console opens as follows:

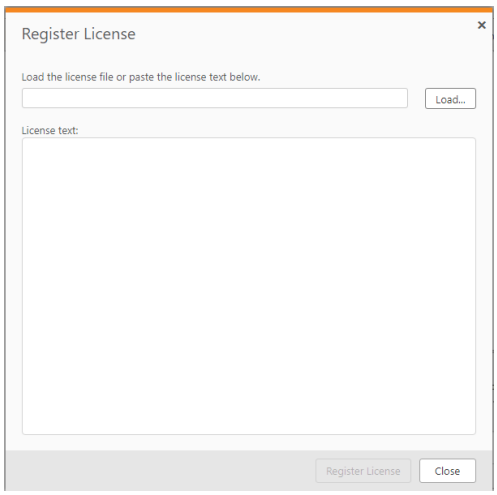


3.3 Qlik Replicate license registration

① Click [Register] at the top of the screen.



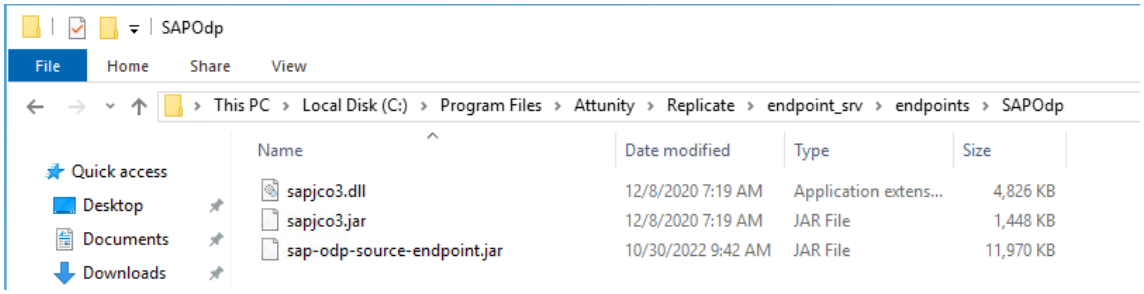
② Paste the contents of the license file into the [License text] area and click [Register License] to register the license.



3.4 Installing the SAP Java Connector

① Copy the sapjco3.jar and sapjco3.dll files contained in the SAP Java Connector zip file to the following location under the Replicate installation directory:

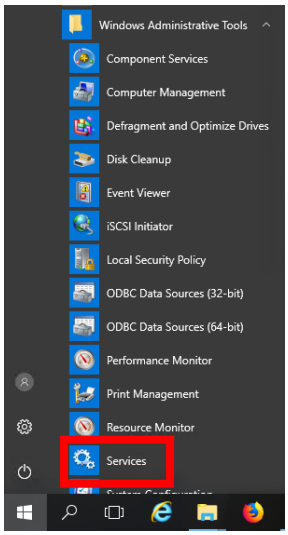
C:¥Program Files¥Attunity¥Replicate¥endpoint_srv¥endpoints¥SAPOdp



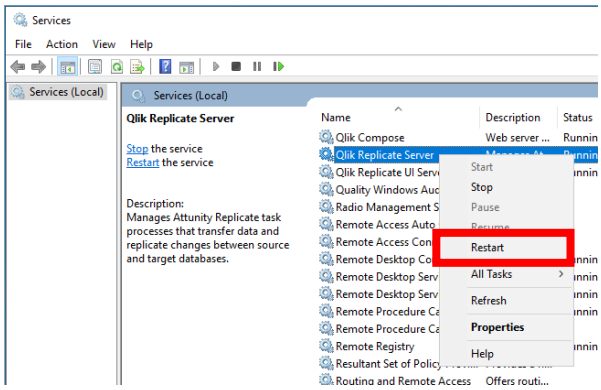
※ If the SAP Extractor endpoint is already enabled, move the sapjco3.jar and sapjco3.dll files from {REPLICATE_INSTALL_DIR}¥endpoint_srv¥externals to {REPLICATE_INSTALL_DIR ¥endpoint_srv¥endpoints¥SAPOdp and restart the service.

※ If you are using both SAP Extractor and SAP ODP, place the sapjco3.jar and sapjco3.dll files in both {REPLICATE_INSTALL_DIR}¥endpoint_srv¥endpoints¥SAP and {REPLICATE_INSTALL_DIR}¥endpoints¥SAPOdp folders and restart the service.

② Restart the Qlik Replicate service. Launch [Service] from the Windows screen,



③ Select "Qlik Replicate Server" and run [Restart].



3.5 Installing the driver for the target DB

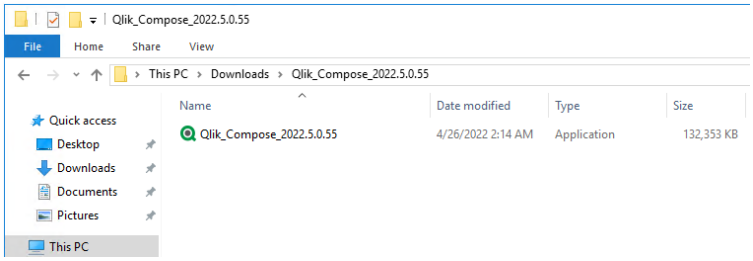
In the case of the POC environment assumed in this guide, Qlik Replicate and the Microsoft SQL Server to which it connects reside on the same server, so there is no need to install a driver for the connection. However, when connecting to a DWH such as Snowflake, Synapse, BigQuery, Redshift, etc., you will need to install a driver according to the endpoint type and restart the Qlik Replicate service. For more details, please refer to the following.

- Welcome to the Qlik Replicate online help - Qlik Replicate

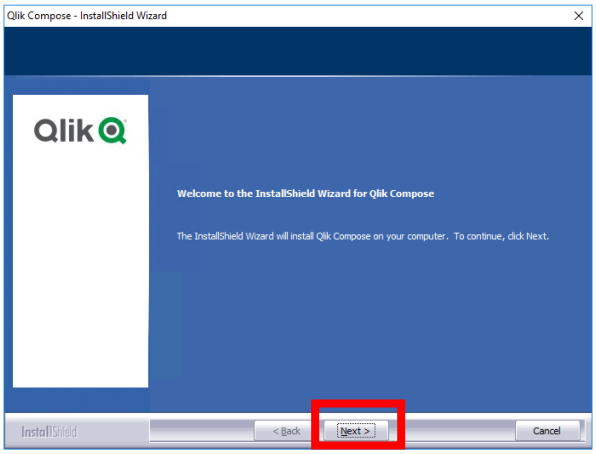
4 Qlik Compose Setup

4.1 Installing Qlik Compose

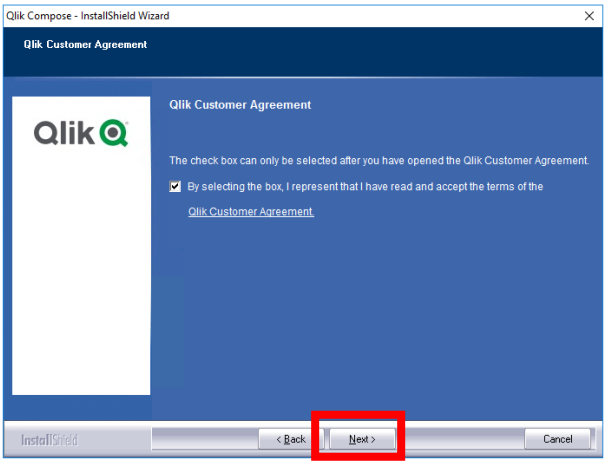
① Run the Exe file to launch the installer and click [Next].



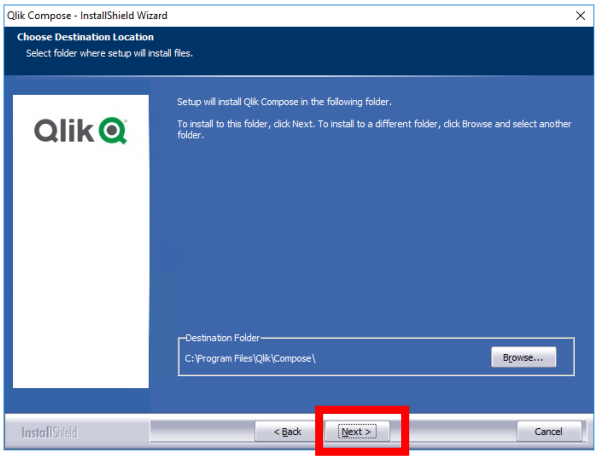
② Click [Next].



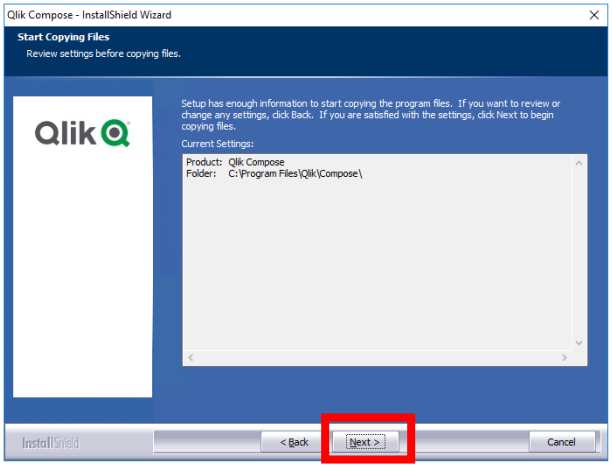
③ Click on [Qlik Customer Agreement], review the contents, check the box [By selecting the box...] and click [Next].



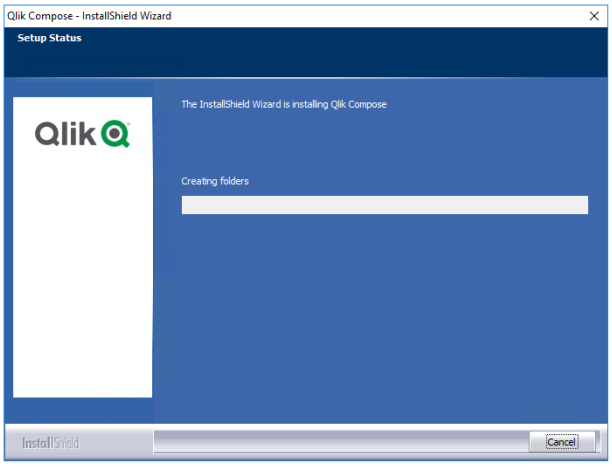
④ If you wish to place the installation directory in a different location, specify that location here and click [Next].



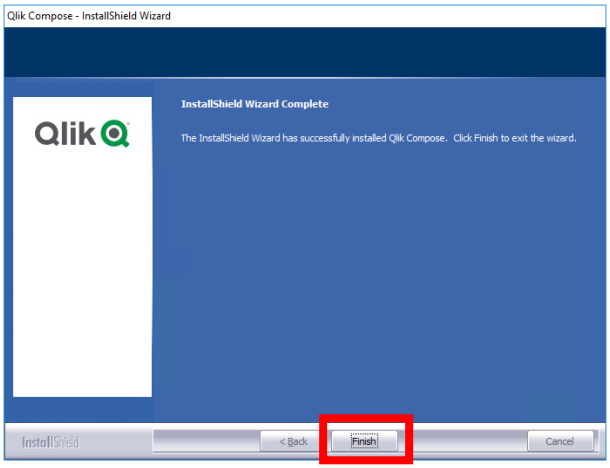
⑤ Confirm the contents and click [Next].



⑥ The installation starts running.

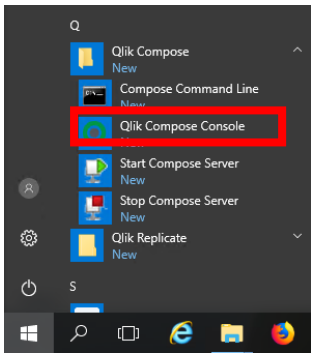


⑦ Confirm that the installation is complete and click [Finish].

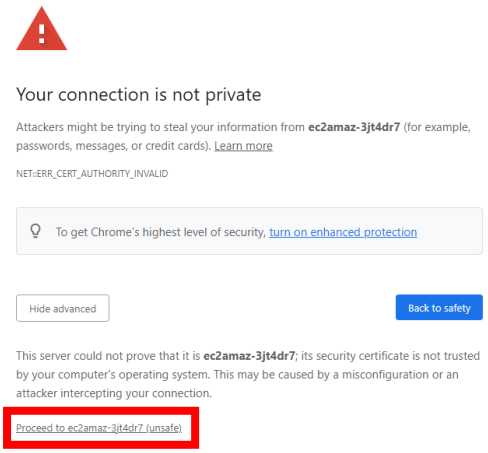


4.2 Accessing the Qlik Compose Console

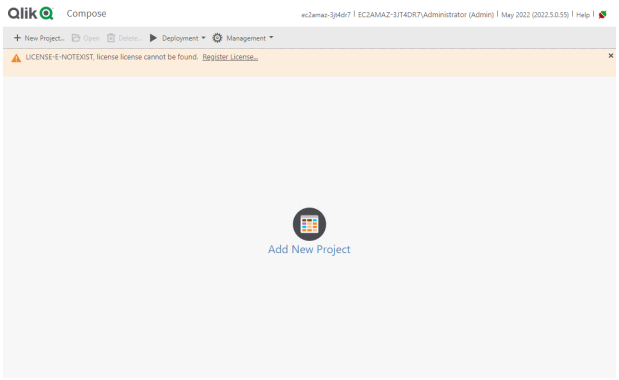
① From the Start menu on Windows, click [Qlik Compose] > [Qlik Compose Console].



② Since a self-signed certificate is used in the initial installation of Qlik Compose, the following warning will be displayed when accessing the site with a browser. Continue to access the site.

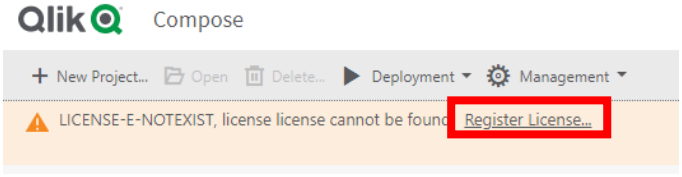


④ The Qlik Compose Console opens as follows:

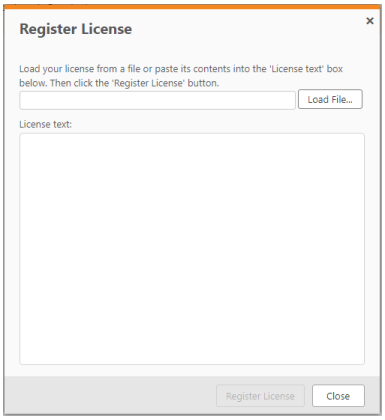


4.3 Qlik Compose license registration

③ Click [Register] at the top of the screen.



④ Paste the contents of the license file into the [License text] area and click [Register License].



4.4 Installing the driver for the target DB

In the POC environment assumed in this guide, Qlik Compose and the Microsoft SQL Server to which it connects reside on the same server, so there is no need to install a driver for the connection. However, when connecting to a DWH such as Snowflake, Synapse, BigQuery, Redshift, etc., you will need to install a driver according to the endpoint type and restart the Qlik Compose service. For more details, please refer to the following.

- Welcome to Qlik Compose Online Help - Qlik Compose

5 Releasing Extractor data sources to SAP ODP

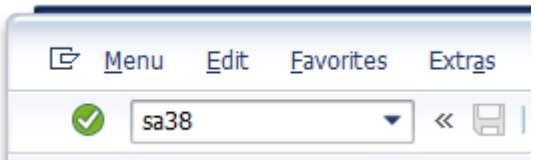
5.1 Release execution (SA38)

To use Extractor, Extractor must be released for ODP.

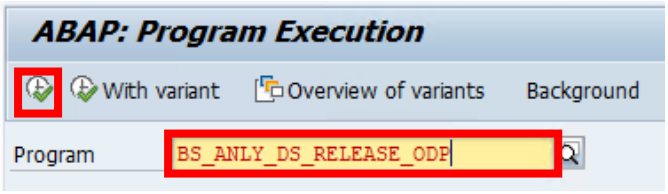
※ See SAP Note 2232584 - Release of SAP extractors for ODP replication (ODP SAPI) for detailed information.

※ Generic data sources are automatically released to the ODP after creation with t-code: RSO2. Alternatively, customer-specific data sources can be released with "RODPS_OS_EXPOSE". Below are the steps to perform a release of SAP standard data sources to the ODP.

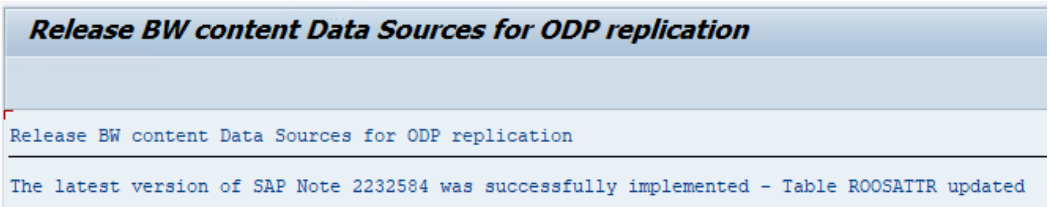
① Enter transaction code "sa38".



② Enter "BS_ANLY_DS_RELEASE_ODP" in [Program] and click [Execute].



③ When execution is complete, the following screen will appear.



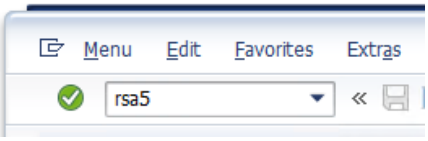
5.2 Check release status

To check if the Extractor data source has been released to the ODP, use one of the following methods

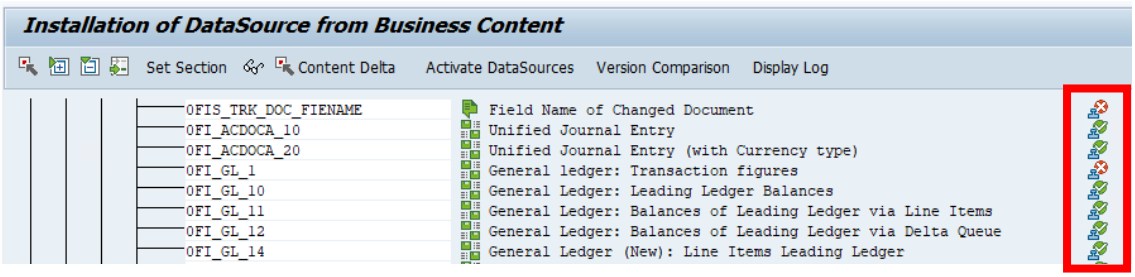
- Method 1: Go to T-code: rsa5 and confirm that the ODP icon for the appropriate data source is green.
- Method 2: Go to T-code:se16, open the "ROOSATTR" table and confirm that the corresponding data source is marked with an "X".

Method 1:

① Enter the T-code "rsa5".

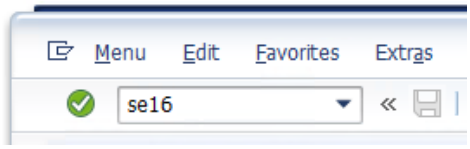


② Check the icons on the right side of the data source. Green ones indicate ODP enabled and red ones indicate ODP disabled. Make sure that all data sources to be enabled in the next step are ODP enabled.

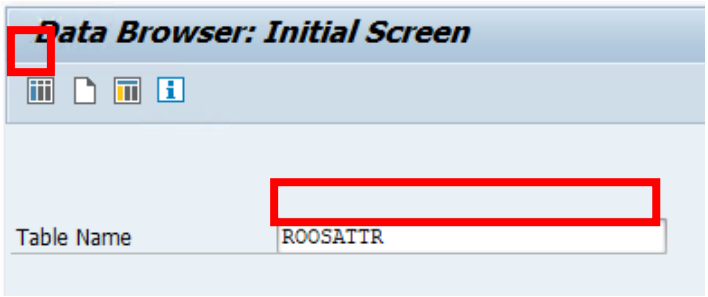


Method 2:

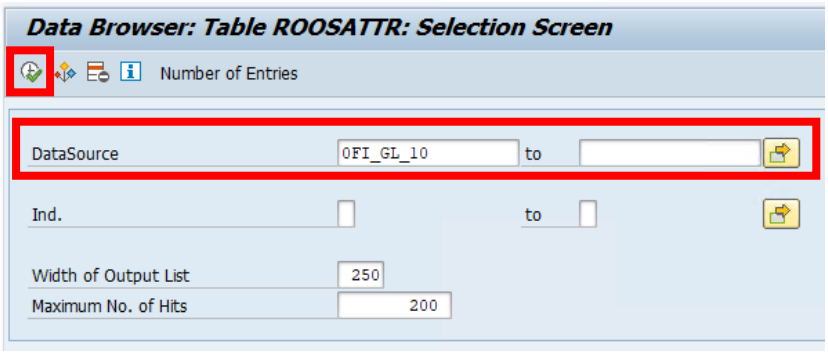
① Enter T-code "se16".



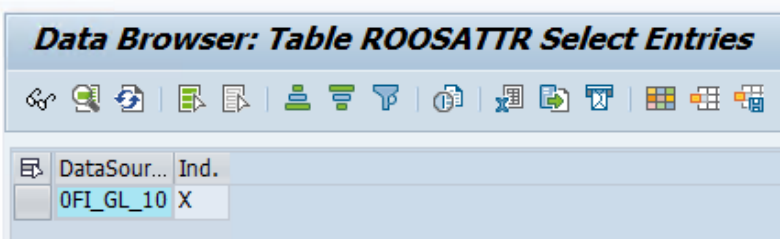
② Enter "ROOSATTR" in the [Table Name] field and click the [Table Contents] icon.



③ Enter the name of the data source to be searched in [DataSource] and click [Execute].



④ If the "X" flag is ON for the target data source as shown below, it indicates that ODP is enabled.



6 Activating Business Contents

To retrieve business content data on SAP with Qlik Replicate, business content must be enabled on the SAP side and configured for the data to be output. In addition, since the "Order to Cash," "Inventory Management," and "Procurement" packages use data in LO Cockpit, specific settings must also be made for these packages. This section describes those procedures.

6.1 List of data sources

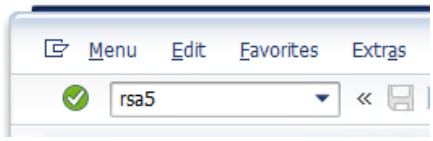
You will need to activate the data sources included in the attached, "Data Source List.xlsx," so check the list first.

- The data sources to be activated are different for "Order to Cash", "Inventory Management", "Finance" and "Procurement", each of which is listed in its own Excel tab. (All data sources are listed under "All").
- The seven data sources whose names begin with the letter Z, "ZTCURR_ATTR," "ZSP_STOCK_IND," "ZPO_REQLNS," "ZPUR_DOCTYPE_TEXT," "ZFAGL_011PC," "FAGL_011QT," and "FAGL_011ZC," are generic data sources to be created in the subsequent 7. Creating generic data sources (RSO2) section, so they do not need to be activated here.
- 1_CO_PA_DS2" used in "Finance" is out of scope of the settings in this section. Refer to Appendix 1: Setting up CO-PA in Finance.

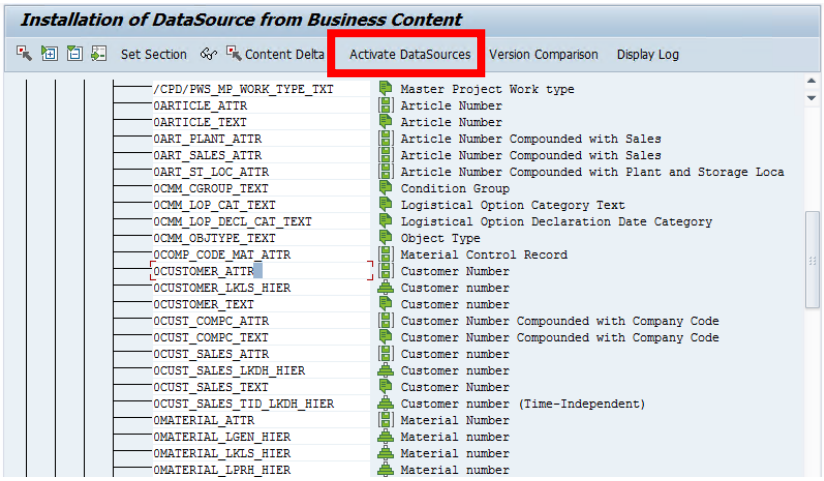
	A	B	C	D	E	F	G	H	I
1	NO	Datasource Name	Description in English	Description in Japanese	Hierarchy	Full / Delta	Delta Mod	Full	Delta
2	1	0GL_ACCOUNT_ATTR	G/L Account Master	勘定コード	SAP-R/3 -> FI -> FI-IO	F, D	A		○
3	2	0GL_ACCOUNT_TEXT	G/L Account Text	勘定コード	SAP-R/3 -> FI -> FI-IO	F		○	
4	3	0AC_DOC_TYP_TEXT	Document Type	文書タイプ	SAP-R/3 -> FI -> FI-IO	F		○	
5	4	0FI_AR_4	Accounts Receivable	得意先: デルタ抽出による明細	SAP-R/3 -> FI-AR	F, D	AIE		○
6	5	0CUSTOMER_ATTR	Customer Master	消費者	SAP-R/3 -> LO -> LO-IO	F, D	NEWE		○
7	6	0CUSTOMER_TEXT	Customer Text	消費者	SAP-R/3 -> LO -> LO-IO	F, D	A		○
8	7	0MATERIAL_ATTR	Material Master	品目コード	SAP-R/3 -> LO -> LO-IO	F, D	NEWE		○
9	8	0MATERIAL_TEXT	Material Text	品目コード	SAP-R/3 -> LO -> LO-IO	F, D	NEWE		○
10	9	0MATL_CAT_TEXT	Material Category	品目カテゴリ	SAP-R/3 -> MM -> MM-IO	F		○	
11	10	0MATL_GROUP_TEXT	Material Group	品目グループ	SAP-R/3 -> MM -> MM-IO	F		○	
12	11	0EMPLOYEE_ATTR	Employee Master	従業員	SAP-R/3 -> PA -> PA-PA -> PA-PA-IO	F		○	
13	12	2LIS_11_V_ITM	Open Sales Order Lines	販売-出荷割当明細データ	SAP-R/3 -> SD	F, D	ABR		○
14	13	2LIS_11_V_SCL	Allocation Scheduled Lines	販売-出荷割当納入日程行	SAP-R/3 -> SD	F, D	ABR		○
15	14	2LIS_11_V_SSL	Order Delivery Scheduled Lines	販売伝票受注出荷	SAP-R/3 -> SD	F, D	ABR		○
16	15	2LIS_11_VAHDR	Sales Document Header	販売伝票ヘッダデータ	SAP-R/3 -> SD	F, D	ABR		○
17	16	2LIS_11_VAITM	Sales Document Line Items	販売伝票明細データ	SAP-R/3 -> SD	F, D	ABR		○
18	17	2LIS_11_VAKON	Sales Document Header Conditions	販売伝票条件	SAP-R/3 -> SD	F, D	ABR		○
19	18	2LIS_11_VASCL	Scheduled Line Items	販売伝票納入日程行	SAP-R/3 -> SD	F, D	ABR		○
20	19	2LIS_11_VASTH	Sales Document Header Status	販売伝票ヘッダステータス	SAP-R/3 -> SD	F, D	ABR		○
21	20	2LIS_11_VASTI	Sales Document Line Item Status	販売伝票明細ステータス	SAP-R/3 -> SD	F, D	ABR		○
22	21	2LIS_12_VCHDR	Sales Delivery Header	出荷伝票ヘッダデータ	SAP-R/3 -> SD	F, D	ABR		○
23	22	2LIS_12_VCITM	Sales Delivery Line Items	出荷伝票明細データ	SAP-R/3 -> SD	F, D	ABR		○
24	23	2LIS_13_VDHDR	Billing Document Header	請求伝票ヘッダデータ	SAP-R/3 -> SD	F, D	ABR		○
25	24	2LIS_13_VDITM	Billing Document Line Items	請求伝票明細データ	SAP-R/3 -> SD	F, D	ABR		○
26	25	2LIS_13_VDKON	Billing Item Conditions	請求伝票条件	SAP-R/3 -> SD	F, D	ABR		○
27	26	0DISTR_CHAN_TEXT	Distribution Channel	流通チャネル	SAP-R/3 -> SD -> SD-IO	F		○	
28	27	0DIVISION_TEXT	Division	部門	SAP-R/3 -> SD -> SD-IO	F		○	
29	28	0MATL_TYPE_TEXT	Material Type	品目タイプ	SAP-R/3 -> SD -> SD-IO	F		○	
30	29	0RECIPCNTRY_TEXT	Customer Country	仕向国	SAP-R/3 -> SD -> SD-IO	F		○	
31	30	0SALES_GRP_TEXT	Sales Group	営業グループ	SAP-R/3 -> SD -> SD-IO	F		○	
32	31	0SALES_OFF_TEXT	Sales Office Text	営業所	SAP-R/3 -> SD -> SD-IO	F		○	
33	32	0SALESORG_TEXT	Sales Organization	販売組織	SAP-R/3 -> SD -> SD-IO	F		○	
34	33	ZTCURR_ATTR	Currency Exchange Rates (Table: TCURR)	換算レート		F		○	
35									
36	Blank	Delta Only Via Full Upload (ODS or InfoPackage Selection)							

6.2 Data source activation (RSA5)

① Enter the T-code "rsa5".

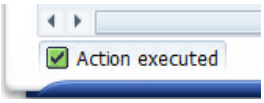


② Activate the data sources in the list one by one. Referring to the "Hierarchy" column in the list, find and select the target data source and click [Activate DataSources].

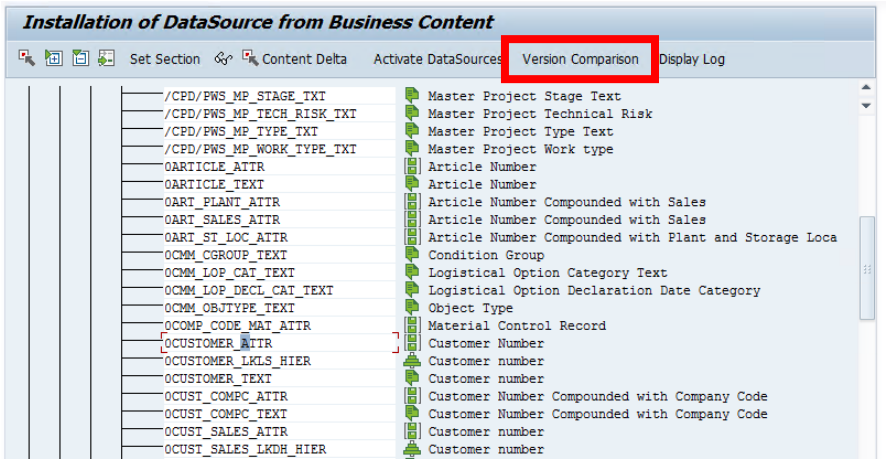


※ In the case where all the target nodes are placed in "NODESNOTCONNECTED" in the above screen, or if an "Application component does not exist" error is logged during activation, enter T-code "rsa9" and select "Yes" for "Do you want the content application Transfer Component Hierarchy?

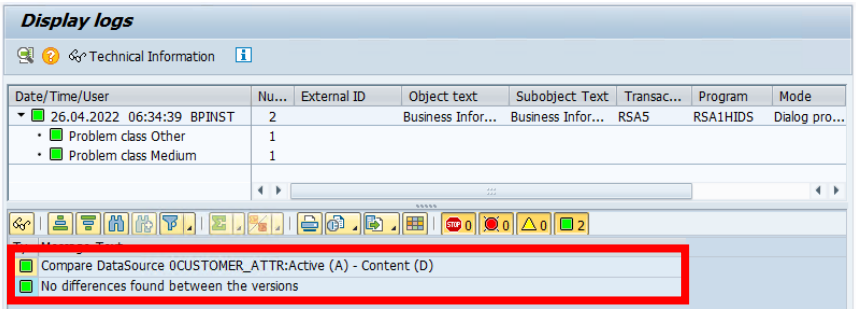
③ Verify that the data source has been activated.



④ Click on "Version Comparison" to see if the data source has been activated.

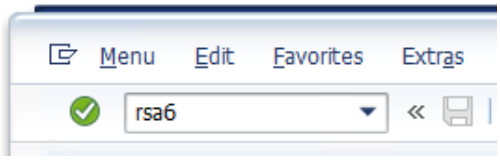


⑤ If the display looks like the following, it is activated.

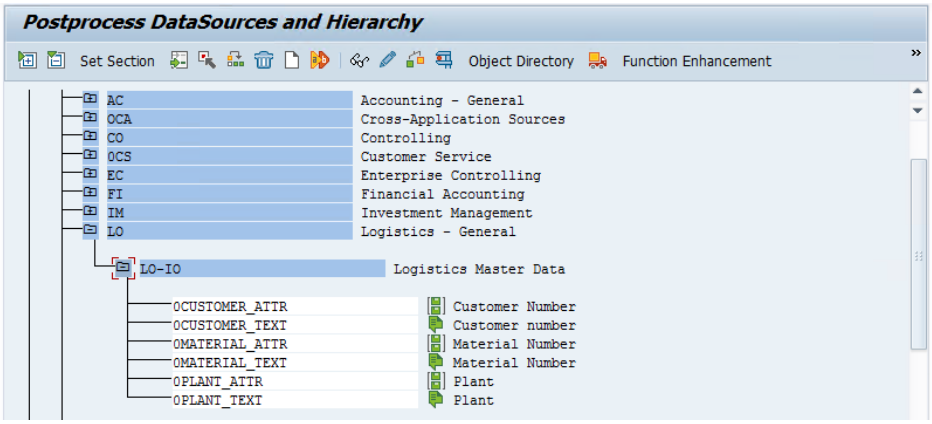


6.3 Review enabled data sources (RSA6)

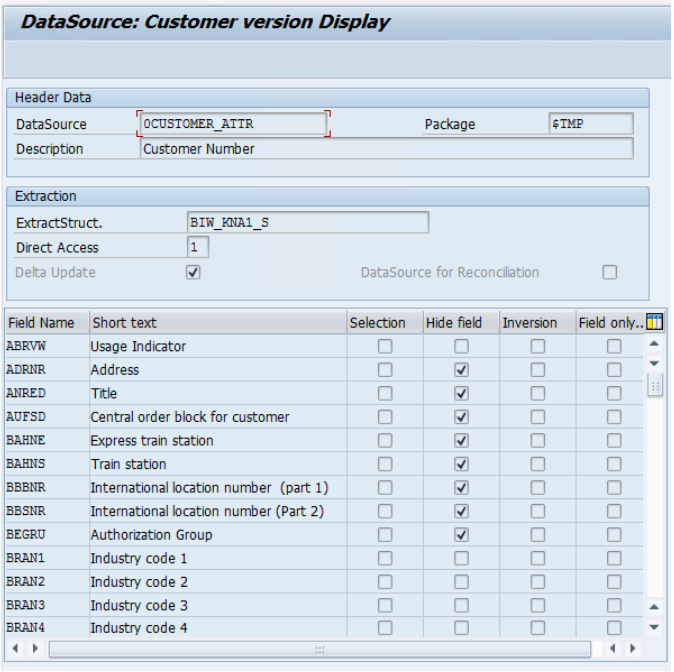
③ To see a list of activated data sources, enter the T-code "rsa6".



④ The data sources displayed here are the activated data sources, so make sure all necessary data sources are displayed. Double-click on a data source to see its details.



⑤ Here you can see the name of the extract structure and the items it contains.

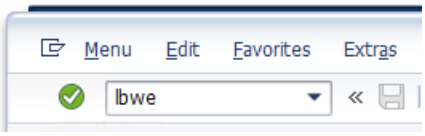


6.4 Logistics data extraction setup (LBWE)

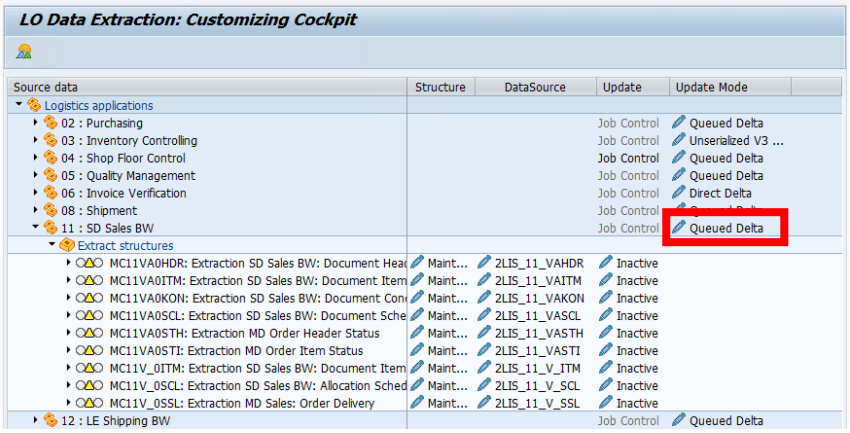
Configure the target source data extraction settings according to the following SAP Accelerator Packages types.

SAP Accelerator Types	Target source data
Order to Cash	11: SD Sales BW 12: LE Shipping BW 13: SD Billing BW
Inventory Management	03: Inventory Controlling
Procurement	02: Purchasing 06: Invoice Verification

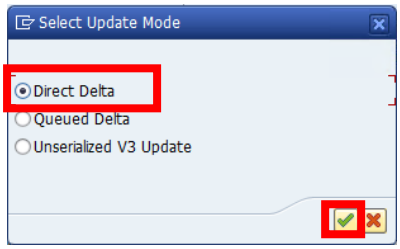
① Enter T-code "lbwe".



② Click "Update Mode" under "11: SD Sales BW".



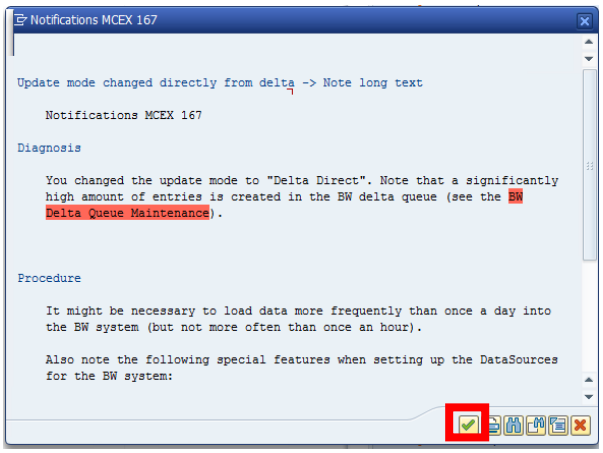
③ Select "Direct Delta" and click [Continue].



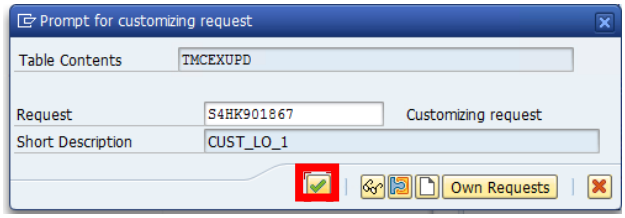
※ Additional settings are required when using Queued Delta or Unserialized V3 Update.

In that case, please refer to SAP documents such as Setting up Delta Process for LO Extractors for First Time Using Queued Delta for additional settings.

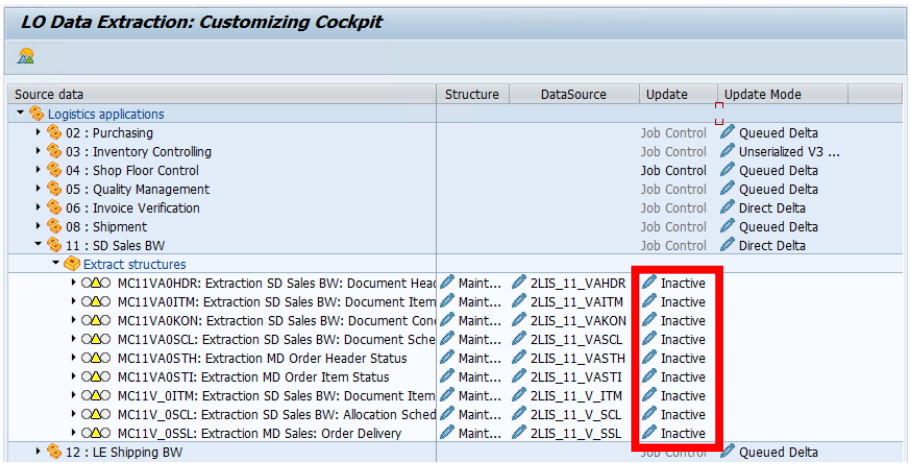
④ Click [Continue].



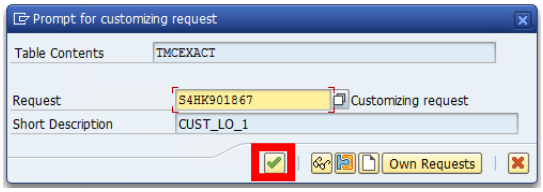
⑤ Click [Continue].



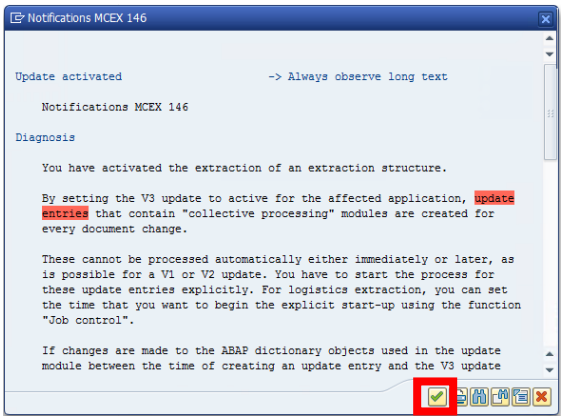
⑥ Now we activate the Extract structure. Click [Update] on the "Inactive" Extract structure.



