



SAP Accelerator Packages

POC Guide

2024/7 V.3.3.3

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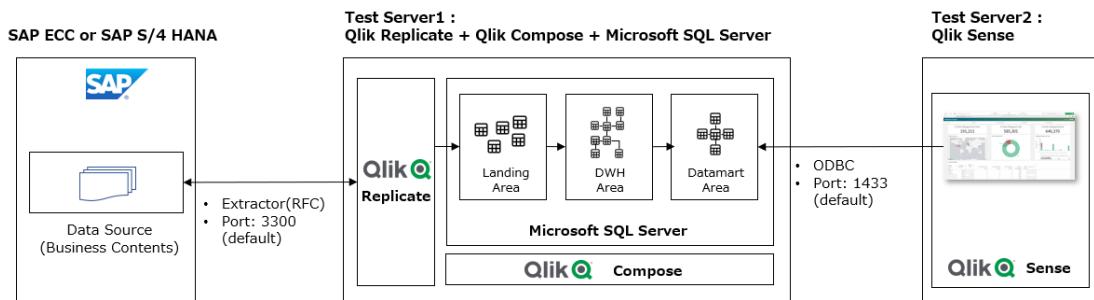
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1 Introduction

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

Product	Release	Release Number	Visibility
Qlik Replicate	May 2022	Initial Release (IR)	Latest release and patch ✓
Qlik Enterprise Manager	November 2021	Service Release 5 (SR5)	All releases with latest patch
Qlik Gold Client for BW	August 2021	Service Release 4 (SR4)	All releases and all patches
Qlik Gold Client for Data Protection	May 2021	Service Release 3 (SR3)	
Qlik Gold Client for ERP	November 2020	Service Release 2 (SR2)	

Downloads							
Product	Release	N...	Version	Publ...	Download Link	Size	End of Su...
Qlik Replicate	May 2022	IR	v2022.5.0	10 May 2022	QlikReplicate_2022_5_0_Arro_Decoder_SDK.zip	1 MB	Qlik Replicate P...
Qlik Replicate	May 2022	IR	v2022.5.0	10 May 2022	QlikReplicate_2022_5_0_Docker_File_Generator_Cento...	1 MB	Qlik Replicate P...
Qlik Replicate	May 2022	IR	v2022.5.0	10 May 2022	QlikReplicate_2022_5_0_Linux_X64.tar.gz	159 MB	Qlik Replicate P...
Qlik Replicate	May 2022	IR	v2022.5.0	10 May 2022	QlikReplicate_2022_5_0_RAL1.zip	1 MB	Qlik Replicate P...
Qlik Replicate	May 2022	IR	v2022.5.0	10 May 2022	QlikReplicate_2022_5_0_R4SAPEzip.zip	1 MB	Qlik Replicate P...
Qlik Replicate	May 2022	IR	v2022.5.0	10 May 2022	QlikReplicate_2022_5_0_R4SAPExtractor.zip	1 MB	Qlik Replicate P...
Qlik Replicate	May 2022	IR	v2022.5.0	10 May 2022	QlikReplicate_2022_5_0_R4Z.zip	1 MB	Qlik Replicate P...
Qlik Replicate	May 2022	IR	v2022.5.0	10 May 2022	QlikReplicate_2022_5_0_Windows_X64.zip	185 MB	Qlik Replicate P...

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

Product	Release	Release Number	Visibility
Qlik Compose	May 2022	Initial Release (IR)	Latest release and patch ✓
Qlik Gold Client for BW	November 2021	Service Release 5 (SR5)	All releases with latest patch
Qlik Gold Client for Data Protection	August 2021	Service Release 4 (SR4)	All releases and all patches
Qlik Gold Client for ERP	May 2021	Service Release 3 (SR3)	
Qlik Gold Client for Analytics	November 2020	Service Release 2 (SR2)	

Downloads							
Product	Release	N...	Version	Publ...	Download Link	Size	End of Su...

| Qlik Compose | May 2022 | IR | v2022.5.0.140 | 10 May 2022 | Qlik_Compose_2022_5.0.140.zip | 129 MB | Qlik Compose ... |

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.)

SAP Report Detail Name: Products / Generics
SAP Java Connector

Overview Download Documentation SAP Java Doc Library FAQ

SAP Note 2798882 describes which operating systems and versions with which JDKs/JREs are supported by the SAP Java Connector 3.1 and later versions. See SAP Note 2798882 for more information.

The SDK package of SAP Java Connector 3.1 includes the software, documentation, and examples. The SAP Java Connector 3.1 requires a JDK/JRE 8 or 11. SAP Java Connector 3.1 running on Windows operating systems requires the Microsoft Visual Studio 2013 C/C++ runtime libraries to be installed on the system. See SAP Note 2798882.

Notes

- ✓ The SDK archive for Windows and macOS of the SAP Java Connector are shipped as a ZIP file and need to be extracted as a ZIP file.
- ✓ The ZIP archive for the Linux version of the SAP Java Connector are shipped as a T02 file embedded in a ZIP file.
- ✓ Extract the nested archive variant from the downloaded archive first. In case you have installation instructions from some other component, they usually refer to the nested archive.
- ✓ After extracting the content from the nested archive, further installation instructions can be found in the file `INSTALLATION.md`.

Note on 32-bit versus 64-bit versions:
You only need the 64-bit version of the SAP Java Connector if you are using a 64-bit Java VM. If you have to use a 32-bit Java VM on a 64-bit platform, download and use the 32-bit version of JCo. The 64-bit variant should always be preferred on 64-bit platforms.
Linux and Windows variants of the SAP Java Connector are delivered as ZIP files. You can extract them with the standard decompression tool of your choice. To run the SAP Java Connector, you must start it with the `-Djava.awt.headless=true` parameter to specify the mode. Usually these are options `-D32` and `-D64`, please consult the JVM documentation for further details.

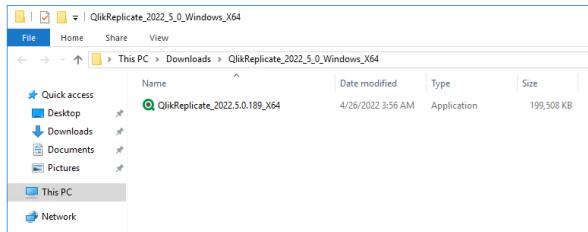
Operating system	Processor	Release date	File size (KB)
Microsoft Windows and Windows Server	32-bit	November 25, 2021	5,951
	64-bit x86*	November 25, 2021	6,091
Linux for Intel compatible processors	64-bit x86*	November 25, 2021	4,574
Linux for IBM PowerPC processors	64-bit LE**	November 25, 2021	8,524
Linux for IBM eServer zSeries	64-bit	November 25, 2021	8,550

3 Qlik Replicate Setup

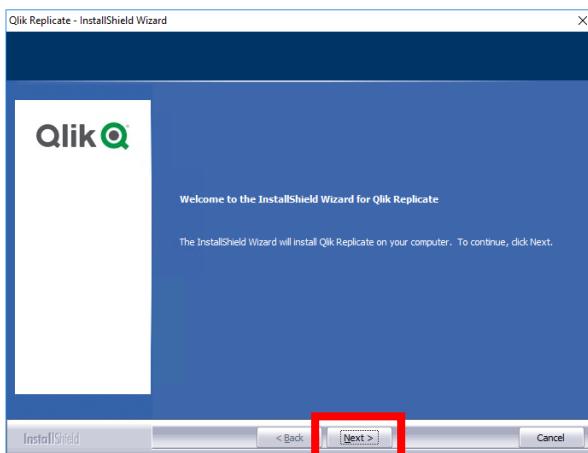
3.1 Installing Qlik Replicate

- ① Run the EXE file and follow the instructions in the setup wizard to install Qlik Replicate.

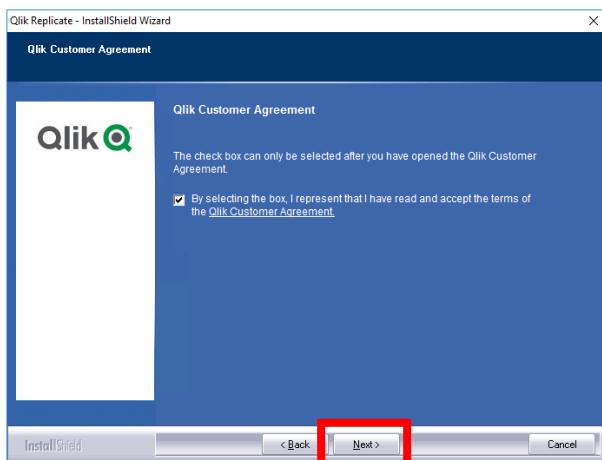
If .NET Framework 4.8 or higher and Visual C++ Redistributable for Visual Studio 2015 are not already installed, the installation of these products will start to run.



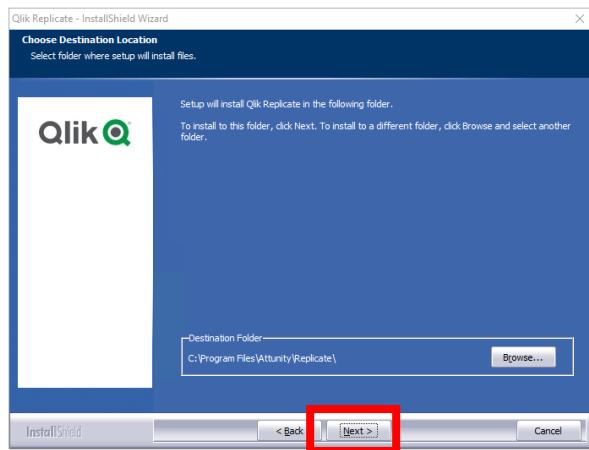
- ② Click [Next].



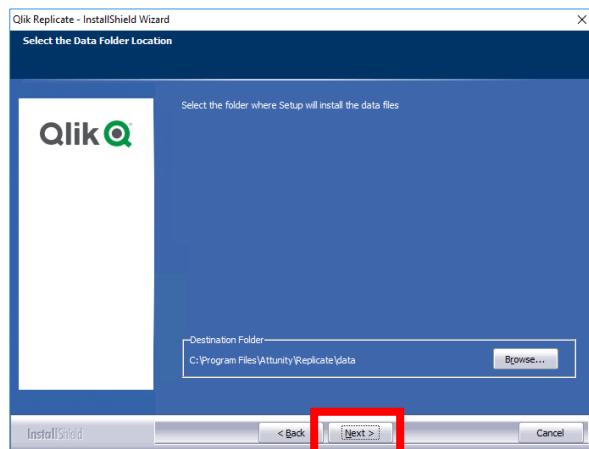
- ③ Click [Qlik License Agreement], review the contents, check the box [I have read ...] and click [Next].



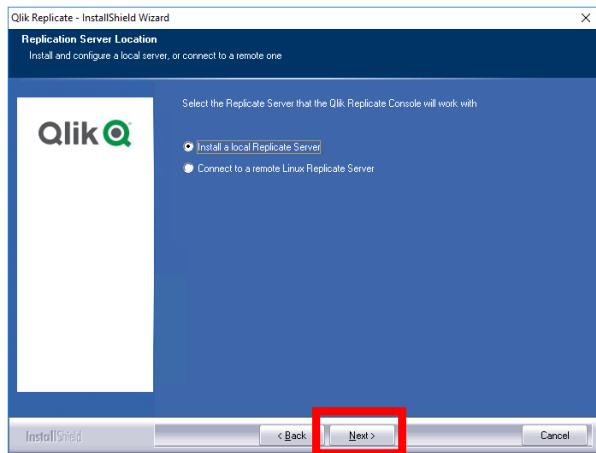
- ④ If you wish to place the installation directory in another location, specify that location here. Click [Next].



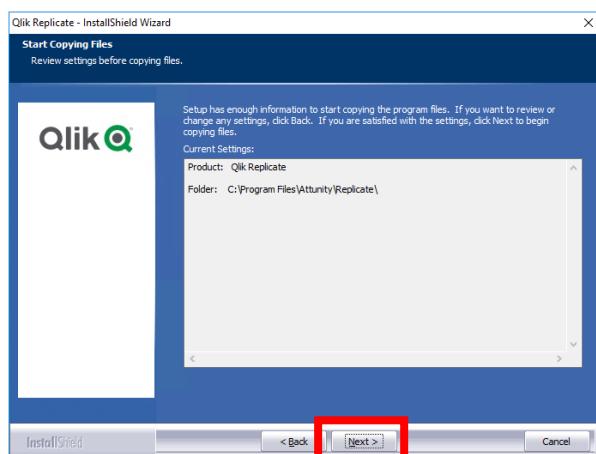
- ⑤ Configuration data created by the use of Qlik Replicate is stored in a directory named "data". By default, this directory is located in the installation directory where Qlik Replicate is installed. If you wish to create the data directory in another location, specify that location here. Click [Next].



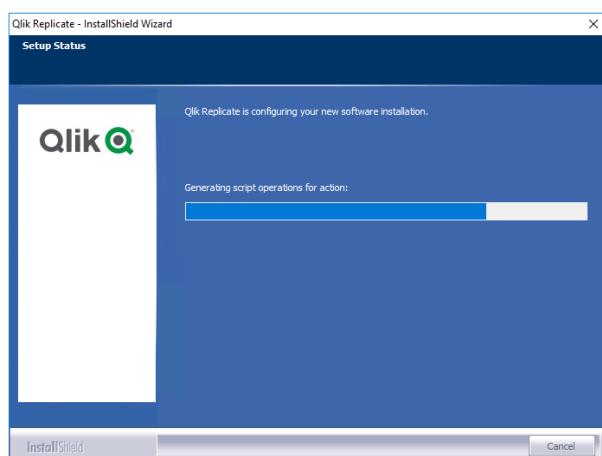
⑥ Select [Install a local Replicate Server].



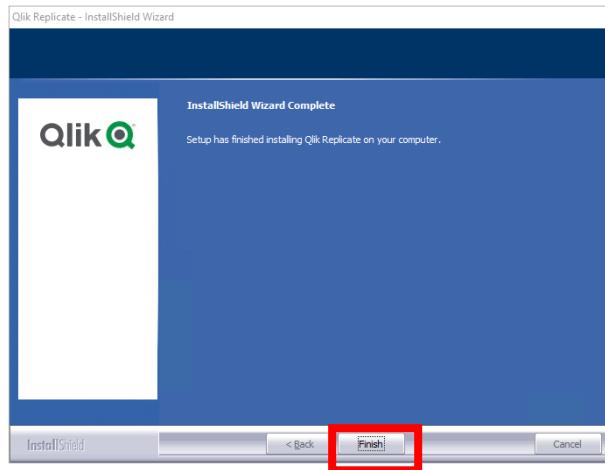
⑦ Click [Next].



⑧ Installation will begin.

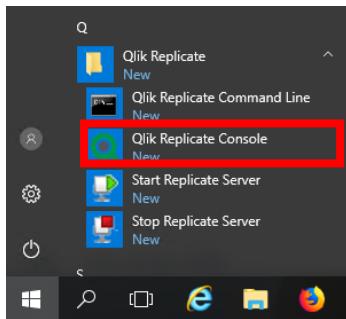


- ⑨ Click [Finish] when installation is complete.



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.