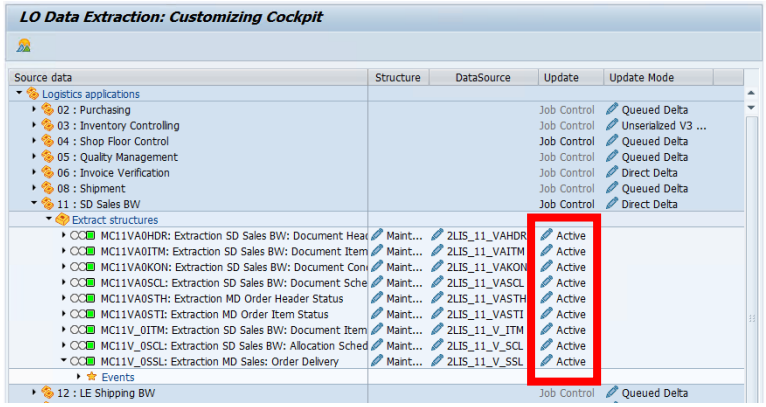
⑦ [Click Continue.



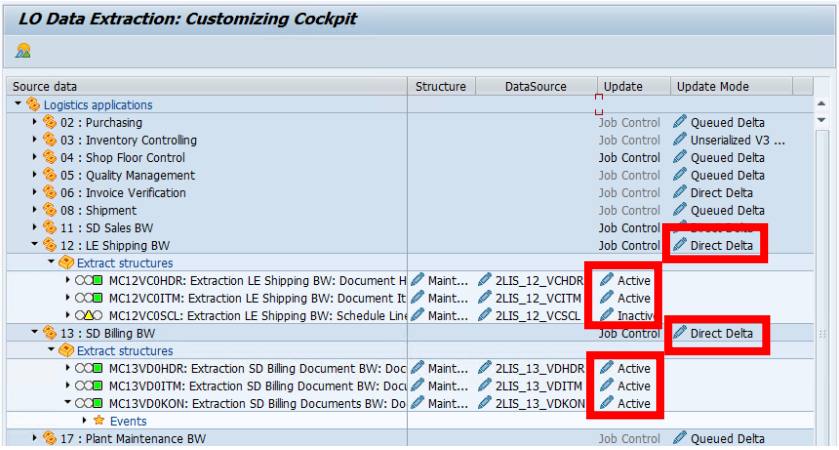
⑧ Click [Continue].



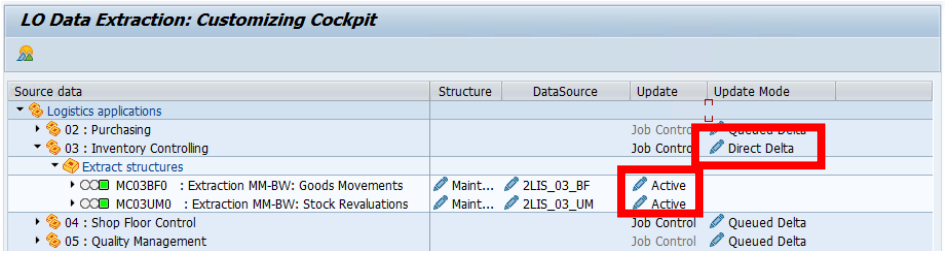
⑨ Confirm that all Extract structures have been activated.



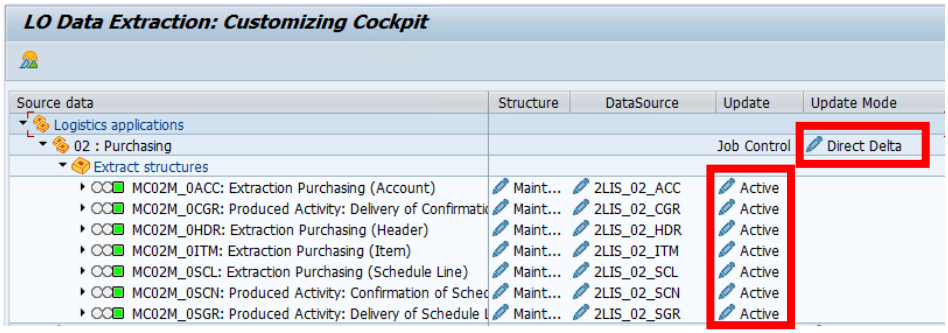
⑤ In the same way, set Direct Delta in Update Mode and enable Extract Structure for "12: LE Shipping BW" and "13: SD Billing BW" (2LIS_12_VCSCL is not applicable).

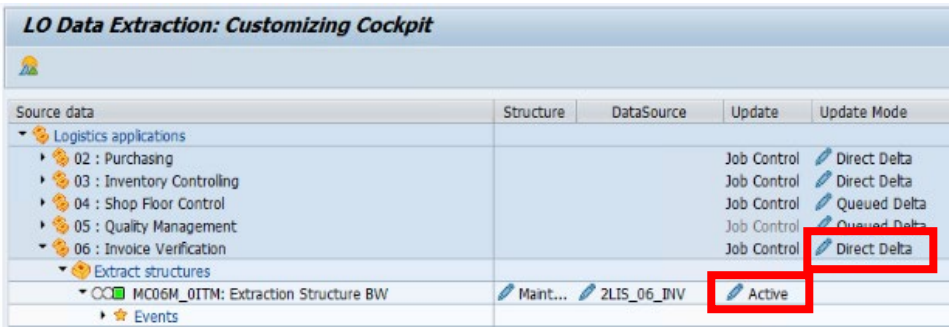


⑥ When using Inventory Management, "03: Inventory Controlling" also needs to be set to Direct Delta in Update Mode and enables Extract Structure in the same way.



⑦ When using Procurement, "02: Purchasing" and "06: Invoice Verification" are also need to be set to Direct Delta in Update Mode and Extract Structure is enabled in the same way.



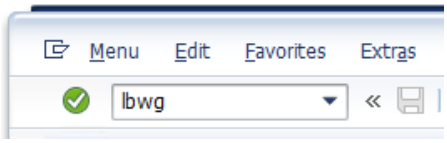


6.5 Delete data in setup table (LBWG)

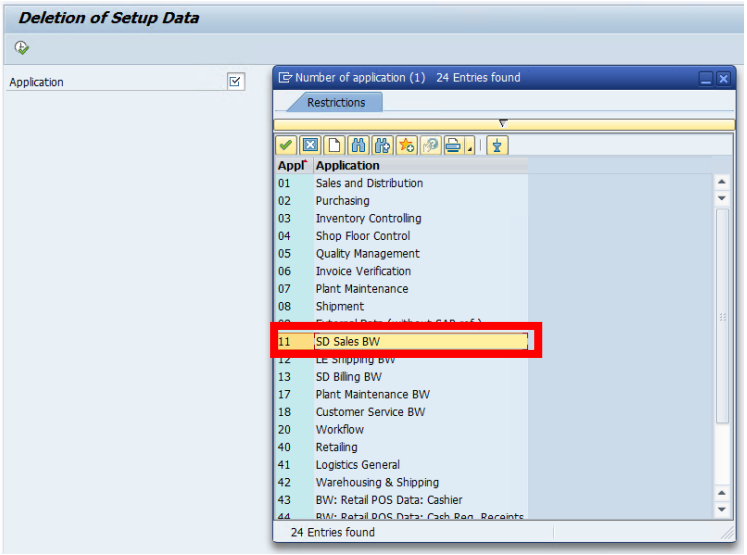
To extract the full data of LO Cockpit, you need to prepare the data in the setup table in advance. Before filling the setup tables, you delete the data already contained in the setup table. Delete the data of appropriate setup tables according to the following SAP Accelerator types.

SAP Accelerator Types	setup data
Order to Cash	11: SD Sales BW 12: LE Shipping BW 13: SD Billing BW
Inventory Management	03: Inventory Controlling
Procurement	02: Purchasing 06: Invoice Verification

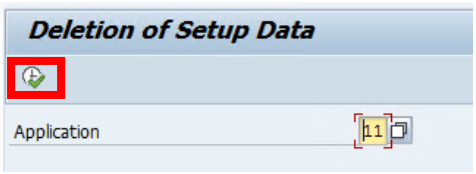
① Enter T-code "lbwg".



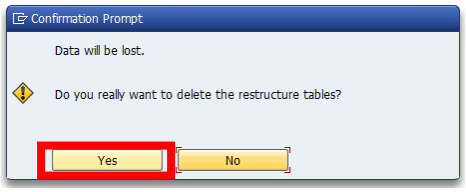
② Select "11: SD Sales BW" in [Application].



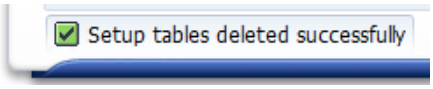
③ Click [Execute].



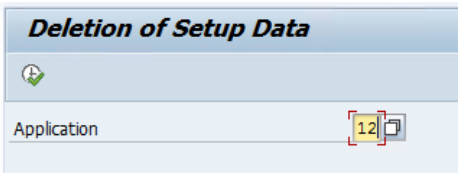
④ Click [Yes].



⑤ Confirm that the execution completes without problems.



⑥ Repeat the same procedure for “12: LE Shipping BW”, “13: SD Billing BW”, “03: Inventory Controlling” if you use Inventory Management”, and “02: Purchasing” if you use Procurement.

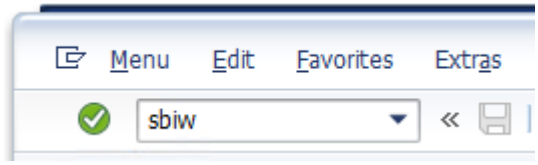


6.6 Initialize and rebuild setup table data (SBIW)

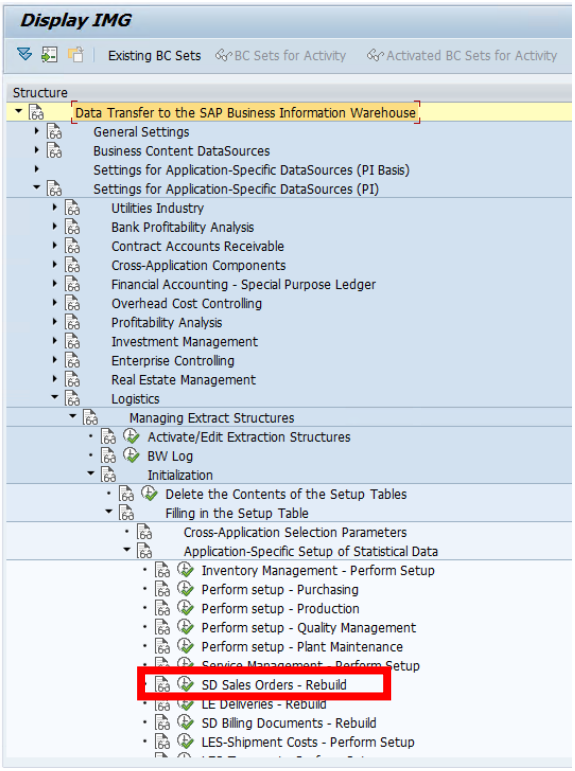
Initialize and rebuild the target setup data according to the following SAP Accelerator Packages types. This process stores the data in the setup table so that the LO Cockpit data is retrieved by the full load process from Qlik Replicate.

SAP Accelerator Types	setup data
Order to Cash	SD Sales Orders LE Deliveries SD Billing Document
Inventory Management	Inventory Management
Procurement	Purchasing Invoice Verification

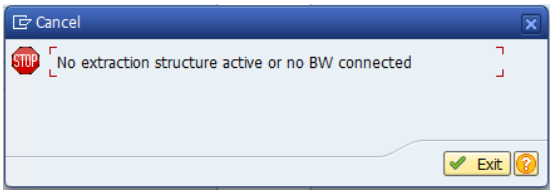
① Enter T-code "sbiw".



② Open [Settings for Application-Specific Datasources(PI)]>[Logistics]>[Managing Extract Structures]>[Initialization]>[Filling in the Setup Table]>[Application-specific Setup of Statistical Data] and click [SD Sales Orders - Rebuild].



※ If the error "No extraction structure active or no BW connected" occurs during the above process, please check the following two points. Please refer to SAP Note: 2386514 for details.

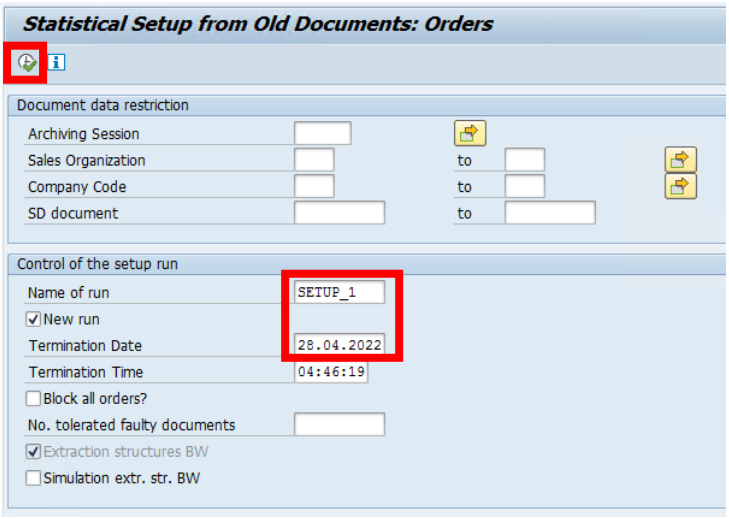


1) Please double check that all Extract Structures described in 6.4 Logistics data extraction setup (LBWE) are enabled.
2) Once you have verified that the above activation has taken place, follow the procedure described in 8 Confirmation of data source extraction via ODP to run a data extraction check for each logistics application that failed, against one of the extraction structures included in that application. Listed below are examples of

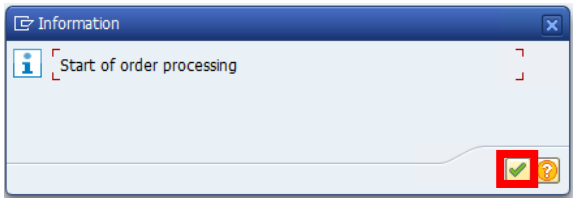
extraction structures included in each logistics application. After confirmation, perform the setup data initialization process again.

Types of logistics applications	Example of Extraction Structure
Order to Cash: SD Sales Orders	2LIS_11_VAHDR
Order to Cash: LE Deliveries	2LIS_12_VCHDR
Order to Cash： SD Billing Document	2LIS_13_VDHDR
Inventory Management	2LIS_03_BF
Procurement	2LIS_02_HDR

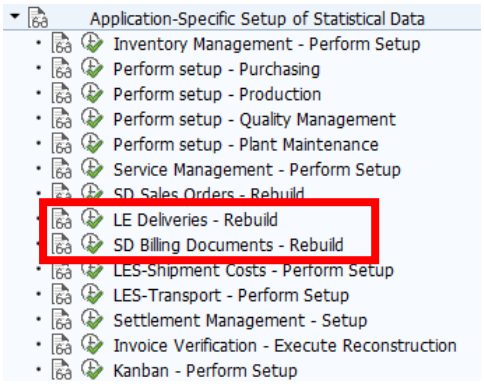
③ Set [Name of run] and [Termination Date] and click [Execute].



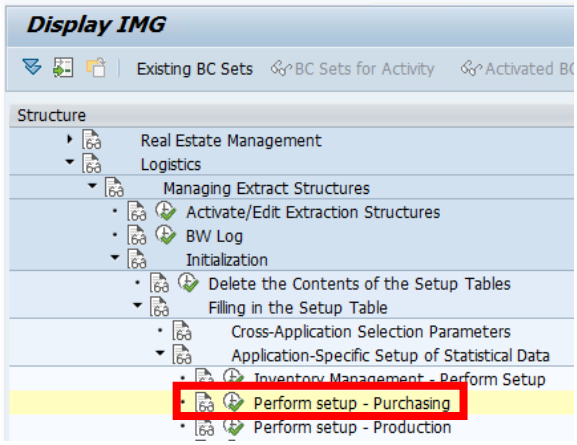
④ Click [Continue].



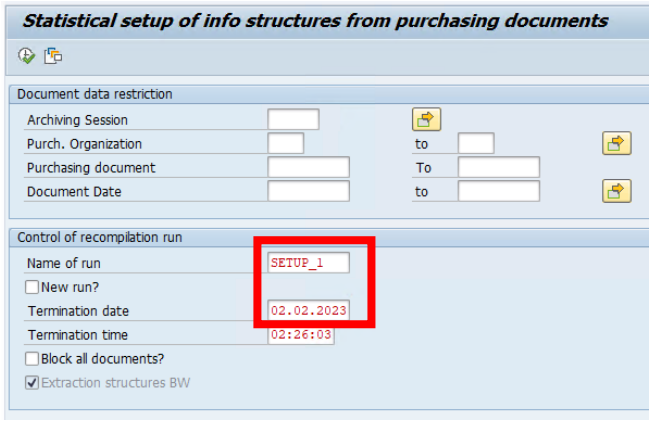
⑤ Repeat the same procedure for "LE Deliveries" and "SD Billing Document".



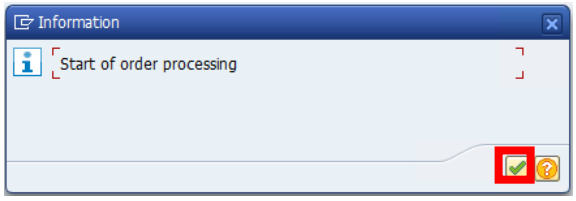
⑥ When you use Procurement, click [Perform setup – Purchasing].



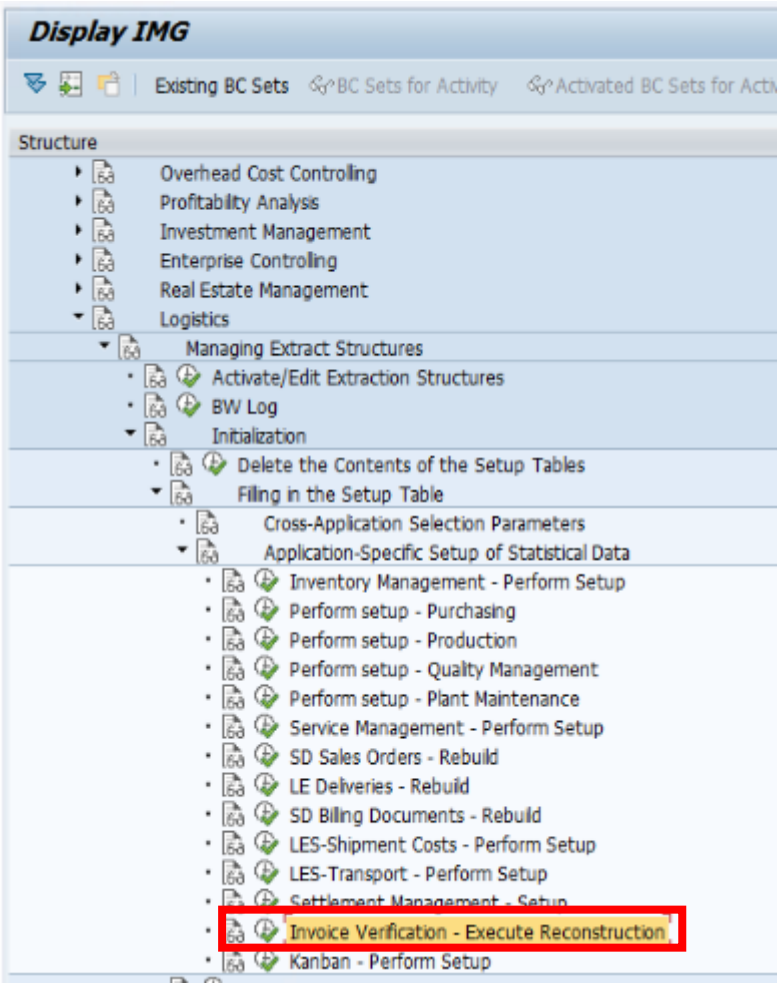
⑦ Set [Name of run] and [Termination Date] and click [Execute].



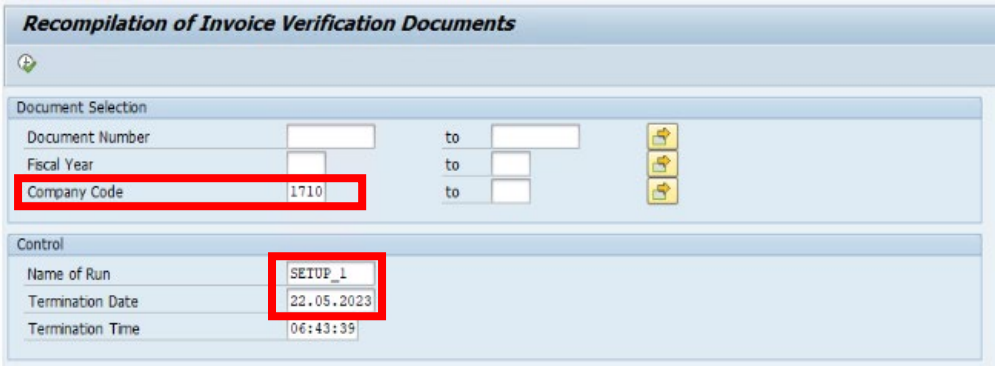
⑧ Click [Continue].



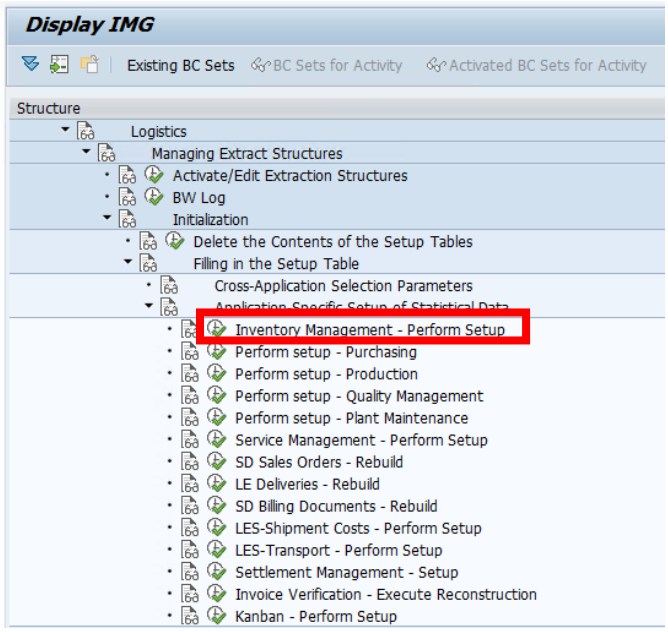
⑨ When you use Procurement, continue and click "Invoice Verification - Execute Reconstruction".



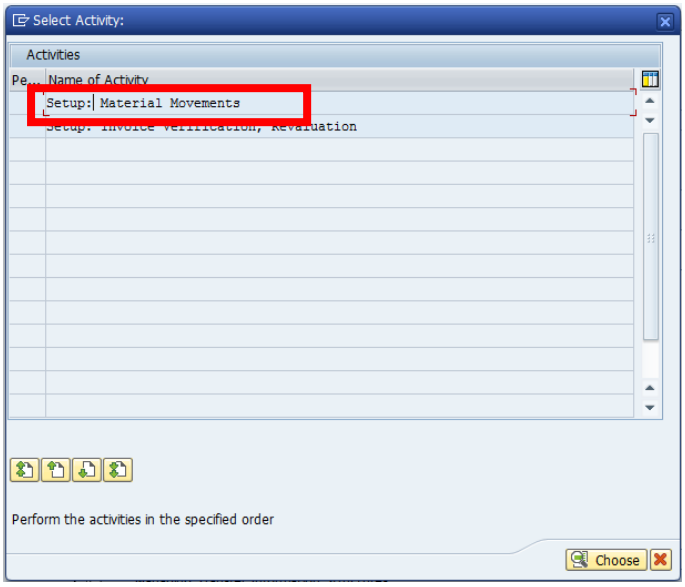
⑩ Enter the [Company Code] (and other selection criteria if necessary), set the [Name of run] and [Termination Date] and click [Execute].



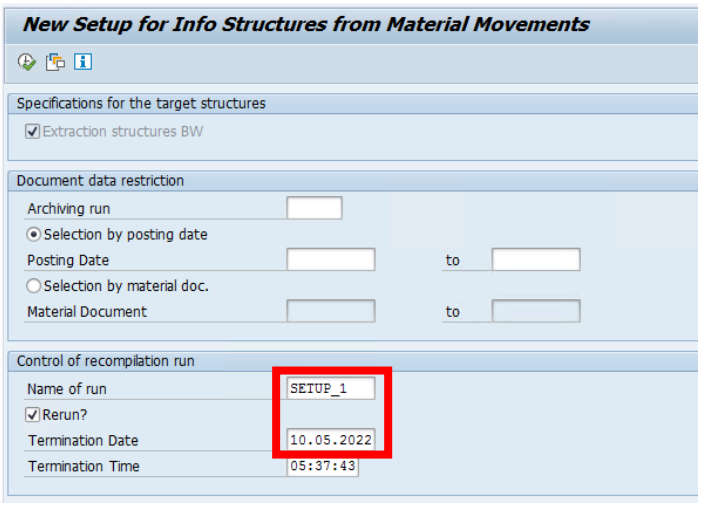
⑪ When you use Inventory Management, click [Inventory Management - Perform Setup].



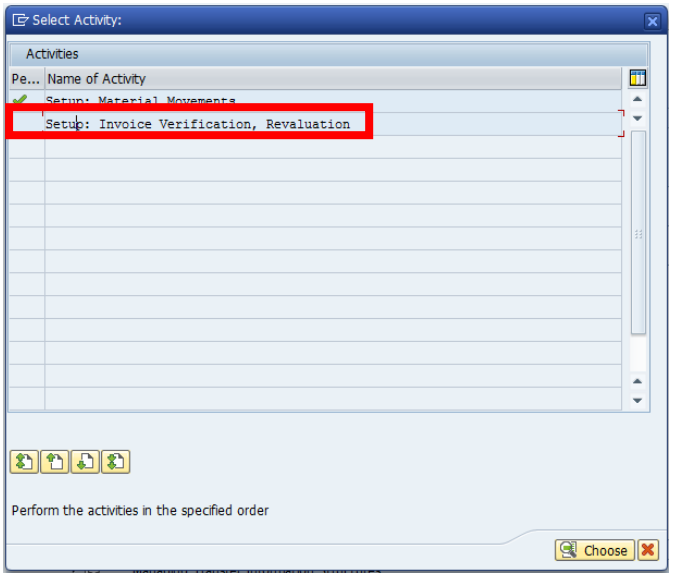
⑫ Click [Setup : Material Movements]. (This is a setup for the data source "2LIS_03_BF".)



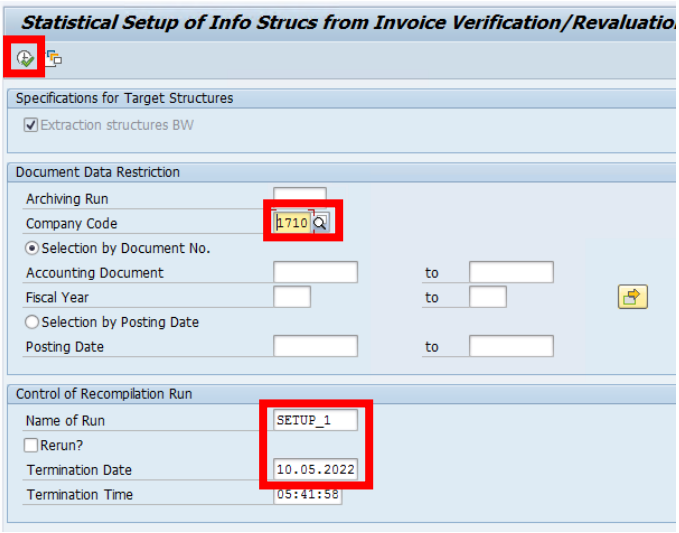
⑬ Set [Name of run] and [Termination Date] and click [Execute].



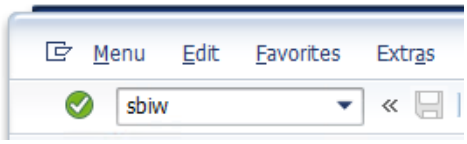
⑭ Return to the previous screen and click on [Setup : Invoice Verification, Revaluation]. (This is a setup for the data source "2LIS_03_UM".)



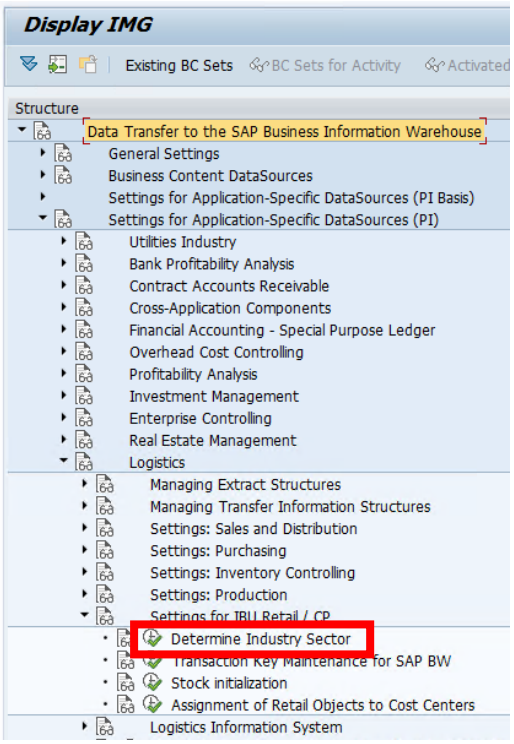
⑮ Set [Company Code], [Name of run], and [Termination Date] and click [Execute].



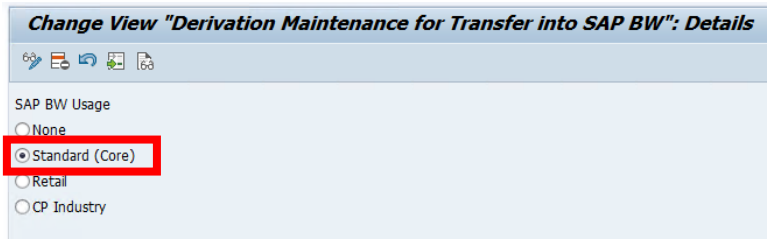
⑯ When you use Inventory, reopen the top screen of T-code "sbiw".



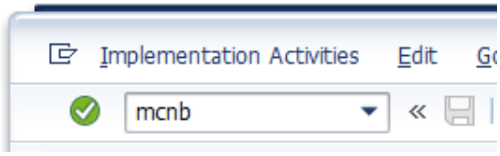
⑰ Open [Settings for Application-Specific Datasources(PI)]>[Logistics]>[Settings for IBU Retail/CP] and click [Determine Industry Sector]. (This will be the setting for the data source "2LIS_03_BX").



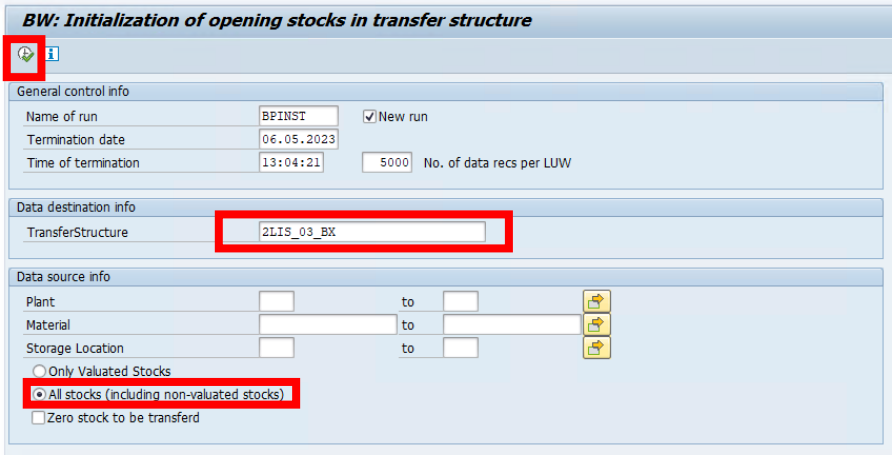
⑱ Select [Standard(Core)] and save.



⑲ Enter T-code "mcnb".



⑳ Set "2LIS_03_BX" in [TransferStructure], select [All stocks] and click [Execute].



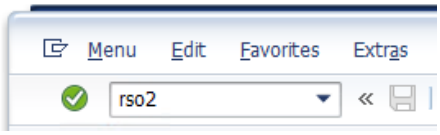
7 Creating generic data source (RSO2)

The generic data source required depends on the type of SAP Accelerator Package. Create the required generic data source according to the table below.

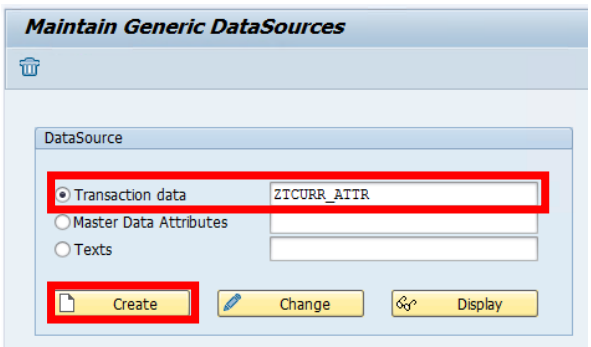
SAP Accelerator Types	generic data source	source table
Order to Cash Finance Procurement	ZTCURR_ATTR	TCURR
Finance	ZFAGL_011QT	FAGL_011QT
	ZFAGL_011PC	FAGL_011PC
	ZFAGL_011ZC	FAGL_011ZC
Inventory Management	ZSP_STOCK_IND	T148T
Procurement	ZPO_REQLNS	EBAN
	ZPUR_DOCTYPE_TEXT	T161T

7.1 ZTCURR_ATTR

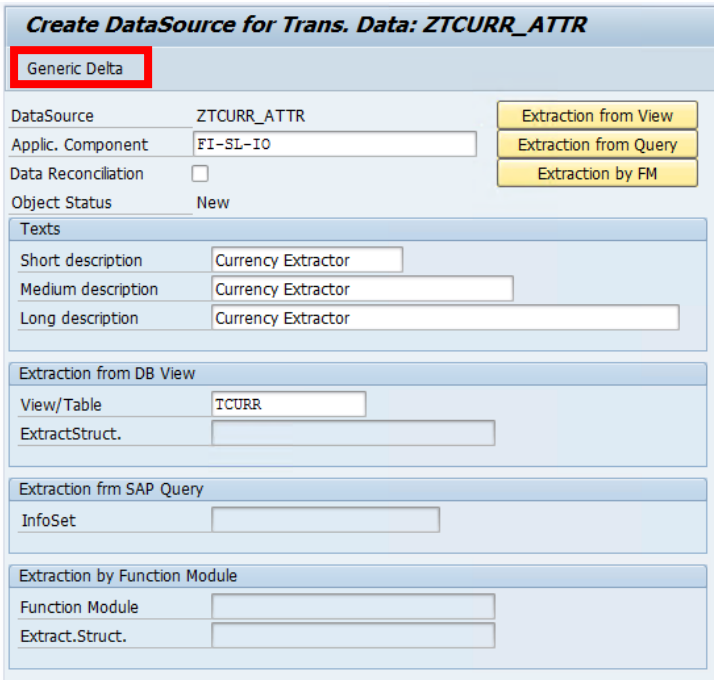
① Enter T-code "rso2".



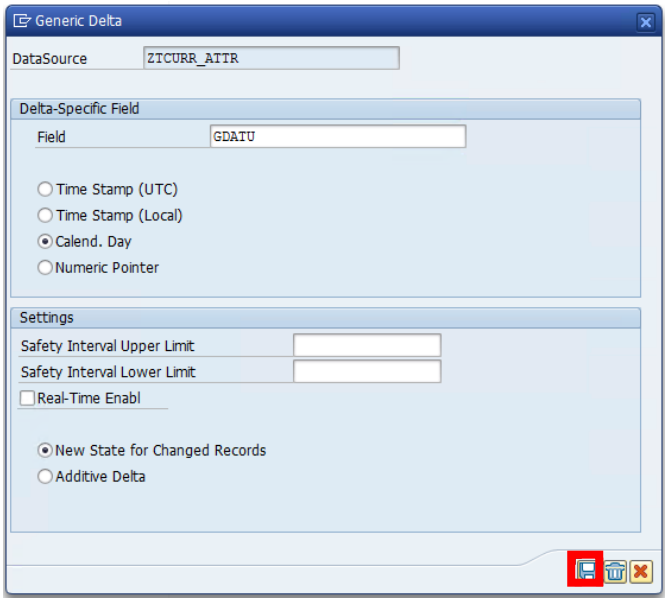
② Enter "ZTCURR_ATTR" in the [Transaction data] field and click [Create].



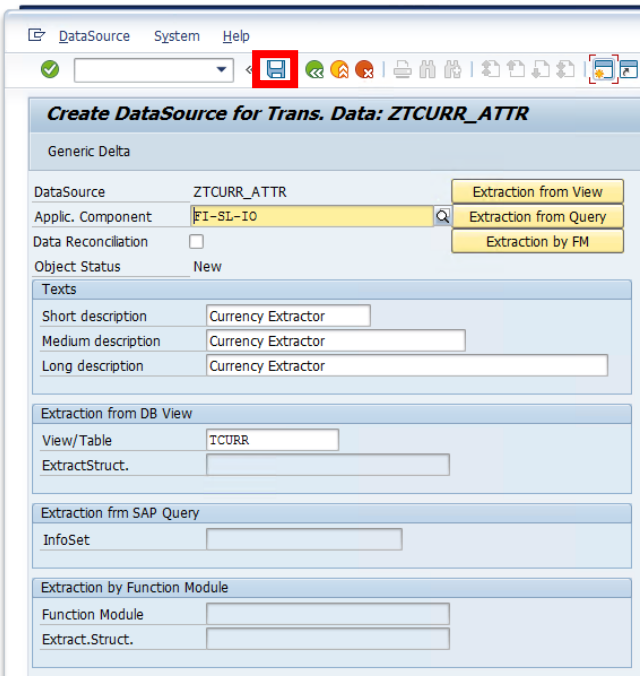
③ Enter the following and click [Generic Delta].



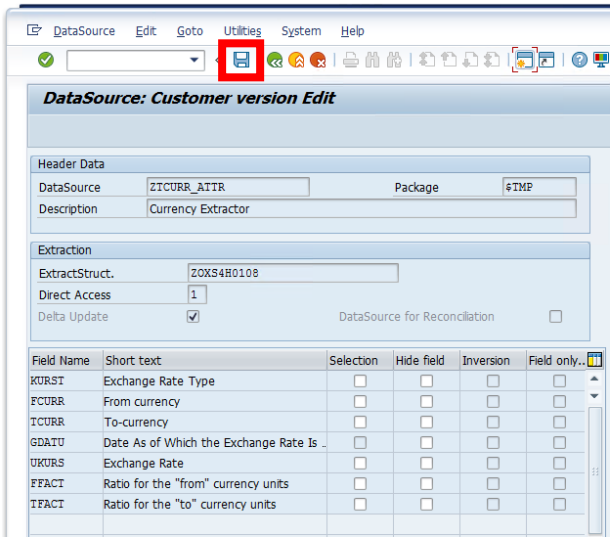
④ Enter and save the following



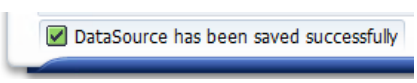
⑤ Click [Save].



⑥ Click [Save] again.

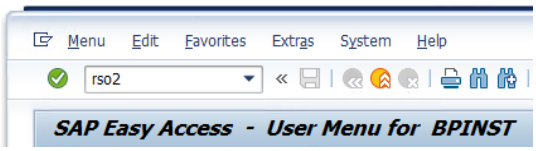


⑦ Confirm that the process has been completed without problems.

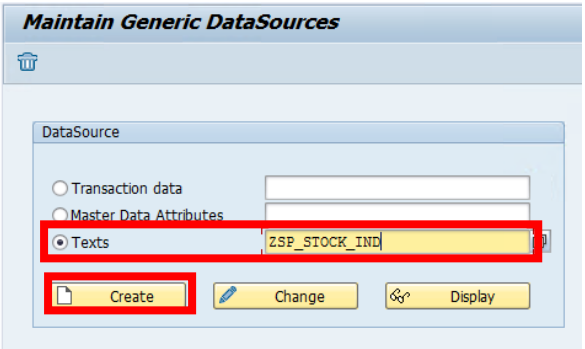


7.2 ZSP_STOCK_IND

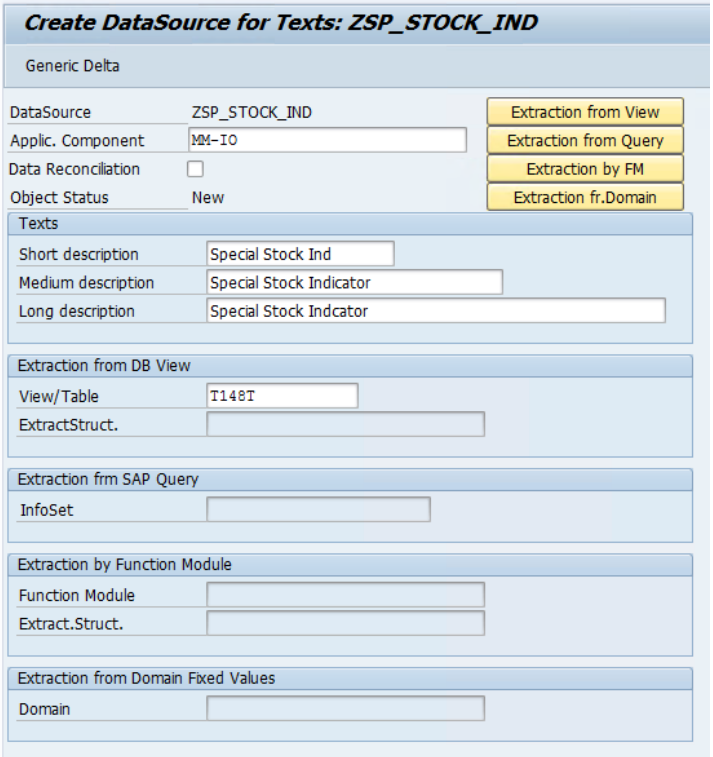
① Enter T-code "rso2".