Your connection is not private

Attackers might be trying to steal your information from **ec2amaz-3jt4dr7** (for example, passwords, messages, or credit cards). [Learn more](#)

NET::ERR_CERT_AUTHORITY_INVALID

To get Chrome's highest level of security, [turn on enhanced protection](#)

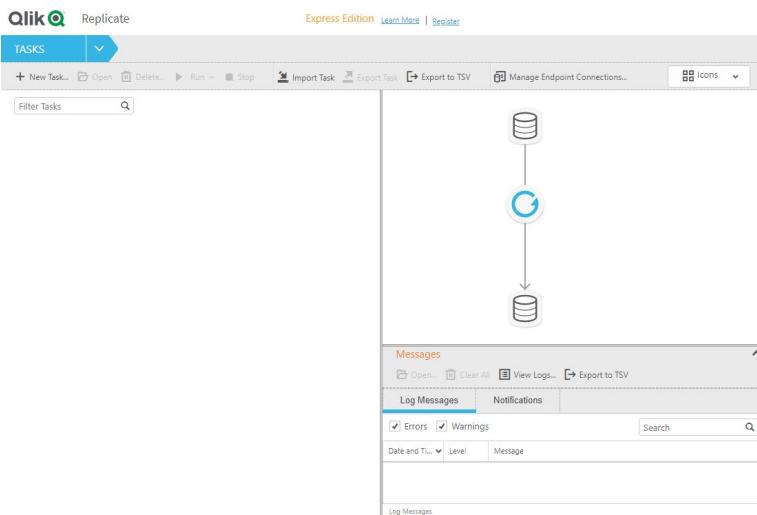
[Hide advanced](#)

[Back to safety](#)

This server could not prove that it is **ec2amaz-3jt4dr7**; its security certificate is not trusted by your computer's operating system. This may be caused by a misconfiguration or an attacker intercepting your connection.

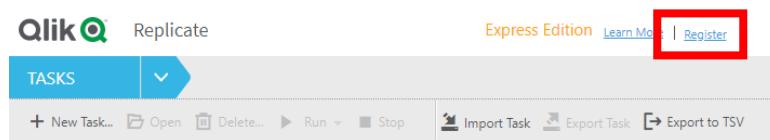
[Proceed to ec2amaz-3jt4dr7 \(unsafe\)](#)

③ The Qlik Replicate Console opens as follows:

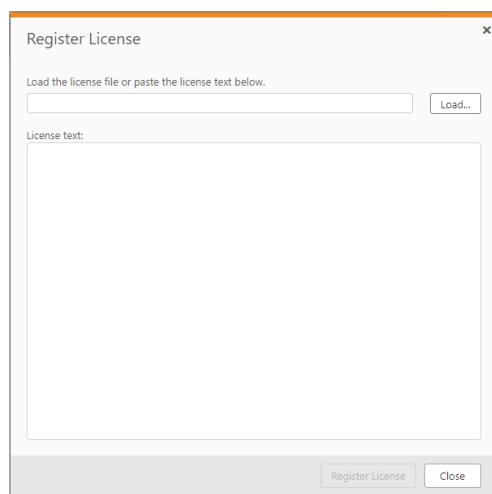


3.3 Qlik Replicate license registration

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



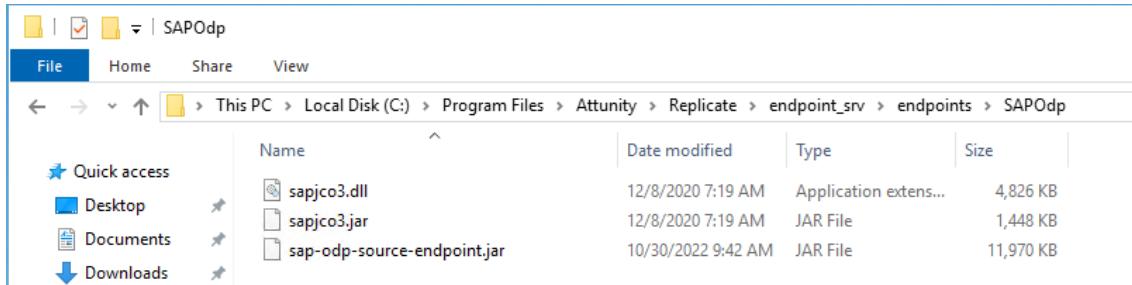
② Paste the contents of the license file into the [License text] area and click [Register License] to register the license.



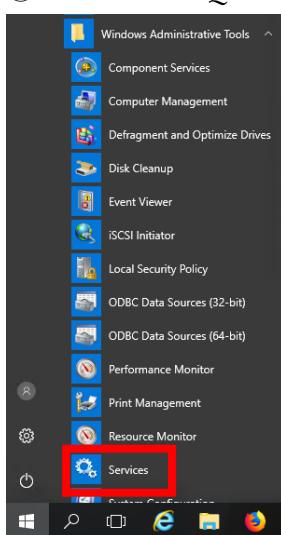
3.4 Installing the SAP Java Connector

- 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:

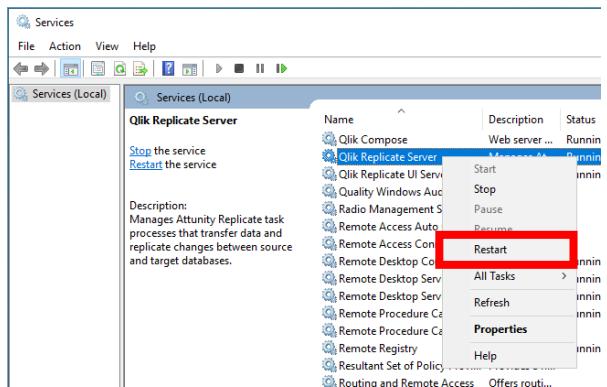
C:\Program Files\Attunity\Replicate\endpoint_srv\endpoints\SAPODP



- ※ 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\SAP 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

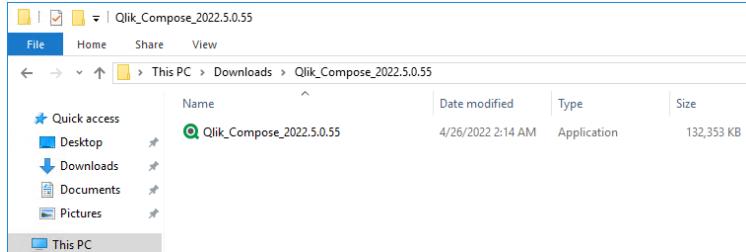
In the case of the POC environment assumed in this guide, Qlik Replicate and the Microsoft SQL Server to which it connects reside on the same server, so there is no need to install a driver for the connection. However, when connecting to a DWH such as Snowflake, Synapse, BigQuery, Redshift, etc., you 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](#)

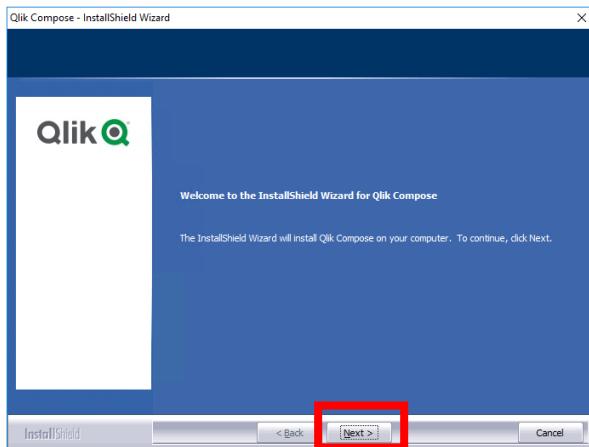
4 Qlik Compose Setup

4.1 Installing Qlik Compose

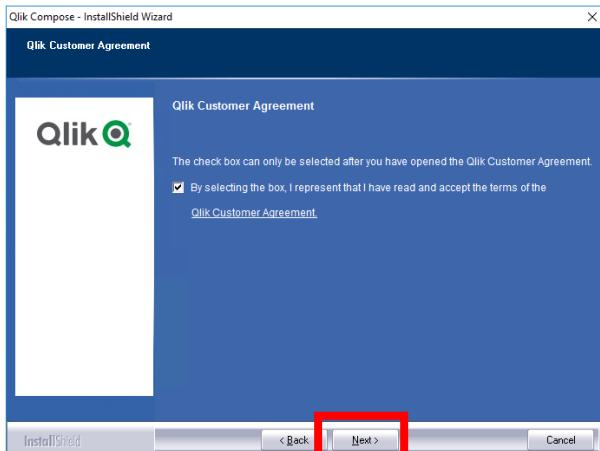
- ① Run the Exe file to launch the installer and click [Next].



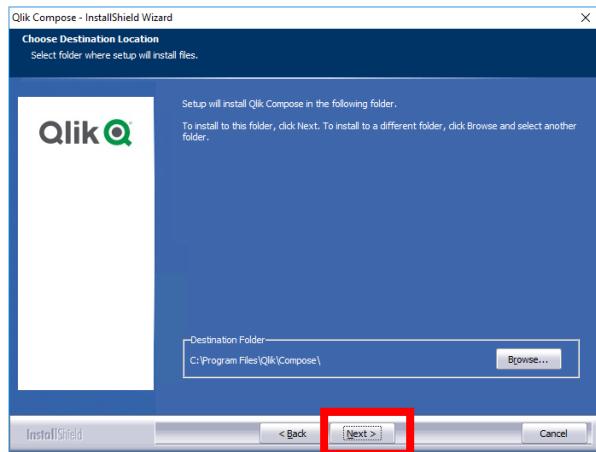
- ② Click [Next].



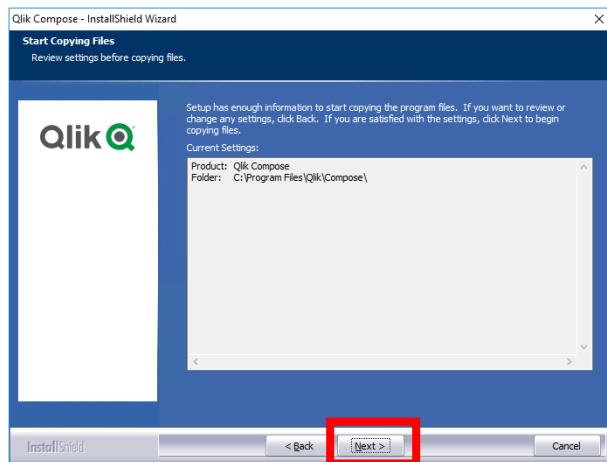
- ③ Click on [Qlik Customer Agreement], review the contents, check the box [By selecting the box...] and click [Next].



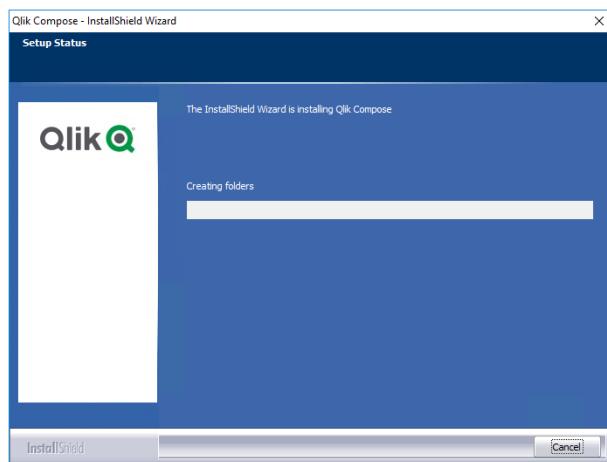
- ④ If you wish to place the installation directory in a different location, specify that location here and click [Next].



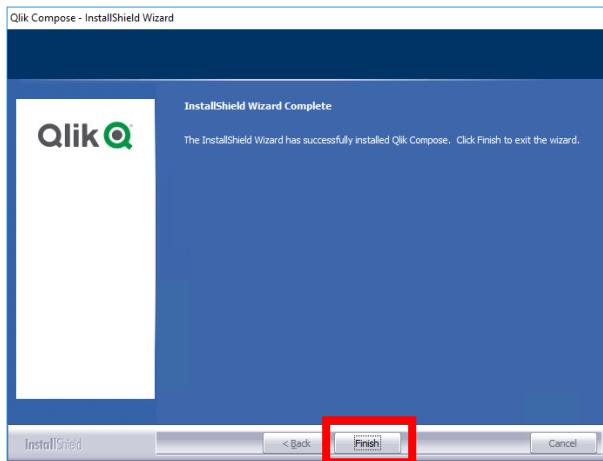
- ⑤ Confirm the contents and click [Next].



- ⑥ The installation starts running.

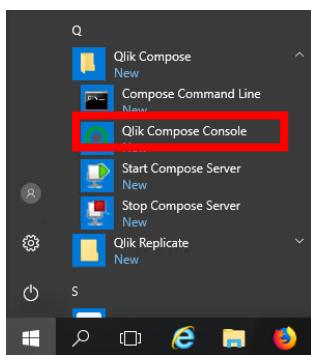


- ⑦ Confirm that the installation is complete and click [Finish].



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.



Your connection is not private

Attackers might be trying to steal your information from **ec2amaz-3jt4dr7** (for example, passwords, messages, or credit cards). [Learn more](#)

NET::ERR_CERT_AUTHORITY_INVALID

To get Chrome's highest level of security, [turn on enhanced protection](#)

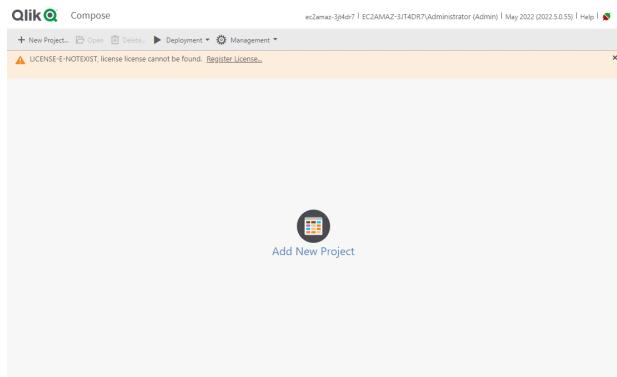
[Hide advanced](#)

[Back to safety](#)

This server could not prove that it is **ec2amaz-3jt4dr7**; its security certificate is not trusted by your computer's operating system. This may be caused by a misconfiguration or an attacker intercepting your connection.

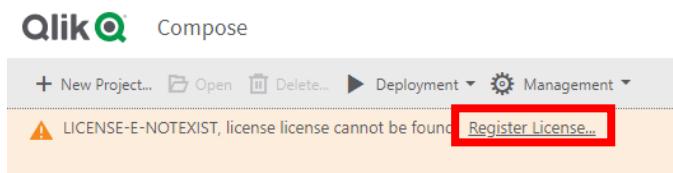
[Proceed to ec2amaz-3jt4dr7 \(unsafe\)](#)

④ The Qlik Compose Console opens as follows:

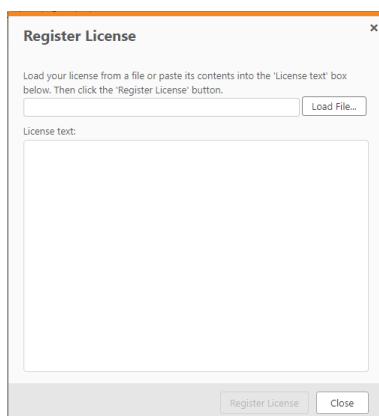


4.3 Qlik Compose license registration

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)

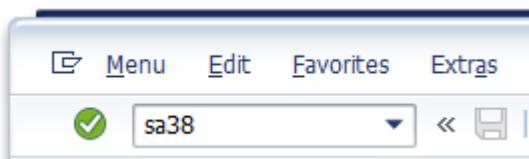
To use Extractor, Extractor must be released for ODP.

※ 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.

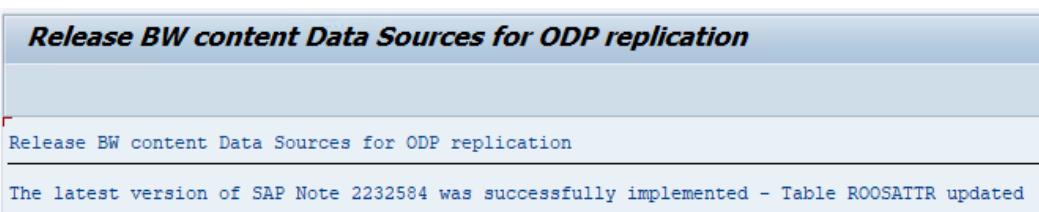
- ① Enter transaction code "sa38".



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



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



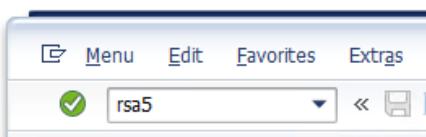
5.2 Check release status

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".