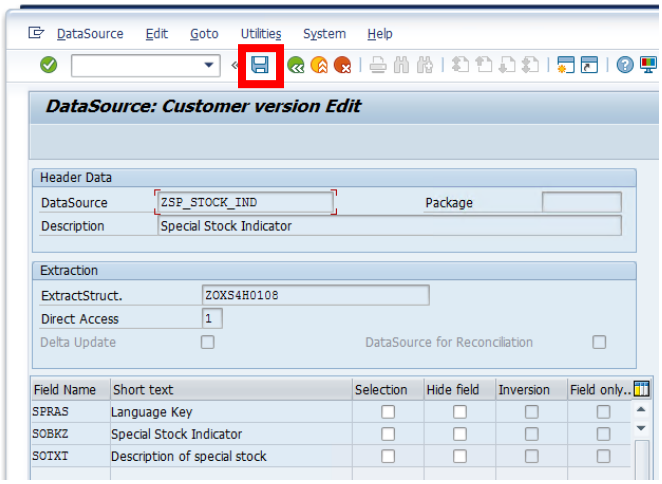
② Enter "ZSP_STOCK_IND" in [Texts] and click [Create].



③ Enter and save the following:

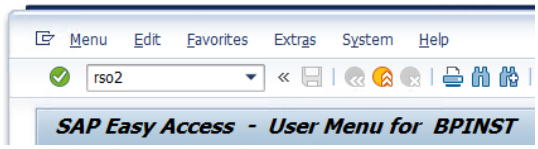


④ Click [Save] again.

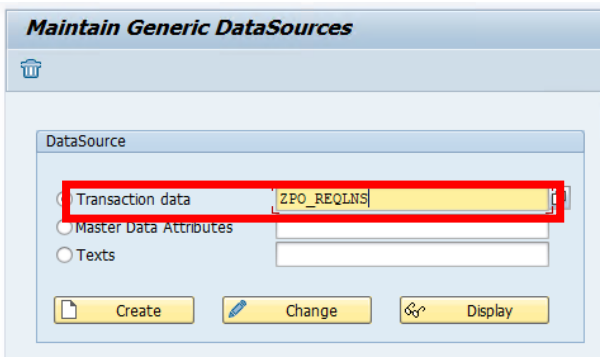


7.3 ZPO_REQLNS

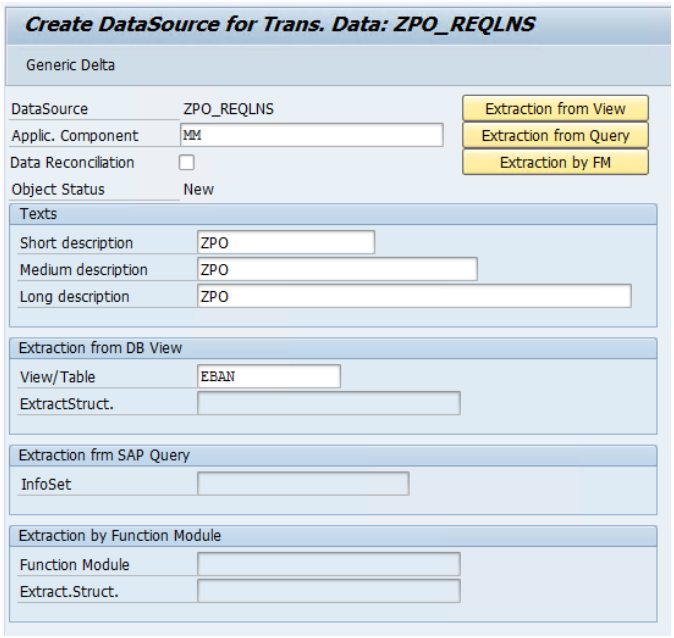
① Enter T-code "rso2".



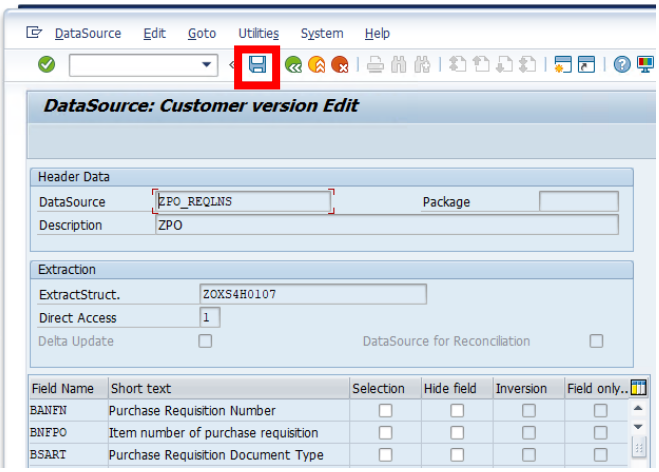
② Enter "ZPO_REQLNS" in [Transaction data] and click [Create].



③ Enter and save the following:

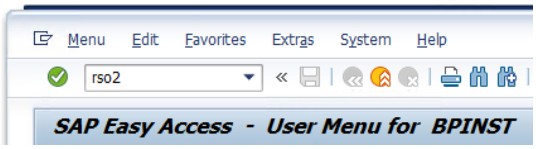


④ Click [Save] again.

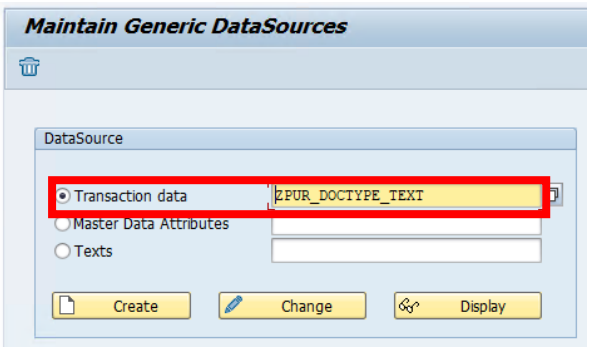


7.4 ZPUR_DOCTYPE_TEXT

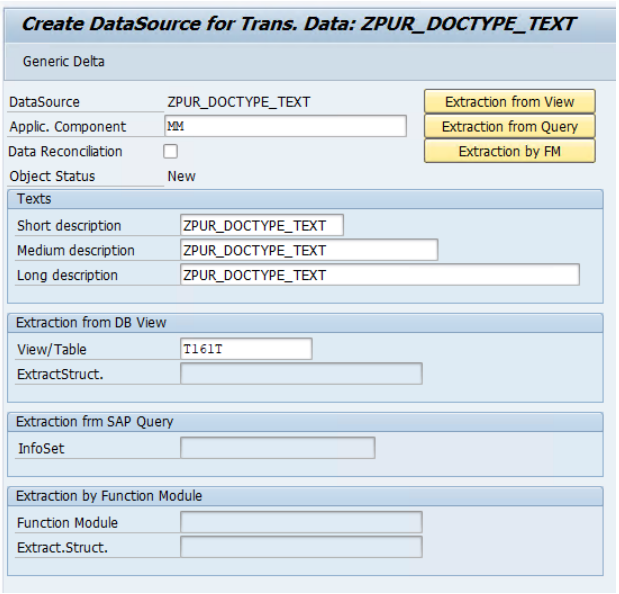
① Enter T-code "rso2".



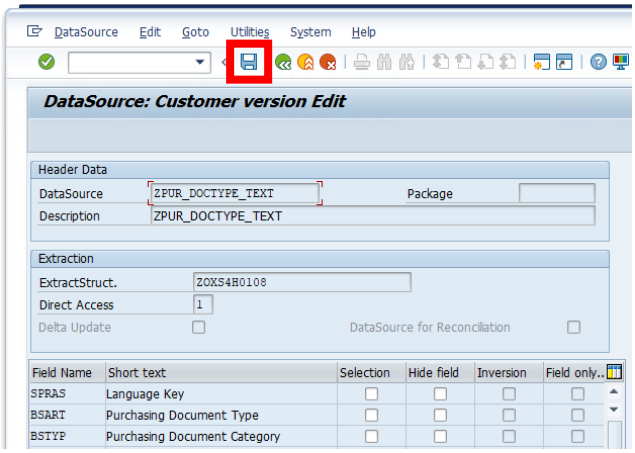
② Enter "ZPUR_DOCTYPE_TEXT" in the [Transaction data] field and click [Create].



③ Enter and save the following:

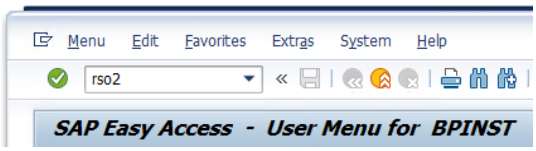


④ Click [Save] again.

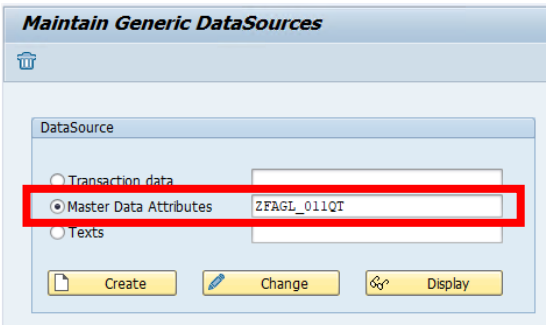


7.5 ZFAGL_011QT

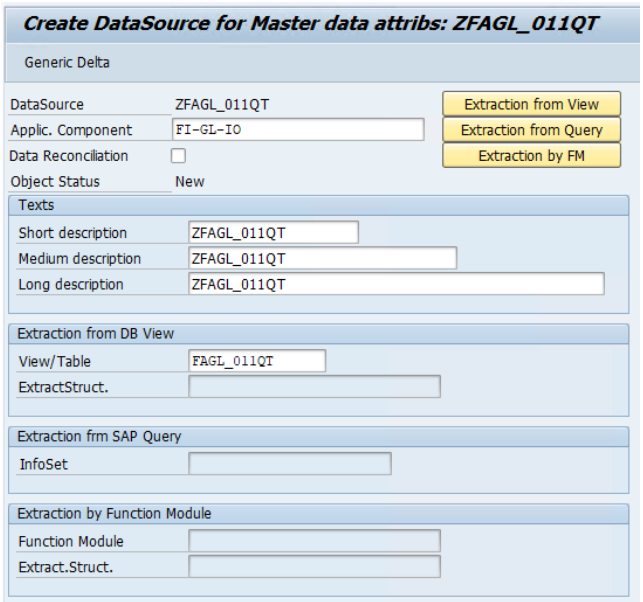
① Enter T-code "rso2".



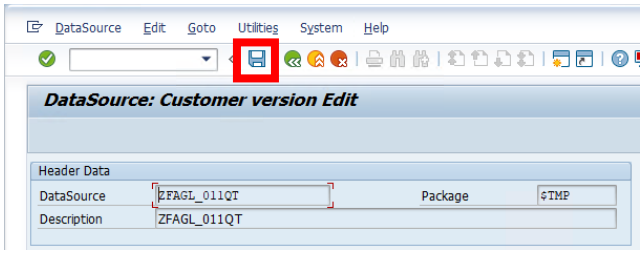
② Enter "ZFAGL_011QT" in the [Master data] field and click [Create].



③ Enter and save the following:

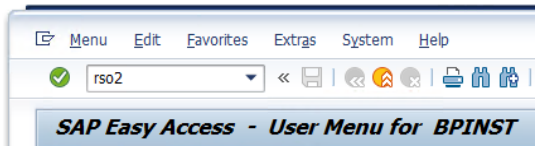


④ Click [Save] again.

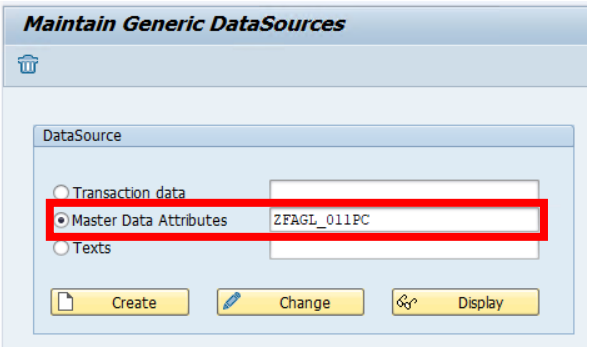


7.6 ZFAGL_011PC

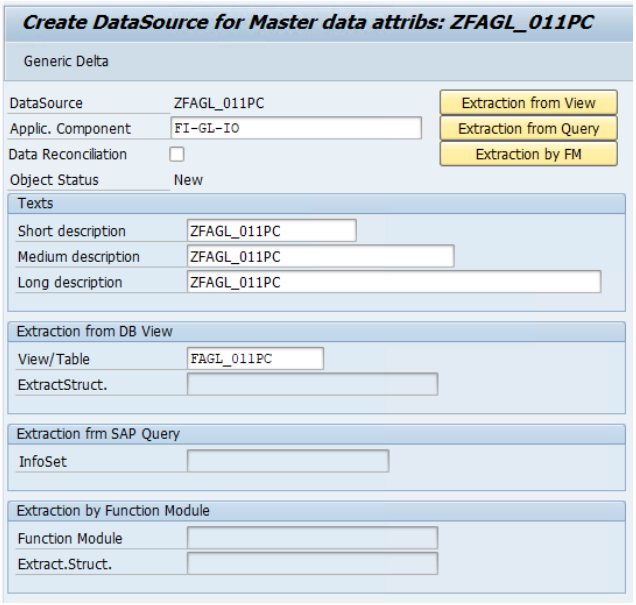
① Enter T-code "rso2".



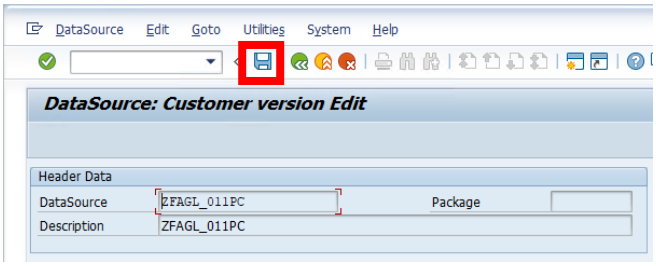
② Enter "ZFAGL_011PC" in the [Master data] field and click [Create].



③ Enter and save the following:

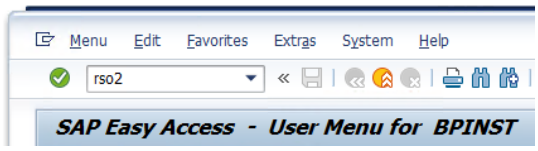


④ Click [Save] again.

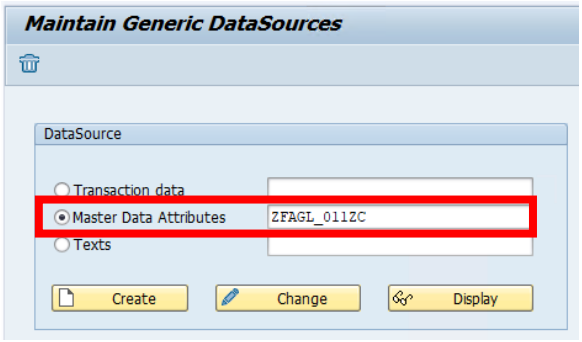


7.7 ZFAGL_011ZC

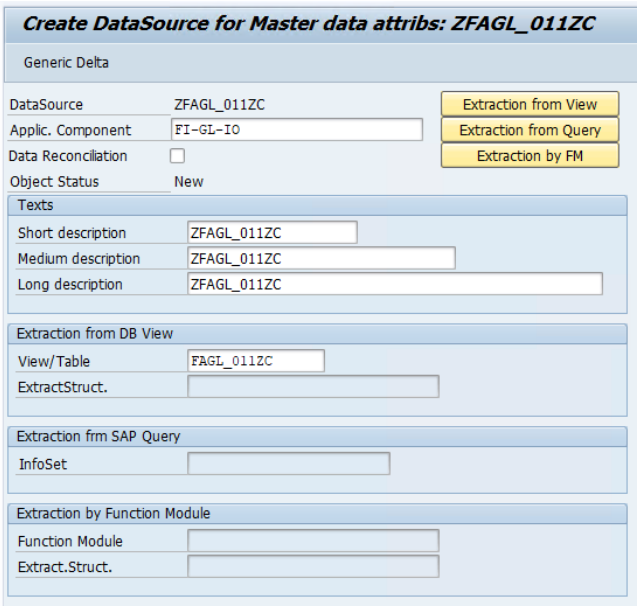
① Enter T-code "rso2".



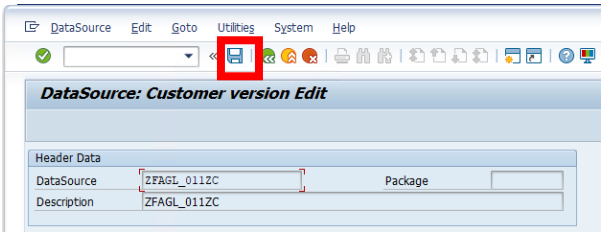
② Enter "ZFAGL_011ZC" in the [Master data] field and click [Create].



③ Enter and save the following:



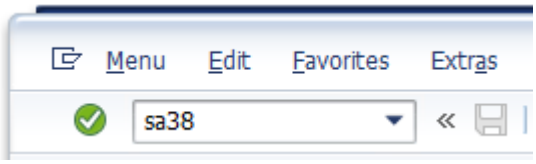
④ Click [Save] again.



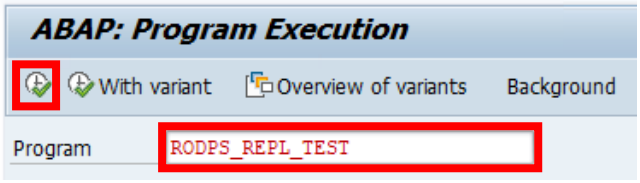
8 Confirmation of data source extraction via ODP

To verify the extraction of data sources via the ODP, the following steps are performed for each target data source.

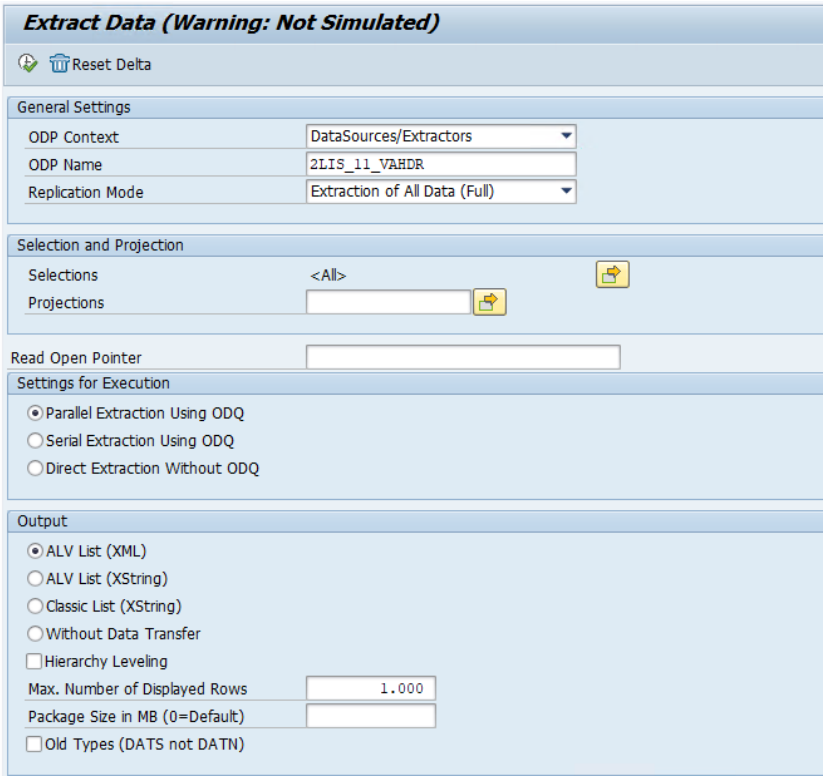
① Enter transaction code "sa38".



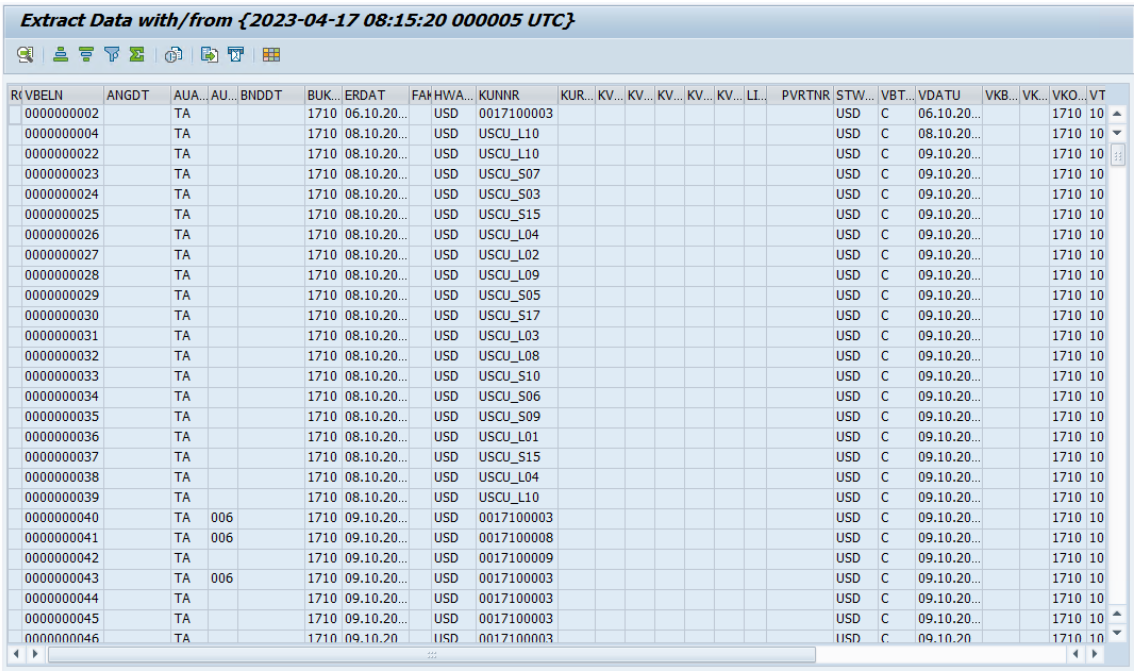
② Enter "RODPS_REPL_TEST" in [Program] and click [Execute].



③ Select "DataSources/Extractors" from [ODP Context], select the data source name in [ODP Name], Full or Delta mode in [Replication Mode], and click [Execute].



④ If the data is successfully extracted, it will be displayed.



Extract Data with/from {2023-04-17 08:15:20 000005 UTC}

R(	VBELN	ANGDT	AUA...	AU...	BNDDT	BUK...	ERDAT	FAI	HWA...	KUNNR	KUR...	KV...	KV...	KV...	KV...	KV...	LI...	PVRTNR	STW...	VBT...	VDATU	VKB...	VK...	VKO...	VT
	0000000002		TA			1710	06.10.20...		USD	0017100003									USD	C	06.10.20...			1710	10
	0000000004		TA			1710	08.10.20...		USD	USCU_L10									USD	C	08.10.20...			1710	10
	0000000022		TA			1710	08.10.20...		USD	USCU_L10									USD	C	09.10.20...			1710	10
	0000000023		TA			1710	08.10.20...		USD	USCU_S07									USD	C	09.10.20...			1710	10
	0000000024		TA			1710	08.10.20...		USD	USCU_S03									USD	C	09.10.20...			1710	10
	0000000025		TA			1710	08.10.20...		USD	USCU_S15									USD	C	09.10.20...			1710	10
	0000000026		TA			1710	08.10.20...		USD	USCU_L04									USD	C	09.10.20...			1710	10
	0000000027		TA			1710	08.10.20...		USD	USCU_L02									USD	C	09.10.20...			1710	10
	0000000028		TA			1710	08.10.20...		USD	USCU_L09									USD	C	09.10.20...			1710	10
	0000000029		TA			1710	08.10.20...		USD	USCU_S05									USD	C	09.10.20...			1710	10
	0000000030		TA			1710	08.10.20...		USD	USCU_S17									USD	C	09.10.20...			1710	10
	0000000031		TA			1710	08.10.20...		USD	USCU_L03									USD	C	09.10.20...			1710	10
	0000000032		TA			1710	08.10.20...		USD	USCU_L08									USD	C	09.10.20...			1710	10
	0000000033		TA			1710	08.10.20...		USD	USCU_S10									USD	C	09.10.20...			1710	10
	0000000034		TA			1710	08.10.20...		USD	USCU_S06									USD	C	09.10.20...			1710	10
	0000000035		TA			1710	08.10.20...		USD	USCU_S09									USD	C	09.10.20...			1710	10
	0000000036		TA			1710	08.10.20...		USD	USCU_L01									USD	C	09.10.20...			1710	10
	0000000037		TA			1710	08.10.20...		USD	USCU_S15									USD	C	09.10.20...			1710	10
	0000000038		TA			1710	08.10.20...		USD	USCU_L04									USD	C	09.10.20...			1710	10
	0000000039		TA			1710	08.10.20...		USD	USCU_L10									USD	C	09.10.20...			1710	10
	0000000040		TA	006		1710	09.10.20...		USD	0017100003									USD	C	09.10.20...			1710	10
	0000000041		TA	006		1710	09.10.20...		USD	0017100008									USD	C	09.10.20...			1710	10
	0000000042		TA			1710	09.10.20...		USD	0017100009									USD	C	09.10.20...			1710	10
	0000000043		TA	006		1710	09.10.20...		USD	0017100003									USD	C	09.10.20...			1710	10
	0000000044		TA			1710	09.10.20...		USD	0017100003									USD	C	09.10.20...			1710	10
	0000000045		TA			1710	09.10.20...		USD	0017100003									USD	C	09.10.20...			1710	10
	0000000046		TA			1710	09.10.20		USD	0017100003									USD	C	09.10.20			1710	10

9 SAP configuration required only for Finance

If you wish to use SAP Accelerator's Finance Package, perform the following configuration tasks.

9.1 Delta extraction settings for 0FI_GL_4, 0FI_AR_4, and 0FI_AP_4

The 0FI_GL_4, 0FI_AR_4, and 0FI_AP_4 data sources are initially set to extract only the previous day's Delta data. To change this to retrieve the day's data, one of the following settings must be made in BWOM_SETTINGS.

① Enable BWFINEXT

- Extracts in delta mode all records posted up to the time "now" minus one hour. The time can be changed with the parameter BWFINSAF = 3.600 (1 hour), but it is recommended by SAP that it be set to at least 1 hour.
- The disadvantage of this method is that only change data older than 1 hour can be obtained.

② BWFIOVERLA activates (Minutes based extraction)

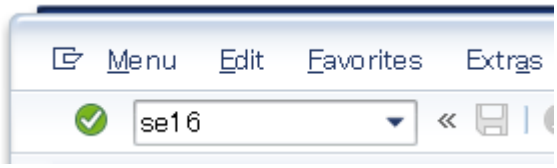
- All data up to "current" is extracted in delta mode.
- The disadvantage of this method is that all delta data for the day is subject to extraction, so records are extracted redundantly.

Once the parameter is set, it applies to all 0FI_GL_4, 0FI_AP_4, and 0FI_AR_4. This cannot be set at the data source level. For more information, see the following pages:

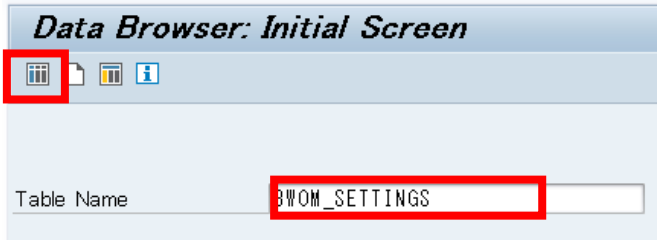
- BW-BCT-FI-GL (General Ledger) - SAP NetWeaver Business Warehouse - Support Wiki
- BWOM_SETTINGS for FI loads in SAP BI | SAP Blogs
- FI-CO Delta Safety Interval Summary | SAP Blogs
- 1012874 - FAQ extractors 0FI_AP_* 0FI_AR_* 0FI_GL_* (except 0FI_GL_10, 0FI_GL_11, 0FI_GL_12, 0FI_GL_14) - SAP ONE Support Launchpad
- 991429 - Minute Based extraction enhancement for 0FI_*_4 extractors - SAP ONE Support Launchpad
- 485958 - BCT-FI: Extracting FI line items up to the current date - SAP ONE Support Launchpad
- 1523670 - BW delta extraction: Setting safety intervals - SAP ONE Support Launchpad

Below is an explanation of how to set parameters for BWOM_SETTINGS.

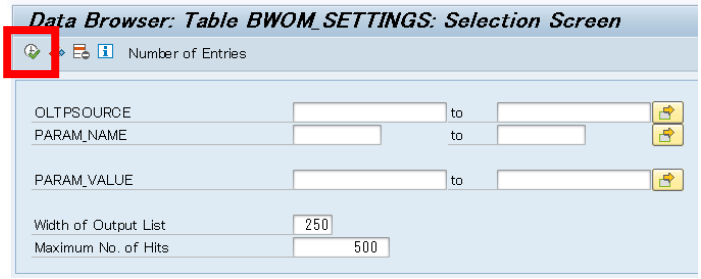
① Enter transaction code "se16".



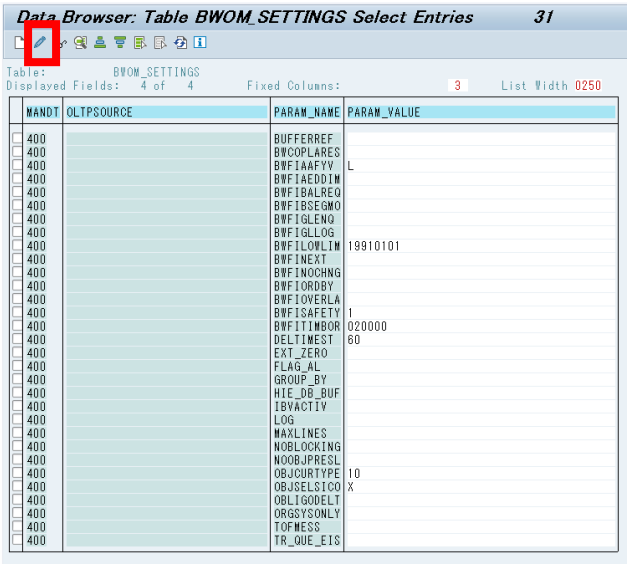
② Enter "BWOM_SETTINGS" in the [Table Name] field and click the [Table Contents] icon.



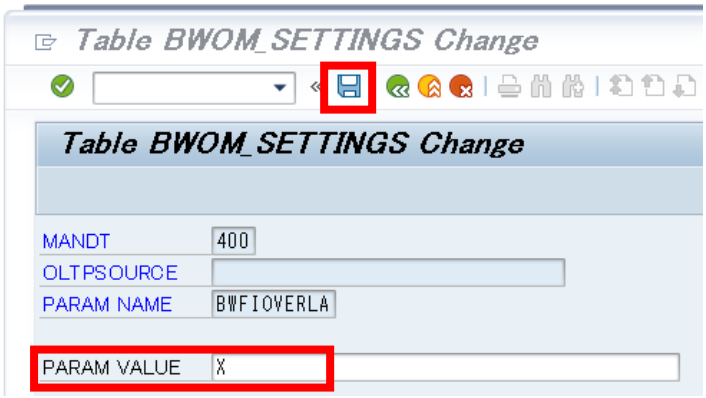
③ Click on the [Execute] icon.



④ Place the cursor on the parameter to be changed and click the [Change] icon. Here, select BWFIOVERLA to activate the parameter.



⑤ Enter "X" in [PARAM VALUE] and click [Save].



9.2 Delta extraction settings for 0FI_GI_10 and 0FI_GL_14

For data sources 0FI_GI_10 and 0FI_GL_14, the ROOSOURCE table contains the Safety Interval settings, which are used to set the Delta extraction:

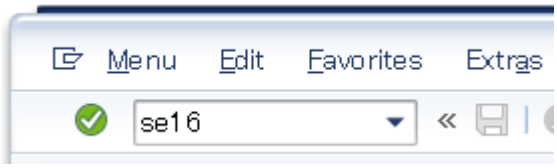
- ✓ DELTASAFE1 (lower safety interval): Real-time extraction is possible, but the time intervals overlap. For example, if the lower safety interval is set to 3,600 (1 hour), the Delta data for the past hour is subject to extraction, so records are extracted redundantly.
- ✓ DELTASAFE2 (upper safe interval): If the upper safe interval is set to 3,600 (1 hour), this means that only data older than 1 hour will be extracted.

The sum of DELTASAFE1 (lower safety interval) and DELTASAFE2 (upper safety interval) must be set to at least 3,600 (1 hour). For more information, please refer to the following page:

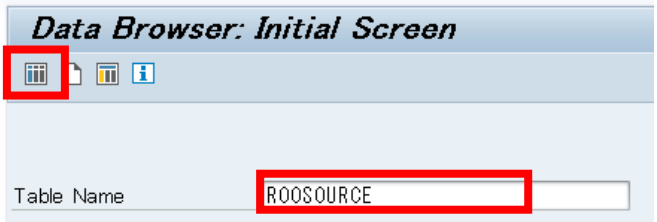
- ➢ 2116914 - Safety interval of BW DataSource - SAP ONE Support Launchpad
- ➢ 1523670 - BW delta extraction: Setting safety intervals - SAP ONE Support Launchpad

By default, 0FI_GI_10 and 0FI_GL_14 are both set to DELTASAFE1 (lower safety interval) of 3,600 (1 hour). Below is an explanation of how to check the settings.

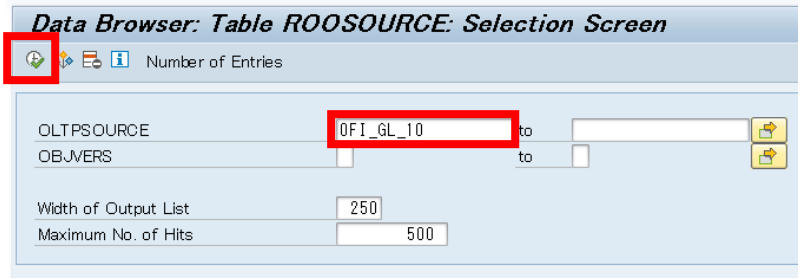
① Enter transaction code "se16".



② Enter "ROOSOURCE" in the [Table Name] field and click the [Table Contents] icon.



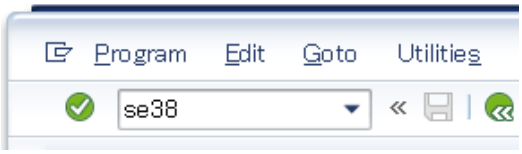
③ Enter the name of the data source in "OLAPSOURCE" and click the [Execute] icon.



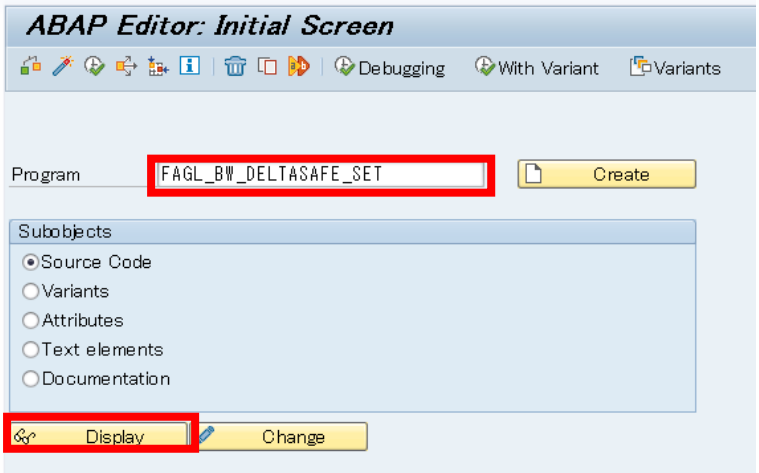
④ From the table contents, the DELTASAFE1 (lower safety interval) and DELTASAFE2 (upper safety interval) settings can be checked.

Next, we explain how to change the DELTASAFE1 (lower safety interval) and DELTASAFE2 (upper safety interval) settings.

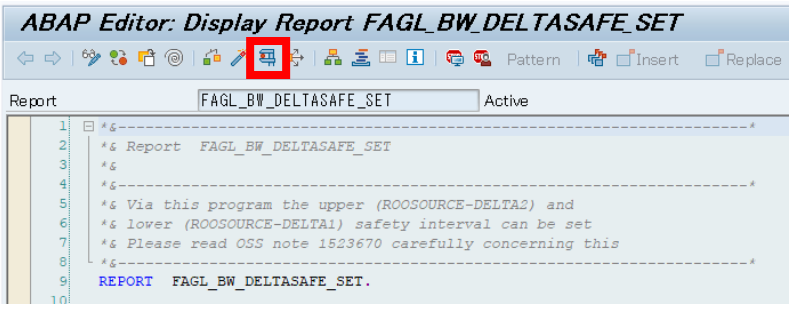
① Enter transaction code "se38".



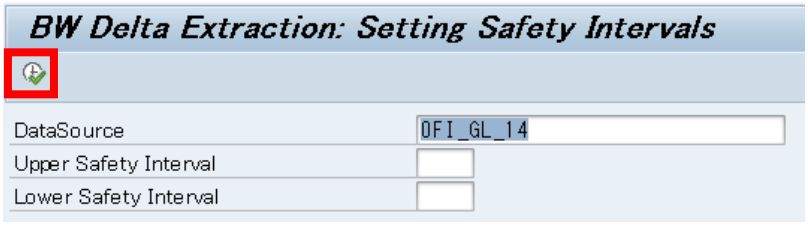
② Enter "FAGL_BW_DELTASAFE_SET" in [Program] and click [Display].



③ Click on the [Direct Processing] icon.



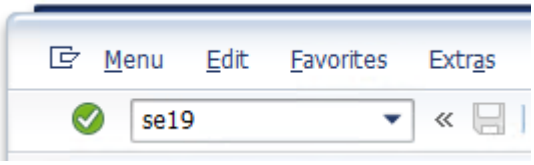
④ Enter the items and execute [Execute].



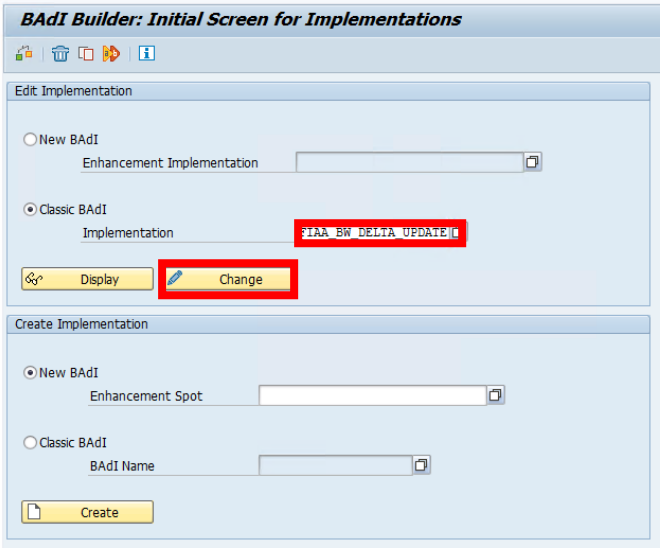
9.3 Enabling FIAA_BW_DELTA_UPDATE

To perform Delta extraction of 0ASSET_ATTR_TEXT, 0ASSET_AFAB_ATTR, 0FI_AA_11, and 0FI_AA_12 data sources used in Asset Accounting, "FIAA_BW_DELTA_UPDATE" must be enabled. Depending on the environment, this operation may not be possible. In that case, please perform extraction of these data sources with full load.

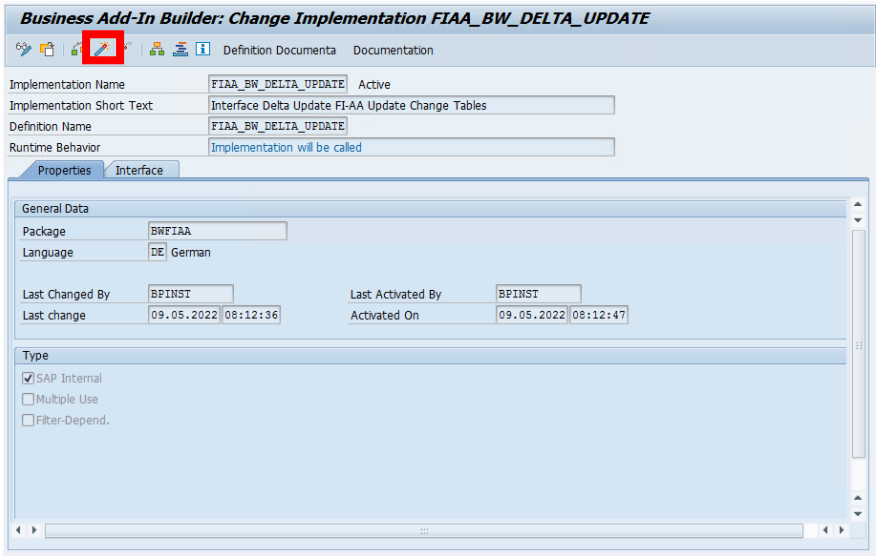
① Enter transaction code "se19".



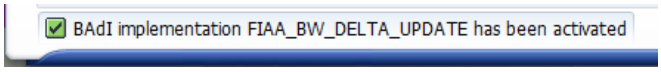
② Select [Classic BAdI] and enter "FIAA_BW_DELTA_UPDATE" in [Implementation] and click [Change].



③ Click [Activate business add-in implementation] button.



④ Confirm that activation has been completed without problems.

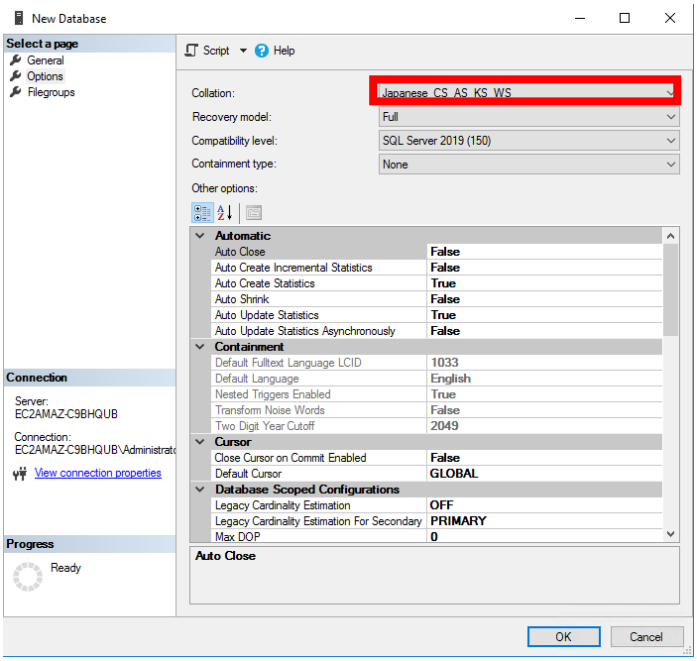


10 Target database settings

Access Microsoft SQL Server Management Studio as a user with administrative privileges and create the following database and the schema contained in the database.

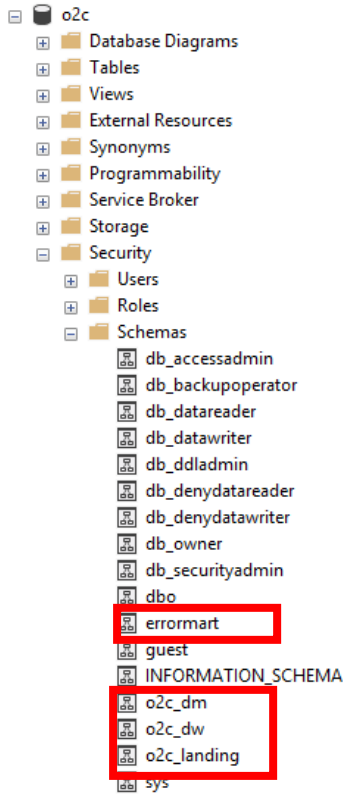
※ Since SAP is case-sensitive in codes, etc., it is necessary to select a case-sensitive collation in the collation (Collation) setting on the Microsoft SQL Server side as well. Select a collation such as "Japanese_CS_AS_KS_WS" in the following manner when creating the DB.

※ When using Snowflake, Synapse, BigQuery, or Redshift, create the DB and schema in the same way on the configuration screens provided by each product. Be aware that the DB described here is also called SQL Pool in Synapse, and the DB and schema described here correspond to Project and Dataset in BigQuery, respectively.



Accelerator Package Type	DB	schema
Order to Cash (O2C)	O2C	o2c_landing errormart o2c_dw o2c_dm
Inventory Management	inv	inv_landing errormart inv_dw inv_dm

Finance	fin	fin_landing errormart fin_dw fin_dm
Procurement	p2p	p2p_landing errormart p2p_dw p2p_dm



11 Data extraction from Qlik Replicate

11.1 Importing Replicate Tasks

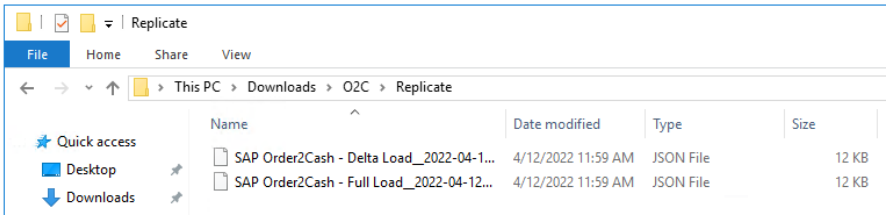
Import the required Qlik Replicate tasks according to the type of SAP Accelerator you are using.

Accelerator Package Type	Qlik Replicate Task
Order to Cash (O2C)	ODP SAP Order2Cash - Delta ODP SAP Order2Cash - Full
Inventory Management	ODP SAP Inventory Mgmt - Delta ODP SAP Inventory Mgmt - Full
Finance	ODP SAP Finance - Delta ECC (*1) ODP SAP Finance - Delta S4 HANA (*1) ODP SAP Finance - Full ODP SAP Finance - AA Delta ODP SAP Finance - AA Full (*2)
Procurement	ODP SAP Procurement - Delta Load ODP SAP Procurement - Full Load

*1 Use "ODP SAP Finance - Delta ECC" if the source is SAP ECC, or "ODP SAP Finance - Delta S4 HANA" if the source is SAP S/4 HANA.

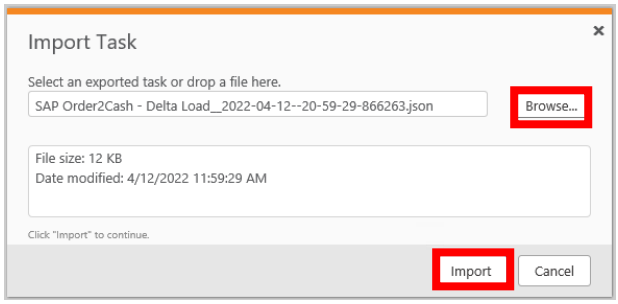
*2 In environments where it is not possible to run 9.3 Enabling FIAA_BW_DELTA_UPDATE use "ODP SAP Finance - AA Full" instead of "ODP SAP Finance - AA Delta".

① Check the folder containing the Qlik Replicate task.

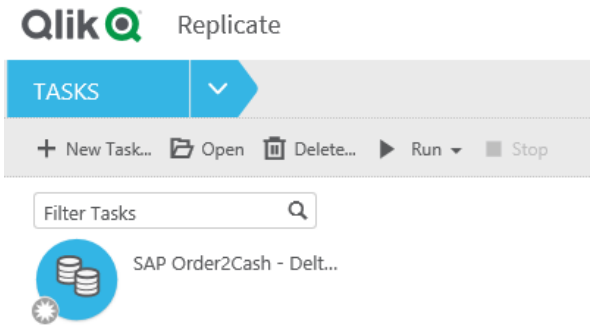


② Open the Qlik Replicate console screen and click [Import Task].

③ Click [Browse] to select the Qlik Replicate task file to import, then click [Import].



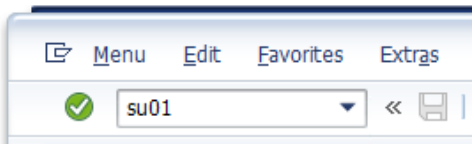
④ Confirm that the task has been imported. Repeat the same procedure for other Replicate tasks.



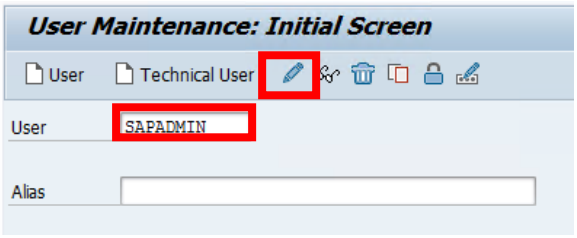
11.2 Change/confirm user's numeric format

The section of " Appendix 2: Creating user for Qlik Replicate describes how to create a user with the privileges necessary for Replicate processing. However, it is recommended that a user with SAP administrator privileges (a user with SAP_ALL privilege) perform the connection check from Replicate first, since detailed authorization is required and often incorrect settings are made. Here, we assume the SAP administrator user is the user used to connect from Replicate to SAP. We will check the numeric format for this user.

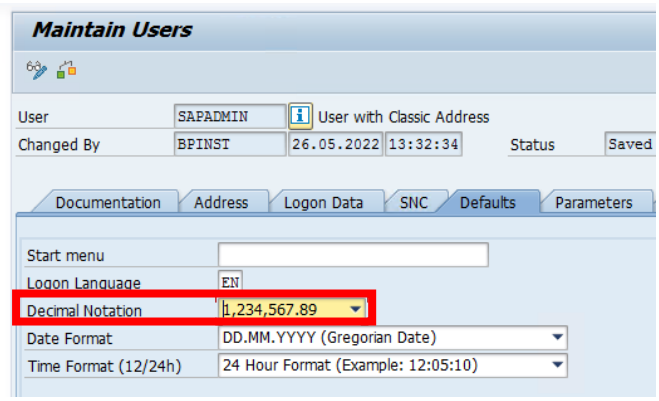
① Enter T-code "su01".



② In [User], specify the user who will be used to login to SAP from Qlik Replicate and click Change.

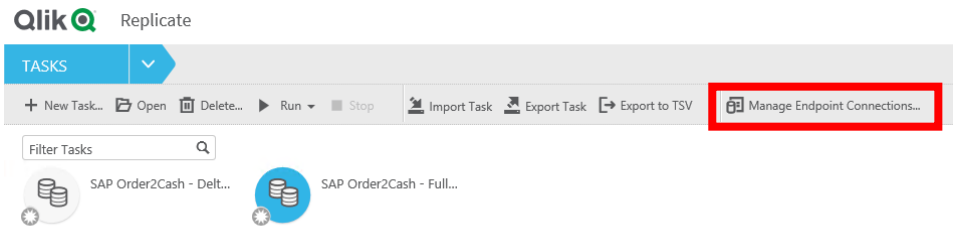


③ Click the [Defaults] tab, set [Decimal Notation] to "1,234,567.89" and click [Save].

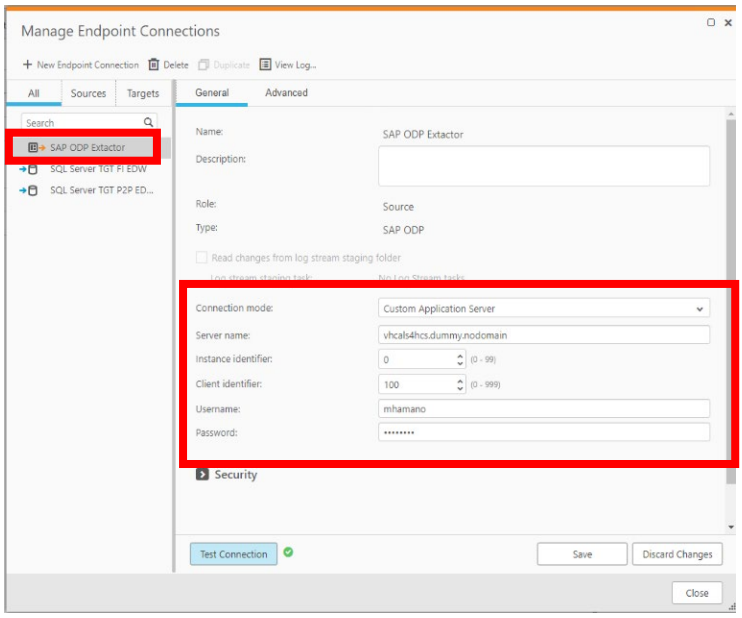


11.3 Endpoint configuration

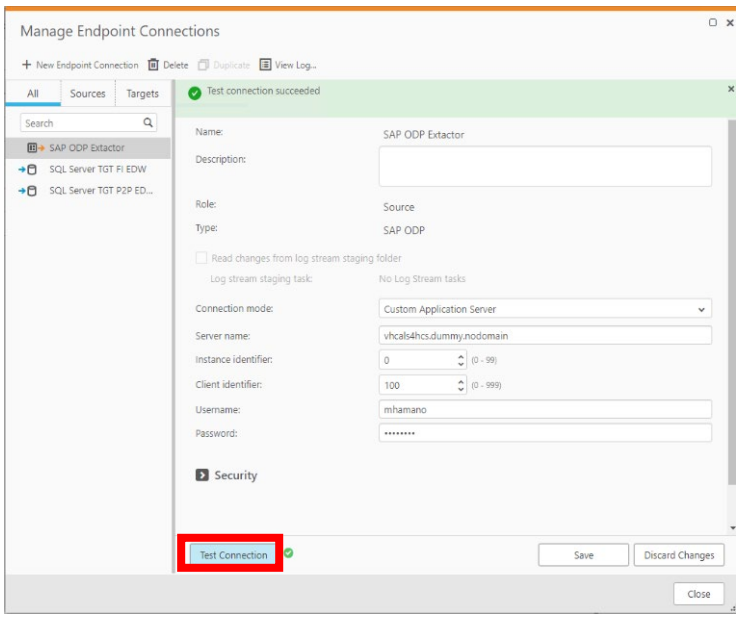
① Open the Qlik Replicate console screen and click [Manage Endpoint Connections].



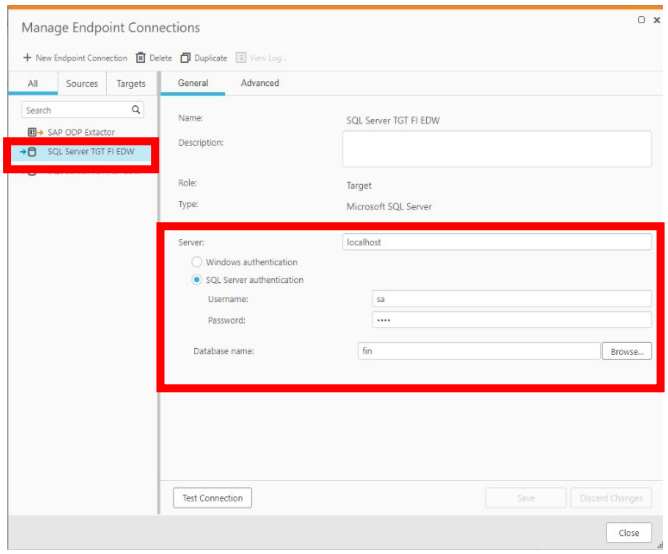
② Select "SAP ODP Extractor" and enter the authentication information. At this time, leave the Number Format set to the "1,234,567.89" that was set on SAP system in the previous step.



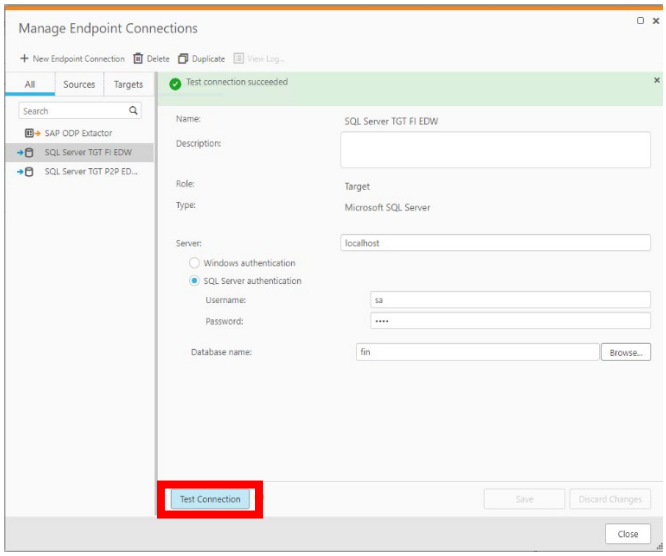
③ Click [Test connections] to confirm that the connection is successful, then click [Save].



④ Select "SQL Server TGT O2C/INV/FIN/P2P" (separate target endpoints are imported for "Order to Cash," "Inventory Management," "Finance" and “Procurement”) and enter authentication information. If you want to use Snowflake, Synapse, BigQuery, or Redshift as the target DWH instead of Microsoft SQL Server, you need to create a new endpoint and replace the Microsoft SQL Server target with Snowflake, Synapse, BigQuery, or Redshift target in the task definition.



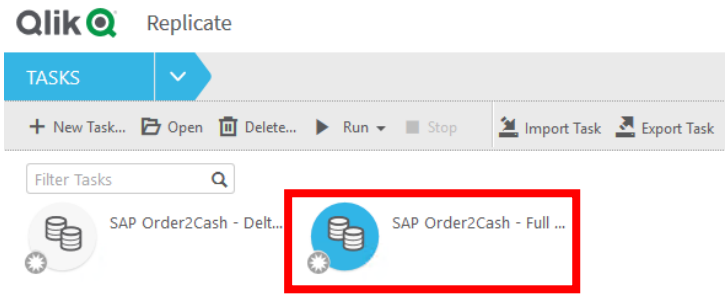
⑤ Click [Test connection] to confirm that the connection is successful, then click [Save]. Follow the same procedure to change the respective settings for "Order to Cash," "Inventory Management," "Finance" and “Procurement” depending on the package type used.



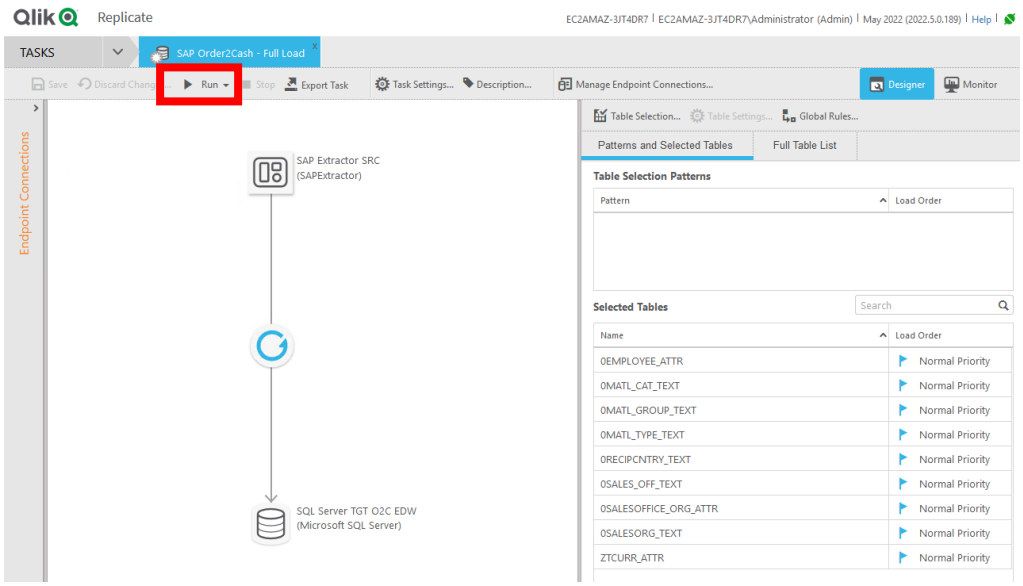
11.4 Task execution

Run the Qlik Replicate task for the SAP Accelerator you are using. Any order of tasks to be executed is acceptable.

① Double-click the task to be executed.

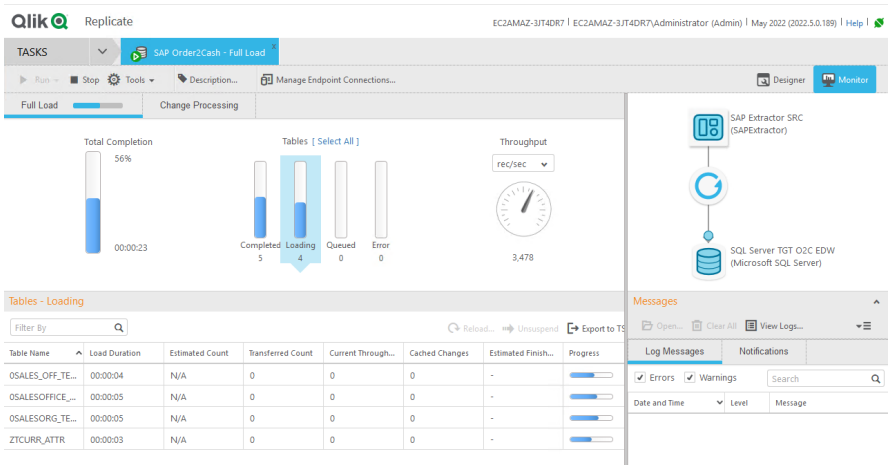


② Click [Run].



③ The task execution is started.

④ When the execution starts, the screen transitions to the Monitor screen.



⑤ Select [Completed] to confirm that all tasks have been completed without problems and that data has been transferred by checking the "Transferred Count" column.

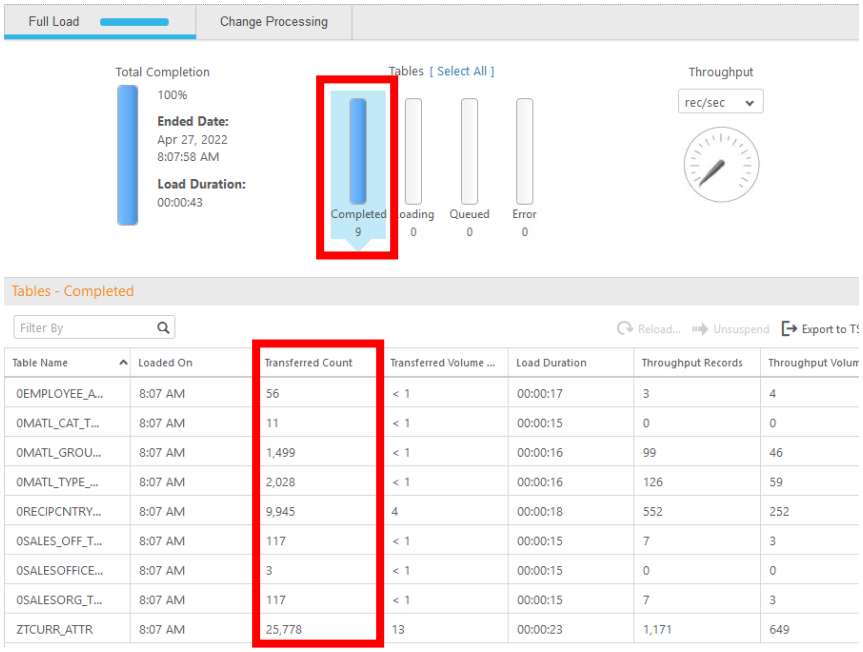
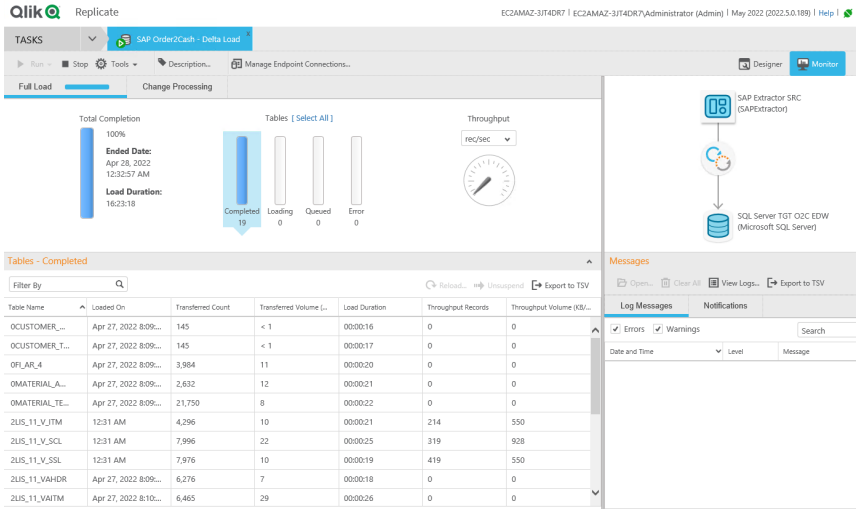


Table Name	Loaded On	Transferred Count	Transferred Volume ...	Load Duration	Throughput Records	Throughput Volum
0EMPLOYEE_A...	8:07 AM	56	< 1	00:00:17	3	4
0MATL_CAT_T...	8:07 AM	11	< 1	00:00:15	0	0
0MATL_GROU...	8:07 AM	1,499	< 1	00:00:16	99	46
0MATL_TYPE_...	8:07 AM	2,028	< 1	00:00:16	126	59
0RECIPCNTRY...	8:07 AM	9,945	4	00:00:18	552	252
0SALES_OFF_T...	8:07 AM	117	< 1	00:00:15	7	3
0SALESOFFICE...	8:07 AM	3	< 1	00:00:15	0	0
0SALESORG_T...	8:07 AM	117	< 1	00:00:15	7	3
ZTCURR_ATTR	8:07 AM	25,778	13	00:00:23	1,171	649

⑥ After the Full Load task is executed, the task stops, but the Delta Load task continues to process the change data extraction. (The green task icon indicates that the task is being executed.) Depending on the package you are using, complete execution of all applicable tasks.

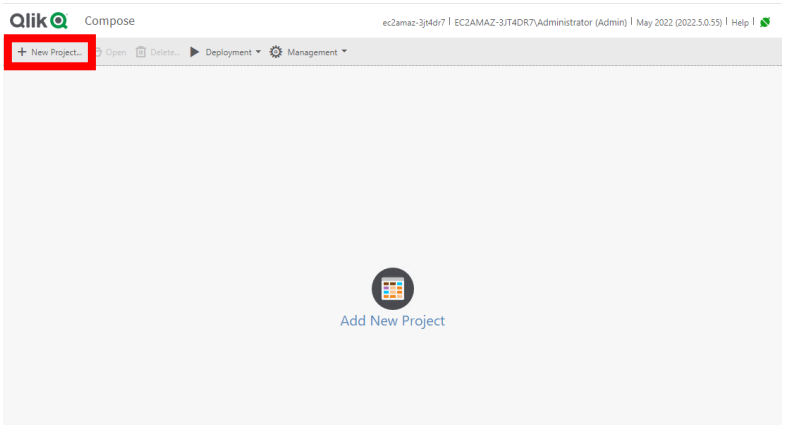


12 DWH and DM creation with Qlik Compose

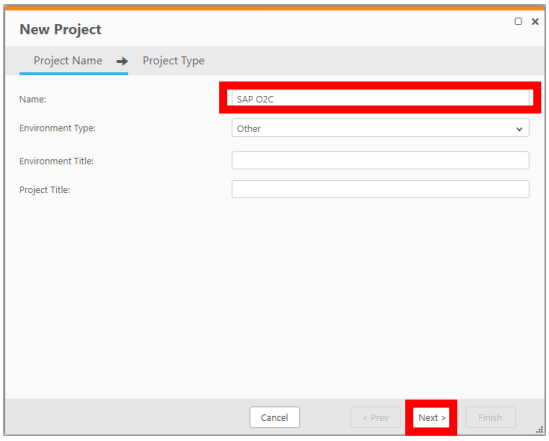
In the previous steps, Qlik Replicate has completed storing the SAP data on the target DB. Next, Qlik Compose will create a DWH and data mart using the data stored by Replicate on the target DB as input. The following steps are performed for “Order to Cash”, “Inventory Management”, “Finance”, and “Procurement”.

12.1 Create a new project

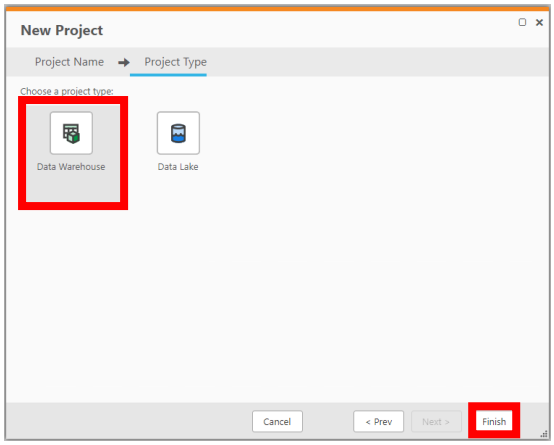
① Open the Qlik Compose console screen and click [New Project].



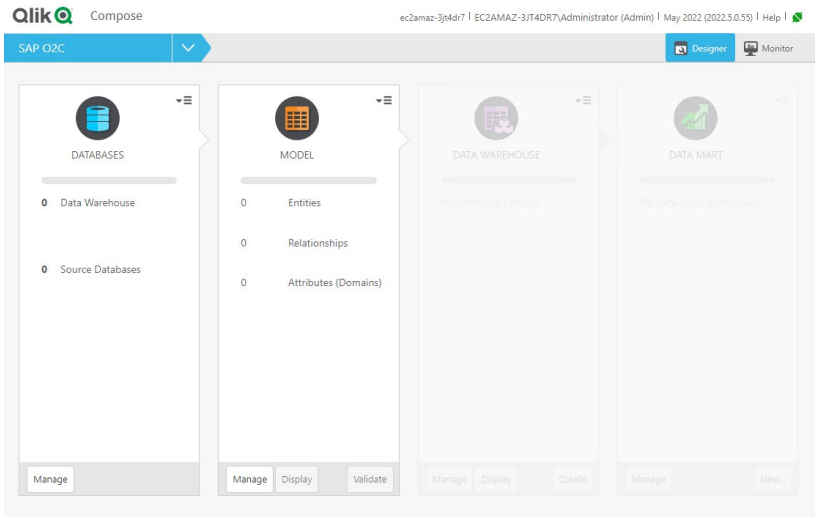
② Enter any project name and click [Next].



③ Select the [Data Warehouse] type and click [Finish].

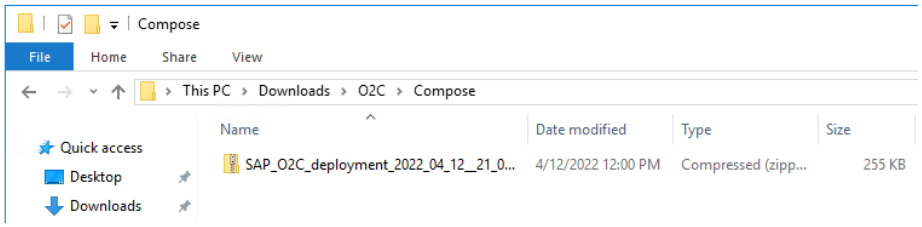


④ A new project will open.

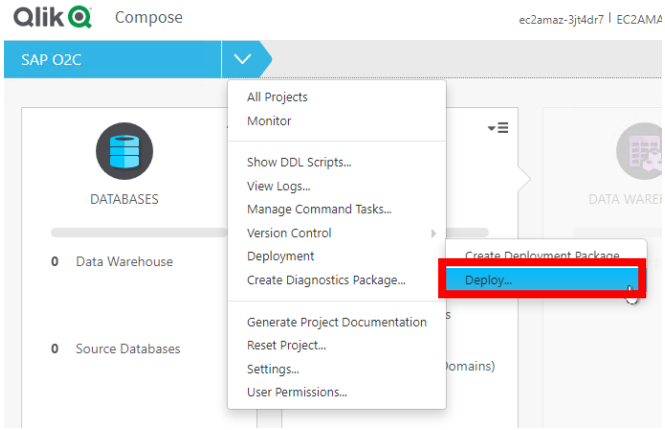


12.2 Deploying projects

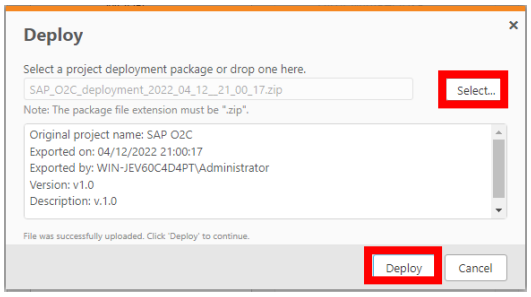
① Check the folder containing the Qlik Compose project files.



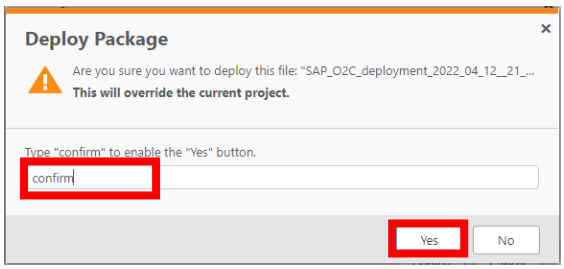
② Open the menu of the newly created Compose project and click [Deployment] > [Deploy].



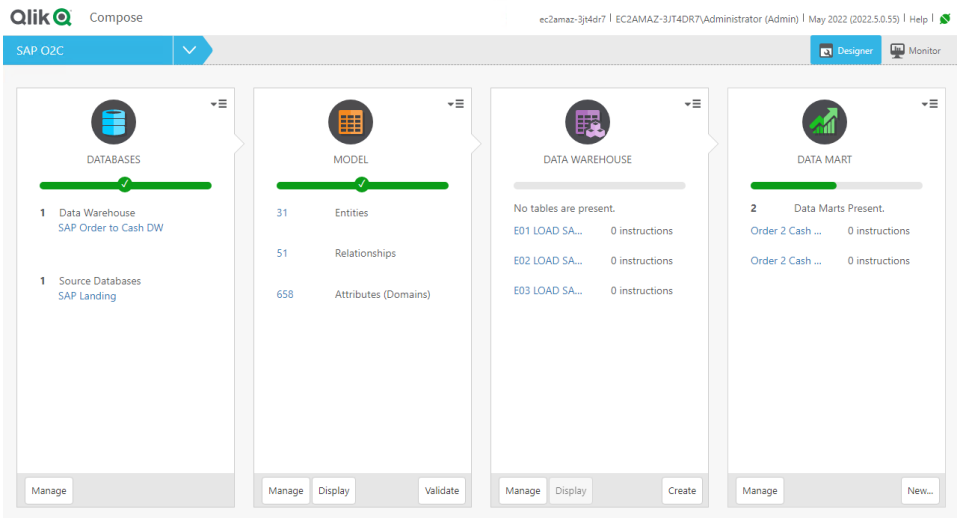
③ Click [Select] to select the Qlik Compose project file and click [Deploy].



④ Type "confirm" and click [Yes].

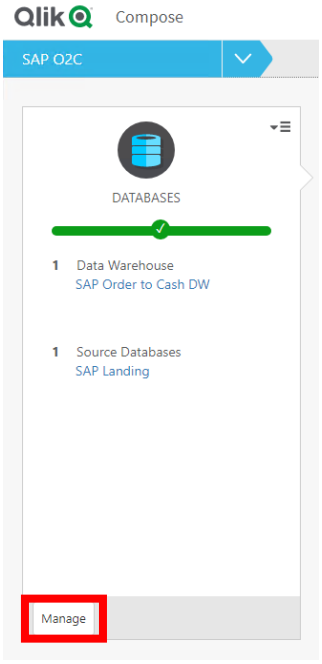


⑤ Project is imported from a Compose project file.

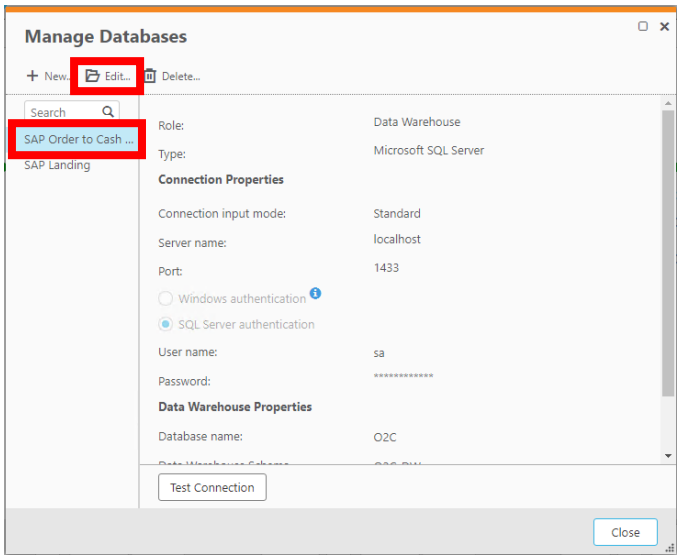


12.3 Updating connection definitions

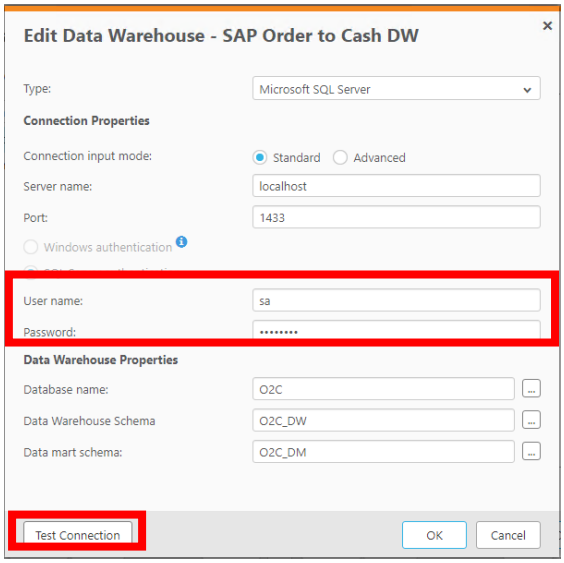
① Click [Manage] under [DATABASES].



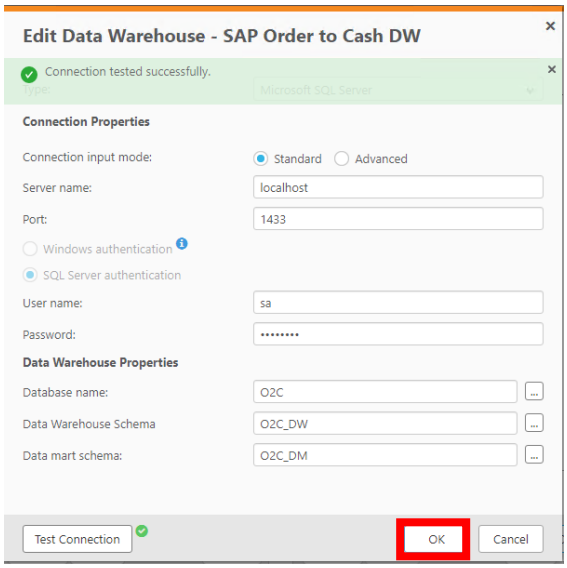
② Select the first connection definition from the list on the left and click [Edit].



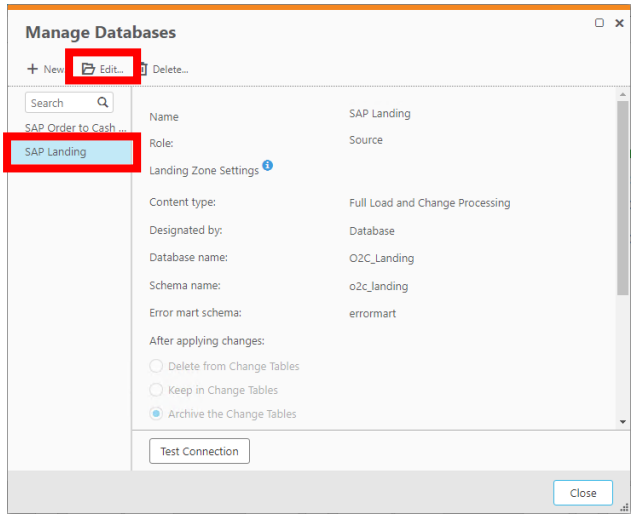
③ Correct the user name and password, and click [Test Connection].



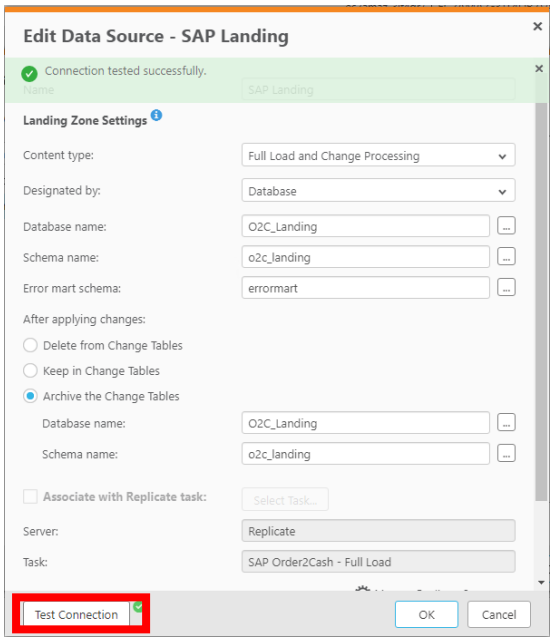
④ Confirm that the connection test was successful and click OK.



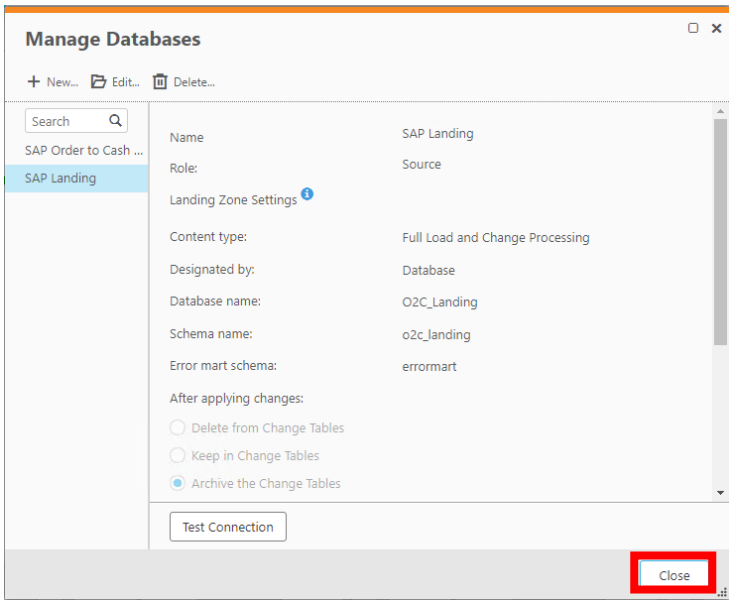
⑤ Select the second connection definition from the list on the left and click [Edit].



⑥ Click [Test Connection]. Confirm that the connection test was successful and click OK.