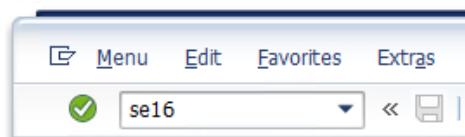


- ② Check the icons on the right side of the data source. Green ones indicate ODP enabled and red ones indicate ODP disabled. Make sure that all data sources to be enabled in the next step are ODP enabled.

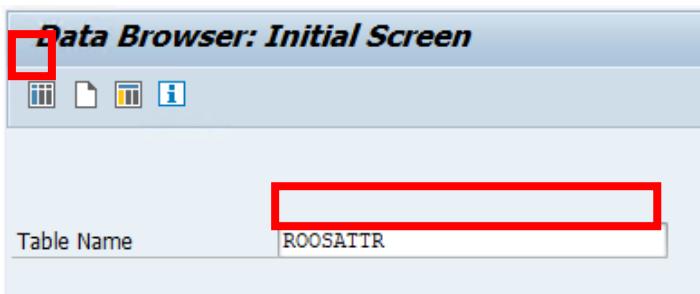
Installation of DataSource from Business Content	
OFIS_TRK_DOC_FIENAME	Field Name of Changed Document
OFI_ACDOMA_10	Unified Journal Entry
OFI_ACDOMA_20	Unified Journal Entry (with Currency type)
OFI_GL_1	General ledger: Transaction figures
OFI_GL_10	General Ledger: Leading Ledger Balances
OFI_GL_11	General Ledger: Balances of Leading Ledger via Line Items
OFI_GL_12	General Ledger: Balances of Leading Ledger via Delta Queue
OFI_GL_14	General Ledger (New): Line Items Leading Ledger

Method 2:

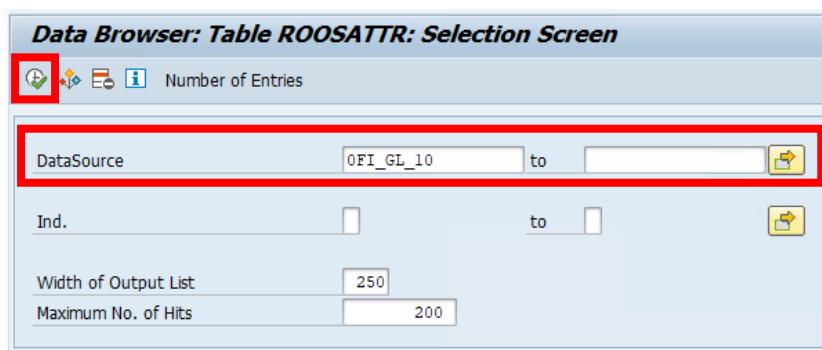
- ① Enter T-code "se16".



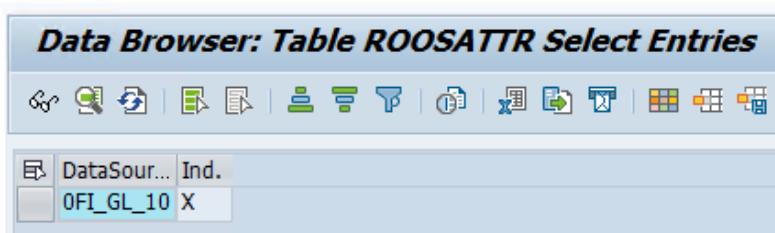
- ② Enter "ROOSATTR" in the [Table Name] field and click the [Table Contents] icon.



- 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

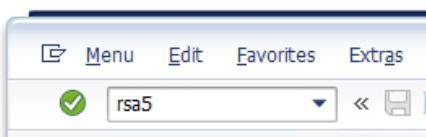
You will need to activate the data sources included in the attached, "Data Source List.xlsx," so check the list first.

- 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](#).

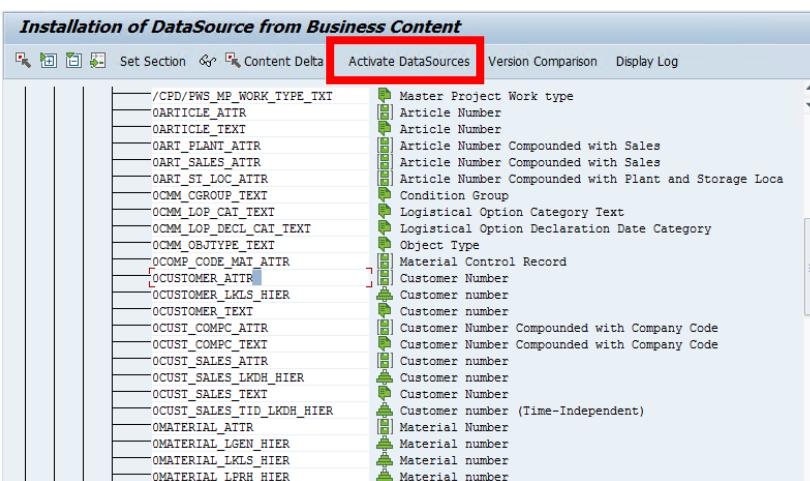
A	B	C	D	E	F	G	H	I
NO	Datasource Name	Description in English	Description in Japanese	Hierarchy	Full / Delta	Delta Mod	Full	Delta
1	OGL_ACCOUNT_ATTR	G/L Account Master	勘定コード	SAP-R/3 -> FI -> FI-IO	F, D	A		○
2	OGL_ACCOUNT_TEXT	G/L Account Text	勘定コード	SAP-R/3 -> FI -> FI-IO	F		○	
3	OAC_DOC_TYP_TEXT	Document Type	文書タイプ	SAP-R/3 -> FI -> FI-IO	F		○	
4	OFT_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		○
5	OCUSTOMER_ATTR	Customer Master	消費者	SAP-R/3 -> LO -> LO-IO	F, D	NEWE		○
6	OCUSTOMER_TEXT	Customer Text	消費者	SAP-R/3 -> LO -> LO-IO	F, D	A		○
7	OMATERIAL_ATTR	Material Master	品目コード	SAP-R/3 -> LO -> LO-IO	F, D	NEWE		○
8	OMATERIAL_TEXT	Material Text	品目コード	SAP-R/3 -> LO -> LO-IO	F, D	NEWE		○
9	OMATL_CAT_TEXT	Material Category	品目カテゴリ	SAP-R/3 -> MM -> MM-IO	F		○	
10	OMATL_GROUP_TEXT	Material Group	品目グループ	SAP-R/3 -> MM -> MM-IO	F		○	
11	OEMPLOYEE_ATTR	Employee Master	従業員	SAP-R/3 -> PA -> PA-PA -> PA-PA-IO	F		○	
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		○
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		○
14	2LIS_11_V_SSL	Order Delivery Scheduled Lines	販売伝票受注出荷	SAP-R/3 -> SD	F, D	ABR		○
15	2LIS_11_V_VAHD	Sales Document Header	販売伝票ヘッダデータ	SAP-R/3 -> SD	F, D	ABR		○
16	2LIS_11_VAITM	Sales Document Line Items	販売伝票明細データ	SAP-R/3 -> SD	F, D	ABR		○
17	2LIS_11_VAKON	Sales Document Header Conditions	販売伝票条件	SAP-R/3 -> SD	F, D	ABR		○
18	2LIS_11_VASCL	Scheduled Line Items	販売伝票納入日程行	SAP-R/3 -> SD	F, D	ABR		○
20	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	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	2LIS_12_VCHDR	Sales Delivery Header	出荷伝票ヘッダデータ	SAP-R/3 -> SD	F, D	ABR		○
23	2LIS_12_VCITM	Sales Delivery Line Items	出荷伝票明細データ	SAP-R/3 -> SD	F, D	ABR		○
24	2LIS_13_VDHDR	Billing Document Header	請求伝票ヘッダデータ	SAP-R/3 -> SD	F, D	ABR		○
25	2LIS_13_VDITM	Billing Document Line Items	請求伝票明細データ	SAP-R/3 -> SD	F, D	ABR		○
26	2LIS_13_VDKON	Billing Item Conditions	請求伝票条件	SAP-R/3 -> SD	F, D	ABR		○
27	ODISTR_CHAN_TEXT	Distribution Channel	派遣チャネル	SAP-R/3 -> SD -> SD-IO	F		○	
28	ODIVISION_TEXT	Division	部門	SAP-R/3 -> SD -> SD-IO	F		○	
29	OMATL_TYPE_TEXT	Material Type	品目タイプ	SAP-R/3 -> SD -> SD-IO	F		○	
30	ORECIPCNTRY_TEXT	Customer Country	仕向国	SAP-R/3 -> SD -> SD-IO	F		○	
31	OSENLES_GRP_TEXT	Sales Group	営業グループ	SAP-R/3 -> SD -> SD-IO	F		○	
32	OSENLES_OFF_TEXT	Sales Office Text	営業所	SAP-R/3 -> SD -> SD-IO	F		○	
33	OSENLESORG_TEXT	Sales Organization	販売組織	SAP-R/3 -> SD -> SD-IO	F		○	
34	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".

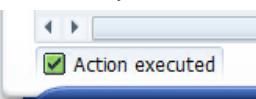


- ② Activate the data sources in the list one by one. Referring to the "Hierarchy" column in the list, find and select the target data source and click [Activate DataSources].

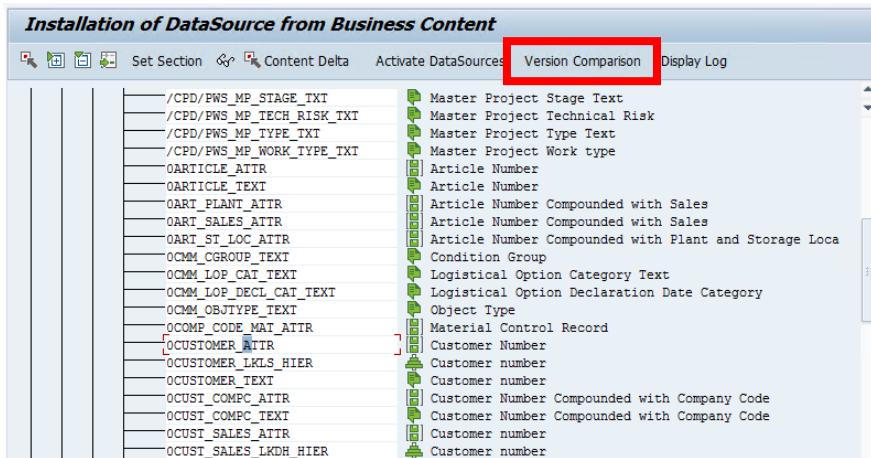


- ※ In the case where all the target nodes are placed in "NODESNOTCONNECTED" in the above screen, or if an "Application component does not exist" error is logged during activation, enter T-code "rsa9" and select "Yes" for "Do you want the content application Transfer Component Hierarchy?"

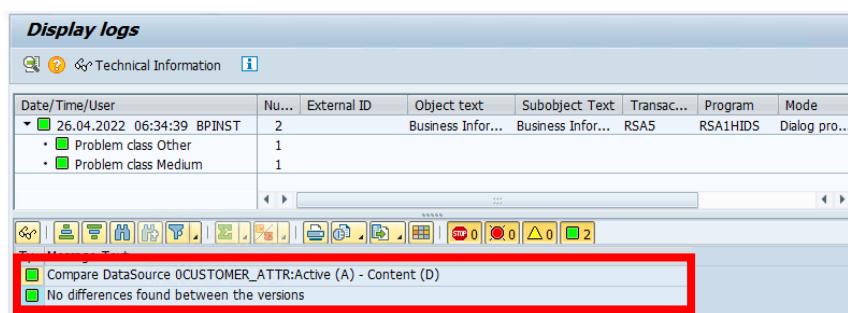
- ③ Verify that the data source has been activated.



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

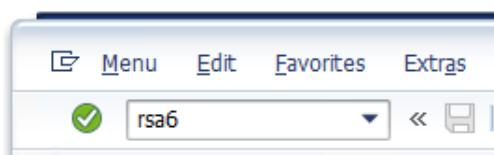


- ⑤ If the display looks like the following, it is activated.

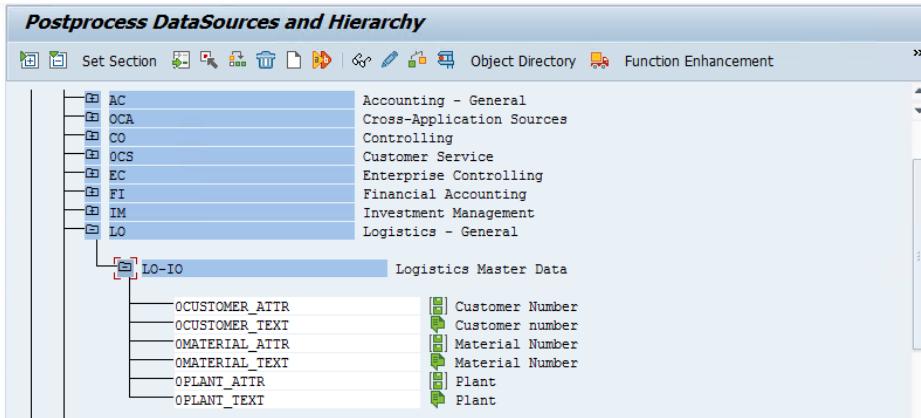


6.3 Review enabled data sources (RSA6)

- 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.

The screenshot shows the 'DataSource: Customer version Display' configuration screen. It includes sections for Header Data, Extraction, and Field Selection.

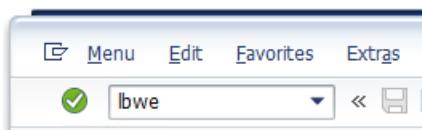
- Header Data:** Shows the DataSource as 'OCUSTOMER_ATTR', Package as '\$TMP', and Description as 'Customer Number'.
- Extraction:** Shows the ExtractStruct as 'BIW_KNA1_S', Direct Access as '1', and Delta Update as checked. There is also a checkbox for 'DataSource for Reconciliation' which is unchecked.
- Field Selection:** A table listing fields with checkboxes for Selection, Hide field, Inversion, and Field only.. The fields listed are: ABRVW, ADRNR, ANRED, AUFSD, BAHNE, BAHNS, BBBNR, BBSNR, BEGRU, BRAN1, BRAN2, BRAN3, and BRAN4. Most fields have the 'Hide field' checkbox checked.

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

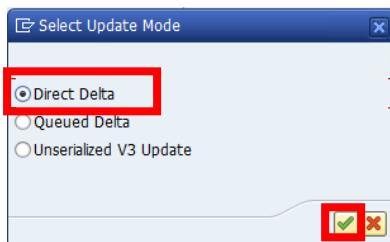
- ① Enter T-code "lbwe".



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

LO Data Extraction: Customizing Cockpit					
Source data	Structure	DataSource	Update	Update Mode	
↳ Logistics applications					
↳ 02 : Purchasing			Job Control	Queued Delta	
↳ 03 : Inventory Controlling			Job Control	Unserialized V3 ...	
↳ 04 : Shop Floor Control			Job Control	Queued Delta	
↳ 05 : Quality Management			Job Control	Queued Delta	
↳ 06 : Invoice Verification			Job Control	Direct Delta	
↳ 08 : Shipment			Job Control	Queued Delta	
↳ 11 : SD Sales BW			Job Control	Queued Delta	
↳ Extract structures					
↳ MC11VA0HDR: Extraction SD Sales BW: Document Head	Maint...	2LIS_11_VAHD	Job Control	Queued Delta	Inactive
↳ MC11VA0ITM: Extraction SD Sales BW: Document Item	Maint...	2LIS_11_VAITM	Job Control	Queued Delta	Inactive
↳ MC11VA0KON: Extraction SD Sales BW: Document Con	Maint...	2LIS_11_VAKON	Job Control	Queued Delta	Inactive
↳ MC11VA0SCL: Extraction SD Sales BW: Document Sche	Maint...	2LIS_11_VASCL	Job Control	Queued Delta	Inactive
↳ MC11VA0STH: Extraction MD Order Header Status	Maint...	2LIS_11_VASTH	Job Control	Queued Delta	Inactive
↳ MC11VA0STI: Extraction MD Order Item Status	Maint...	2LIS_11_VASTI	Job Control	Queued Delta	Inactive
↳ MC11V_0ITM: Extraction SD Sales BW: Document Item	Maint...	2LIS_11_V_ITM	Job Control	Queued Delta	Inactive
↳ MC11V_0SCL: Extraction SD Sales BW: Allocation Sched	Maint...	2LIS_11_V_SCL	Job Control	Queued Delta	Inactive
↳ MC11V_0SSL: Extraction MD Sales: Order Delivery	Maint...	2LIS_11_V_SSL	Job Control	Queued Delta	Inactive
↳ 12 : LE Shipping BW			Job Control	Queued Delta	

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



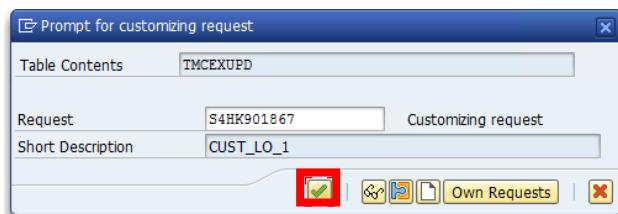
- ※ Additional settings are required when using Queued Delta or Unserialized V3 Update.

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].



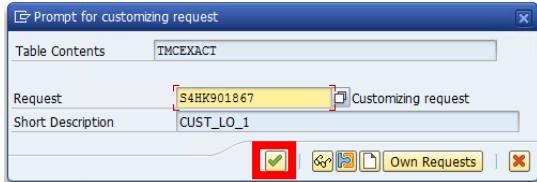
- ⑤ Click [Continue].



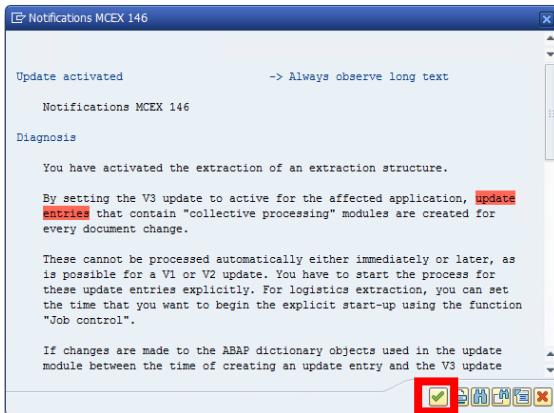
- ⑥ Now we activate the Extract structure. Click [Update] on the "Inactive" Extract structure.

LO Data Extraction: Customizing Cockpit						
Source data	Structure	DataSource	Update	Update Mode		
↳ Logistics applications						
↳ 02 : Purchasing			Job Control	Queued Delta		
↳ 03 : Inventory Controlling			Job Control	Unserialized V3 ...		
↳ 04 : Shop Floor Control			Job Control	Queued Delta		
↳ 05 : Quality Management			Job Control	Queued Delta		
↳ 06 : Invoice Verification			Job Control	Direct Delta		
↳ 08 : Shipment			Job Control	Queued Delta		
↳ 11 : SD Sales BW			Job Control	Direct Delta		
↳ Extract structures						
↳ MC11VA0HDR: Extraction SD Sales BW: Document Header	Maint...	2LIS_11_VAHD...		Inactive		
↳ MC11VA0ITM: Extraction SD Sales BW: Document Item	Maint...	2LIS_11_VAITM...		Inactive		
↳ MC11VA0KON: Extraction SD Sales BW: Document Con...	Maint...	2LIS_11_VAKON...		Inactive		
↳ MC11VA0SCL: Extraction SD Sales BW: Document Sche...	Maint...	2LIS_11_VASCL...		Inactive		
↳ MC11VA0STH: Extraction MD Order Header Status	Maint...	2LIS_11_VASTH...		Inactive		
↳ MC11VA0STI: Extraction MD Order Item Status	Maint...	2LIS_11_VASTI...		Inactive		
↳ MC11V_0ITM: Extraction SD Sales BW: Document Item	Maint...	2LIS_11_V_ITM...		Inactive		
↳ MC11V_0SCL: Extraction SD Sales BW: Allocation Sched...	Maint...	2LIS_11_V_SCL...		Inactive		
↳ MC11V_0SSL: Extraction MD Sales: Order Delivery	Maint...	2LIS_11_V_SSL...		Inactive		
↳ LE Shipping BW				Queued Delta		

⑦ [Click Continue.]



⑧ Click [Continue].



⑨ Confirm that all Extract structures have been activated.

Source data	Structure	DataSource	Update	Update Mode
Logistics applications				
02 : Purchasing			Job Control	Queued Delta
03 : Inventory Controlling			Job Control	Unserialized V3 ...
04 : Shop Floor Control			Job Control	Queued Delta
05 : Quality Management			Job Control	Queued Delta
06 : Invoice Verification			Job Control	Direct Delta
08 : Shipment			Job Control	Queued Delta
11 : SD Sales BW			Job Control	Direct Delta
Extract structures				
MC1VA0HDR: Extraction SD Sales BW: Document Head	Maint...	2LIS_11_VAHD...		Active
MC1VA0ITM: Extraction SD Sales BW: Document Item	Maint...	2LIS_11_VAITM...		Active
MC1VA0KON: Extraction SD Sales BW: Document Com	Maint...	2LIS_11_VAKON...		Active
MC1VA05CL: Extraction SD Sales BW: Document Sche	Maint...	2LIS_11_VASCL...		Active
MC1VA05TH: Extraction MD Order Header Status	Maint...	2LIS_11_VASTH...		Active
MC1VA0STI: Extraction MD Order Item Status	Maint...	2LIS_11_VASTI...		Active
MC1V_0ITM: Extraction SD Sales BW: Document Item	Maint...	2LIS_11_V_ITM...		Active
MC1V_05CL: Extraction SD Sales BW: Allocation Sched	Maint...	2LIS_11_V_SCL...		Active
MC1V_05SL: Extraction MD Sales: Order Delivery	Maint...	2LIS_11_V_SSL...		Active
Events			Job Control	Queued Delta
LE Shipping BW				

- 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).

LO Data Extraction: Customizing Cockpit					
Source data	Structure	DataSource	Update	Update Mode	
↳ Logistics applications					
↳ 02 : Purchasing				Job Control	Queued Delta
↳ 03 : Inventory Controlling				Job Control	Unserialized V3 ...
↳ 04 : Shop Floor Control				Job Control	Queued Delta
↳ 05 : Quality Management				Job Control	Queued Delta
↳ 06 : Invoice Verification				Job Control	Direct Delta
↳ 08 : Shipment				Job Control	Queued Delta
↳ 11 : SD Sales BW				Job Control	Queued Delta
↳ 12 : LE Shipping BW				Job Control	Direct Delta
↳ Extract structures					
↳ MC12V0HDR: Extraction LE Shipping BW: Document H	Maint...	2LIS_12_VCHDR	Job Control	Active	
↳ MC12V0ITM: Extraction LE Shipping BW: Document It	Maint...	2LIS_12_VCITM	Job Control	Active	
↳ MC12V0SCL: Extraction LE Shipping BW: Schedule Line	Maint...	2LIS_12_VCSCL	Job Control	Inactive	
↳ 13 : SD Billing BW				Job Control	Direct Delta
↳ Extract structures					
↳ MC13V0HDR: Extraction SD Billing Document BW: Doc	Maint...	2LIS_13_VDHDR	Job Control	Active	
↳ MC13V0ITM: Extraction SD Billing Document BW: Doc	Maint...	2LIS_13_VDITM	Job Control	Active	
↳ MC13V0KON: Extraction SD Billing Documents BW: Do	Maint...	2LIS_13_VDKON	Job Control	Active	
↳ Events					
↳ 17 : Plant Maintenance BW				Job Control	Queued Delta

- 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.

LO Data Extraction: Customizing Cockpit					
Source data	Structure	DataSource	Update	Update Mode	
↳ Logistics applications					
↳ 02 : Purchasing				Job Control	Queued Delta
↳ 03 : Inventory Controlling				Job Control	Direct Delta
↳ Extract structures					
↳ MC03BF0 : Extraction MM-BW: Goods Movements	Maint...	2LIS_03_BF	Job Control	Active	
↳ MC03UM0 : Extraction MM-BW: Stock Revaluations	Maint...	2LIS_03_UM	Job Control	Active	
↳ 04 : Shop Floor Control				Job Control	Queued Delta
↳ 05 : Quality Management				Job Control	Queued Delta

- 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.

LO Data Extraction: Customizing Cockpit					
Source data	Structure	DataSource	Update	Update Mode	
↳ Logistics applications					
↳ 02 : Purchasing				Job Control	Direct Delta
↳ Extract structures					
↳ MC02M_0ACC: Extraction Purchasing (Account)	Maint...	2LIS_02_ACC	Job Control	Active	
↳ MC02M_0CGR: Produced Activity: Delivery of Confirmation	Maint...	2LIS_02_CGR	Job Control	Active	
↳ MC02M_0HDR: Extraction Purchasing (Header)	Maint...	2LIS_02_HDR	Job Control	Active	
↳ MC02M_0ITM: Extraction Purchasing (Item)	Maint...	2LIS_02_ITM	Job Control	Active	
↳ MC02M_0SCL: Extraction Purchasing (Schedule Line)	Maint...	2LIS_02_SCL	Job Control	Active	
↳ MC02M_0SCN: Produced Activity: Confirmation of Schedule Line	Maint...	2LIS_02_SCN	Job Control	Active	
↳ MC02M_0SGR: Produced Activity: Delivery of Schedule Line	Maint...	2LIS_02_SGR	Job Control	Active	

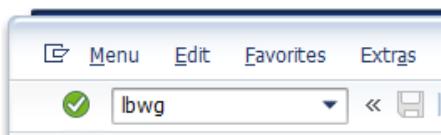
LO Data Extraction: Customizing Cockpit					
Source data	Structure	DataSource	Update	Update Mode	
↳ Logistics applications					
↳ 02 : Purchasing			Job Control	Direct Delta	
↳ 03 : Inventory Controlling			Job Control	Direct Delta	
↳ 04 : Shop Floor Control			Job Control	Queued Delta	
↳ 05 : Quality Management			Job Control	Queued Delta	
↳ 06 : Invoice Verification			Job Control	Direct Delta	
↳ Extract structures					
↳ MC06M_0ITM: Extraction Structure BW	Maint...	2LIS_06_INV		Active	
↳ Events					

6.5 Delete data in setup table (LBWG)

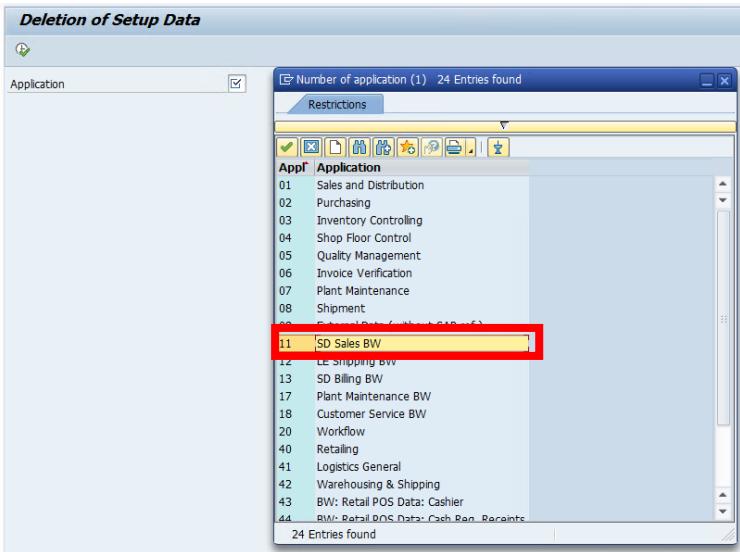
To extract the full data of LO Cockpit, you need to prepare the data in the setup table in advance. Before filling the setup tables, you delete the data already contained in the setup table. Delete the data of appropriate setup tables according to the following SAP Accelerator types.

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

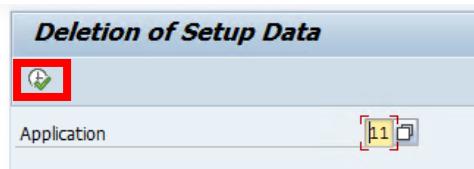
- ① Enter T-code "lbwg".



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



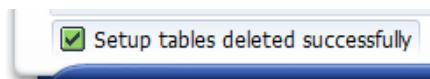
- ③ Click [Execute].



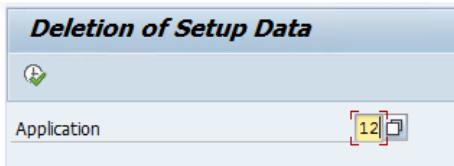
- ④ Click [Yes].



- 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.

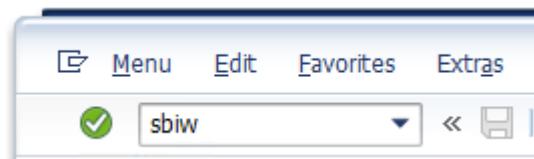


6.6 Initialize and rebuild setup table data (SBIW)

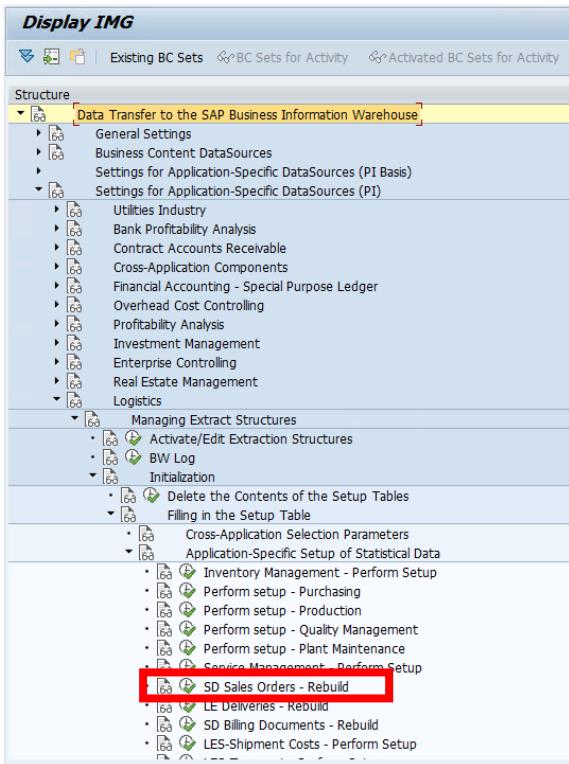
Initialize and rebuild the target setup data according to the following SAP Accelerator Packages types. This process stores the data in the setup table so that the LO Cockpit data is retrieved by the full load process from Qlik Replicate.

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.

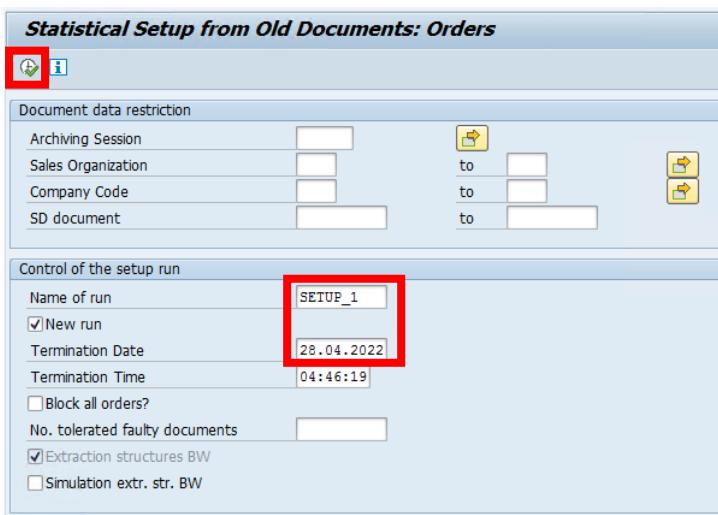


- 1) Please double check that all Extract Structures described in [6.4 Logistics data extraction setup \(LBWE\)](#) are enabled.
- 2) Once you have verified that the above activation has taken place, follow the procedure described in [8 Confirmation of data source extraction via ODP](#) to run a data 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

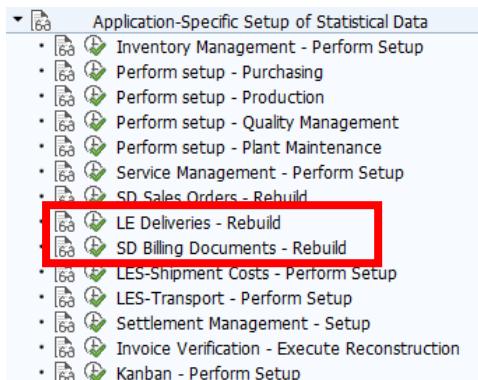
- ③ Set [Name of run] and [Termination Date] and click [Execute].