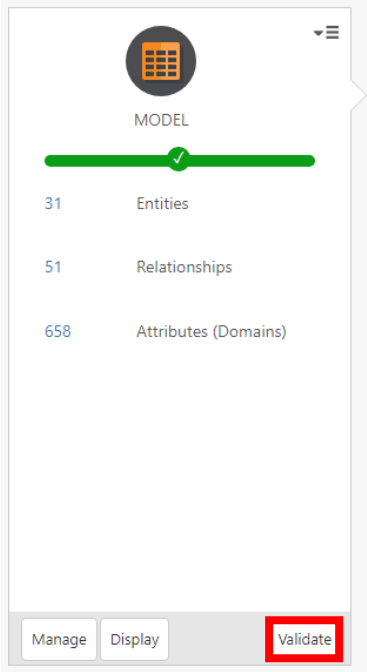


⑦ Click [Close].

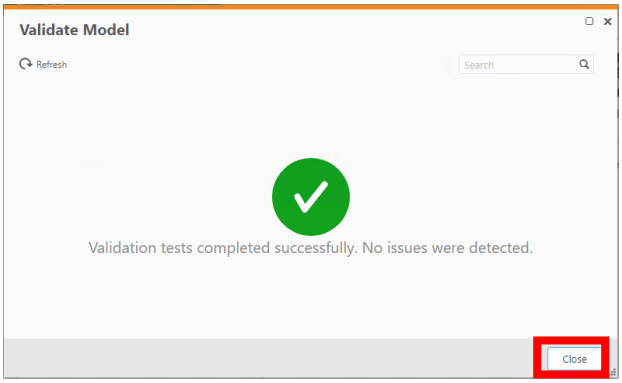


12.4 Model validation

① Click [Validate] under [MODEL].

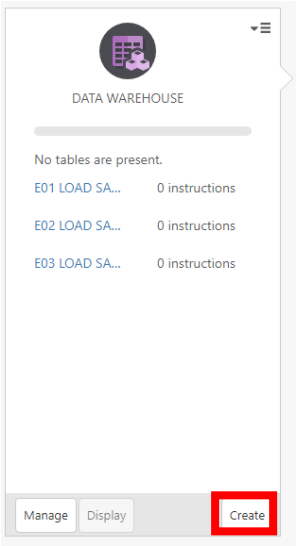


② Click [Close] after confirming that the model validation completes without any problems.

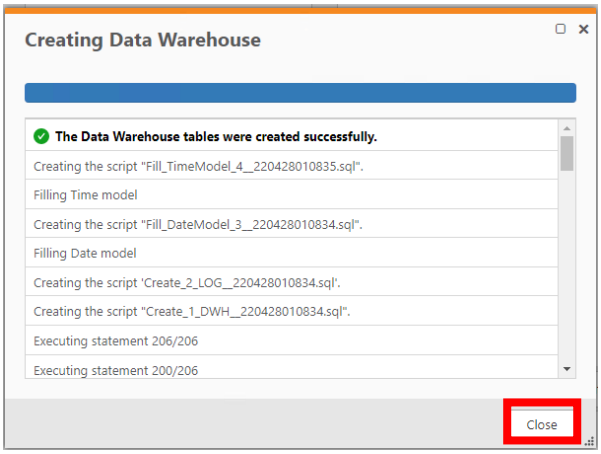


12.5 DWH creation and data loading

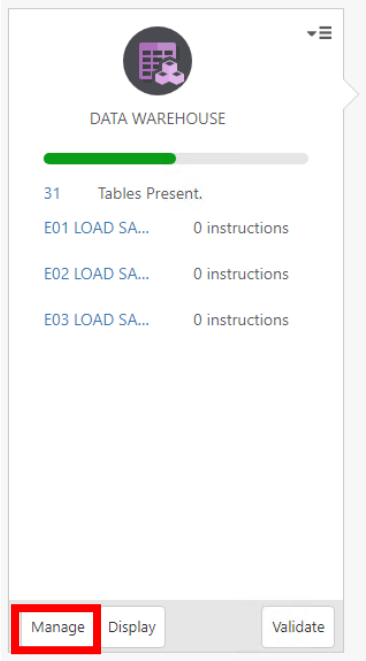
① Click [Create] under [DATA WAREHOUSE].



② Confirm that the database tables have been created without problems and click [Close].

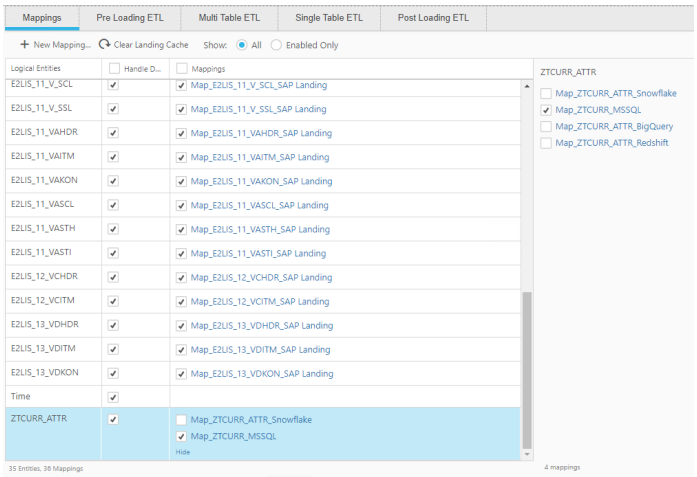


③ Click [Manage] under [DATA WAREHOUSE].

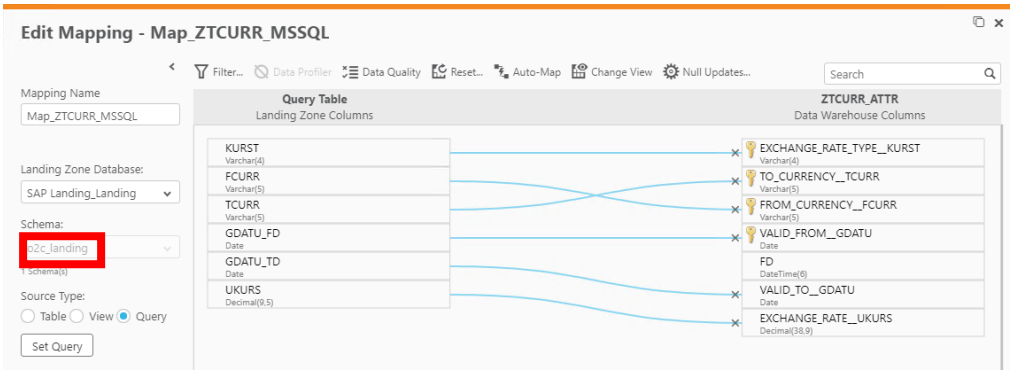


④ Select the task named "E01 Initialization", the first one in the list on the left, and make the following changes:

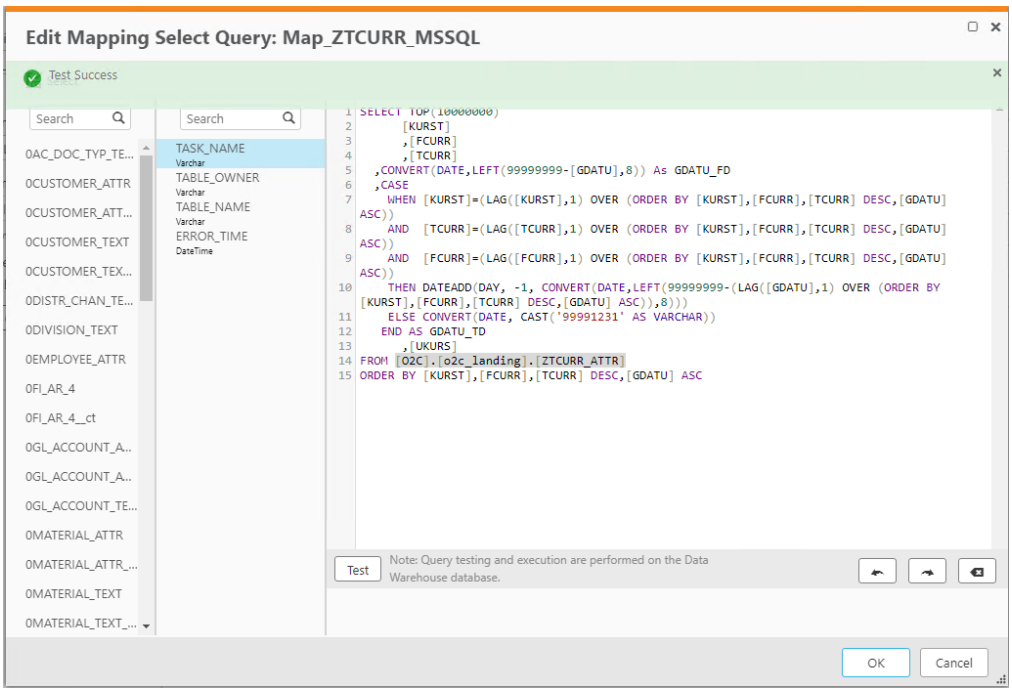
- When using "Order to Cash", "Procure to Pay", or "Finance", check ON one of the Mapping checkboxes depending on the target DWH used in "ZTCURR_ATTR". Then click on the checked Mapping.



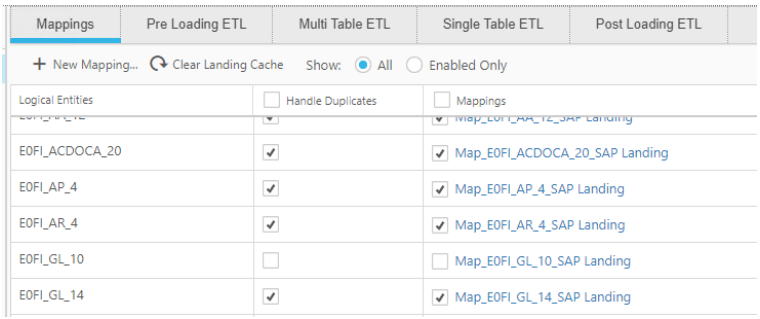
Confirm that the mapping is done without errors as shown below. If not, click the [Set Query] button.



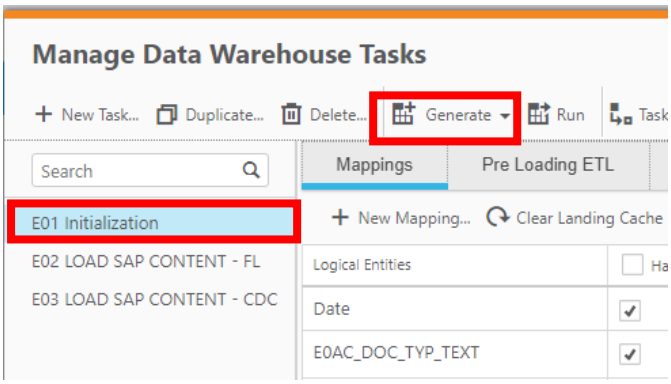
Correct the DB name and schema name in the SQL statement and click the [Test] button. Confirm that the test was successful and click [OK].



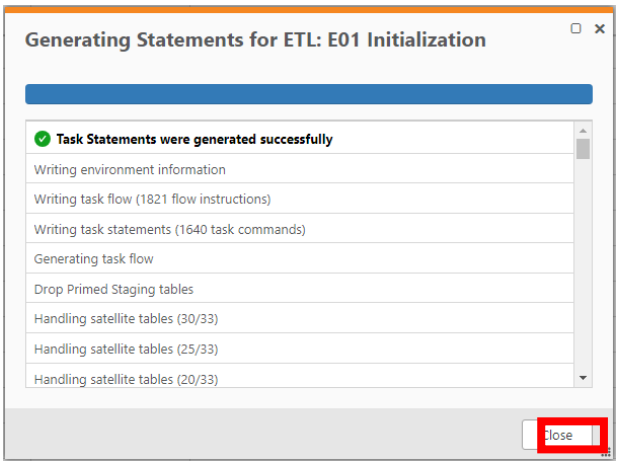
➢ When using "Finance" and the data source is SAP S/4 HANA, turn on the "EFI_ACDOCA_20" check box and turn off "E0FI_GL_10". If the data source is SAP ECC, turn off the "EFI_ACDOCA_20" check box and turn on "E0FI_GL_10".



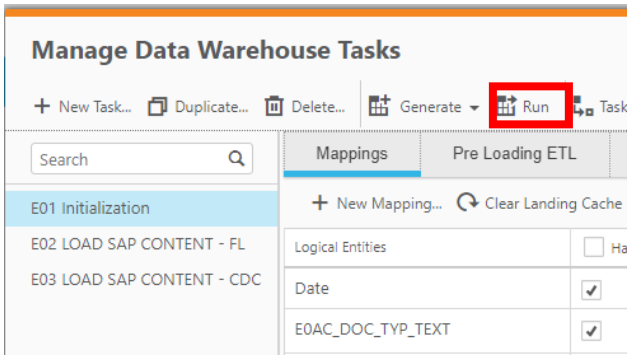
⑤ Select the task named "E01 Initialization", the first one in the list on the left, and click [Generate].



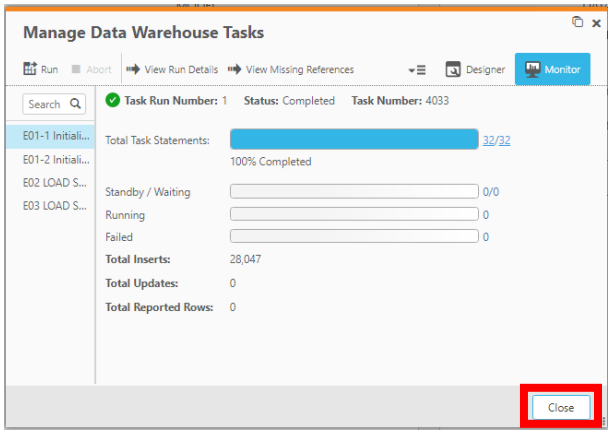
⑥ Confirm that the task was created without any problems and click [Close].



⑦ Click [Run] to execute the task.

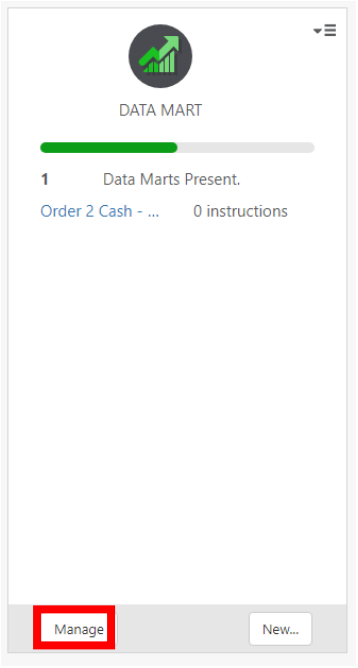


⑧ Confirm that the task has been completed without problems and click [Close].

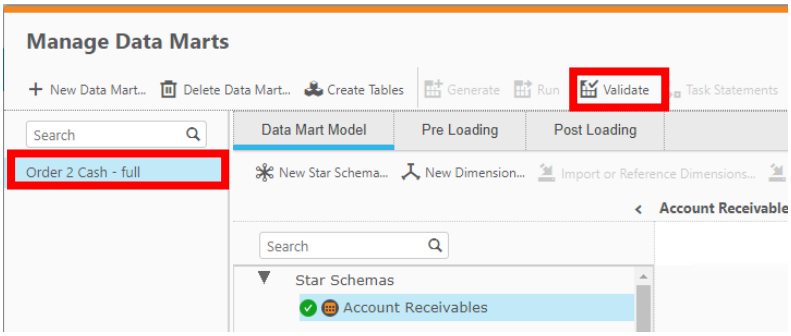


12.6 Creating Data Marts

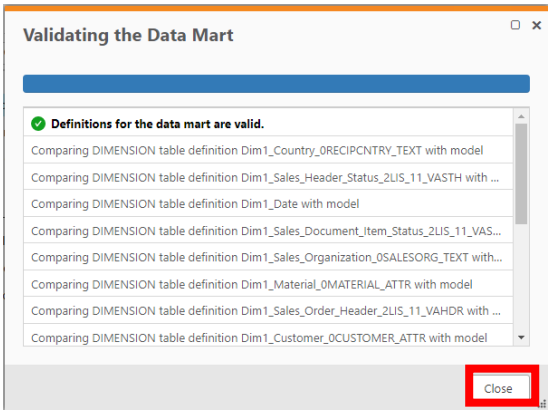
① Click on [Manage] under [DATA MART].



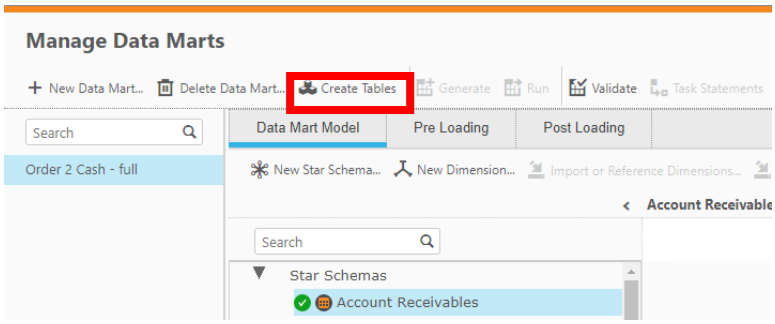
② Select the first task in the list on the left and click [Validate].



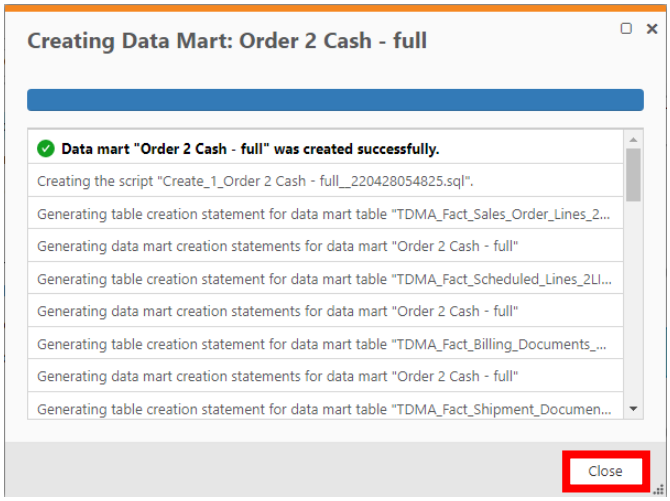
③ Confirm that the verification has completed without problems and click [Close].



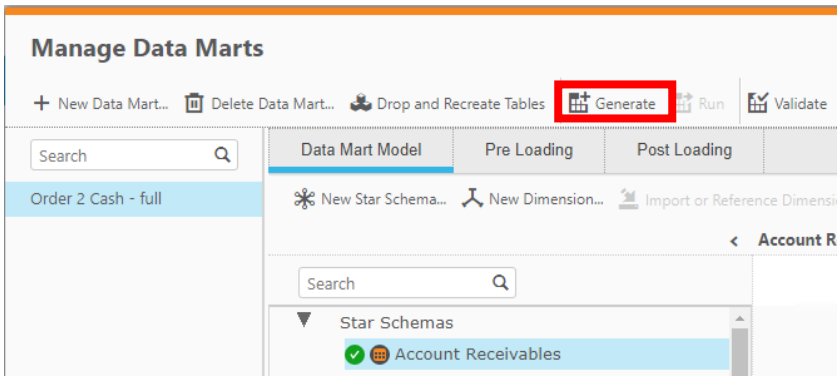
④ Click [Create Tables].



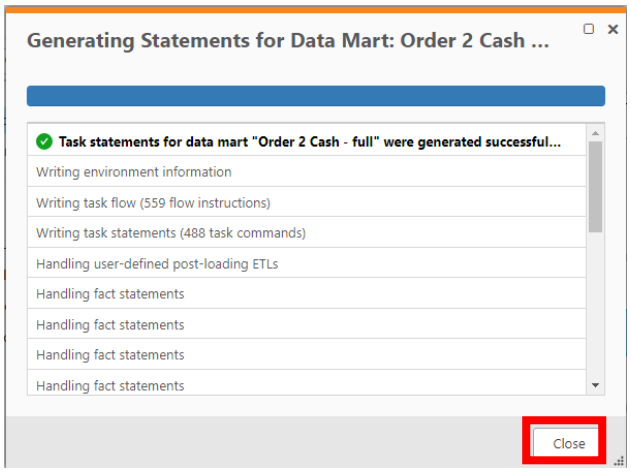
⑤ Confirm that the table has been created without any problems and click [Close].



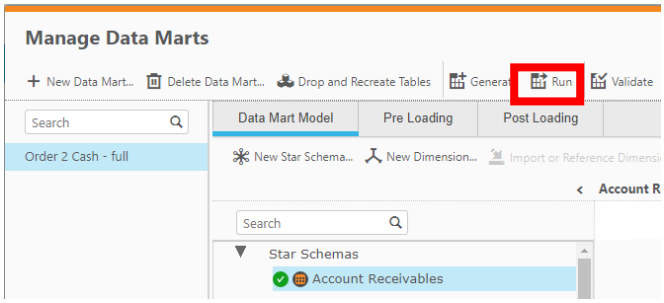
⑥ Click [Generate].



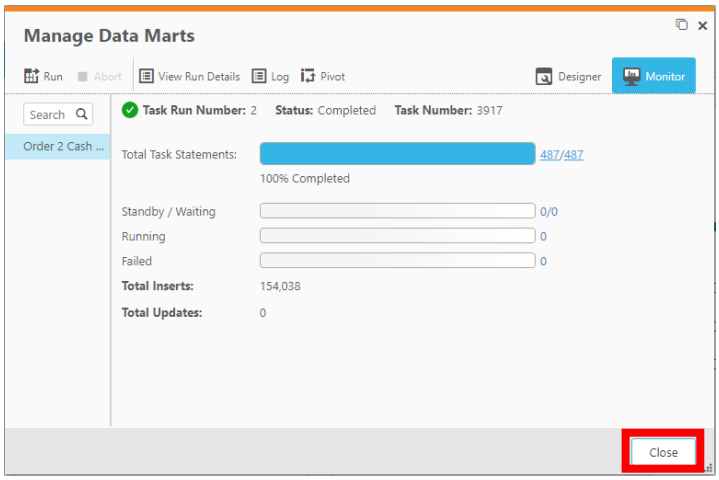
⑦ Confirm that the task was created without any problems and click [Close].



⑧ Click [Run] to execute the task.



⑨ Confirm that the task is completed without any problems and click [Close].

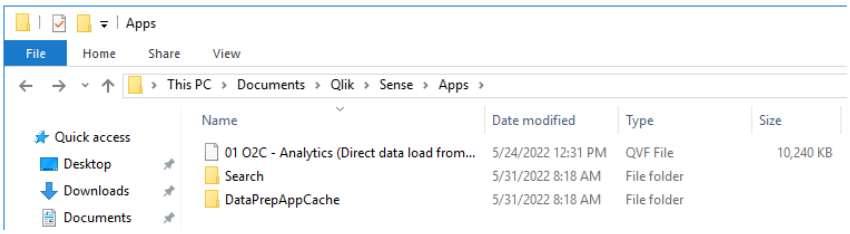


13 Visualization with Qlik Sense

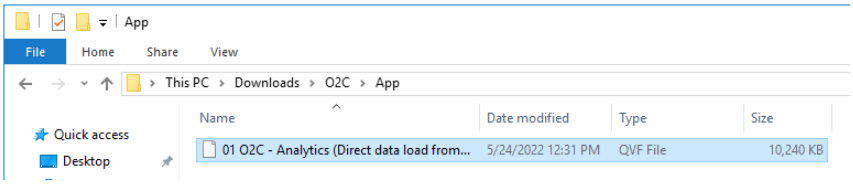
The previous steps have completed the creation of the data mart using Qlik Compose. In this section, we will go through how to extract data from the data mart and visualize it with Qlik Sense. You can use either Qlik Sense Desktop, Qlik Sense Enterprise Client Managed (CM) or Qlik Sense SaaS below. The explanation here assumes that you are using Microsoft SQL Server as your DWH, but if you are using Snowflake, Synapse, BigQuery, or Redshift, the connection definitions should be created with these DBs, not in Microsoft SQL Server.

13.1 Qlik Sense Desktop

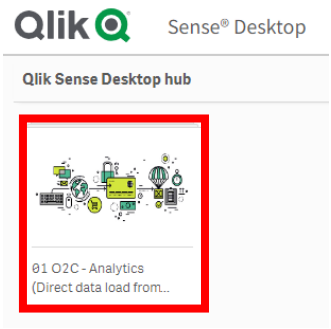
① Check the folder containing the Qlik Sense app.



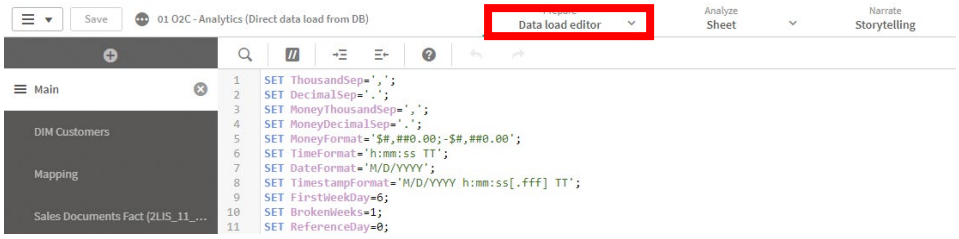
② Copy the app files to the folder "C:¥Users¥%USERNAME%¥Documents¥Qlik¥Sense¥Apps".



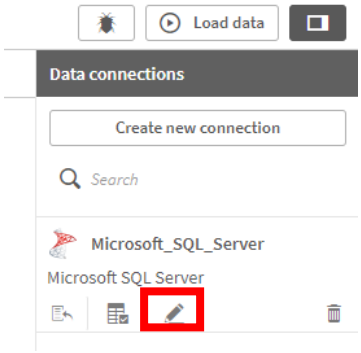
③ Launch Qlik Sense and click on the application.



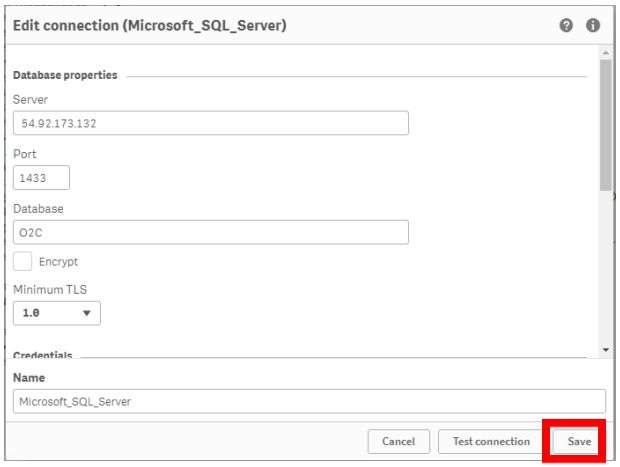
④ Open the Data Load Editor screen.



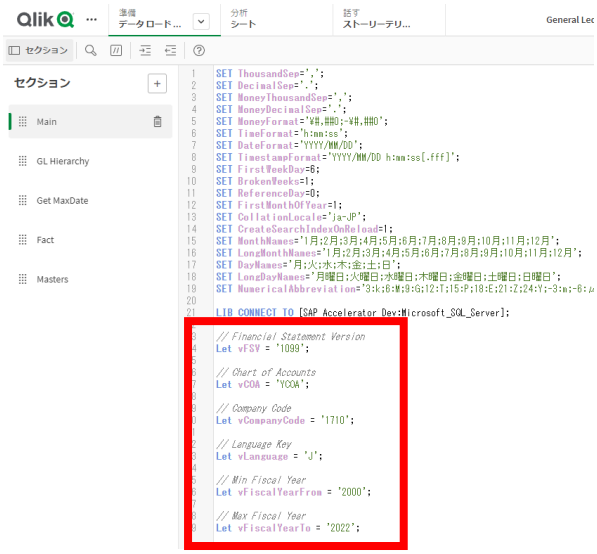
⑤ From the data connection definition, click the Edit button for "Microsoft_SQL_Server".



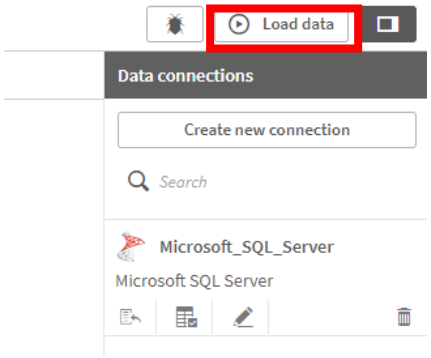
⑥ Update the connection information, test the connection, and save it.



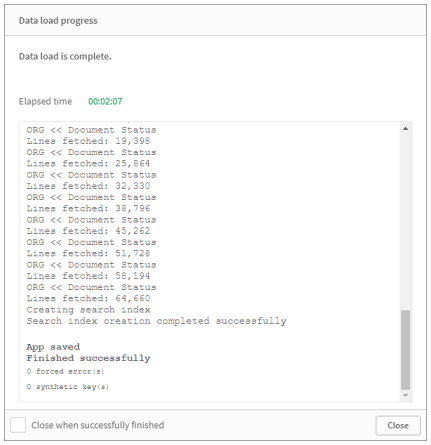
⑦ Depending on the app, variable settings may be required in the "Main" tab of the load script, so set the appropriate values for the variables. For "Finance" apps, there are variable settings for Chart of Account and Financial Statement Version. Please refer to Appendix 8: Checking Chart of Account and Financial Statement Version to find out the appropriate values for these variables.



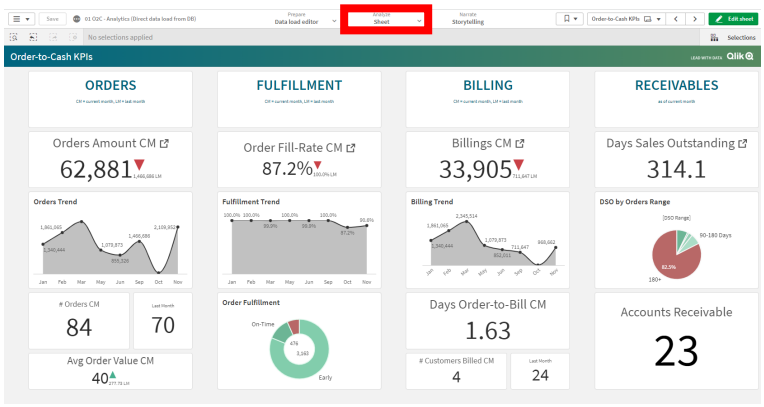
⑧ Click [Load data].



⑨ Verify that the data has been successfully loaded.

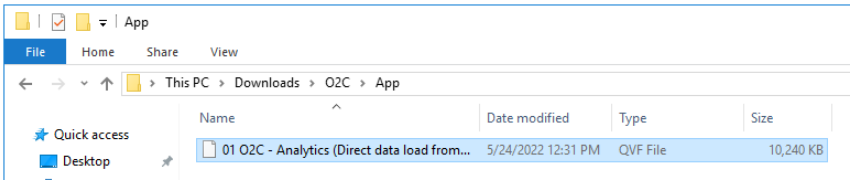


⑩ Display the sheet screen and verify that the values are displayed without problems.

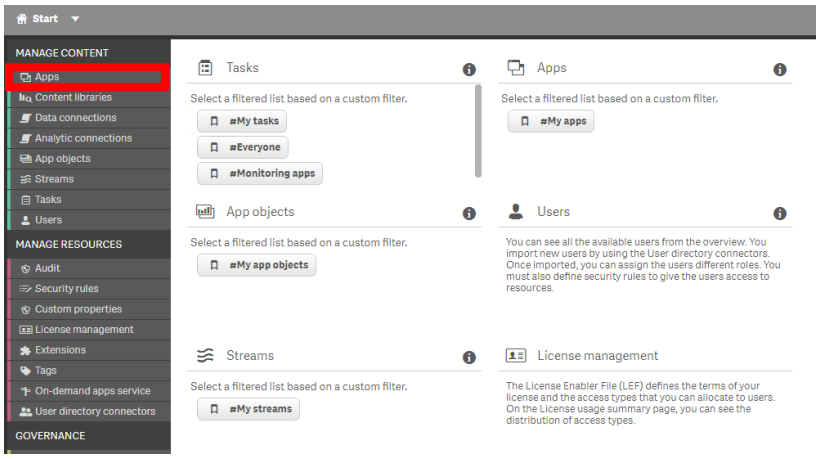


13.2 Qlik Sense Enterprise Client Managed (CM)

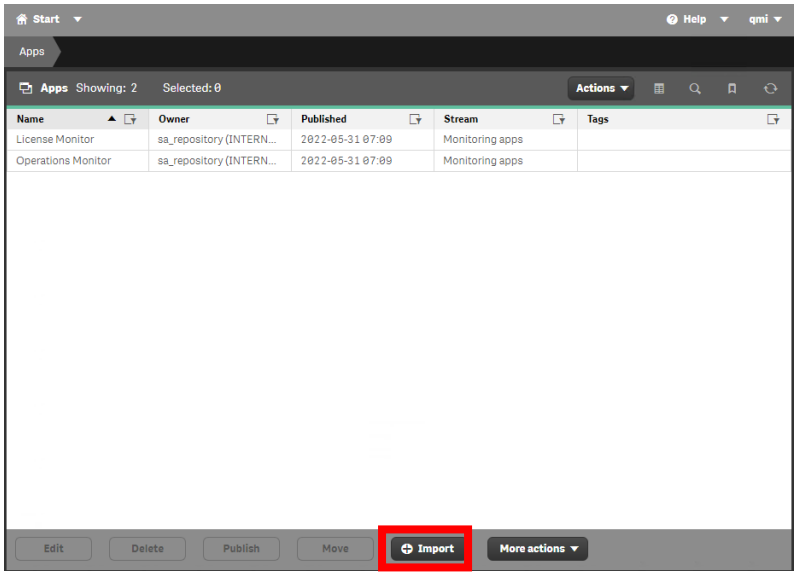
① Check the folder containing the Qlik Sense app.



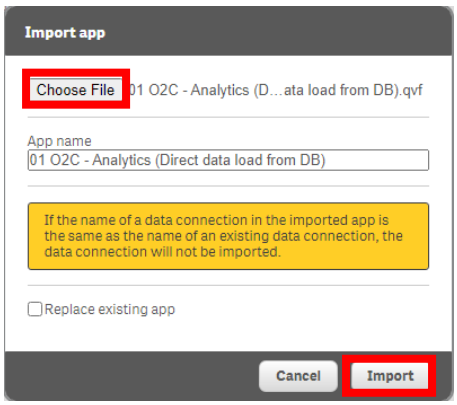
② Open the QMC screen (https://<hostname> /qmc/) and click on [Apps].



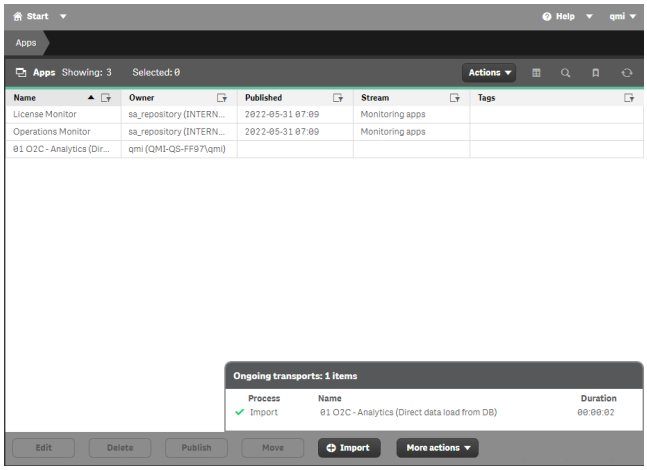
③ Click [Import].



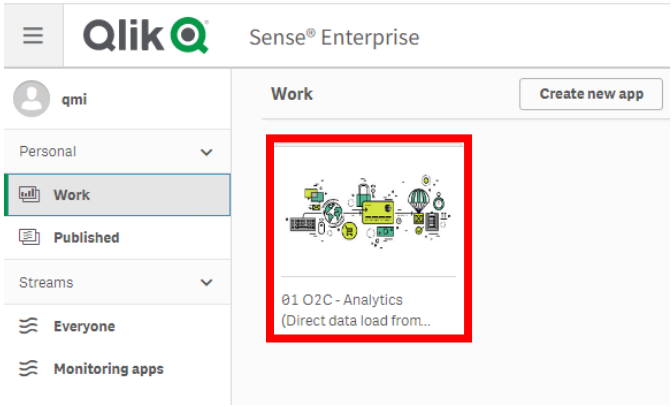
④ Click [Choose File], select the app file, and click [Import].



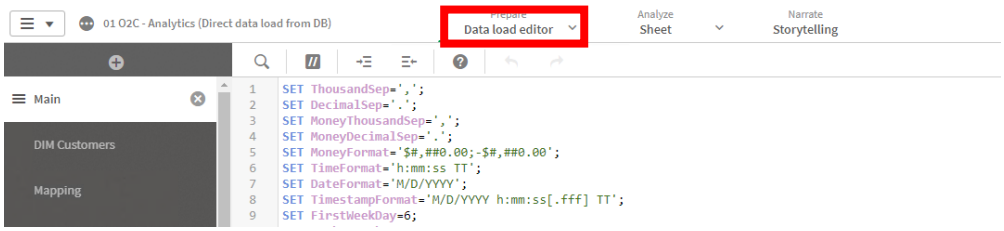
⑤ Confirm that the application has been imported without problems.



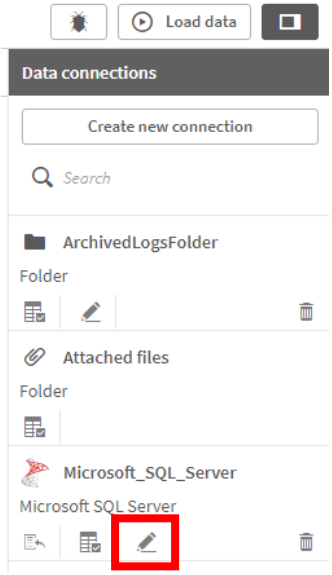
⑥ Open the Qlik Sense Hub screen (https://<hostname>/hub) and click on Apps.



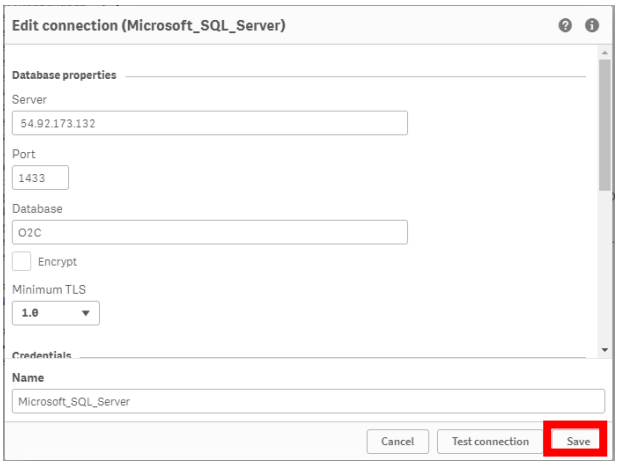
⑦ Open the Data Load Editor screen.



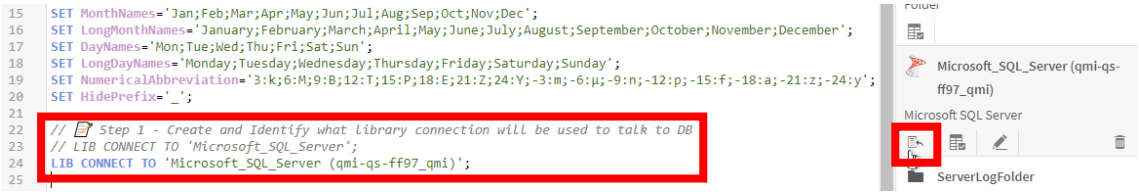
⑧ From the data connection definition, click the Edit button for "Microsoft_SQL_Server".



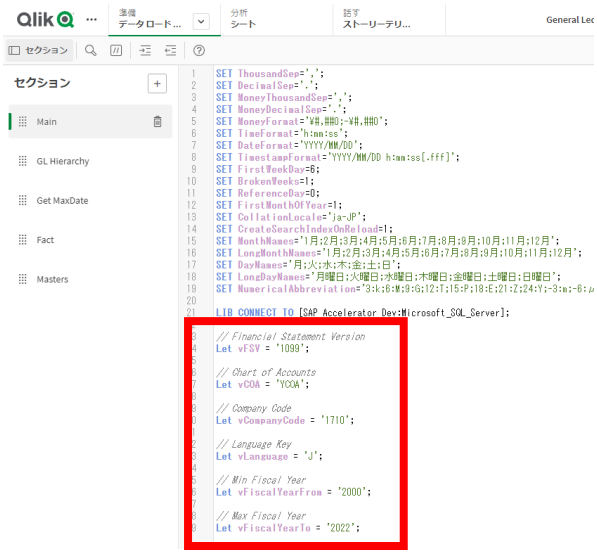
⑨ Update the connection information, test the connection, and save it.



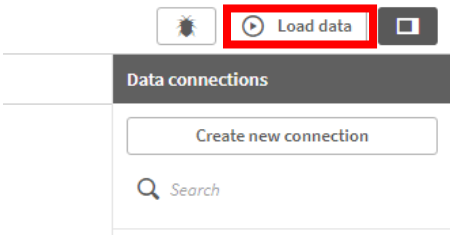
⑩ Comment out "LIB CONNECT TO 'Microsoft_SQL_Server';" in the load script and add the connection string from the connection definition you just edited.



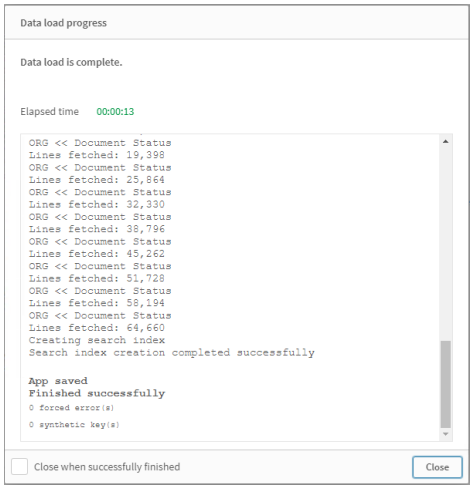
⑪ Depending on the app, variable settings may be required in the "Main" tab of the load script, so set the appropriate values for the variables. For "Finance" apps, there are variable settings for Chart of Account and Financial Statement Version. Please refer to Appendix 8: Checking Chart of Account and Financial Statement Version to find out the appropriate values for these variables.



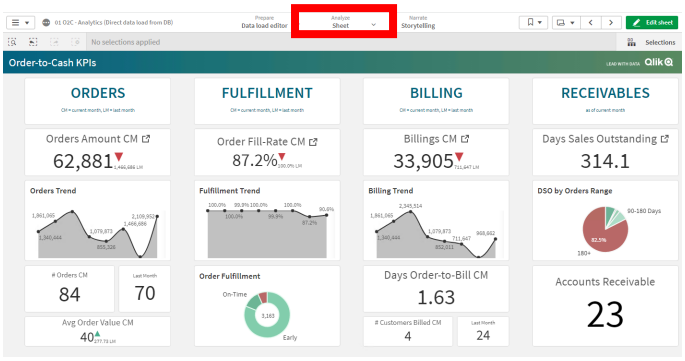
⑫ Click [Load data].



⑬ Verify that the data has been successfully loaded.

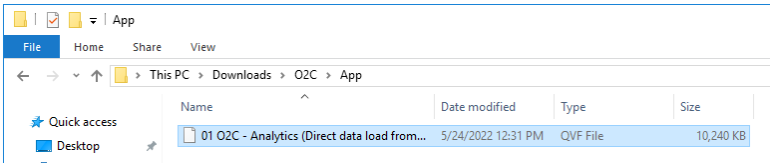


⑭ Display the sheet screen and verify that the values are displayed without problems.

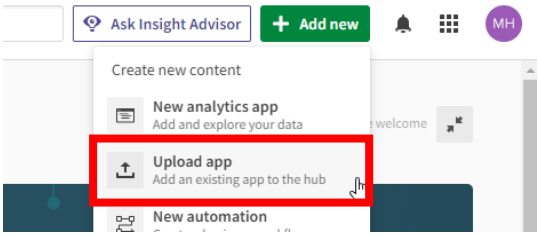


13.3 Qlik Sense SaaS

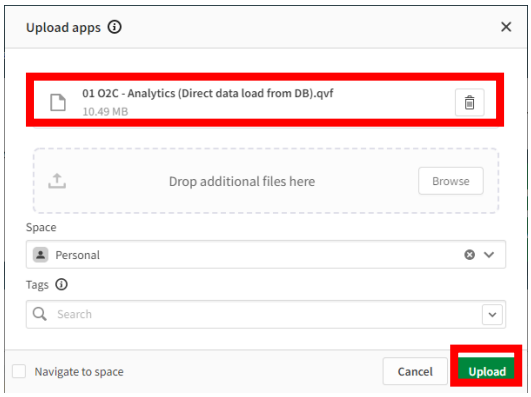
① Check the folder containing the Qlik Sense app.



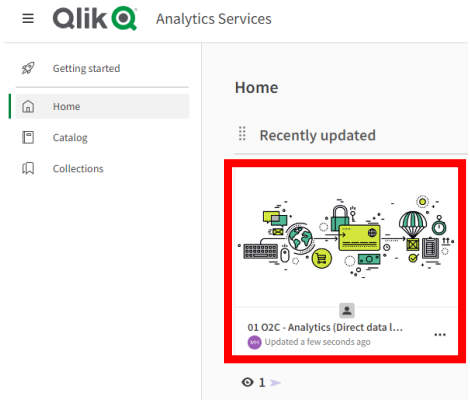
② Log on to the Qlik Sense SaaS screen and select [Add new]>[Upload app] in the upper right corner of the screen.



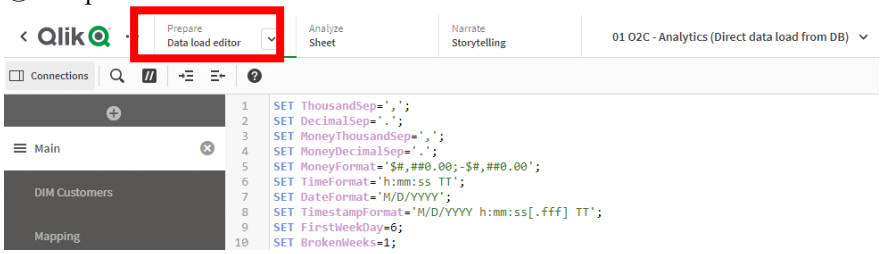
③ Select the app file and click Upload.



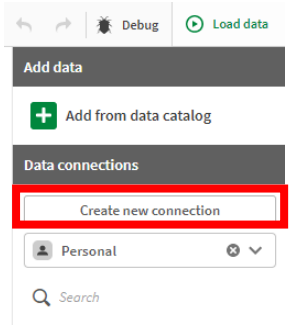
④ Click on the added app to open it.



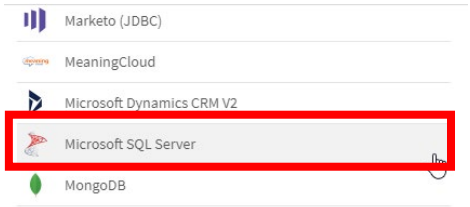
⑤ Open the Data Load Editor screen.



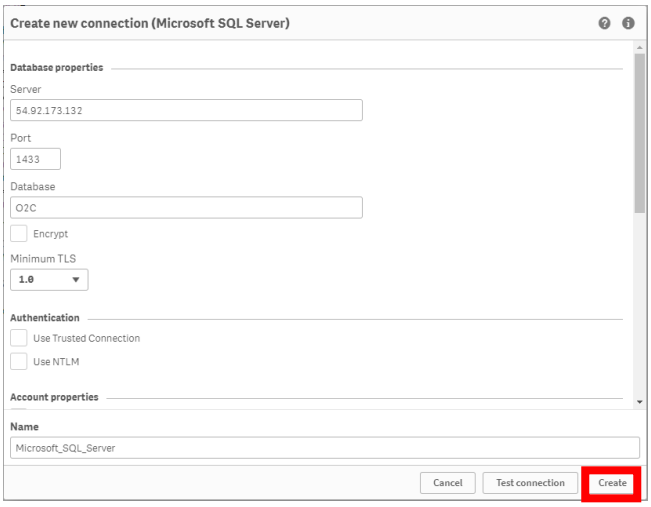
⑥ From the data connection definition, click [Create new connection].



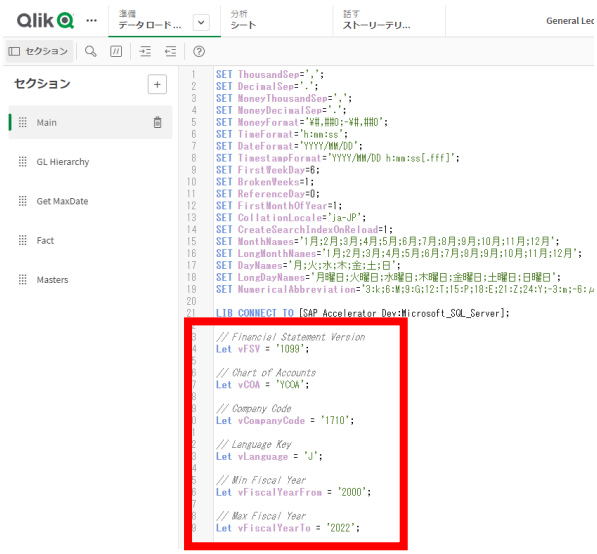
⑦ Select "Microsoft SQL Server" from the list.



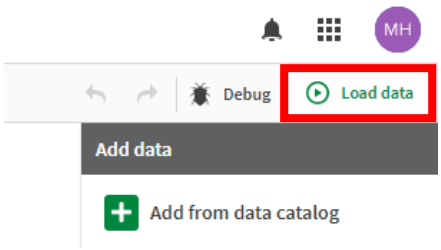
⑧ Enter authentication and other information. Specify "Database" as O2C, INV, FIN, or P2P. Change the [Name] to "Microsoft_SQL_Server" and click [Create].



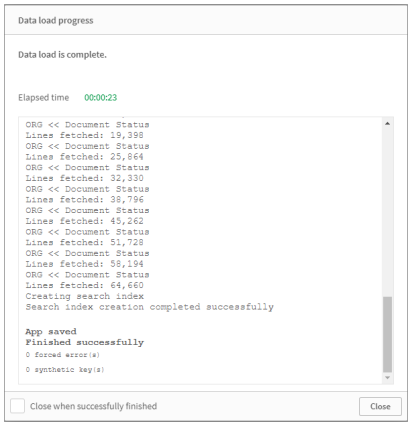
⑨ Depending on the app, variable settings may be required in the "Main" tab of the load script, so set the appropriate values for the variables. For "Finance" apps, there are variable settings for Chart of Account and Financial Statement Version. Please refer to Appendix 8: Checking Chart of Account and Financial Statement Version to find out the appropriate values for these variables.



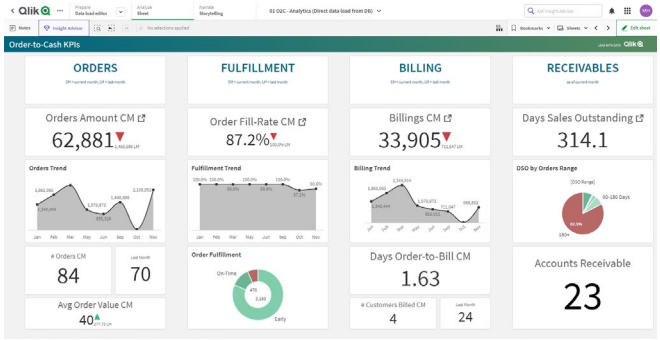
⑩ Click [Load data].



⑪ Verify that the data has been successfully loaded.

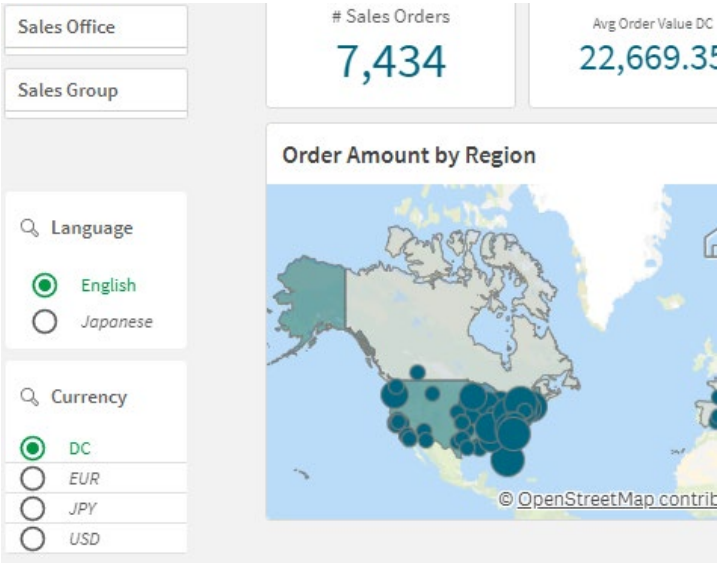


⑫ Display the sheet screen and verify that the values are displayed without problems.

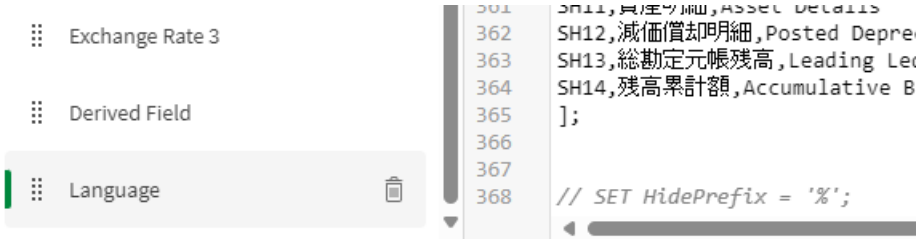


13.4 Always select one value setting

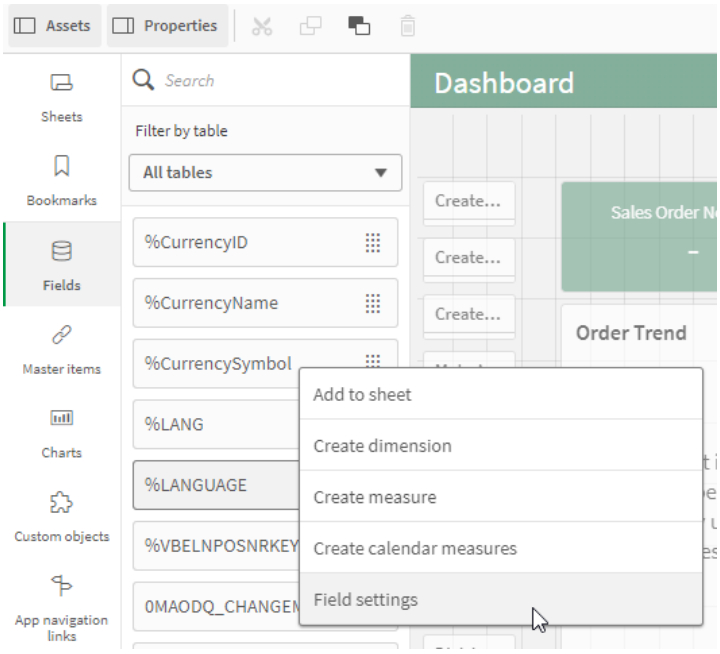
Some apps include language and currency switching functions. However, when the data reloads, the setting to always select one value for the language and currency fields may be disabled, and here's how to enable it。



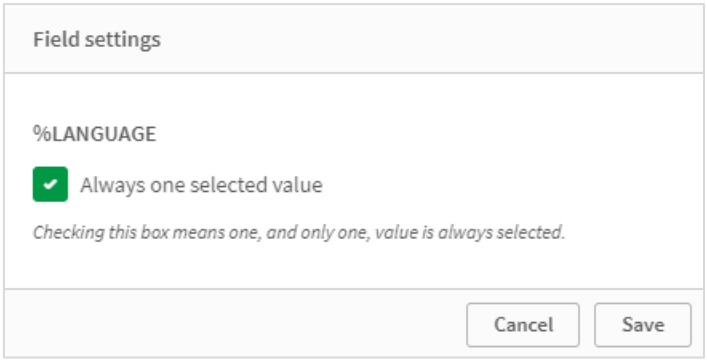
① Open the "Language" tab of the load script editor, comment out the following line of SET HidePrefix, and run reload.



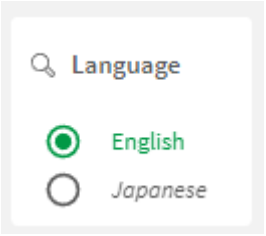
② Open the sheet, enter edit mode, right-click on "%LANGUAGE" for language settings or "%CurrencyName" for currency settings from Fields, and select [Field settings].



③ Select [Always one selected value] and click [Save].



④ Only one item can be selected on the language and currency selectors.

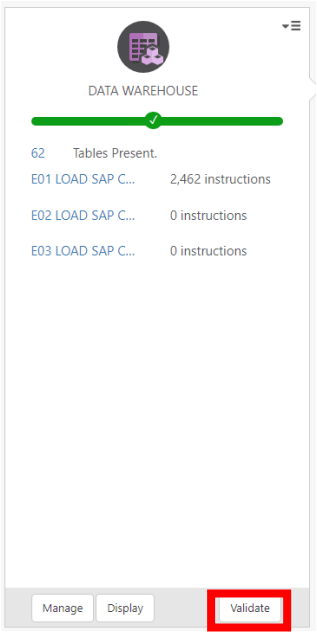


Appendix 1: Setting up CO-PA in Finance

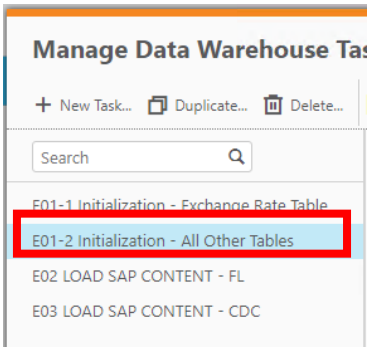
To extract CO-PA data, it is a prerequisite that CO-PA settings have been completed in advance on the SAP side. The following is an overview of the work required to extract the data, assuming that the settings have been completed.

Setting up CO-PA on Qlik Compose

① Open the "Finance" project on Qlik Compose and click on "Manage" under "DATA WAREHOUSE".



② [Open the tab E01-2 Initialization - All Other Tables.



③ Turn on the "Map_E1_CO_PA_DS2_S4_HANA_SAP Landing" checkbox if the source is SAP S/4 HANA or "Map_E1_CO_PA_DS2_SAP Landing" if the source is SAP ECC. If you do not use CO-PA. leave both checkboxes turned off.

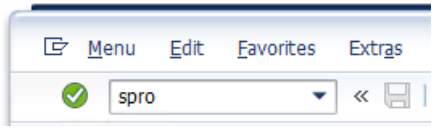
E0VENDOR_TEXT	☑	☑ Map_E0VENDOR_TEXT_SAP Landing
E1_CO_PA_DS2	☑	☐ Map_E1_CO_PA_DS2_SAP Landing ☑ Map_E1_CO_PA_DS2_S4_HANA_SAP Landing
Time	☑	

Perform the same procedure above with the "E03 LOAD SAP CONTENT - CDC" tab open.

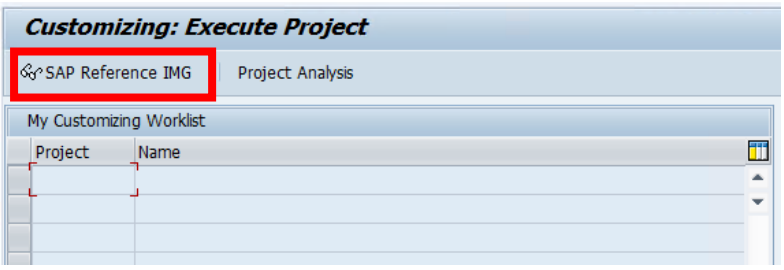
Confirmation of Operating Concern

Information on the Operating Concern (CO-PA) is required to activate CO-PA. Here, we explain how to confirm the information based on the Company Code.

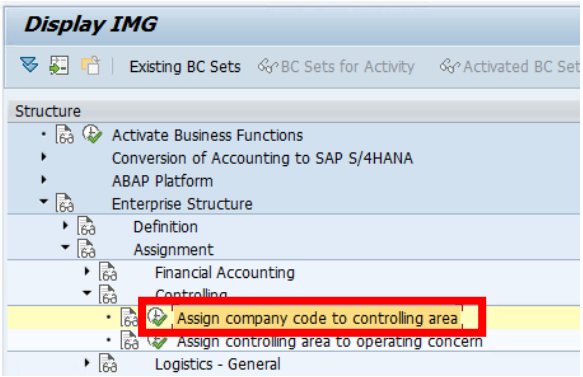
① Enter T-code "spro".



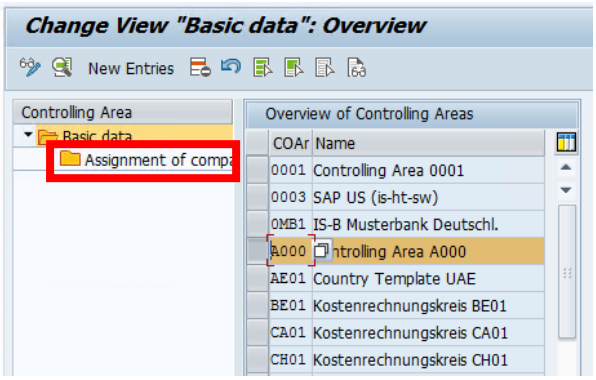
② Select [SAP Reference IMG].



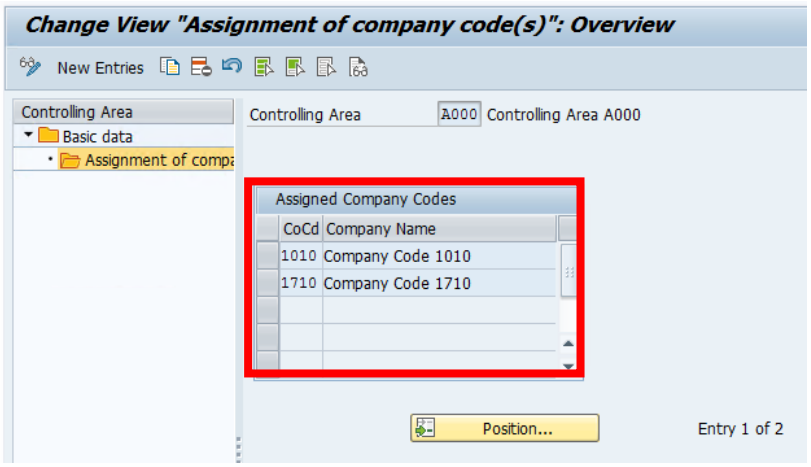
③ Click on [Enterprise Structure] > [Assignment] > [Controlling] > [Assign company code to controlling area].



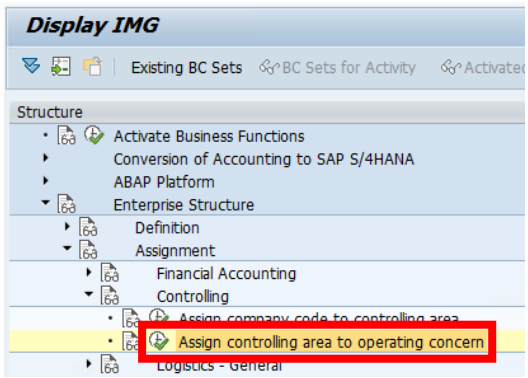
④ Select Controlling Area from the list and click [Assignment of company code].



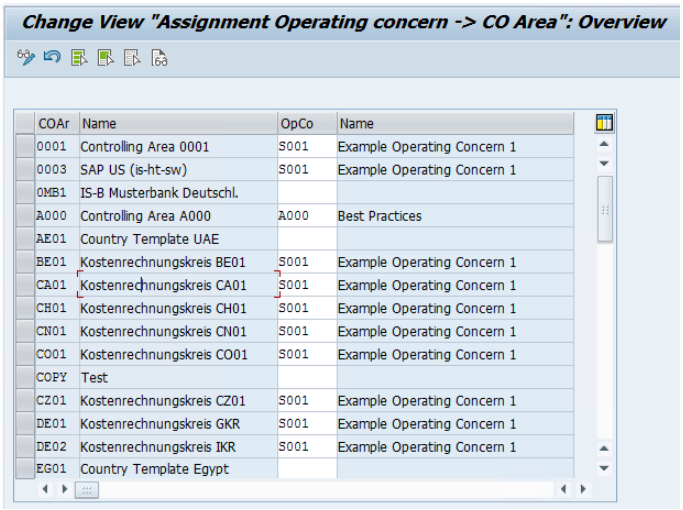
⑤ You can check the Company Code assigned to the Controlling Area.



⑥ Return to the SAP Reference IMG screen and click [Enterprise Structure] > [Assignment] > [Controlling] > [Assign controlling area to operating concern]. Click [Assign controlling area to operating concern].



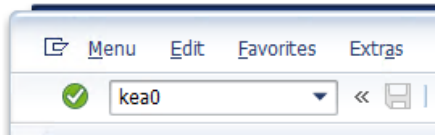
⑦ You can check the Operating Concern assigned to the Controlling Area.



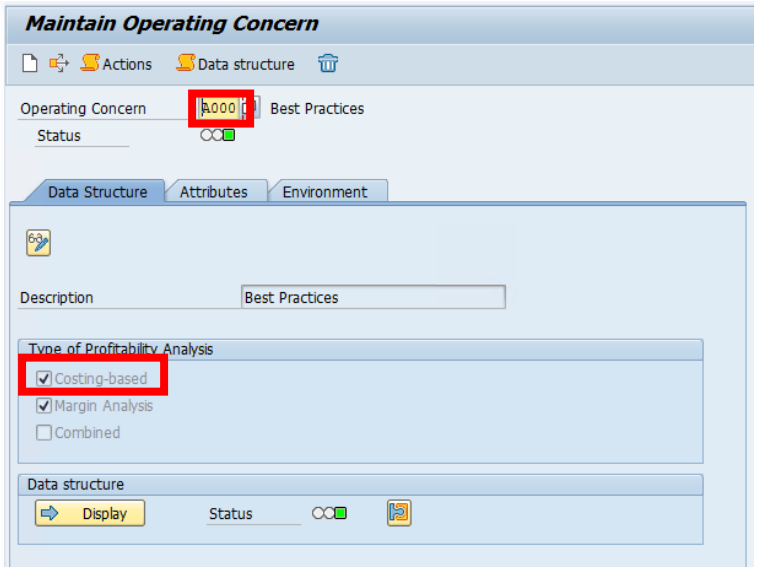
COAr	Name	OpCo	Name
0001	Controlling Area 0001	S001	Example Operating Concern 1
0003	SAP US (is-ht-sw)	S001	Example Operating Concern 1
0MB1	IS-B Musterbank Deutschl.		
A000	Controlling Area A000	A000	Best Practices
AE01	Country Template UAE		
BE01	Kostenrechnungskreis BE01	S001	Example Operating Concern 1
CA01	Kostenrechnungskreis CA01	S001	Example Operating Concern 1
CH01	Kostenrechnungskreis CH01	S001	Example Operating Concern 1
CN01	Kostenrechnungskreis CN01	S001	Example Operating Concern 1
CO01	Kostenrechnungskreis CO01	S001	Example Operating Concern 1
COPY	Test		
CZ01	Kostenrechnungskreis CZ01	S001	Example Operating Concern 1
DE01	Kostenrechnungskreis GKR	S001	Example Operating Concern 1
DE02	Kostenrechnungskreis IKR	S001	Example Operating Concern 1
EG01	Country Template Egypt		

Confirmation of activation of Costing-based

① Enter transaction code "kea0".

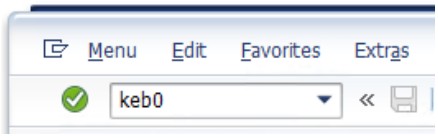


② Enter [Operating Concern] as confirmed in the previous step and press [Enter]. Confirm that [Costing-based] is ON. If not, you need to activate it.

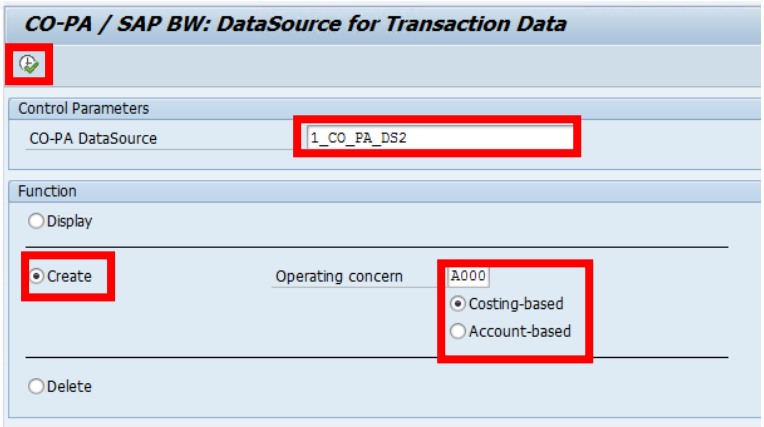


CO-PA data source activation

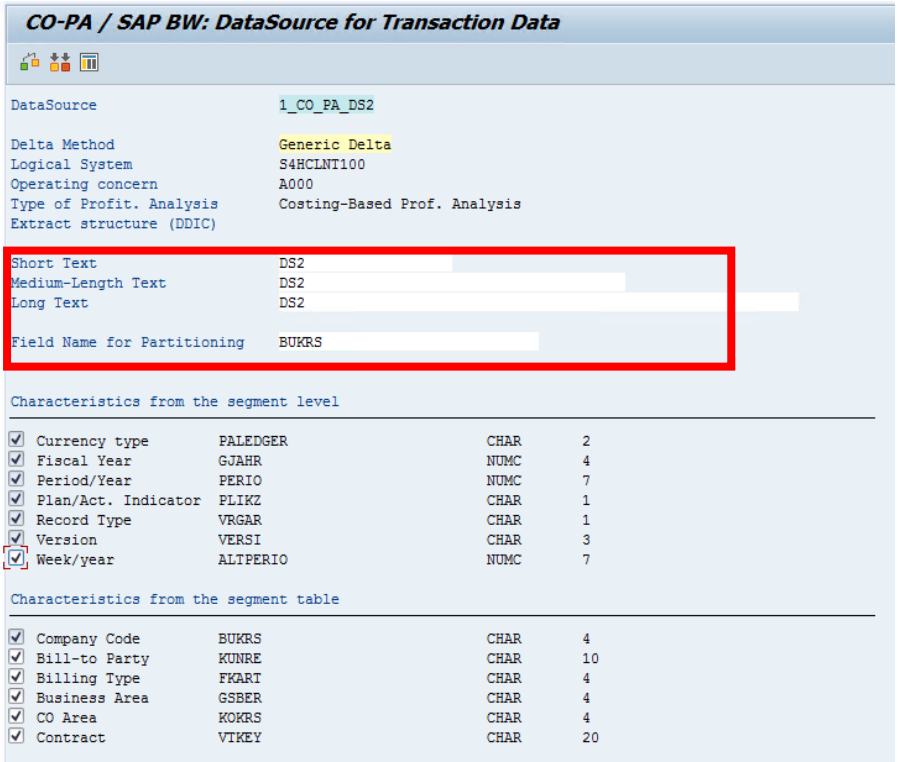
① Enter transaction code "keb0".



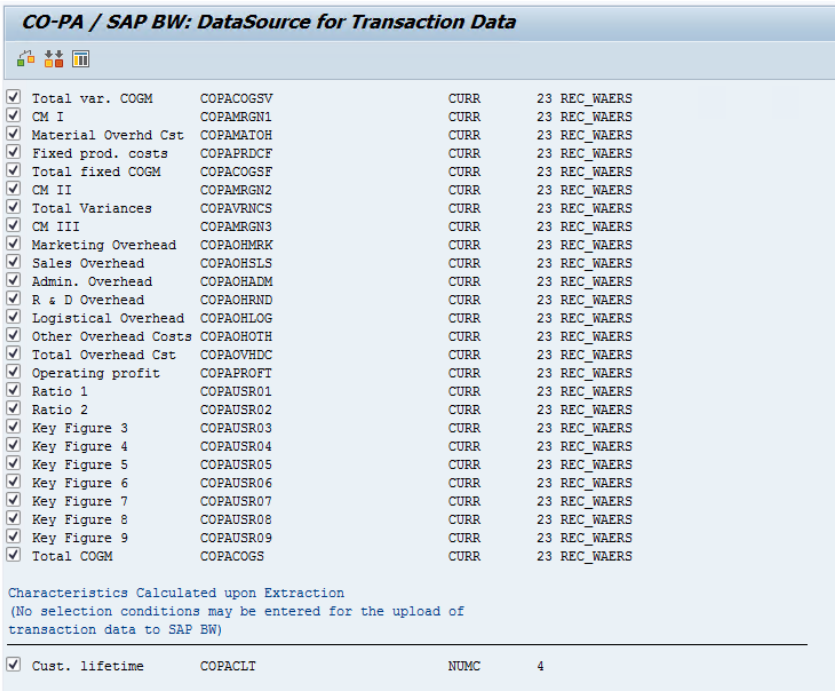
② Enter "1_CO_PA_DS2" in the [CO-PA DataSource] field. Select [Create], enter [Operating concern], select [Costing-based] and click [Execute].



③ Enter [Short Text], [Medium-Length Text], [Long Text], and [Field Name for Partitioning] as follows

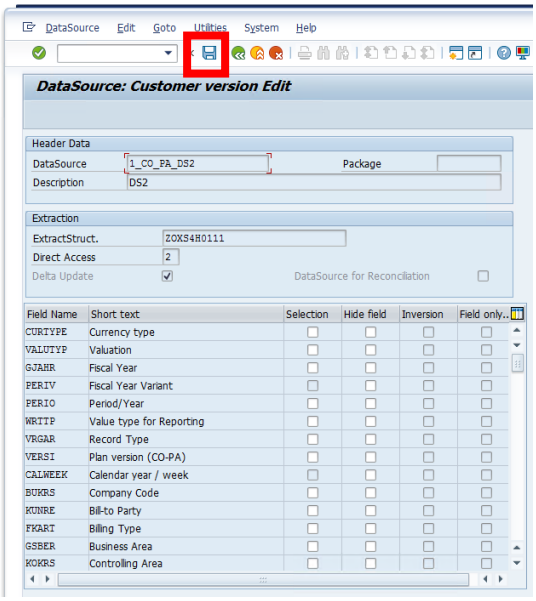


④ Check the boxes for all items.



⑤ Click on the [Infocatalog] icon (rightmost icon).

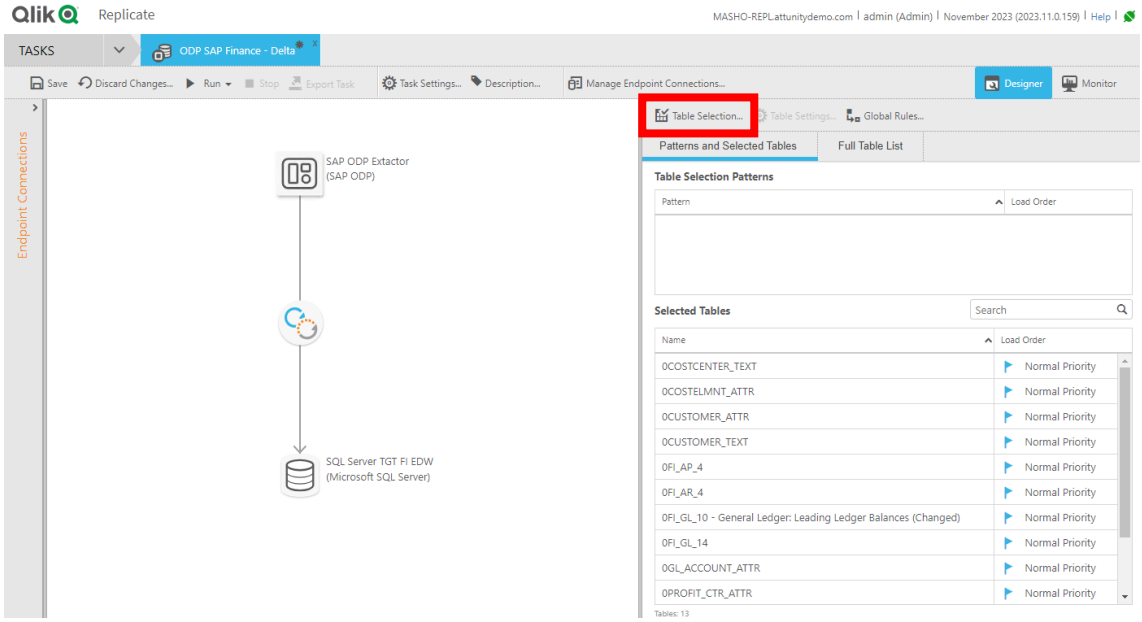
⑥ Click [Save].



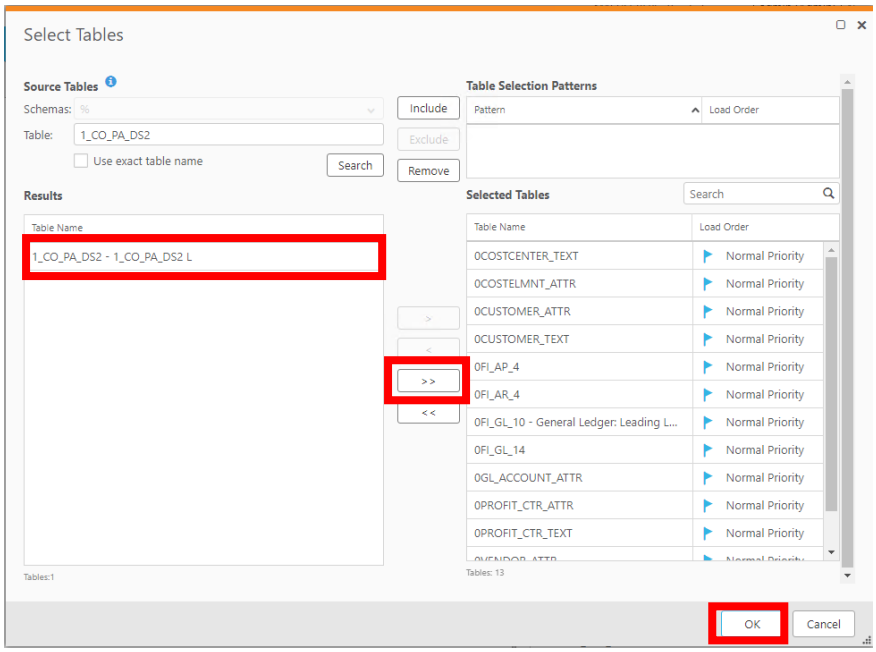
⑦ Confirm that the CO-PA data source has been created and click [Continue]. After completing the settings, perform a test to see if data can be extracted from "1_CO_PA_DS2" by following the procedure in 8 Confirmation of data source extraction via ODP. If data is not extracted, you will need to review the settings based on the description such as "SAP BW COPA Extraction in detail, Delta Mechanisms and few challenges faced during Implementation".

Adding a CO-PA table to a Qlik Replicate task

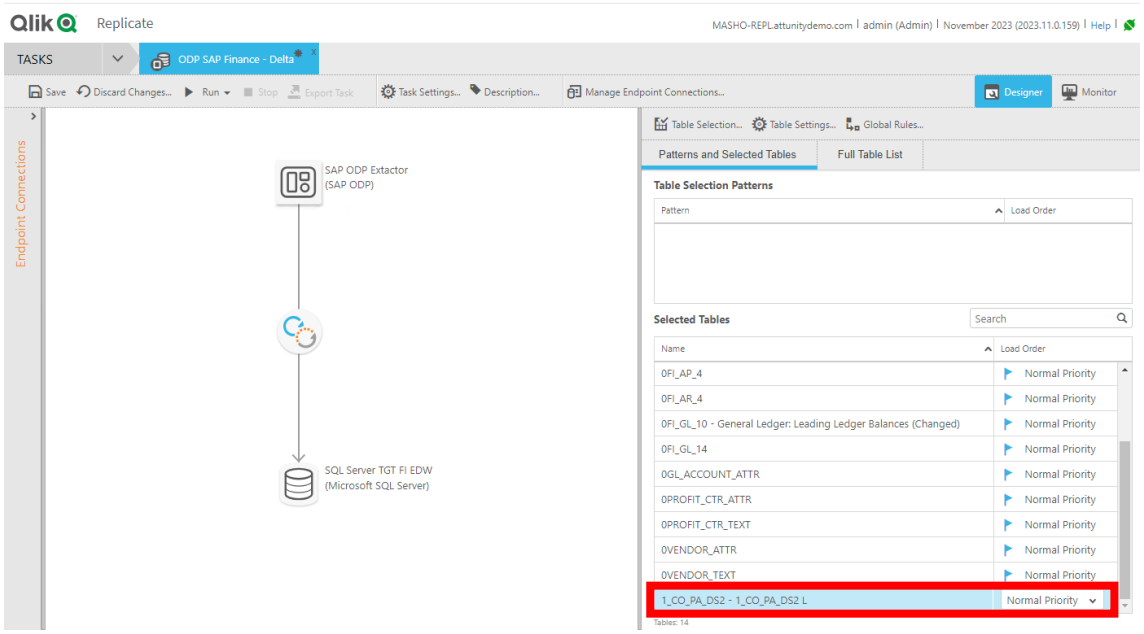
On the Qlik Replicate console, open the Finance task and click [Table Selection..]



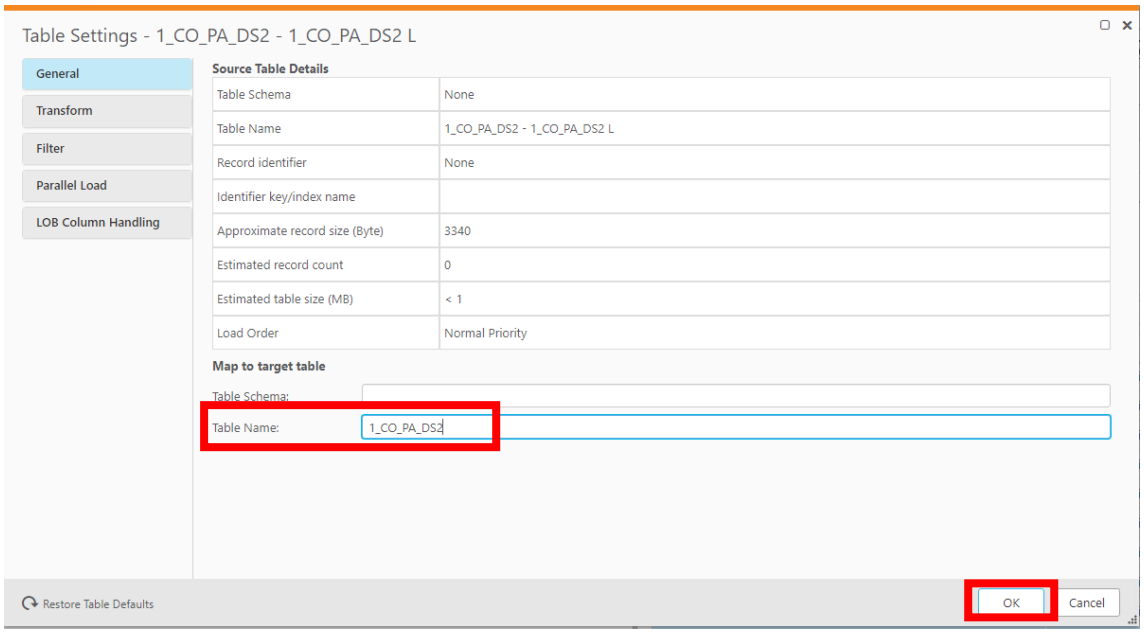
Add the "1_CO_PA_DS2" data source to [Selected Tables] and click [OK].