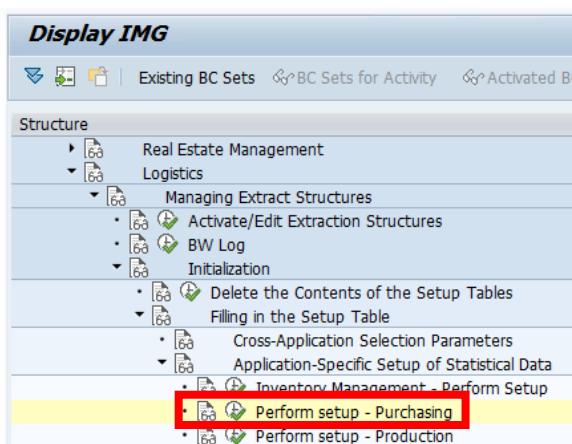
- ④ Click [Continue].



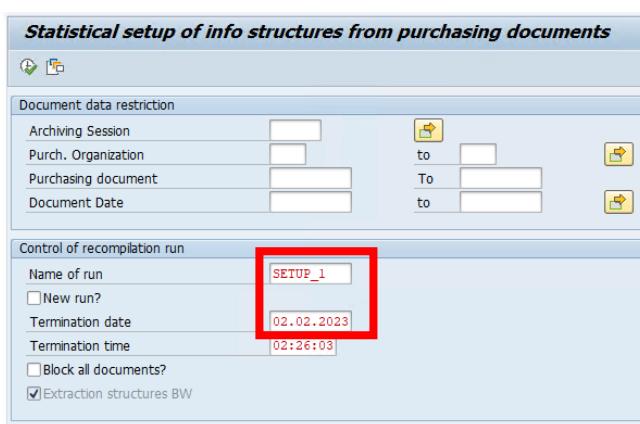
⑤ Repeat the same procedure for "LE Deliveries" and "SD Billing Document".



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



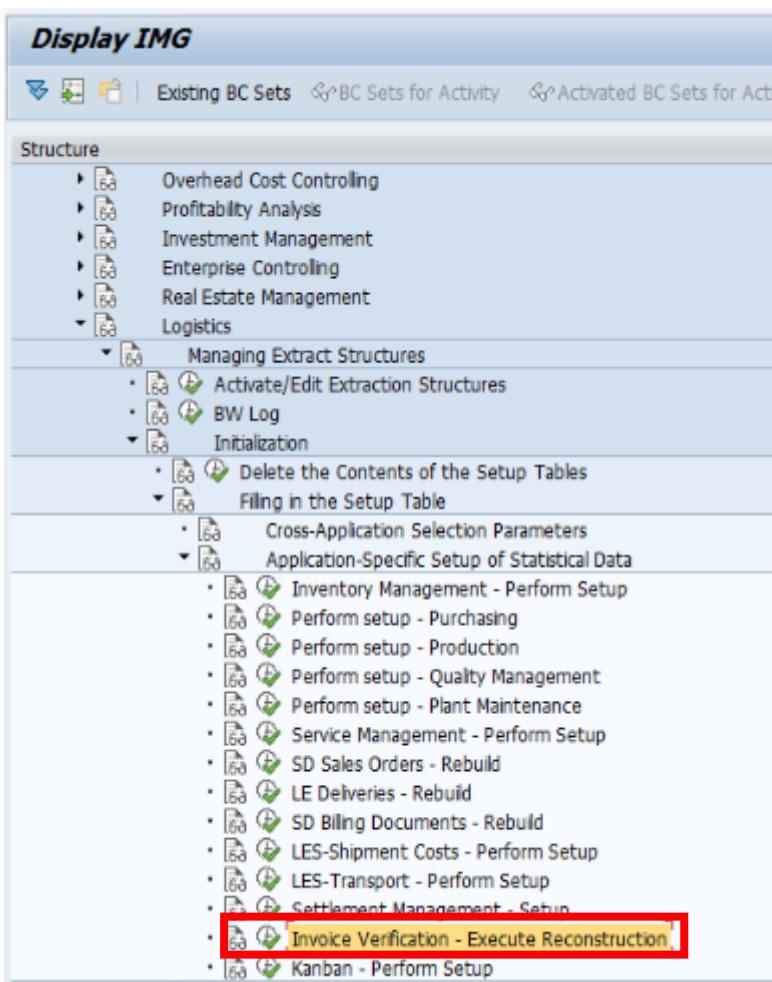
⑦ Set [Name of run] and [Termination Date] and click [Execute].



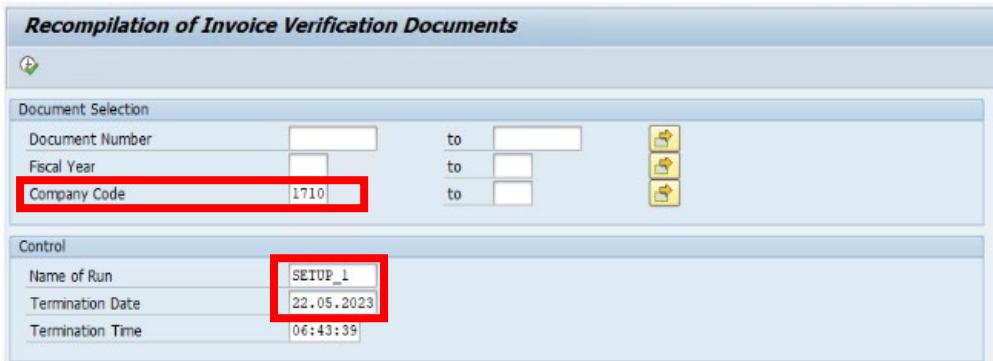
⑧ Click [Continue].



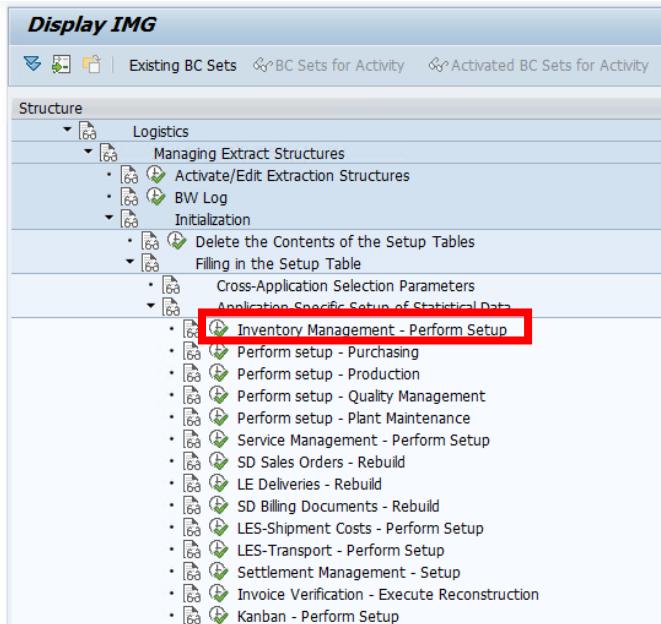
⑨ When you use Procurement, continue and click "Invoice Verification - Execute Reconstruction".



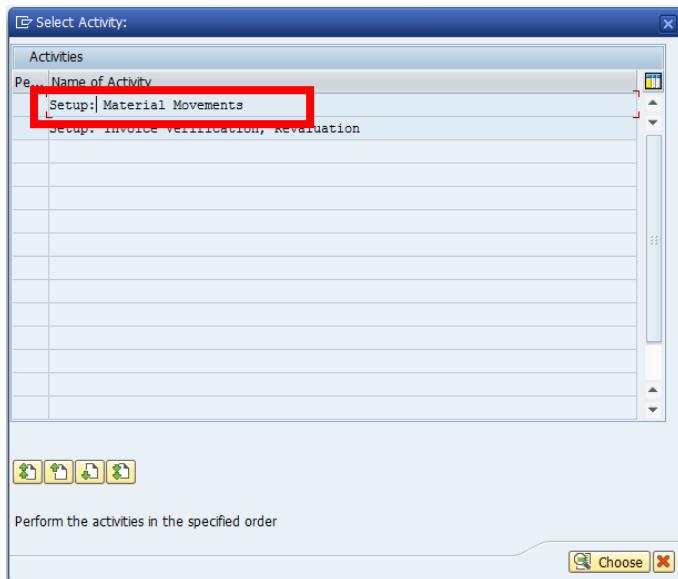
- ⑩ Enter the [Company Code] (and other selection criteria if necessary), set the [Name of run] and [Termination Date] and click [Execute].



- 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".)



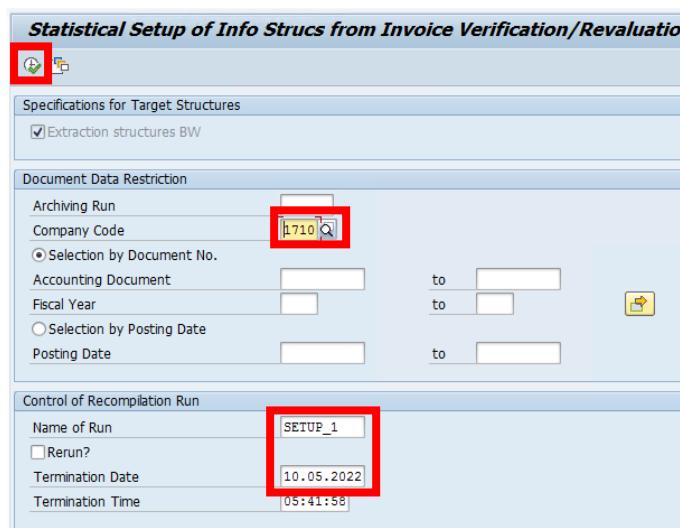
- ⑬ Set [Name of run] and [Termination Date] and click [Execute].

The screenshot shows a dialog box titled 'New Setup for Info Structures from Material Movements'. The 'Control of recompilation run' section is highlighted with a red box. It contains fields for 'Name of run' (SETUP_1), 'Termination Date' (10.05.2022), and 'Termination Time' (05:37:43). Other sections include 'Specifications for the target structures' (with a checked checkbox for 'Extraction structures BW') and 'Document data restriction' (with options for 'Archiving run', 'Selection by posting date' (selected), 'Posting Date' and 'to' fields, and 'Selection by material doc.').

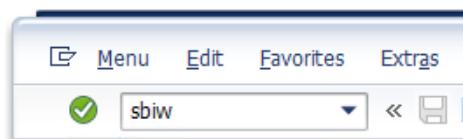
- ⑭ Return to the previous screen and click on [Setup : Invoice Verification, Revaluation].
 (This is a setup for the data source "2LIS_03_UM".)



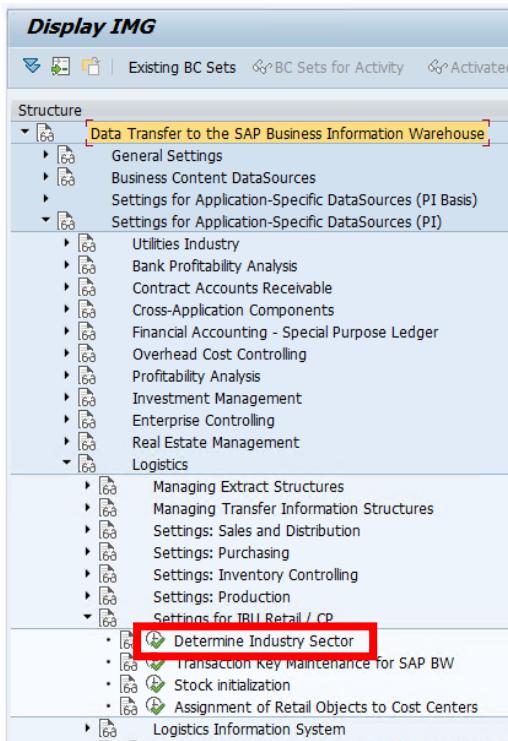
- ⑮ Set [Company Code], [Name of run], and [Termination Date] and click [Execute].



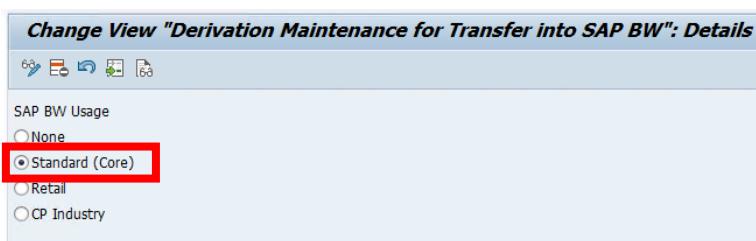
- ⑯ When you use Inventory, reopen the top screen of T-code "sbiw".



- ⑯ 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").



- ⑰ Select [Standard(Core)] and save.



- ⑲ Enter T-code "mcnb".



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

BW: Initialization of opening stocks in transfer structure

General control info

Name of run	BPINST	<input checked="" type="checkbox"/> New run
Termination date	06.05.2023	
Time of termination	13:04:21	5000 No. of data recs per LUW

Data destination info

TransferStructure	2LIS_03_BX
-------------------	------------

Data source info

Plant	to	[]
Material	to	[]
Storage Location	to	[]

Only Valuated Stocks
 All stocks (including non-valuated stocks)
 Zero stock to be transferred

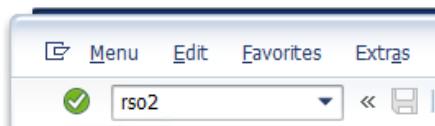
7 Creating generic data source (RSO2)

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	ZTCURR_ATTR	TCURR
Finance		
Procurement		
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].

A screenshot of the 'Maintain Generic DataSources' screen. The title bar says 'Maintain Generic DataSources'. Below it is a toolbar with a trash can icon. The main area is titled 'DataSource' and contains three radio button options: 'Transaction data' (selected), 'Master Data Attributes', and 'Texts'. The 'Transaction data' field is highlighted with a red box and contains the value 'ZTCURR_ATTR'. At the bottom of the screen are three buttons: 'Create' (highlighted with a red box), 'Change', and 'Display'.

- ③ Enter the following and click [Generic Delta].

Create DataSource for Trans. Data: ZTCURR_ATTR

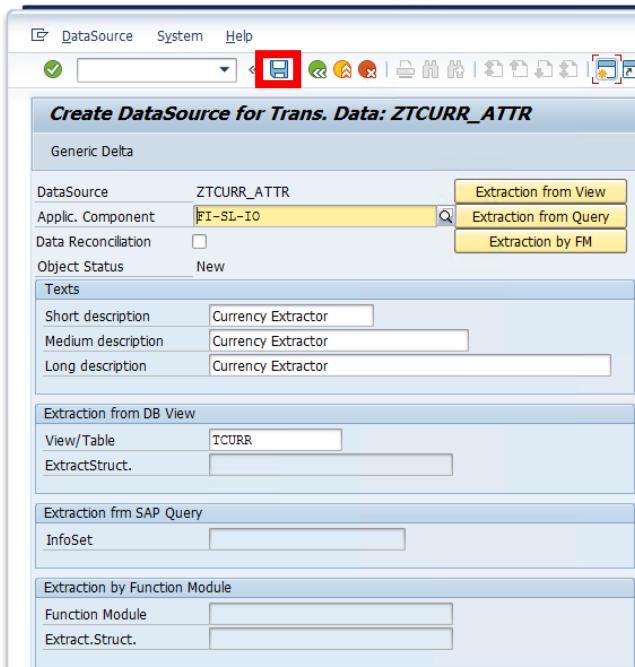
Generic Delta		
DataSource	ZTCURR_ATTR	Extraction from View
Appl. Component	FI-SL-IO	Extraction from Query
Data Reconciliation	<input type="checkbox"/>	Extraction by FM
Object Status	New	
Texts		
Short description	Currency Extractor	
Medium description	Currency Extractor	
Long description	Currency Extractor	
Extraction from DB View		
View/Table	TCURR	
ExtractStruct.		
Extraction from SAP Query		
InfoSet		
Extraction by Function Module		
Function Module		
Extract.Struct.		

- ④ Enter and save the following

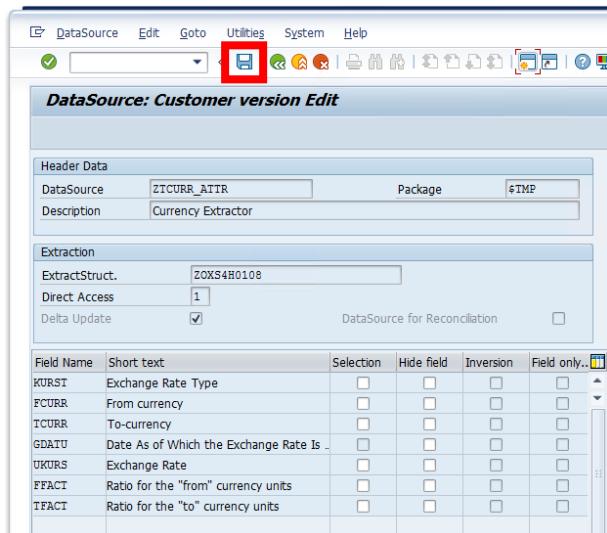
Generic Delta

DataSource	ZTCURR_ATTR
Delta-Specific Field	
Field	GDATU
<input type="radio"/> Time Stamp (UTC) <input type="radio"/> Time Stamp (Local) <input checked="" type="radio"/> Calend. Day <input type="radio"/> Numeric Pointer	
Settings	
Safety Interval Upper Limit	
Safety Interval Lower Limit	
<input type="checkbox"/> Real-Time Enabl	
<input checked="" type="radio"/> New State for Changed Records <input type="radio"/> Additive Delta	
<input type="button" value="Save"/> <input type="button" value="Delete"/> <input type="button" value="Cancel"/>	

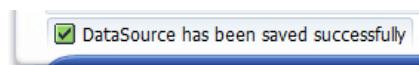
⑤ Click [Save].



⑥ Click [Save] again.



⑦ Confirm that the process has been completed without problems.

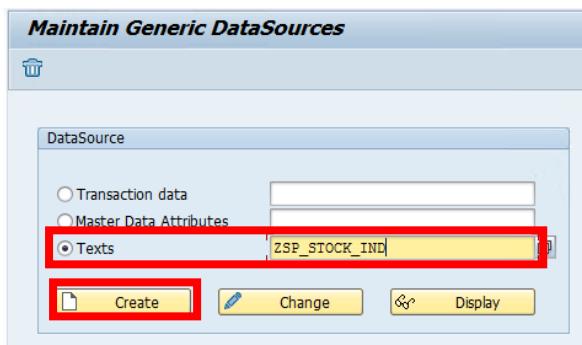


7.2 ZSP_STOCK_IND

- ① Enter T-code "rso2".



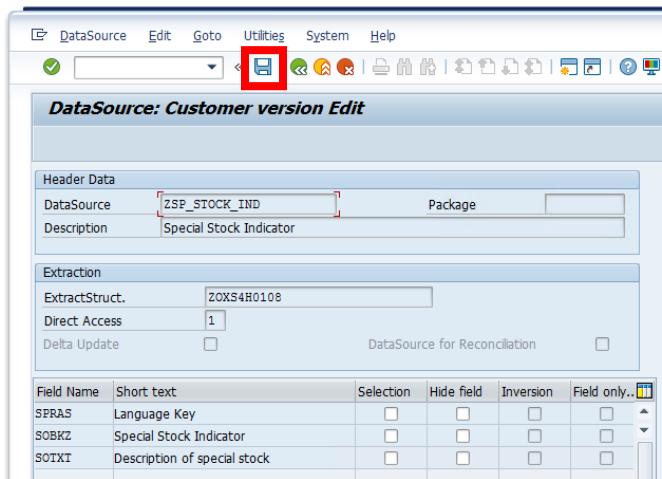
- ② Enter "ZSP_STOCK_IND" in [Texts] and click [Create].



- ③ Enter and save the following:

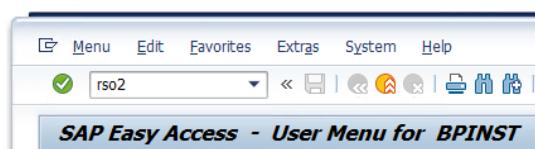
A screenshot of the 'Create DataSource for Texts: ZSP_STOCK_IND' configuration screen. The 'Generic Delta' section contains: DataSource 'ZSP_STOCK_IND', Appl. Component 'MM-IO', Data Reconciliation checked, Object Status 'New'. To the right are four extraction methods: 'Extraction from View', 'Extraction from Query', 'Extraction by FM', and 'Extraction fr.Domain'. The 'Texts' section contains: Short description 'Special Stock Ind', Medium description 'Special Stock Indicator', Long description 'Special Stock Indicator'. The 'Extraction from DB View' section contains: View/Table 'T148T', ExtractStruct. empty. The 'Extraction from SAP Query' section contains: InfoSet empty. The 'Extraction by Function Module' section contains: Function Module empty, Extract.Struct. empty. The 'Extraction from Domain Fixed Values' section contains: Domain empty.

- ④ Click [Save] again.

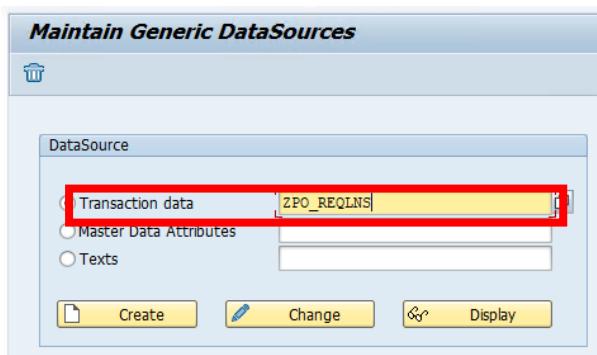


7.3 ZPO_REQLNS

- ① Enter T-code "rso2".



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



③ Enter and save the following:

Create DataSource for Trans. Data: ZPO_REQLNS

Generic Delta		
DataSource	ZPO_REQLNS	Extraction from View
Appl. Component	MM	Extraction from Query
Data Reconciliation	<input type="checkbox"/>	Extraction by FM
Object Status	New	
Texts		
Short description	ZPO	
Medium description	ZPO	
Long description	ZPO	
Extraction from DB View		
View/Table	EBAN	
ExtractStruct.		
Extraction from SAP Query		
InfoSet		
Extraction by Function Module		
Function Module		
Extract.Struct.		

④ Click [Save] again.

DataSource: Customer version Edit

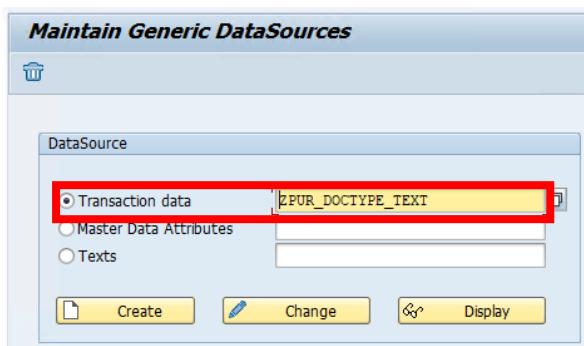
DataSource	ZPO_REQLNS	Package			
Description	ZPO				
Extraction					
ExtractStruct.	Z0XS4B0107				
Direct Access	1				
Delta Update	<input type="checkbox"/>	DataSource for Reconciliation <input type="checkbox"/>			
Field Name	Short text	Selection	Hide field	Inversion	Field only..
BANFN	Purchase Requisition Number	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
BNFPO	Item number of purchase requisition	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
BSART	Purchase Requisition Document Type	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

7.4 ZPUR_DOCTYPE_TEXT

① Enter T-code "rso2".

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



- ③ Enter and save the following:

Create DataSource for Trans. Data: ZPUR_DOCTYPE_TEXT

Generic Delta	
DataSource: ZPUR_DOCTYPE_TEXT	Extraction from View
Appl. Component: MM	Extraction from Query
Data Reconciliation: <input type="checkbox"/>	Extraction by FM
Object Status: New	
Texts	
Short description: ZPUR_DOCTYPE_TEXT	
Medium description: ZPUR_DOCTYPE_TEXT	
Long description: ZPUR_DOCTYPE_TEXT	
Extraction from DB View	
View/Table: T161T	
ExtractStruct.	
Extraction from SAP Query	
InfoSet	
Extraction by Function Module	
Function Module	
Extract.Struct.	

- ④ Click [Save] again.

DataSource: Customer version Edit

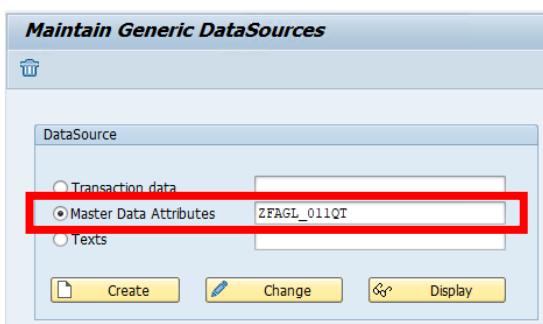
Header Data																									
DataSource: ZPUR_DOCTYPE_TEXT	Package: <input type="text"/>																								
Description: ZPUR_DOCTYPE_TEXT																									
Extraction																									
ExtractStruct.: ZOXS4H0108																									
Direct Access: 1																									
Delta Update: <input type="checkbox"/>	DataSource for Reconciliation: <input type="checkbox"/>																								
<table border="1"> <thead> <tr> <th>Field Name</th> <th>Short text</th> <th>Selection</th> <th>Hide field</th> <th>Inversion</th> <th>Field only..</th> </tr> </thead> <tbody> <tr> <td>SPRAS</td> <td>Language Key</td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> </tr> <tr> <td>BSART</td> <td>Purchasing Document Type</td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> </tr> <tr> <td>BSTYP</td> <td>Purchasing Document Category</td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> </tr> </tbody> </table>		Field Name	Short text	Selection	Hide field	Inversion	Field only..	SPRAS	Language Key	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	BSART	Purchasing Document Type	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	BSTYP	Purchasing Document Category	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Field Name	Short text	Selection	Hide field	Inversion	Field only..																				
SPRAS	Language Key	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>																				
BSART	Purchasing Document Type	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>																				
BSTYP	Purchasing Document Category	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>																				

7.5 ZFAGL_011QT

- ① Enter T-code "rso2".



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

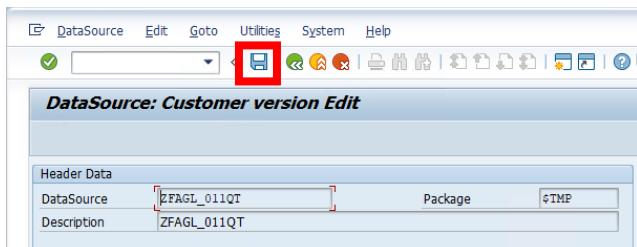


- ③ Enter and save the following:

A screenshot of the 'Create DataSource for Master data attrs: ZFAGL_011QT' configuration screen. The screen is divided into several sections:

- Generic Delta**: Contains fields for 'DataSource' (ZFAGL_011QT), 'Applc. Component' (FI-GL-IO), 'Data Reconciliation' (unchecked), and 'Object Status' (New). It also includes extraction methods: 'Extraction from View' (yellow), 'Extraction from Query' (yellow), and 'Extraction by FM' (yellow).
- Texts**: Contains fields for 'Short description' (ZFAGL_011QT), 'Medium description' (ZFAGL_011QT), and 'Long description' (ZFAGL_011QT).
- Extraction from DB View**: Contains 'View/Table' (FAGL_011QT) and 'ExtractStruct.' (empty input field).
- Extraction from SAP Query**: Contains 'InfoSet' (empty input field).
- Extraction by Function Module**: Contains 'Function Module' (empty input field) and 'Extract.Struct.' (empty input field).

④ Click [Save] again.

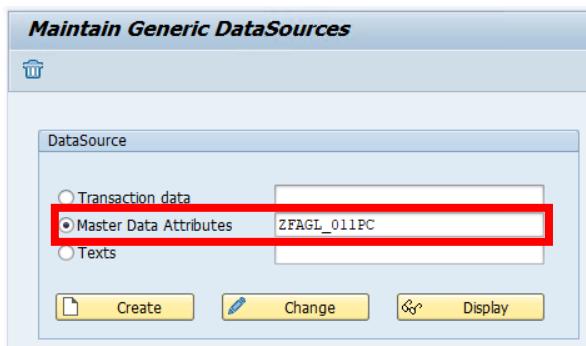


7.6 ZFAGL_011PC

① Enter T-code "rso2".



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



- ③ Enter and save the following:

Create DataSource for Master data attrs: ZFAGL_011PC

Generic Delta		
DataSource	ZFAGL_011PC	Extraction from View
Applc. Component	FI-GL-IO	Extraction from Query
Data Reconciliation	<input type="checkbox"/>	Extraction by FM
Object Status	New	
Texts		
Short description	ZFAGL_011PC	
Medium description	ZFAGL_011PC	
Long description	ZFAGL_011PC	
Extraction from DB View		
View/Table	FAGL_011PC	
ExtractStruct.		
Extraction frm SAP Query		
InfoSet		
Extraction by Function Module		
Function Module		
Extract.Struct.		

- ④ Click [Save] again.

DataSource: Customer version Edit

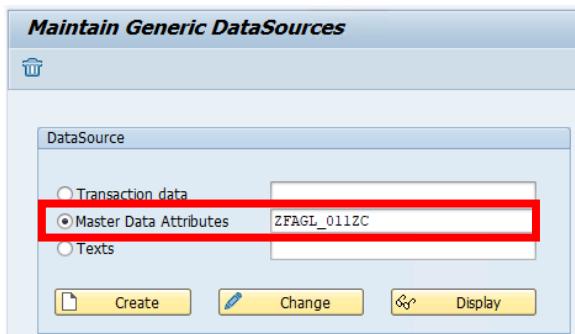
Header Data		
DataSource	ZFAGL_011PC	Package
Description	ZFAGL_011PC	

7.7 ZFAGL_011ZC

- ① Enter T-code "rso2".

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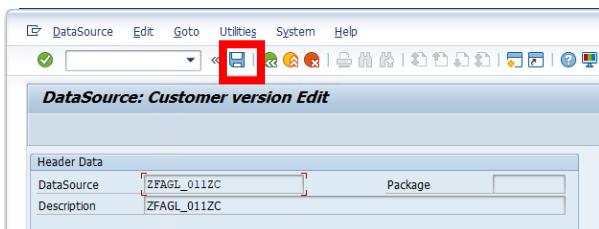
- ② Enter "ZFAGL_011ZC" in the [Master data] field and click [Create].



- ③ Enter and save the following:

This screenshot displays the configuration details for the DataSource 'ZFAGL_011ZC'. The 'Generic Delta' section includes fields for 'DataSource' (ZFAGL_011ZC), 'Appl. Component' (FI-GL-IO), and 'Object Status' (New). The 'Texts' section contains short, medium, and long descriptions all set to 'ZFAGL_011ZC'. The 'Extraction from DB View' section shows 'View/Table' as 'FAGL_011ZC'. The 'Extraction from SAP Query' section has an 'InfoSet' field. The 'Extraction by Function Module' section includes 'Function Module' and 'Extract.Struct.' fields. A red box highlights the 'DataSource' field in the 'Generic Delta' section.