Double-click “1_CO_PA_DS2” table in the Selected Table.



For Table Name, type “1_CO_PA_DS2” and click [OK].

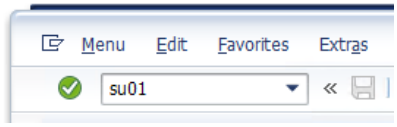


Appendix 2: Creating user for Qlik Replicate

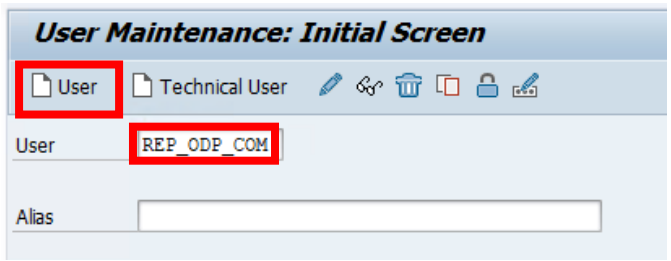
Creating user

To use SAP ODP as a source in the Qlik Replicate task, create a SAP user configured with the permission settings described below.

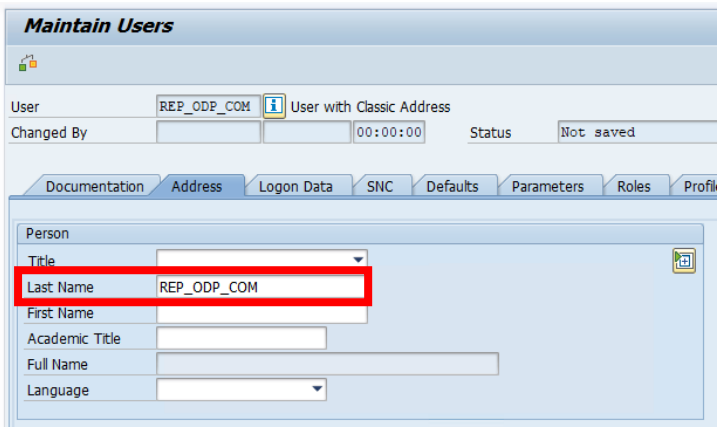
① Enter T-code "su01".



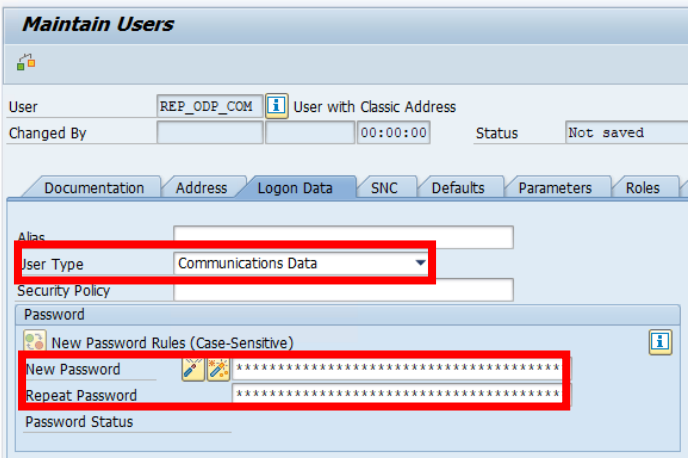
② Enter a user name in [User] and click [User].



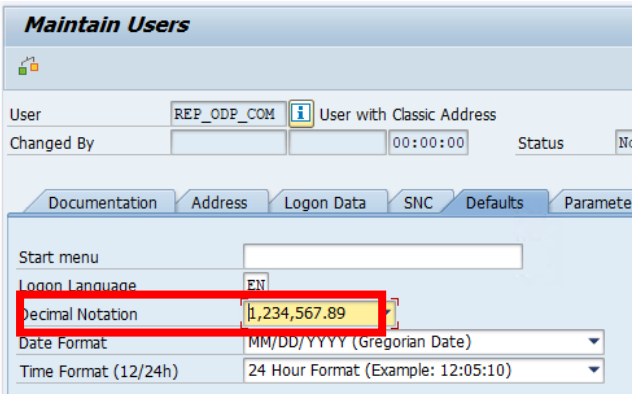
③ In the [Address] tab, enter the [Last name].



④ On the [Logon Data] tab, select [Communications Data] for [User Type] and enter the password.

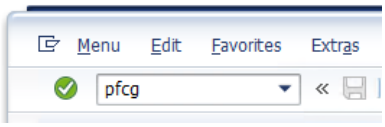


⑤ Click the [Defaults] tab, set [Decimal Notation] to "1,234,567.89" and click [Save].

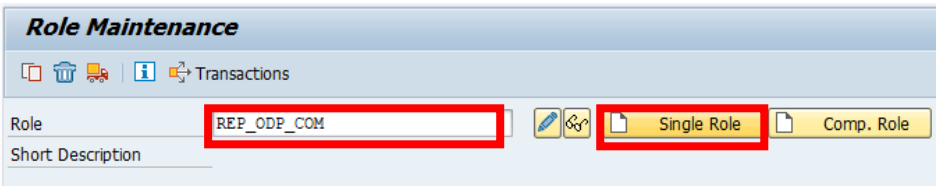


Authorization objects that need to be added to the user profile are as follows:

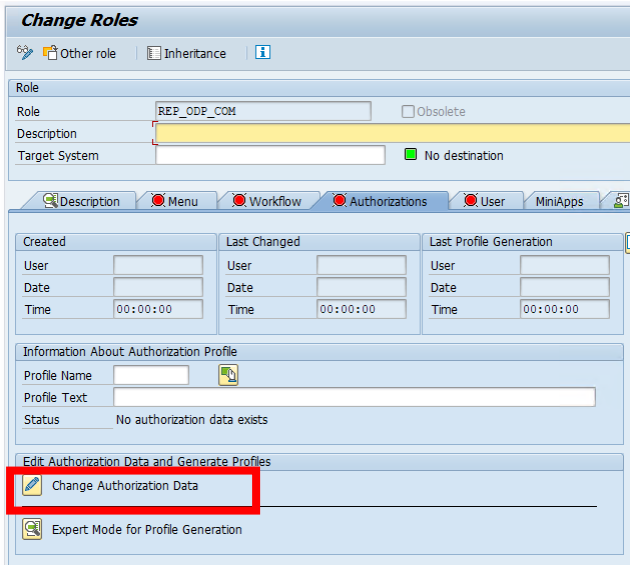
① Enter T-code "pfcg".



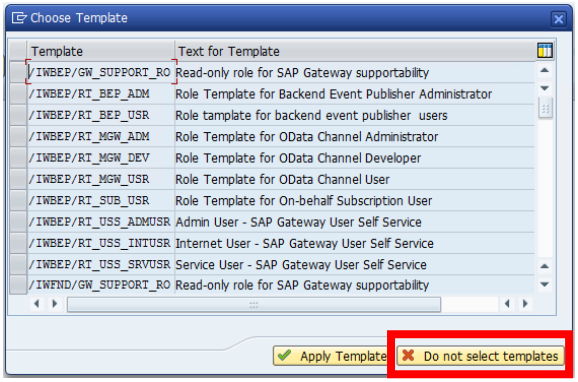
② Enter a role name in [Role] and click [Single Role].



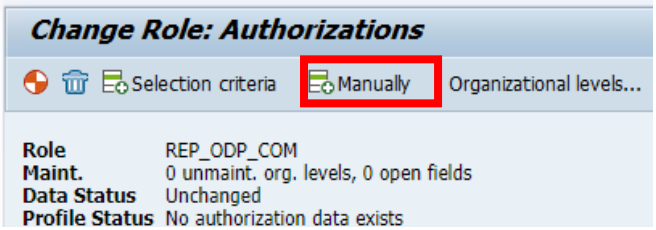
③ [Open the Authorizations tab and click on [Change Authorization Data].



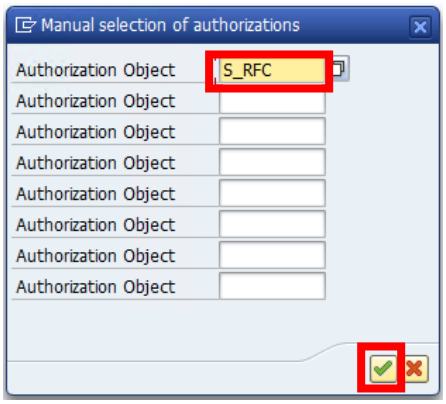
④ Click on [Do not select templates].



⑤ Click [Manually].

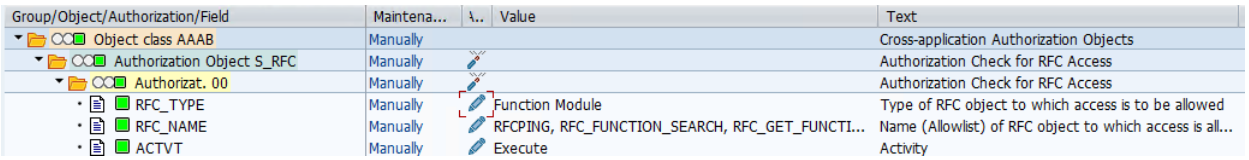


⑥ Here, first enter the [Authorization Object] to add the "S_RFC" authorization object, and click [Continue].



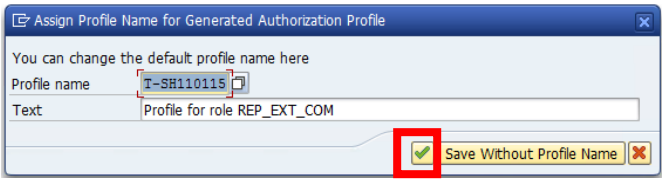
⑦ Edit each authority object added to the list as follows:

S_RFC



Field Name	value
Type of RFC object to which access (RFC_TYPE)	Function Module
Name (Allowlist) of RFC object to which access is allowed (RFC_NAME)	RFCPING RFC_FUNCTION_SEARCH RFC_GET_FUNCTION_INTERFACE RFC_METADATA_GET RODPS_REPL_CONTEXT_GET_LIST RODPS_REPL_ODP_FETCH RODPS_REPL_ODP_GET_DETAIL RODPS_REPL_ODP_GET_LIST RODPS_REPL_ODP_OPEN RODPS_REPL_ODP_READ_DIRECT RODPS_REPL_ODP_RESET SADT_REST_RFC_ENDPOINT SCSI_GET_SYSTEM_INFO
Activity (ACTVT)	16 (Execute)

⑧ Click [Save].



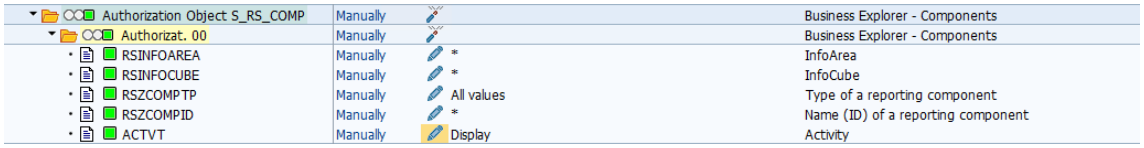
⑨ Follow the same procedure as above to further add and edit the following authorization

objects.

S_RS_ADSO

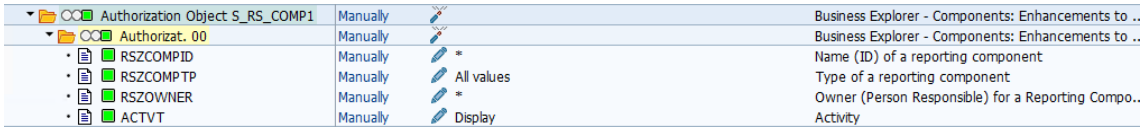
Field Name	value
InfoArea (RSINFOAREA)	*
Datastore Object: Name (RSOADSONM)	*
Subobject for ADSO (RSOADSOPAR)	
Activity (ACTVT)	23 (Maintain)

S_RS_COMP



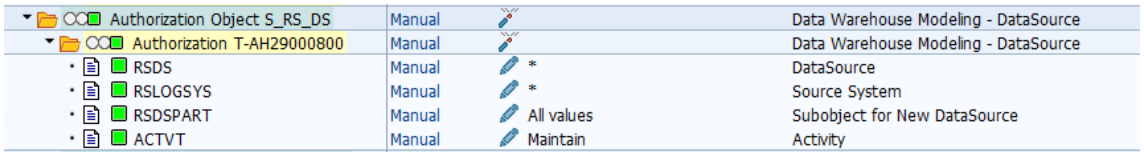
Field Name	value
InfoArea (RSINFOAREA)	*
InfoCute (RSINFOCUBE)	*
Type of a reporting component (RSZCOMPTP)	*
Name (ID) of a reporting component (RSZCOMPID)	*
Activity (ACTVT)	03 (Display)

S_RS_COMP1



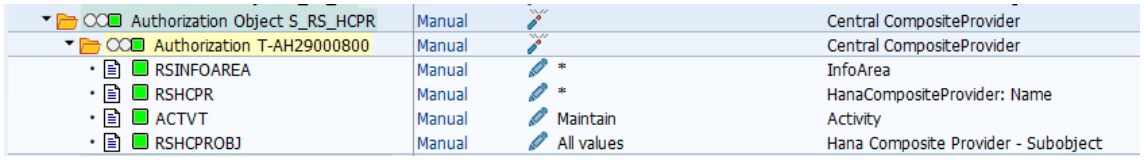
Field Name	value
Name (ID) of a reporting component (RSZCOMPID)	*
Type of a reporting component (RSZCOMPTP)	*
Owner (Person Responsible) for a Reporting Component (RSZOWNER)	*
Activity (ACTVT)	03 (Display)

S_RS_DS



Field Name	value
DataSource (RSDS)	*
Source System (RSLOGSYS)	*
Subobject for New DataSource (RSDSPART)	*
Activity (ACTVT)	23 (Maintain)

S_RS_HCPR

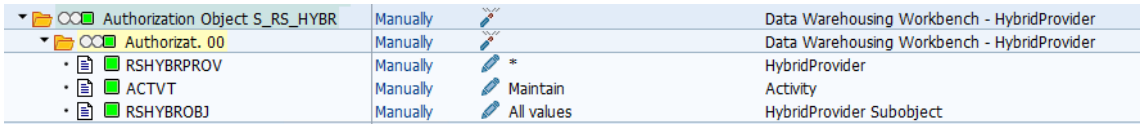


Field Name	value
InfoArea (RSINFOAREA)	*
HanaCompositeProvider: Name (RSHCPR)	*

Activity (ACTVT)	23 (Maintain)
Hana Composite Provider - Subobject (RSHCPROBJ)	*

S_RS_HYBR

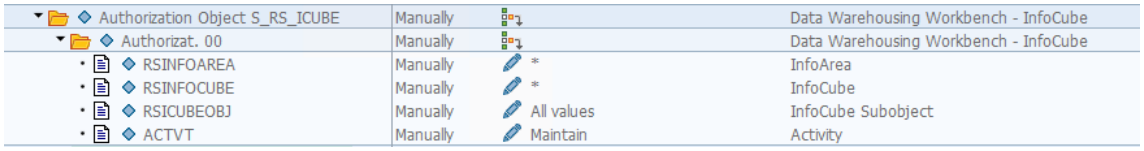
※ Obsolete on BW4/HANA



Field Name	value
HybridProvider (RSHYBRPROV)	*
Activity (ACTVT)	23 (Maintain)
HybridProvider Subobject (RSHYBROBJ)	*

S_RS_ICUBE

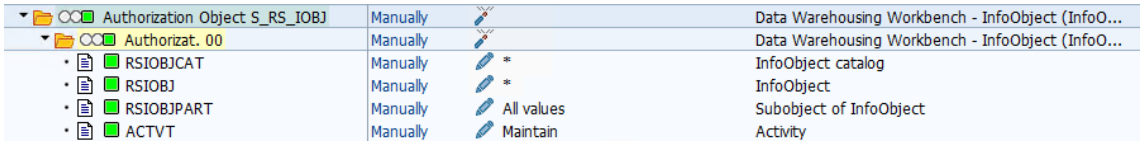
※ Obsolete on BW4/HANA



Field Name	value
InfoArea (RSINFOAREA)	*
InfoCube (RSINFOCUBE)	*
InfoCube Subobject (RSICUBEOBJ)	*
Activity (ACTVT)	23 (Maintain)

S_RS_IOBJ

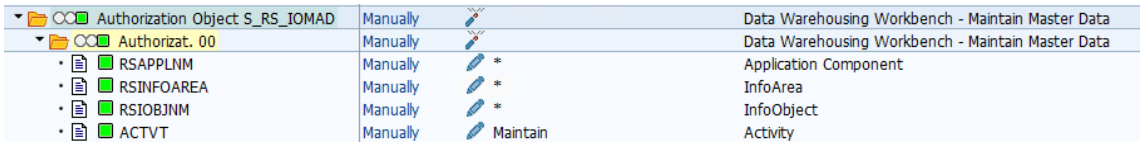
※ Obsolete on BW4/HANA



Field Name	value
InfoObject catalog (RSIOBJCAT)	*
InfoObject (RSIOBJ)	*
Subobject of InfoObject (RSIOBJPART)	*
Activity (ACTVT)	23 (Maintain)

S_RS_IOMAD

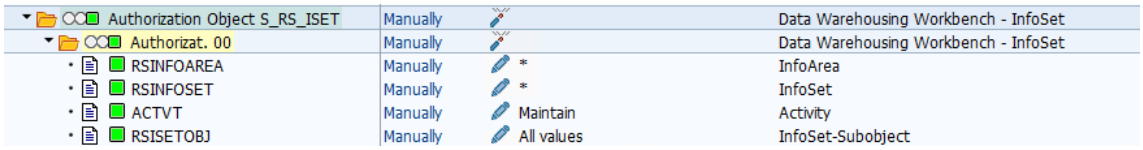
※ Obsolete on BW4/HANA



Field Name	value
Application Component (RSAPPLNM)	*
InfoArea (RSINFOAREA)	*
InfoObject (RSIOBJNM)	*
Activity (ACTVT)	23 (Maintain)

S_RS_ISET

※ Obsolete on BW4/HANA



Field Name	value
InfoArea (RSINFOAREA)	*

InfoSet (RSINFOSET)	*
Activity (ACTVT)	23 (Maintain)
InfoSet-Subobject (RSISETOBJ)	*

S_RS_MPRO

※ Obsolete on BW4/HANA

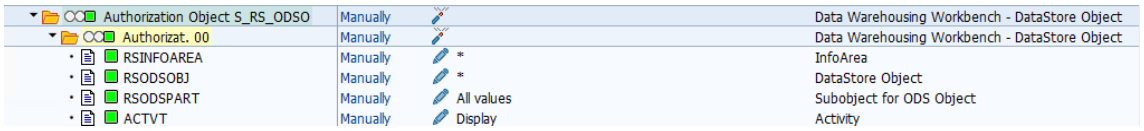
Field Name	value
InfoArea (RSINFOAREA)	*
MultiProvider (RSMPRO)	*
MultiProvider Subobject (RSMPROOBJ)	*
Activity (ACTVT)	23 (Maintain)

S_RS_ODP_H

Field Name	value
Activity (ACTVT)	03 (Display)
SAP HANA Package (RSODPHPKG)	*
SAP HANA Object Name (RSODPHNAME)	*

S_RS_ODSO

※ Obsolete on BW4/HANA



Field Name	value
InfoArea (RSINFOAREA)	*
DataStore Object (RSODSOBJ)	*
Subobject for ODS Object (RSODSPART)	*
Activity (ACTVT)	23 (Maintain)

S_RS_ODSV

Field Name	value
Activity (ACTVT)	23 (Maintain)
InfoArea (RSINFOAREA)	*
View name (RSFBPNAME)	*
View Subobject (RSFBPOBJ)	*

S_RO_OSOA

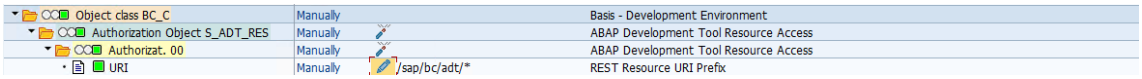
Field Name	value
DataSource (OSOA/OSOD) (OLTPSOURCE)	*

Application Component of a DataSource (OSOA/OSOD) (OSOAAPCO)	*
Subobject for DataSource (OSOAPART)	*
Activity (ACTVT)	23 (Maintain)

S_ADMI_FCD

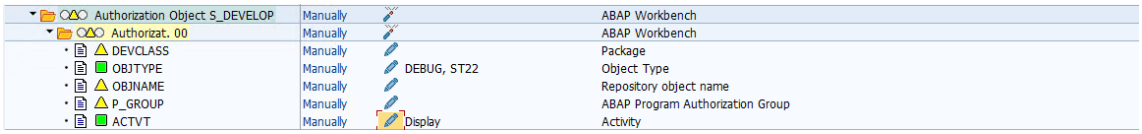
Field Name	value
System administration function (S_ADMI_FCD)	PADM, ST22

S_ADT_RES



Field Name	value
REST Resource URI Prefix (URI)	/sap/bc/adt/*

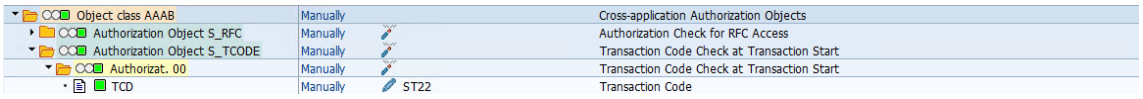
S_DEVELOP



Field Name	value
Package (DEVCLASS)	
Object Type (OBJTYPE)	DEBUG, ST22
Repository object name (OBJNAME)	

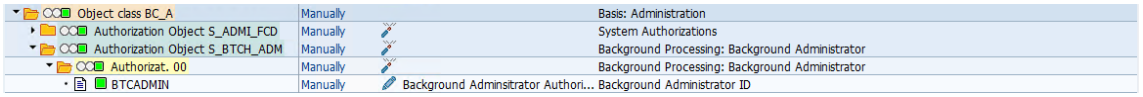
ABAP Program Authorization Group (P_GROUP)	
Activity (ACTVT)	03 (Display)

S_TCODE



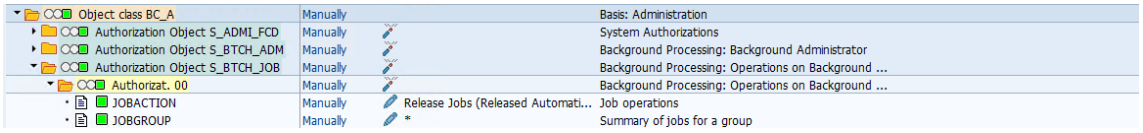
Field Name	value
Transaction Code (TCD)	ST22

S_BTCH_ADM



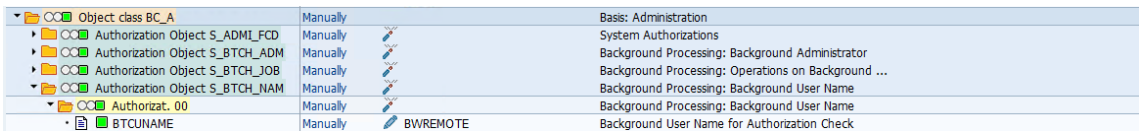
Field Name	value
Background Administrator ID (BTCADMIN)	Y

S_BTCH_JOB



Field Name	value
Job operations (JOBACTION)	RELE
Summary of jobs for a group (JOBGROUP)	*

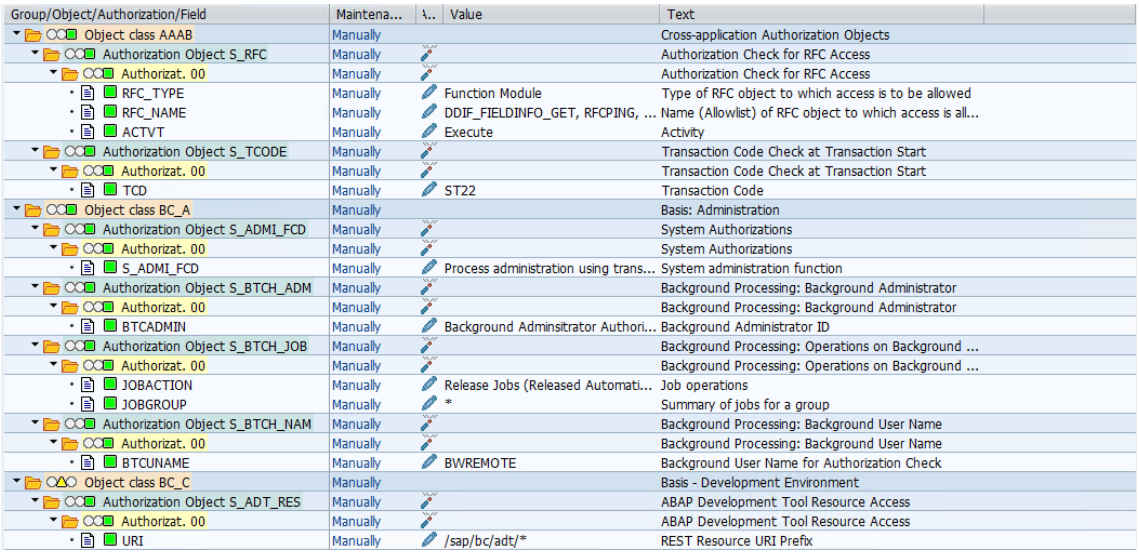
S_BTCH_NAM



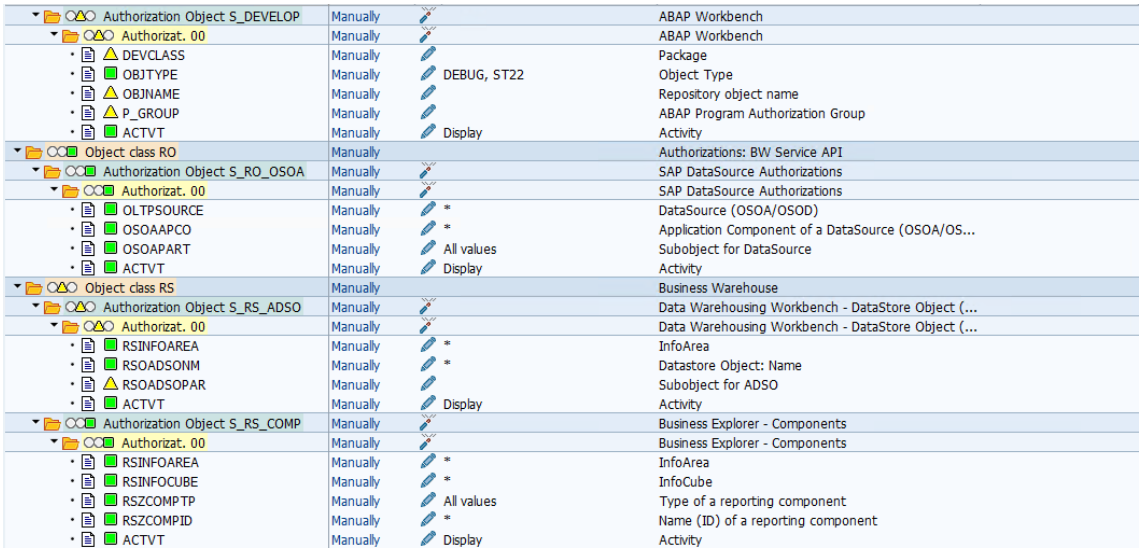
Field Name	value
Background User Name for Authorization Check	BWREMOTE

(BTCUNAME)	

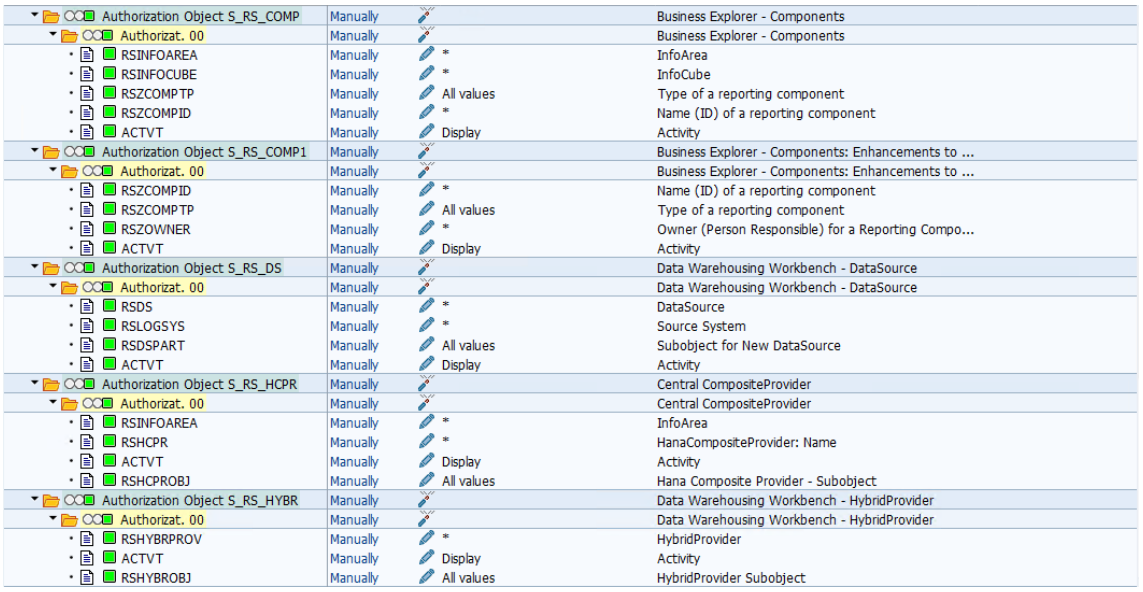
⑩ After the completion of the authorization settings, the whole configuration should look as follows:



Group/Object/Authorization/Field	Maintena...	\..	Value	Text
Object class AAAB	Manually			Cross-application Authorization Objects
Authorization Object S_RFC	Manually			Authorization Check for RFC Access
Authorizat. 00	Manually			Authorization Check for RFC Access
RFC_TYPE	Manually		Function Module	Type of RFC object to which access is to be allowed
RFC_NAME	Manually		DDIF_FIELDINFO_GET, RFCPING, ...	Name (Allowlist) of RFC object to which access is all...
ACTVT	Manually		Execute	Activity
Authorization Object S_TCODE	Manually			Transaction Code Check at Transaction Start
Authorizat. 00	Manually			Transaction Code Check at Transaction Start
TCD	Manually		ST22	Transaction Code
Object class BC_A	Manually			Basis: Administration
Authorization Object S_ADMI_FCD	Manually			System Authorizations
Authorizat. 00	Manually			System Authorizations
S_ADMI_FCD	Manually		Process administration using trans...	System administration function
Authorization Object S_BTCH_ADM	Manually			Background Processing: Background Administrator
Authorizat. 00	Manually			Background Processing: Background Administrator
BTCADMIN	Manually		Background Adminsitrator Authori...	Background Administrator ID
Authorization Object S_BTCH_JOB	Manually			Background Processing: Operations on Background ...
Authorizat. 00	Manually			Background Processing: Operations on Background ...
JOBACTION	Manually		Release Jobs (Released Automati...	Job operations
JOBGROUP	Manually		*	Summary of jobs for a group
Authorization Object S_BTCH_NAM	Manually			Background Processing: Background User Name
Authorizat. 00	Manually			Background Processing: Background User Name
BTCUNAME	Manually		BWREMOTE	Background User Name for Authorization Check
Object class BC_C	Manually			Basis - Development Environment
Authorization Object S_ADT_RES	Manually			ABAP Development Tool Resource Access
Authorizat. 00	Manually			ABAP Development Tool Resource Access
URI	Manually		/sap/bc/adt/*	REST Resource URI Prefix



Authorization Object S_DEVELOP	Manually		ABAP Workbench
Authorizat. 00	Manually		ABAP Workbench
DEVCLASS	Manually		Package
OBJTYPE	Manually	DEBUG, ST22	Object Type
OBJNAME	Manually		Repository object name
P_GROUP	Manually		ABAP Program Authorization Group
ACTVT	Manually	Display	Activity
Object class RO	Manually		Authorizations: BW Service API
Authorization Object S_RO_OSOA	Manually		SAP DataSource Authorizations
Authorizat. 00	Manually		SAP DataSource Authorizations
OLTPSOURCE	Manually	*	DataSource (OSOA/OSOD)
OSOAAPCO	Manually	*	Application Component of a DataSource (OSOA/OS...
OSOAPART	Manually	All values	Subobject for DataSource
ACTVT	Manually	Display	Activity
Object class RS	Manually		Business Warehouse
Authorization Object S_RS_ADSO	Manually		Data Warehousing Workbench - DataStore Object (...
Authorizat. 00	Manually		Data Warehousing Workbench - DataStore Object (...
RSINFOAREA	Manually	*	InfoArea
RSOADSONM	Manually	*	Datastore Object: Name
RSOADSOPAR	Manually		Subobject for ADSO
ACTVT	Manually	Display	Activity
Authorization Object S_RS_COMP	Manually		Business Explorer - Components
Authorizat. 00	Manually		Business Explorer - Components
RSINFOAREA	Manually	*	InfoArea
RSINFOCUBE	Manually	*	InfoCube
RSZCOMPTP	Manually	All values	Type of a reporting component
RSZCOMPID	Manually	*	Name (ID) of a reporting component
ACTVT	Manually	Display	Activity



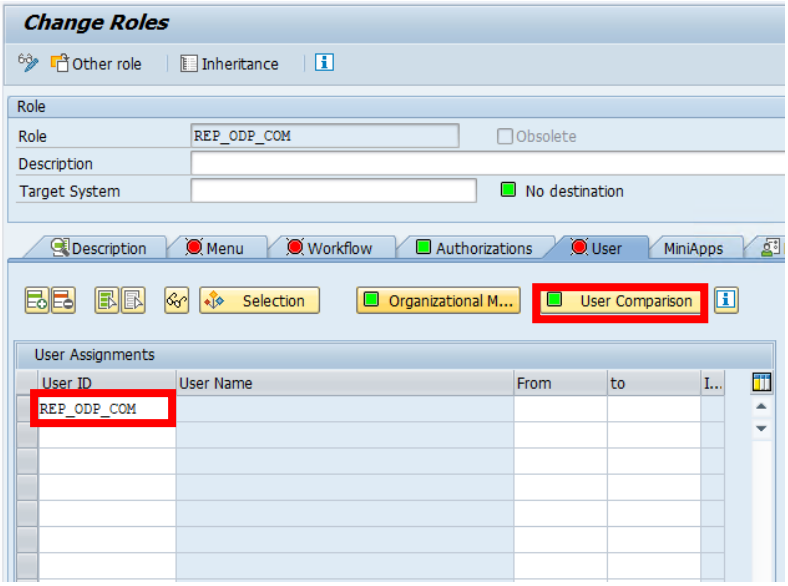
Authorization Object S_RS_COMP	Manually		Business Explorer - Components
Authorizat. 00	Manually		Business Explorer - Components
RSINFOAREA	Manually	*	InfoArea
RSINFOCUBE	Manually	*	InfoCube
RSZCOMPTP	Manually	All values	Type of a reporting component
RSZCOMPID	Manually	*	Name (ID) of a reporting component
ACTVT	Manually	Display	Activity
Authorization Object S_RS_COMP1	Manually		Business Explorer - Components: Enhancements to ...
Authorizat. 00	Manually		Business Explorer - Components: Enhancements to ...
RSZCOMPID	Manually	*	Name (ID) of a reporting component
RSZCOMPTP	Manually	All values	Type of a reporting component
RSZOWNER	Manually	*	Owner (Person Responsible) for a Reporting Compo...
ACTVT	Manually	Display	Activity
Authorization Object S_RS_DS	Manually		Data Warehousing Workbench - DataSource
Authorizat. 00	Manually		Data Warehousing Workbench - DataSource
RSDS	Manually	*	DataSource
RSLOGSYS	Manually	*	Source System
RSDSPART	Manually	All values	Subobject for New DataSource
ACTVT	Manually	Display	Activity
Authorization Object S_RS_HCPR	Manually		Central CompositeProvider
Authorizat. 00	Manually		Central CompositeProvider
RSINFOAREA	Manually	*	InfoArea
RSHCPR	Manually	*	HanaCompositeProvider: Name
ACTVT	Manually	Display	Activity
RSHCPROBJ	Manually	All values	Hana Composite Provider - Subobject
Authorization Object S_RS_HYBR	Manually		Data Warehousing Workbench - HybridProvider
Authorizat. 00	Manually		Data Warehousing Workbench - HybridProvider
RSHYBRPROV	Manually	*	HybridProvider
ACTVT	Manually	Display	Activity
RSHYBROBJ	Manually	All values	HybridProvider Subobject

Authorization Object S_RS_ICUBE	Manually		Data Warehousing Workbench - InfoCube
Authorizat. 00	Manually		Data Warehousing Workbench - InfoCube
RSINFOAREA	Manually	*	InfoArea
RSINFOCUBE	Manually	*	InfoCube
RSICUBEOBJ	Manually	All values	InfoCube Subobject
ACTVT	Manually	Display	Activity
Authorization Object S_RS_IOBJ	Manually		Data Warehousing Workbench - InfoObject (InfoO...
Authorizat. 00	Manually		Data Warehousing Workbench - InfoObject (InfoO...
RSIOBJCAT	Manually	*	InfoObject catalog
RSIOBJ	Manually	*	InfoObject
RSIOBJPART	Manually	All values	Subobject of InfoObject
ACTVT	Manually	Display	Activity
Authorization Object S_RS_IOMAD	Manually		Data Warehousing Workbench - Maintain Master Data
Authorizat. 00	Manually		Data Warehousing Workbench - Maintain Master Data
RSAPPLNM	Manually	*	Application Component
RSINFOAREA	Manually	*	InfoArea
RSIOBJNM	Manually	*	InfoObject
ACTVT	Manually	Display	Activity
Authorization Object S_RS_ISET	Manually		Data Warehousing Workbench - InfoSet
Authorizat. 00	Manually		Data Warehousing Workbench - InfoSet
RSINFOAREA	Manually	*	InfoArea
RSINFOSET	Manually	*	InfoSet
ACTVT	Manually	Display	Activity
RSISETOBJ	Manually	All values	InfoSet-Subobject
Authorization Object S_RS_MPRO	Manually		Data Warehousing Workbench - MultiProvider
Authorizat. 00	Manually		Data Warehousing Workbench - MultiProvider
RSINFOAREA	Manually	*	InfoArea
RSMPRO	Manually	*	MultiProvider
RSMPROOBJ	Manually	All values	MultiProvider Subobject
ACTVT	Manually	Display	Activity

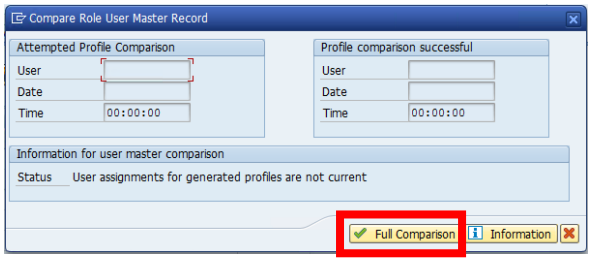
Authorization Object S_RS_ODP_H	Manually		ODP: Extraction from SAP HANA
Authorizat. 00	Manually		ODP: Extraction from SAP HANA
ACTVT	Manually	Display	Activity
RSODPHPKG	Manually	*	SAP HANA Package
RSODPHNAME	Manually	*	SAP HANA Object Name
Authorization Object S_RS_ODSO	Manually		Data Warehousing Workbench - DataStore Object
Authorizat. 00	Manually		Data Warehousing Workbench - DataStore Object
RSINFOAREA	Manually	*	InfoArea
RSODSOBJ	Manually	*	DataStore Object
RSODSPART	Manually	All values	Subobject for ODS Object
ACTVT	Manually	Display	Activity
Authorization Object S_RS_ODSV	Manually		Data Warehousing Workbench - Open ODS View
Authorizat. 00	Manually		Data Warehousing Workbench - Open ODS View
ACTVT	Manually	Display	Activity
RSINFOAREA	Manually	*	InfoArea
RSFBPNAME	Manually	*	View name
RSFBPOBJ	Manually	All values	View Subobject

⑪ Click on the [Generate] button to create a profile.

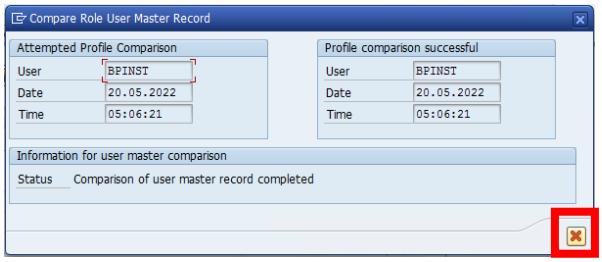
⑫ Return to the previous screen and add the user created in the previous step. On the [User] tab, add a user and click [User Comparison].