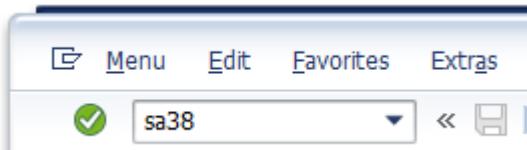
- ④ Click [Save] again.



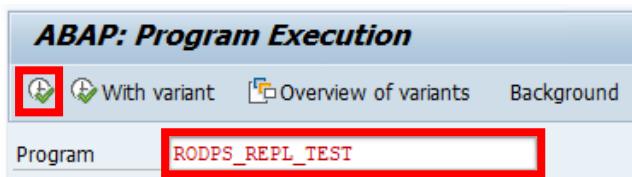
8 Confirmation of data source extraction via ODP

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

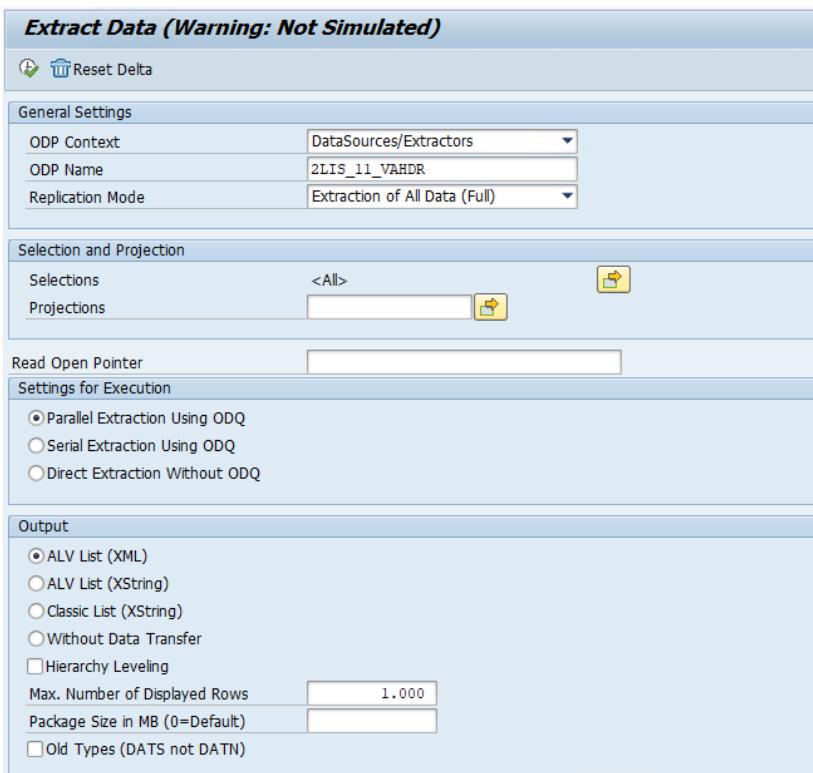
- ① Enter transaction code "sa38".



- 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	FAFHWA...	KUNNR	KUR...	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_S07							USD	C	09.10.20...		1710	10		
0000000023	TA				1710	08.10.20...	USD	USCU_S03							USD	C	09.10.20...		1710	10		
0000000024	TA				1710	08.10.20...	USD	USCU_S15							USD	C	09.10.20...		1710	10		
0000000025	TA				1710	08.10.20...	USD	USCU_L04							USD	C	09.10.20...		1710	10		
0000000026	TA				1710	08.10.20...	USD	USCU_L02							USD	C	09.10.20...		1710	10		
0000000027	TA				1710	08.10.20...	USD	USCU_L09							USD	C	09.10.20...		1710	10		
0000000028	TA				1710	08.10.20...	USD	USCU_S05							USD	C	09.10.20...		1710	10		
0000000029	TA				1710	08.10.20...	USD	USCU_S17							USD	C	09.10.20...		1710	10		
0000000030	TA				1710	08.10.20...	USD	USCU_L03							USD	C	09.10.20...		1710	10		
0000000031	TA				1710	08.10.20...	USD	USCU_L08							USD	C	09.10.20...		1710	10		
0000000032	TA				1710	08.10.20...	USD	USCU_S10							USD	C	09.10.20...		1710	10		
0000000033	TA				1710	08.10.20...	USD	USCU_S06							USD	C	09.10.20...		1710	10		
0000000034	TA				1710	08.10.20...	USD	USCU_S09							USD	C	09.10.20...		1710	10		
0000000035	TA				1710	08.10.20...	USD	USCU_L01							USD	C	09.10.20...		1710	10		
0000000036	TA				1710	08.10.20...	USD	USCU_S15							USD	C	09.10.20...		1710	10		
0000000037	TA				1710	08.10.20...	USD	USCU_L04							USD	C	09.10.20...		1710	10		
0000000038	TA				1710	08.10.20...	USD	USCU_L10							USD	C	09.10.20...		1710	10		
0000000039	TA				1710	08.10.20...	USD	0017100003							USD	C	09.10.20...		1710	10		
0000000040	TA	006			1710	09.10.20...	USD	0017100008							USD	C	09.10.20...		1710	10		
0000000041	TA	006			1710	09.10.20...	USD	0017100009							USD	C	09.10.20...		1710	10		
0000000042	TA	006			1710	09.10.20...	USD	0017100003							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	IUSD	0017100003							IUSD	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 OFI_GL_4, OFI_AR_4, and OFI_AP_4

The OFI_GL_4, OFI_AR_4, and OFI_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.

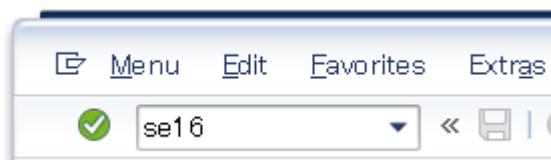
- ① Enable BWFINEXT
 - Extracts in delta mode all records posted up to the time "now" minus one hour. The time can be changed with the parameter BWFINSAF = 3.600 (1 hour), but it is recommended by SAP that it be set to at least 1 hour.
 - The disadvantage of this method is that only change data older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

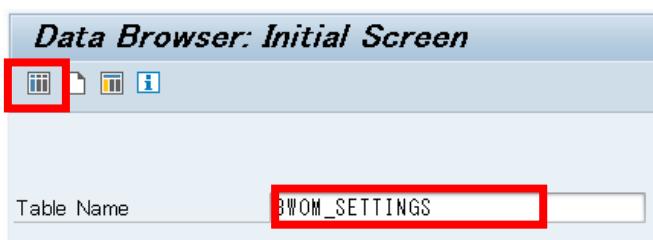
- [BW-BCT-FI-GL \(General Ledger\) - SAP NetWeaver Business Warehouse - Support Wiki](#)
- [BWOM_SETTINGS for FI loads in SAP BI | SAP Blogs](#)
- [FI-CO Delta Safety Interval Summary | SAP Blogs](#)
- [1012874 - FAQ extractors 0FI_AP_* 0FI_AR_* 0FI_GL_* \(except 0FI_GL_10, 0FI_GL_11, 0FI_GL_12, 0FI_GL_14\) - 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.

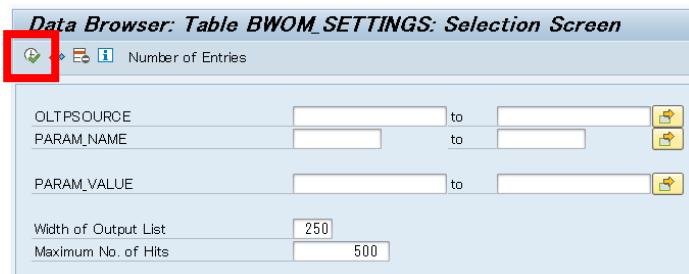
- ① Enter transaction code "se16".



- 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.

MANDT	OLTPSOURCE	PARAM_NAME	PARAM_VALUE
400		BUFFERREF	
400		BWCOPLARES	
400		BWFIAAFYV	L
400		BWFIAEIM	
400		BWFIBLREQ	
400		BWFIBSEGMO	
400		BWFIGLEND	
400		BWFIGLOG	
400		BWFILLOWIM	19910101
400		BWFINEXTCHG	
400		BWFINOCHNG	
400		BWFIORDBY	
400		BWFIOVERLA	1
400		BWFISAFETY	1
400		BWFITIMBDR	020000
400		DELTIMEST	60
400		EXT_ZERO	
400		FLAG_AL	
400		GROUP_BY	
400		HIE_DB_BUF	
400		IBVACTIV	
400		LOG	
400		MAXLINES	
400		NOLOCKING	
400		NODBUPRESOL	
400		OBJJOURNYPE	10
400		OBJJFILESIZE	100
400		OBLLIGODELT	X
400		ORGSSONLY	
400		TOFMESS	
400		TR_QUE_EIS	

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

MANDT	400
OLTPSOURCE	
PARAM NAME	BWFIOVERLA
PARAM VALUE	X

9.2 Delta extraction settings for OFI_GI_10 and OFI_GL_14

For data sources OFI_GI_10 and OFI_GL_14, the ROOSOURCE table contains the Safety Interval settings, which are used to set the Delta extraction:

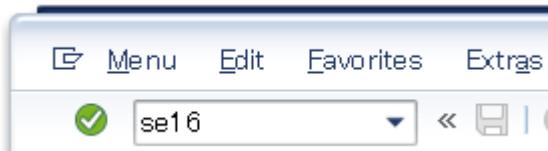
- ✓ DELTASAFE1 (lower safety interval): Real-time extraction is possible, but the time intervals overlap. For example, if the lower safety interval is set to 3,600 (1 hour), the Delta data for the past hour is subject to extraction, so records are extracted redundantly.
- ✓ DELTASAFE2 (upper safe interval):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

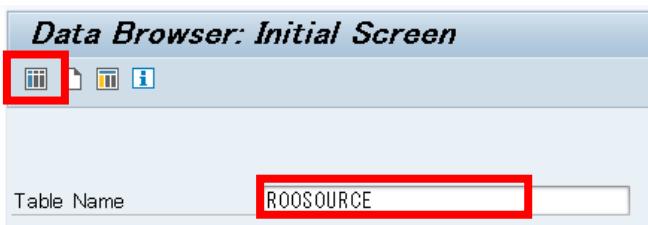
- [2116914 - Safety interval of BW DataSource - SAP ONE Support Launchpad](#)
- [1523670 - BW delta extraction: Setting safety intervals - SAP ONE Support Launchpad](#)

By default, OFI_GI_10 and OFI_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.

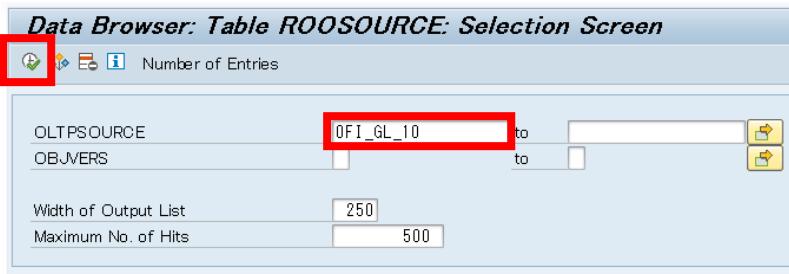
- ① Enter transaction code "se16".



- 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.

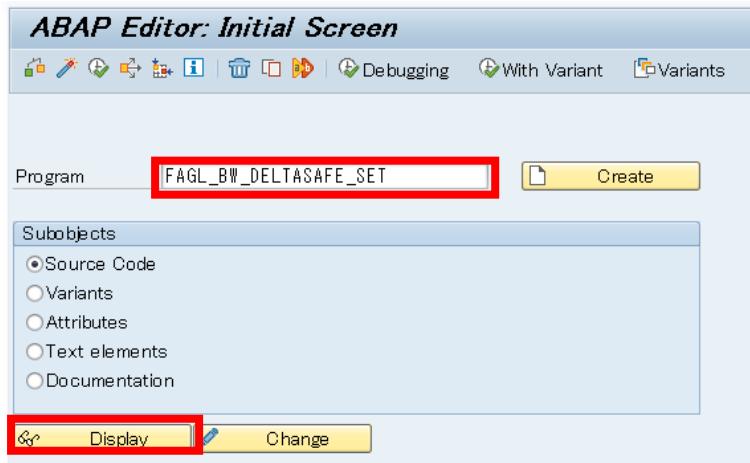
Data Browser: Table ROOSOURCE Select Entries 2				
Table: ROOSOURCE		Displayed Fields: 9 of 54	Fixed Columns:	2 List Width 0250
OLTPSOURCE	OBJVERS	GENDELTATP	DELTASAFE1	DELTASAFE2
OFI_GL_10	A	U	3600	
OFI_GL_10	D	U	3600	

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

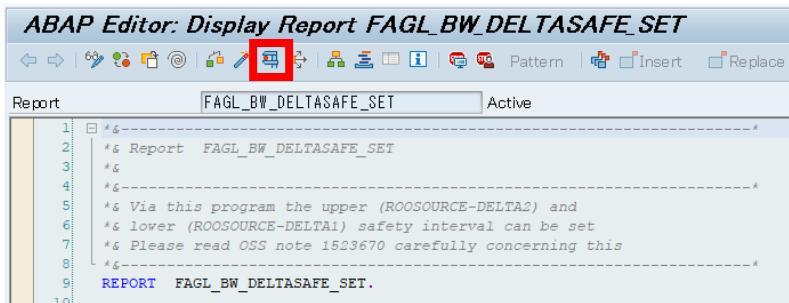
- ① Enter transaction code "se38".



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



- ③ Click on the [Direct Processing] icon.

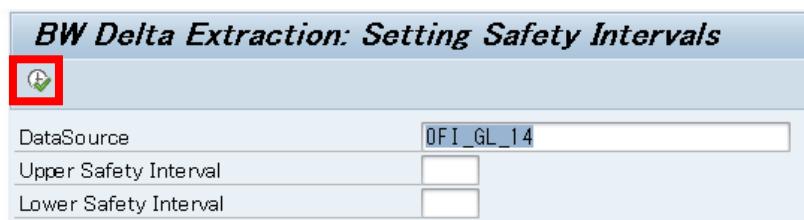


```

ABAP Editor: Display Report FAGL_BW_DELTASAFE_SET
Report          FAGL_BW_DELTASAFE_SET      Active
1  *&-----*
2  *& Report  FAGL_BW_DELTASAFE_SET
3  *&
4  *&
5  *& Via this program the upper (ROOSOURCE-DELTA2) and
6  *& lower (ROOSOURCE-DELTA1) safety interval can be set
7  *& Please read OSS note 1523670 carefully concerning this
8  *&
9  REPORT  FAGL_BW_DELTASAFE_SET.
10

```

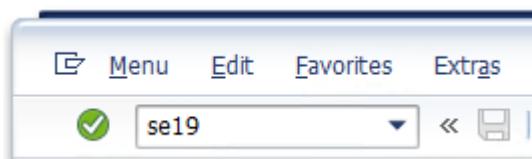
- ④ Enter the items and execute [Execute].



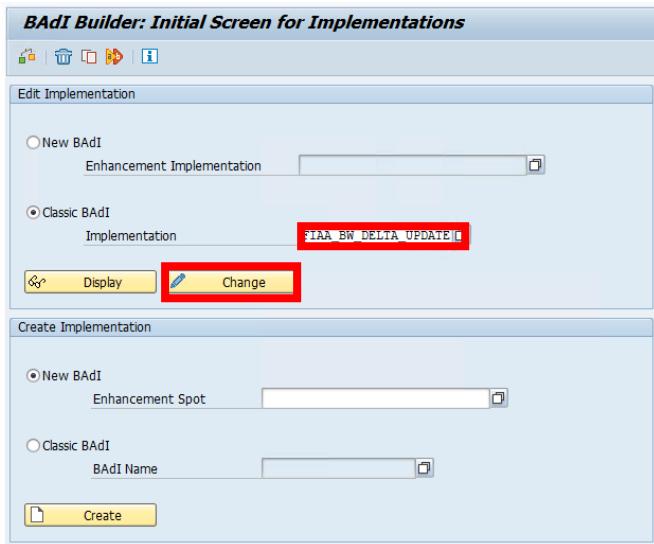
9.3 Enabling FIAA_BW_DELTA_UPDATE

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.