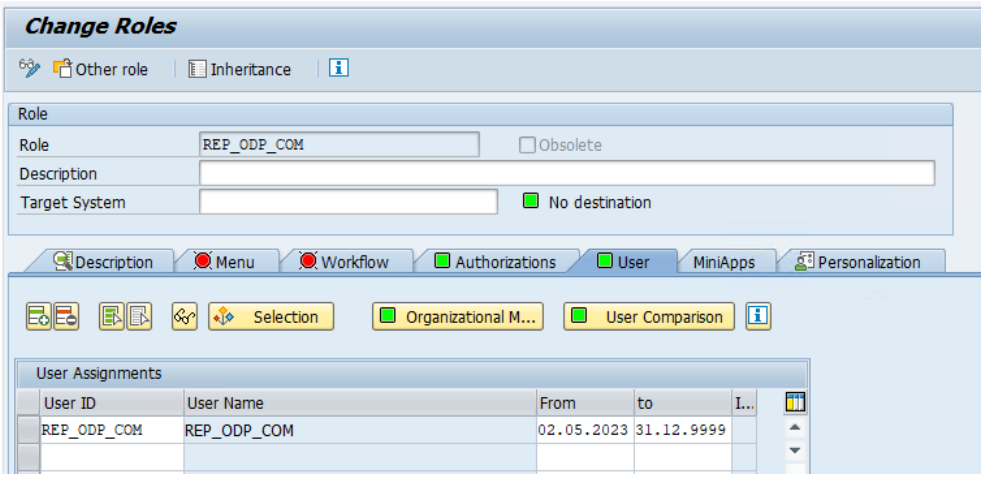
⑬ Click on [Full Comparison].



⑭ Click [Close].



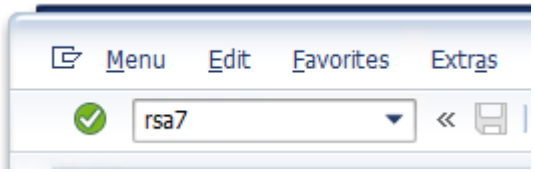
⑮ Confirm that the [User] tab has turned green.


Change Roles
Other role
Inheritance
Role
Role
REP_ODP_COM
Obsolete
Description
Target System
No destination
Description
Menu
Workflow
Authorizations
User
MiniApps
Personalization
Selection
Organizational M...
User Comparison
User Assignments
User ID
User Name
From
to
I...
REP_ODP_COM
REP_ODP_COM
02.05.2023
31.12.9999

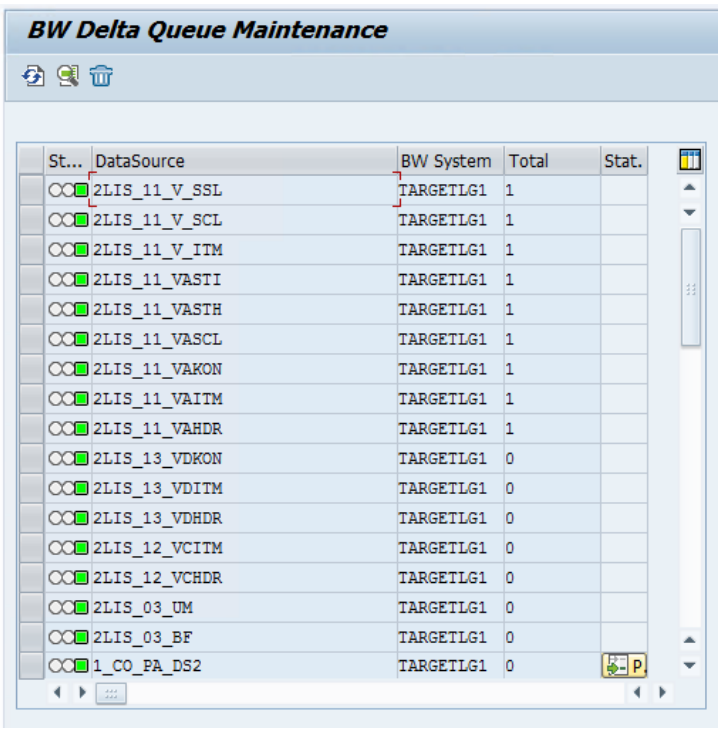
Appendix 3: Confirmation of BW Delta Queue

Data from the LO Cockpit data source that has been modified on the SAP side is stored in the BW delta queue. This section explains how to check that queue.

① Enter the T-code "rsa7".



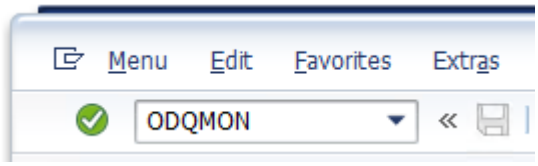
② The combination of [DataSource] and [BW System] displays the number of queues. Here you can see that one change to a data source such as "2LIS_11_V_SSL" is queued.



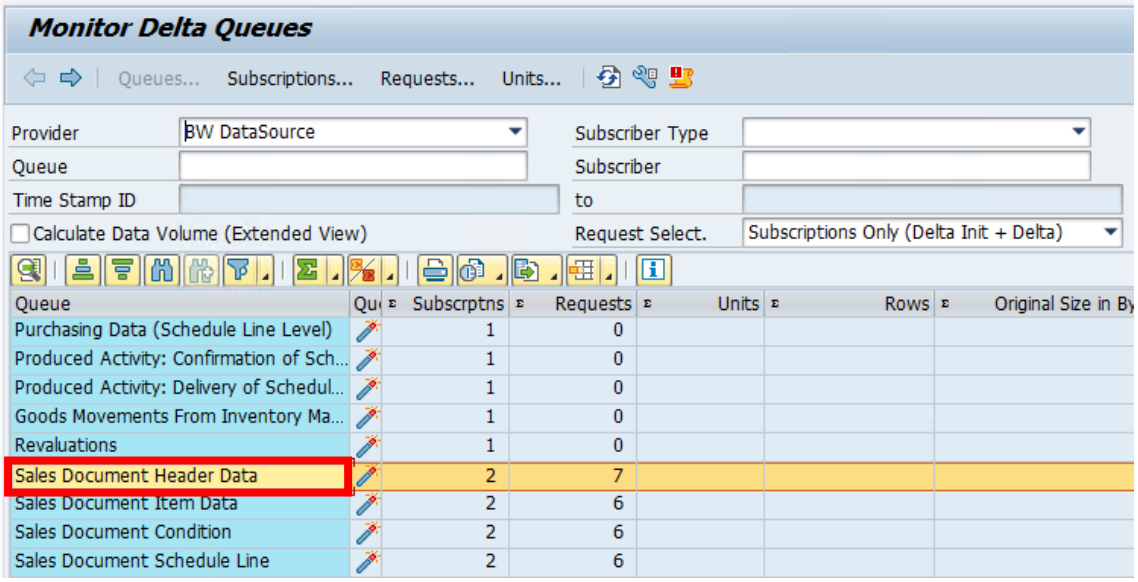
Appendix 4: How to check the ODP Queue

Here is how to check the execution history of the process made to retrieve the Extractor data from Qlik Replicate.

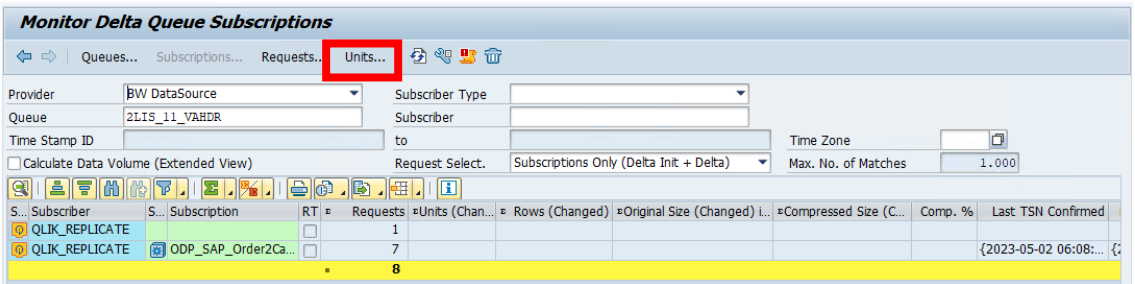
① Enter the transaction code "ODQMON".



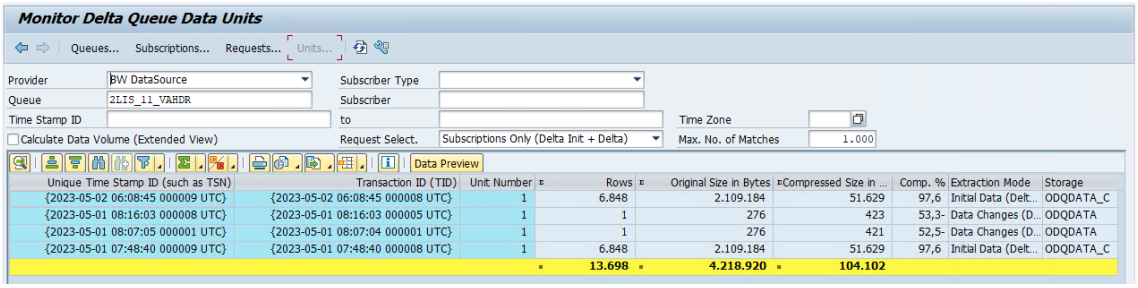
② Select the data source to be referenced from the list and double-click.



③ Click on [Data Units].



④ The number of data extracted, Extraction Mode, etc. can be checked here.

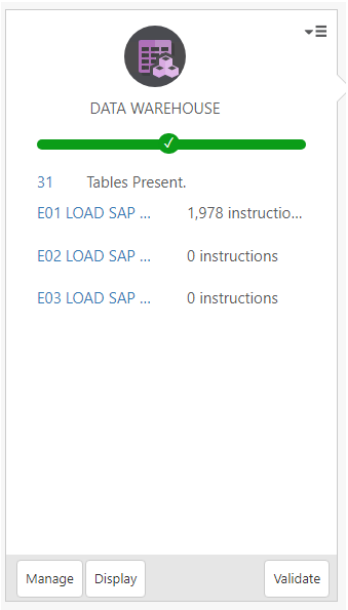


Appendix 5: Performing change data update processes in Qlik Compose

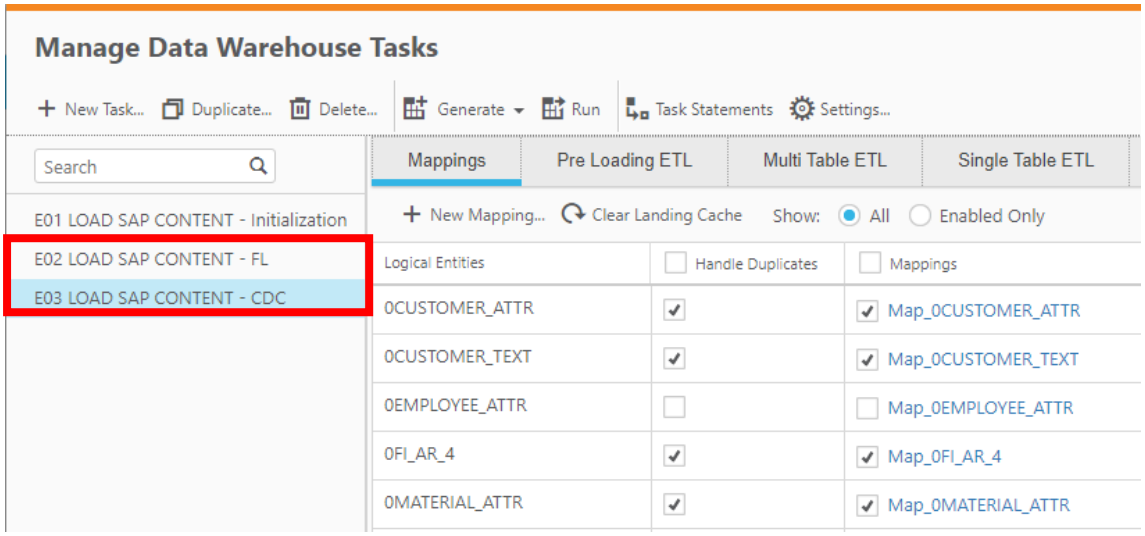
In 12 DWH and DM creation with Qlik Compose, we have created the DWH and Data Mart and initially loaded all the data. This section describes the procedures for storing the change data acquired from SAP after the initialization process of the DWH and data mart.

DWH change data update process

① Click on [Manage] under [DATA WAREHOUSE].



② In addition to the first task executed for initialization, two other tasks are pre-created.



Each of these two tasks performs change data processing in the following form. To execute them, follow the procedure described in "Creating a DWH and Loading Data," click the [Generate] button to generate a script for the task, and then click the [Run] button to execute the task. It is also possible to schedule the execution by following the procedure described in the later section.

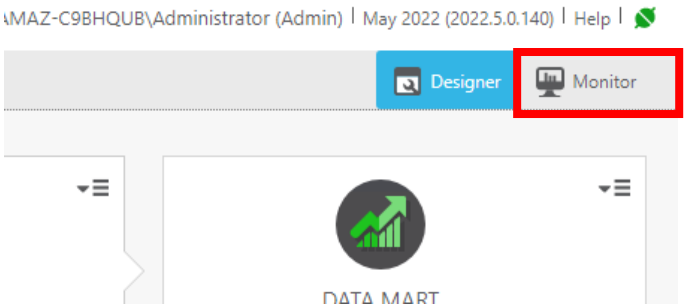
Task Name	Description.
E02 LOAD SAP CONTENT - FL	Apply data from a data source that supports Full load only to the DWH; retrieve all data from tables replicated by Qlik Replicate and store it once in a staging table, then apply changes to the DWH for only those rows that have been added or changed.
E03 LOAD SAP CONTENT - CDC	Apply change data from Delta-enabled data sources to the DWH. By Qlik Replicate's Store Change enabled task, the changed data is stored in "<table name>__ct". This task retrieves only the rows that have been added or changed from the "table name__ct" table.

Data mart change data update process

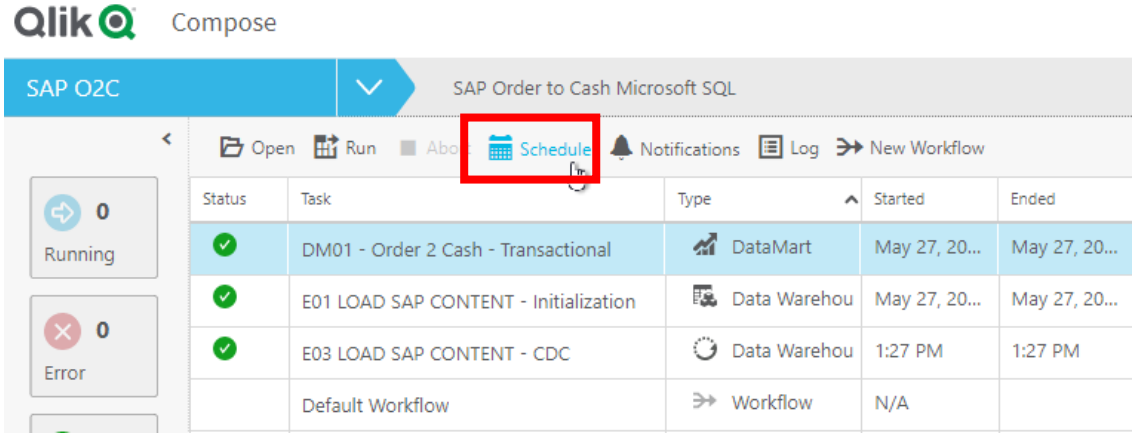
For updating data in a data mart, follow the procedure described in "12.6 Creating a Data Mart," click the [Generate] button to generate a script for the task, and then click the [Run] button to execute the task. (Unlike in the case of DWH, a single task can perform both data mart creation and updating in a data mart.)

Scheduling workflow

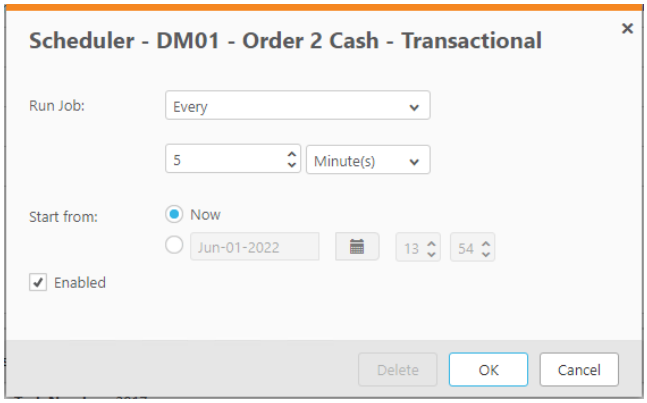
① Click on "Monitor" in the upper right corner of the top screen of the Qlik Compose project.



② Select a task and click Schedule.



③ This is where you set up the schedule. You can also create and schedule a workflow by clicking [New Workflow] on the previous screen instead of setting up schedule by task.



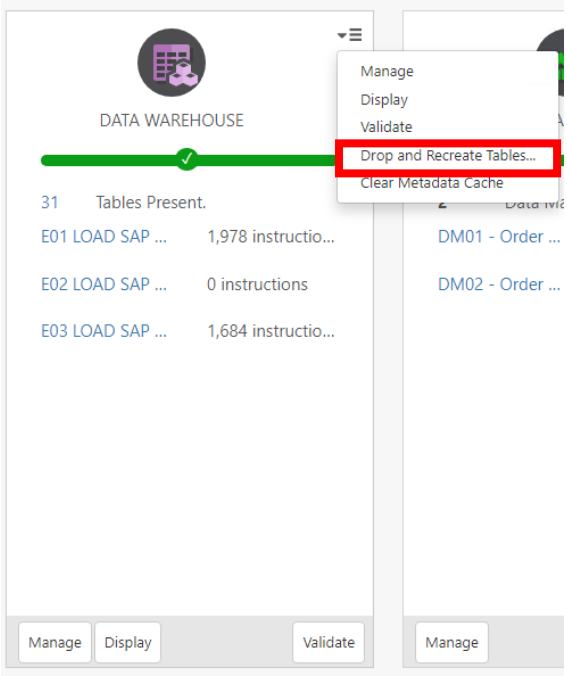
Appendix 6: How to recreate tables in Qlik Compose

If you need to re-create tables, for example for validation purposes, or if you have a configuration problem and want to start over again, you can re-create the tables, either by re-creating the DWH and Data Mart tables individually or by resetting the entire project and starting from scratch.

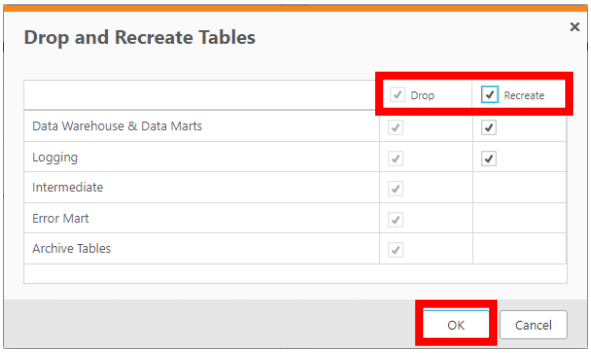
Re-create DWH tables

To recreate only the DWH tables, perform the following steps:

① Click on the menu in the upper right corner of [DATA WAREHOUSE] and select [Drop and Recreate Tables].



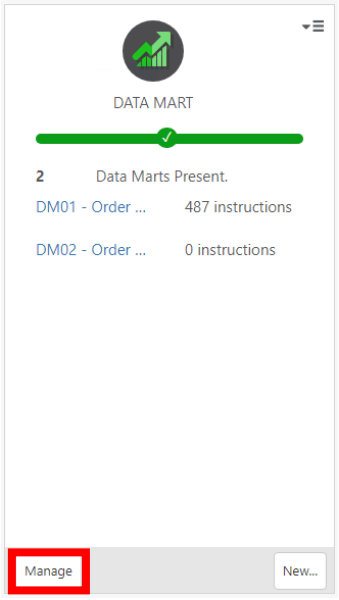
② Turn on the [Drop] and [Recreate] check boxes and click [OK] to execute.



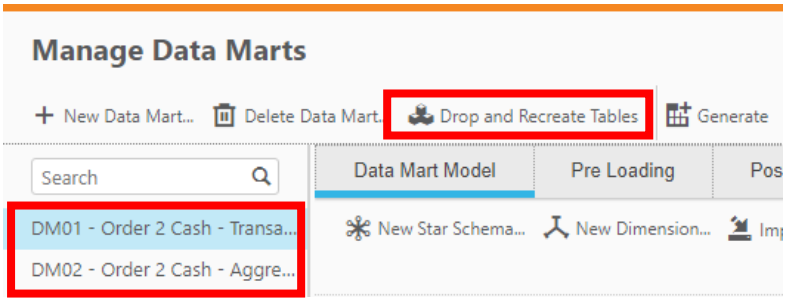
Re-create data mart tables

To recreate only the data mart tables, perform the following steps

① Click on [Manage] under [DATA MART].



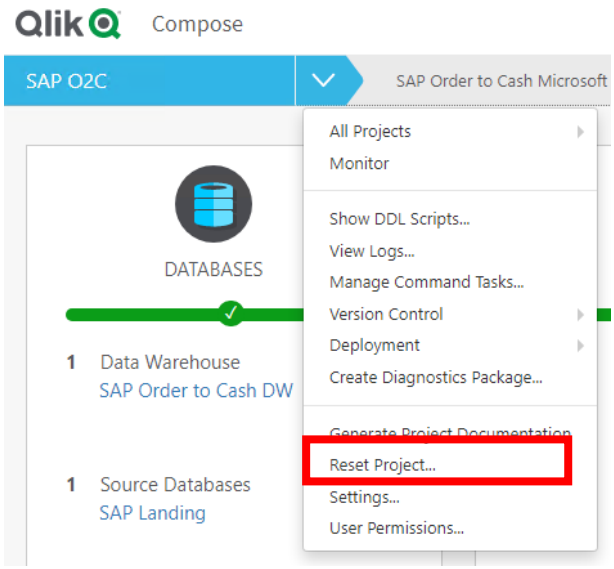
② Select the data mart and click [Drop and Recreate Tables].



Reset project

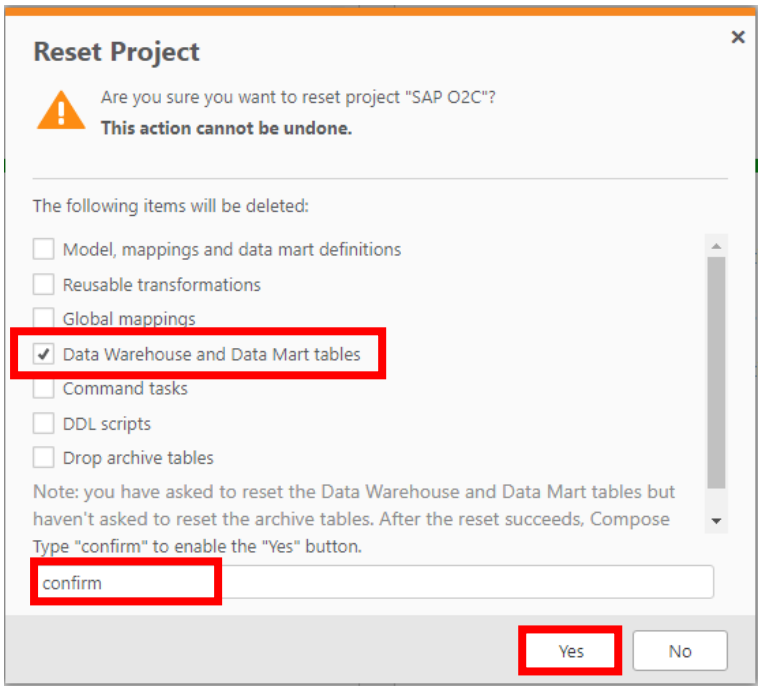
If you want to delete all DWH and Datamart tables, perform a project reset. After resetting, you can again follow the steps of "12.5 DWH creation and data loading and "12.6 Creating Data Marts" to create tables and load data.

① Select [Reset Project] from the menu in the upper left corner of the project.



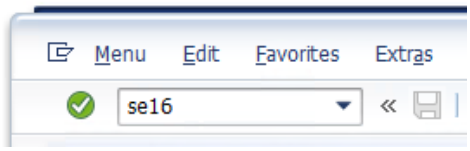
② Turn on only [Data Warehouse and Data Mart tables], enter "confirm" and click [OK].

※ Turning on the other options will result in the loss of project design information, so please check thoroughly before executing.

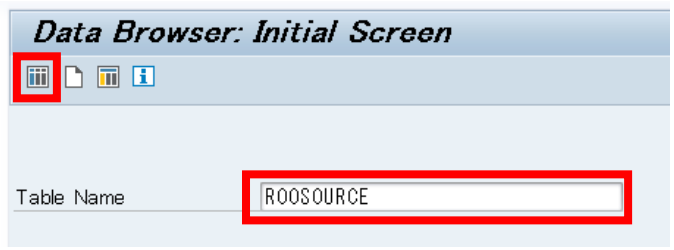


Appendix 7: How to check the delta method

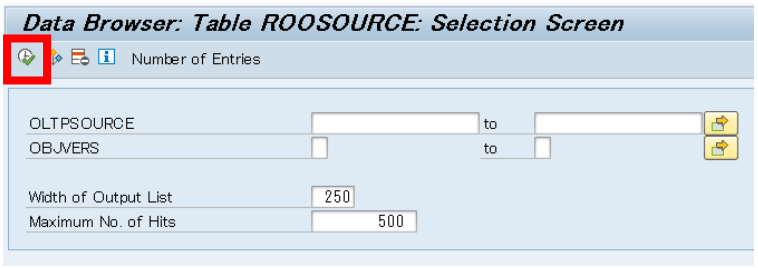
① Enter T-code "se16".



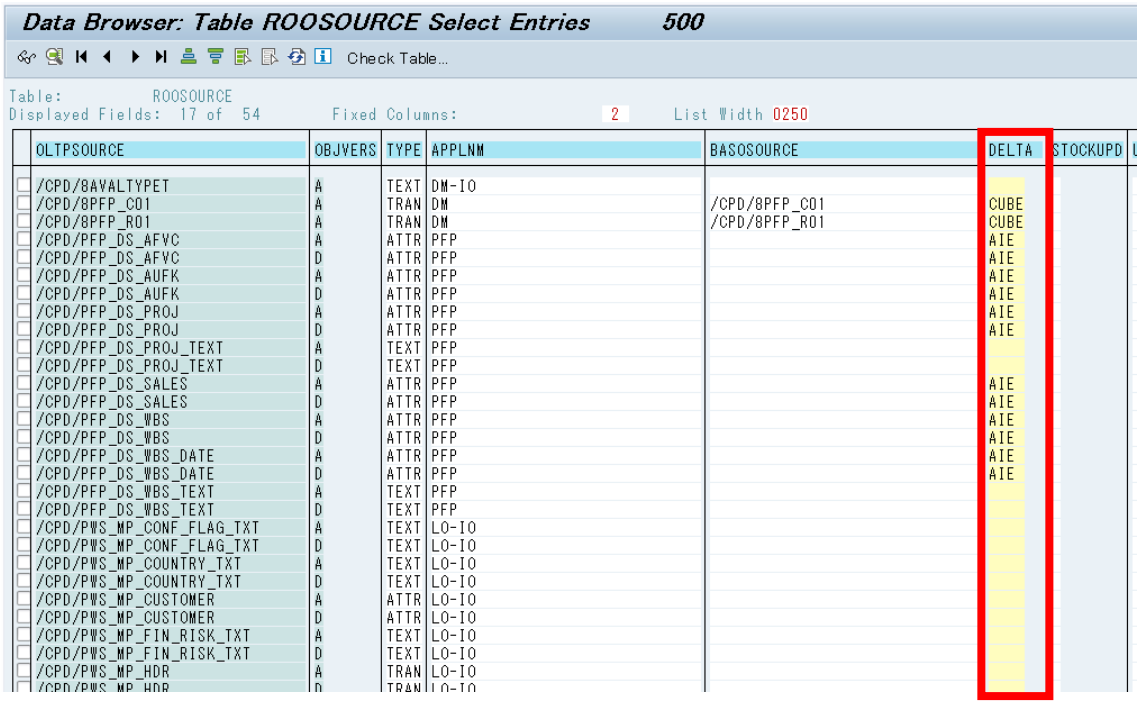
② Enter "ROOSOURCE" in the [Table Name] field and click the [Table Contents] icon.



③ Click [Execute].

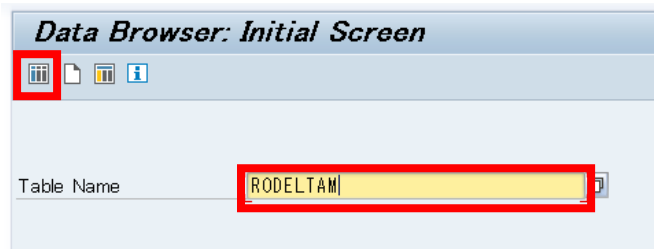


④ The DELTA method supported by the data source can be found in the [DELTA] column. Blank columns indicate data sources that do not support DELTA.

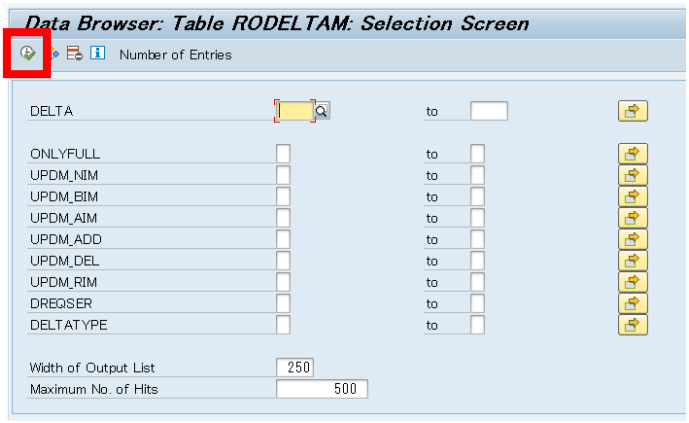


OLTPSOURCE	OBJVERS	TYPE	APPLNM	BASOSOURCE	DELTA	STOCKUPD
/CPD/8AVALTYPET	A	TEXT	DM-IO			
/CPD/8PFP_CO1	A	TRAN	DM	/CPD/8PFP_CO1	CUBE	
/CPD/8PFP_RO1	A	TRAN	DM	/CPD/8PFP_RO1	CUBE	
/CPD/PFP_DS_AFVC	A	ATTR	PFP		AIE	
/CPD/PFP_DS_AFVC	D	ATTR	PFP		AIE	
/CPD/PFP_DS_AUFK	A	ATTR	PFP		AIE	
/CPD/PFP_DS_AUFK	D	ATTR	PFP		AIE	
/CPD/PFP_DS_PROJ	A	ATTR	PFP		AIE	
/CPD/PFP_DS_PROJ	D	ATTR	PFP		AIE	
/CPD/PFP_DS_PROJ_TEXT	A	TEXT	PFP			
/CPD/PFP_DS_PROJ_TEXT	D	TEXT	PFP			
/CPD/PFP_DS_SALES	A	ATTR	PFP		AIE	
/CPD/PFP_DS_SALES	D	ATTR	PFP		AIE	
/CPD/PFP_DS_WBS	A	ATTR	PFP		AIE	
/CPD/PFP_DS_WBS	D	ATTR	PFP		AIE	
/CPD/PFP_DS_WBS_DATE	A	ATTR	PFP		AIE	
/CPD/PFP_DS_WBS_DATE	D	ATTR	PFP		AIE	
/CPD/PFP_DS_WBS_TEXT	A	TEXT	PFP			
/CPD/PFP_DS_WBS_TEXT	D	TEXT	PFP			
/CPD/PWS_MP_CONF_FLAG_TXT	A	TEXT	LO-IO			
/CPD/PWS_MP_CONF_FLAG_TXT	D	TEXT	LO-IO			
/CPD/PWS_MP_COUNTRY_TXT	A	TEXT	LO-IO			
/CPD/PWS_MP_COUNTRY_TXT	D	TEXT	LO-IO			
/CPD/PWS_MP_CUSTOMER	A	ATTR	LO-IO			
/CPD/PWS_MP_CUSTOMER	D	ATTR	LO-IO			
/CPD/PWS_MP_FIN_RISK_TXT	A	TEXT	LO-IO			
/CPD/PWS_MP_FIN_RISK_TXT	D	TEXT	LO-IO			
/CPD/PWS_MP_HDR	A	TRAN	LO-IO			
/CPD/PWS_MP_HDR	D	TRAN	LO-IO			

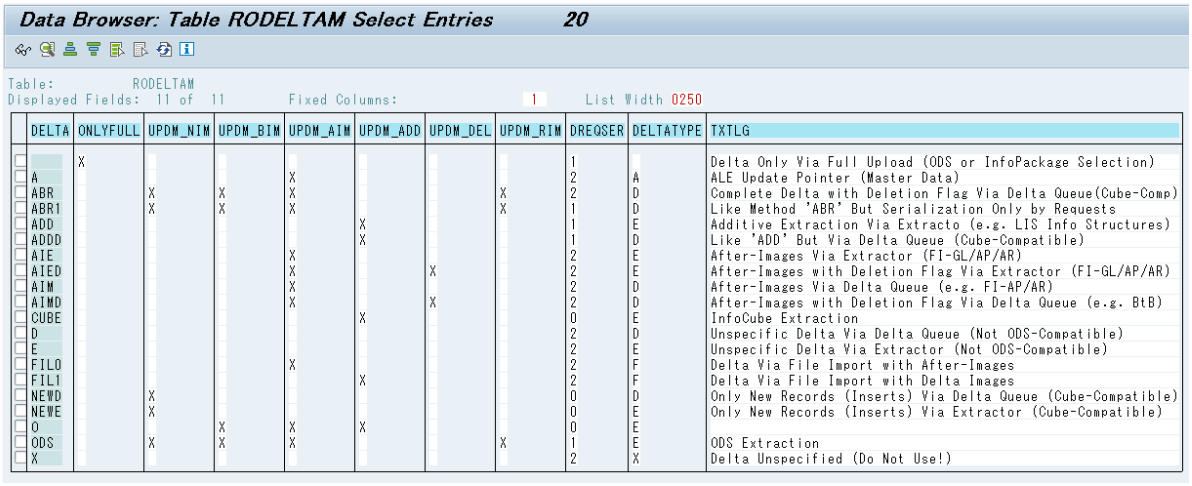
⑤ Return to the full screen, enter "RODELTAM" in the [Table Name] field and click the [Table Contents] icon.



⑥ [Click on "Execute.



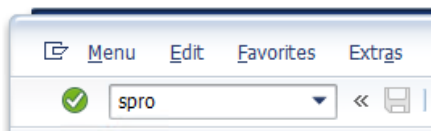
⑦ The type of DELTA and its description can be found in the [TXTLG] column.



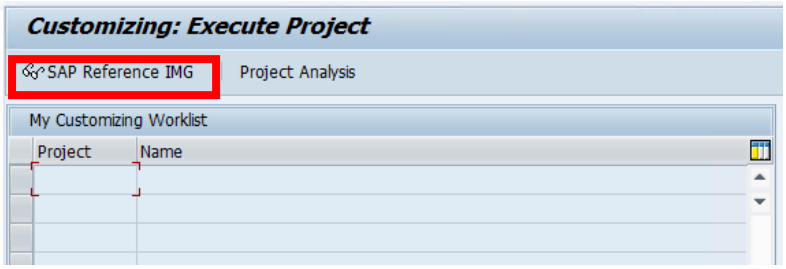
DELTA	ONLYFULL	UPDM_NIM	UPDM_BIM	UPDM_AIM	UPDM_ADD	UPDM_DEL	UPDM_RIM	DREQSER	DELTATYPE	TXTLG
	X							1		Delta Only Via Full Upload (ODS or InfoPackage Selection)
A				X				2	A	ALE Update Pointer (Master Data)
ABR		X	X	X			X	2	D	Complete Delta with Deletion Flag Via Delta Queue(Cube-Comp)
ABR1		X	X	X			X	1	D	Like Method 'ABR' But Serialization Only by Requests
ADD					X			1	E	Additive Extraction Via Extracto (e.g. LIS Info Structures)
ADDD					X			1	D	Like 'ADD' But Via Delta Queue (Cube-Compatible)
AIE				X				2	E	After-Images Via Extractor (FI-GL/AP/AR)
AIED				X		X		2	E	After-Images with Deletion Flag Via Extractor (FI-GL/AP/AR)
AIM				X				2	D	After-Images Via Delta Queue (e.g. FI-AP/AR)
AIMD				X		X		2	D	After-Images with Deletion Flag Via Delta Queue (e.g. BtB)
CUBE					X			0	E	InfoCube Extraction
D								2	D	Unspecific Delta Via Delta Queue (Not ODS-Compatible)
E								2	E	Unspecific Delta Via Extractor (Not ODS-Compatible)
FIL0				X				2	F	Delta Via File Import with After-Images
FIL1					X			2	F	Delta Via File Import with Delta Images
NEWD		X						0	D	Only New Records (Inserts) Via Delta Queue (Cube-Compatible)
NEWE		X						0	E	Only New Records (Inserts) Via Extractor (Cube-Compatible)
O			X	X	X			0	E	
ODS		X	X	X			X	1	E	ODS Extraction
X								2	X	Delta Unspecified (Do Not Use!)

Appendix 8: Checking the Chart of Accounts and Financial Statement Versions

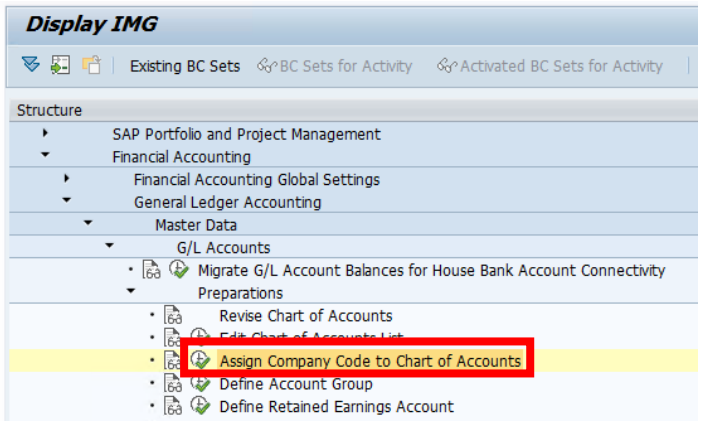
① Enter T-code "spro".



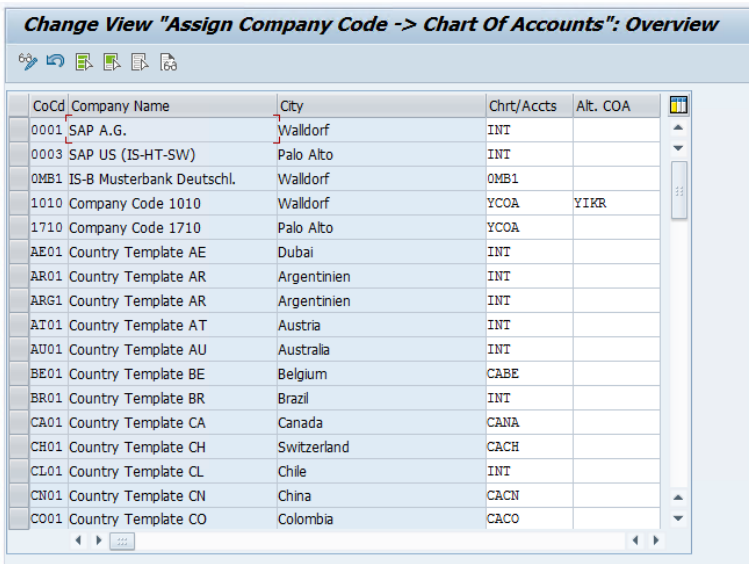
② Select [SAP Reference IMG].



③ Click [Financial Accounting] > [General Ledger Accounting] > [Master Data] > [G/L Accounts] > [Preparations] > [Assign Company Code to Chart] > [Assign Company Code to Chart of Accounts].

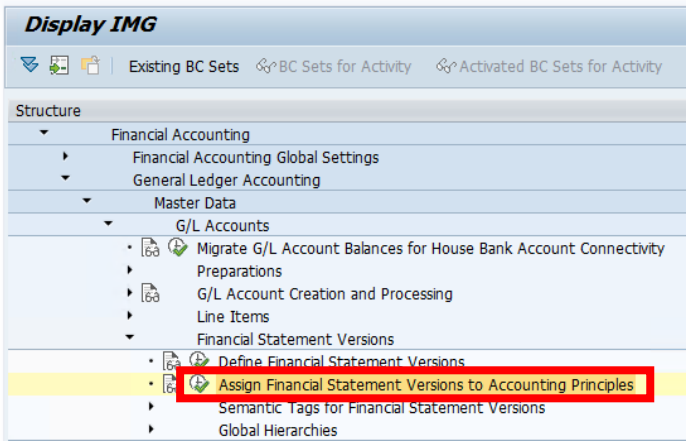


④ Check the Chart of Accounts (Chrt/Accts) assigned to Company Code.



CoCd	Company Name	City	Chrt/Accts	Alt. COA
0001	SAP A.G.	Walldorf	INT	
0003	SAP US (IS-HT-SW)	Palo Alto	INT	
0MB1	IS-B Musterbank Deutschl.	Walldorf	0MB1	
1010	Company Code 1010	Walldorf	YCOA	YIKR
1710	Company Code 1710	Palo Alto	YCOA	
AE01	Country Template AE	Dubai	INT	
AR01	Country Template AR	Argentinien	INT	
ARG1	Country Template AR	Argentinien	INT	
AT01	Country Template AT	Austria	INT	
AU01	Country Template AU	Australia	INT	
BE01	Country Template BE	Belgium	CABE	
BR01	Country Template BR	Brazil	INT	
CA01	Country Template CA	Canada	CANA	
CH01	Country Template CH	Switzerland	CACH	
CL01	Country Template CL	Chile	INT	
CN01	Country Template CN	China	CACN	
CO01	Country Template CO	Colombia	CACO	

⑤ Click [Financial Accounting] > [General Ledger Accounting] > [Master Data] > [G/L Accounts] > [Financial Statement Version] > [Assign Financial Statement Version to Accounting Principles].



⑥ Check the assigned [Financial Statement Version Financials] to [Chart of Accounts] on [Accounting Principle, the financial statement version].