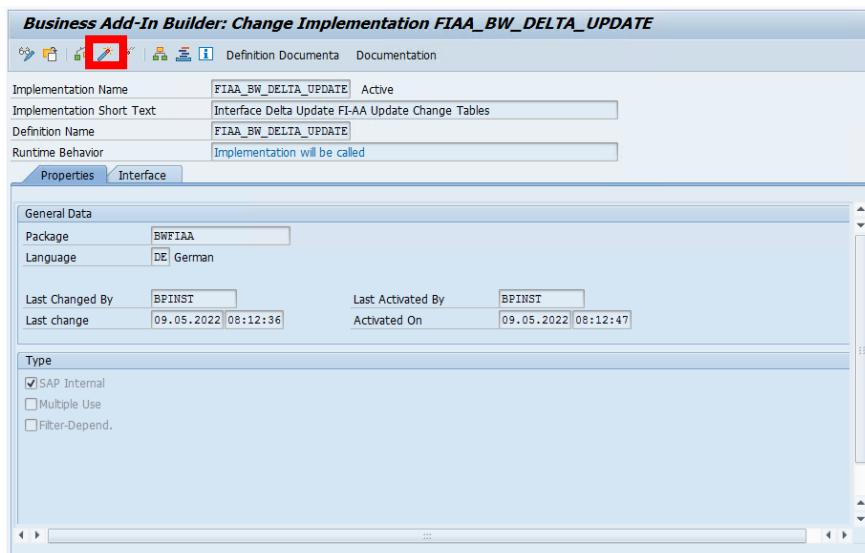
- ① Enter transaction code "se19".



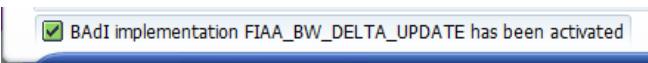
- ② Select [Classic BAdI] and enter "FIAA_BW_DELTA_UPDATE" in [Implementation] and click [Change].



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



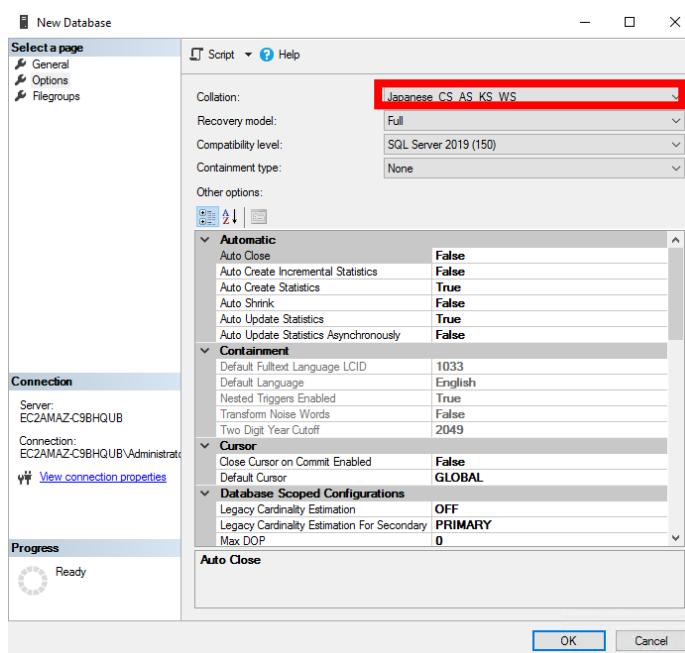
- ④ Confirm that activation has been completed without problems.



10 Target database settings

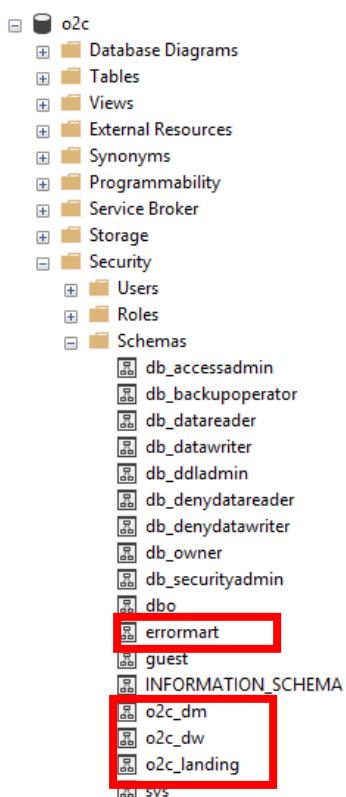
Access Microsoft SQL Server Management Studio as a user with administrative privileges and create the following database and the schema contained in the database.

- ※ 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

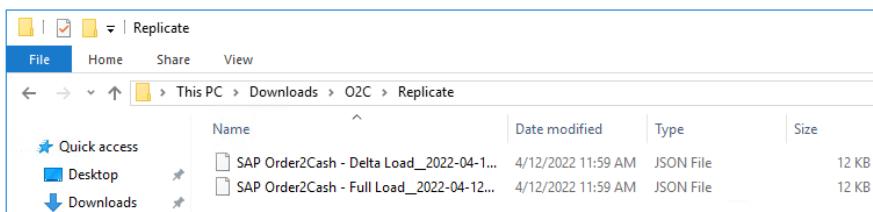
Import the required Qlik Replicate tasks according to the type of SAP Accelerator you are using.

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

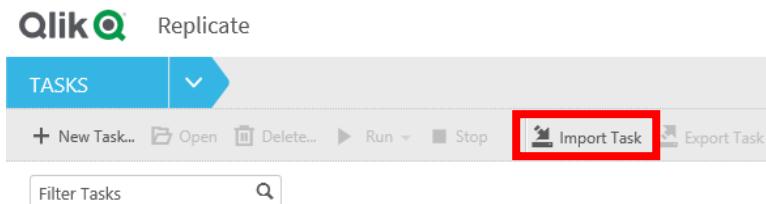
*1 Use "ODP SAP Finance - Delta ECC" if the source is SAP ECC, or "ODP SAP Finance - Delta S4 HANA" if the source is SAP S/4 HANA.

*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.



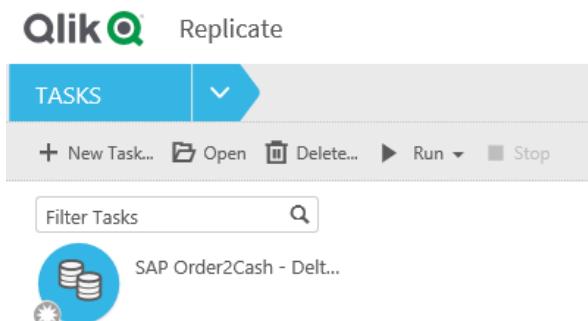
- ② Open the Qlik Replicate console screen and click [Import Task].



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



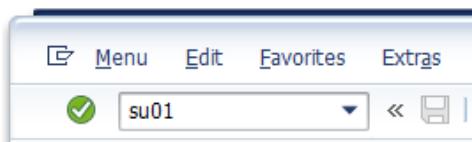
- ④ Confirm that the task has been imported. Repeat the same procedure for other Replicate tasks.



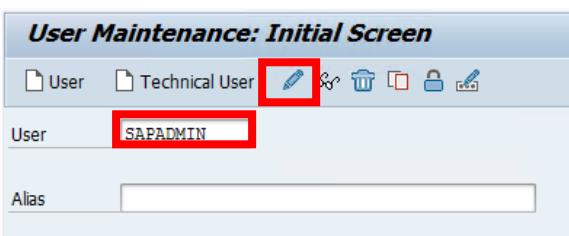
11.2 Change/confirm user's numeric format

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.

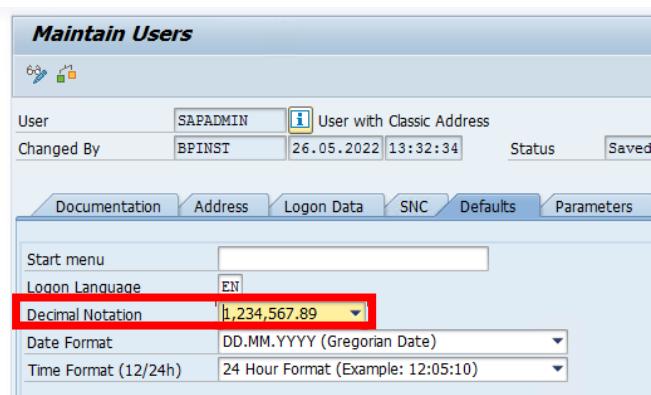
- ① Enter T-code "su01".



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

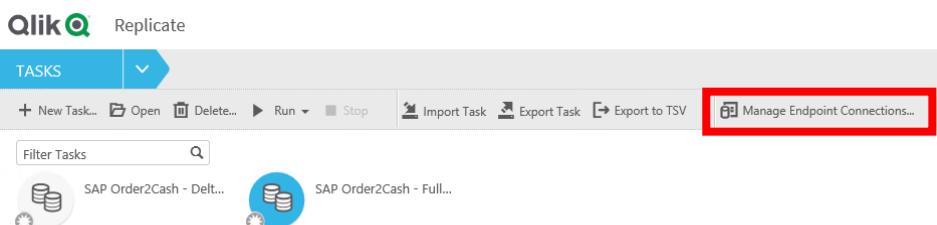


- ③ Click the [Defaults] tab, set [Decimal Notation] to "1,234,567.89" and click [Save].

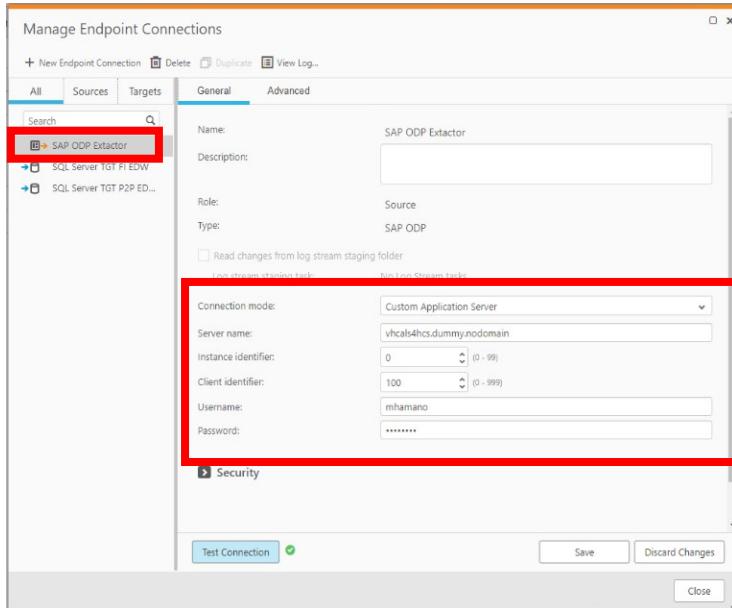


11.3 Endpoint configuration

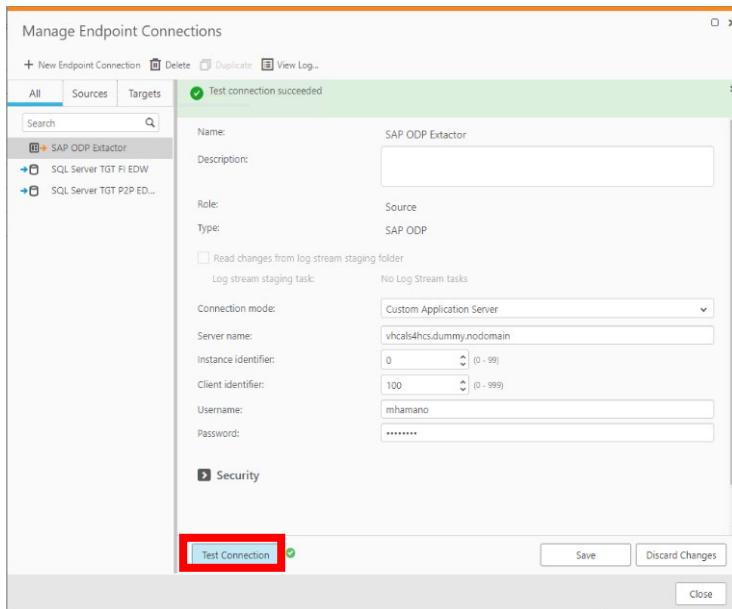
- ① Open the Qlik Replicate console screen and click [Manage Endpoint Connections].



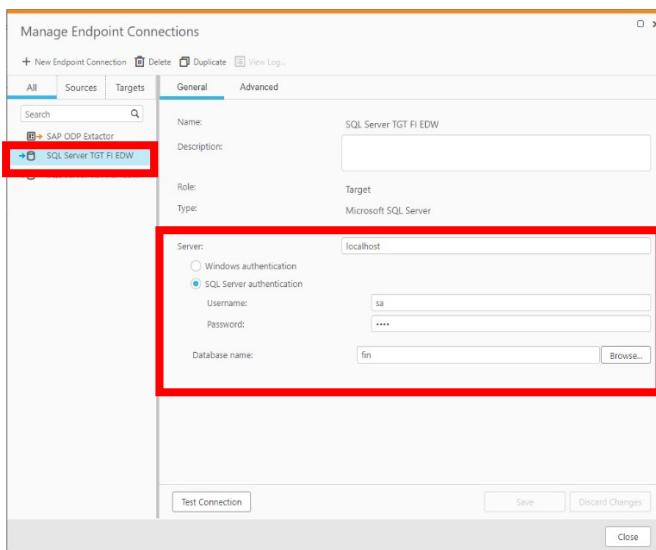
- ② Select "SAP ODP Extractor" and enter the authentication information. At this time, leave the Number Format set to the "1,234,567.89" that was set on SAP system in the previous step.



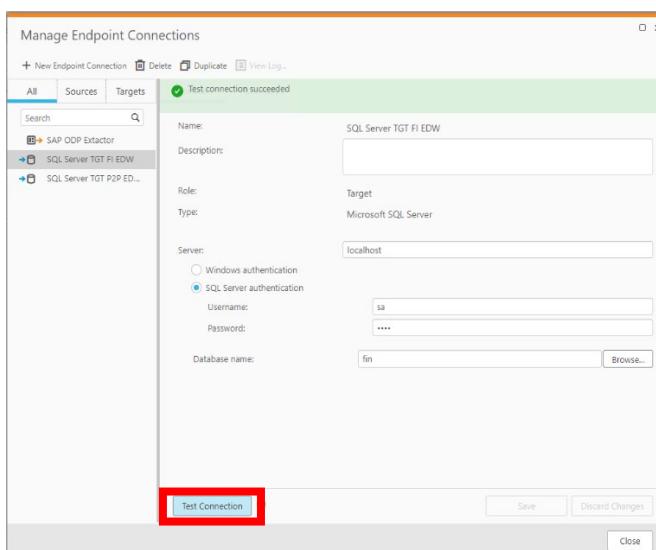
- ③ Click [Test connections] to confirm that the connection is successful, then click [Save].



- 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.



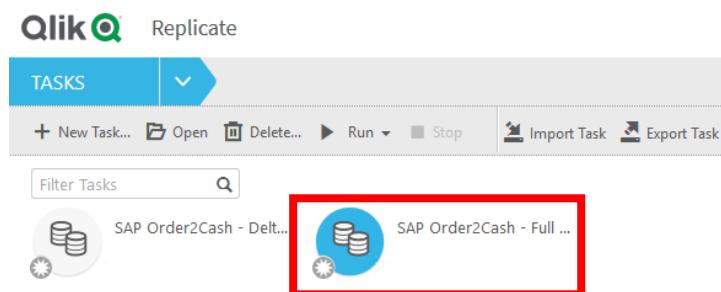
- ⑤ Click [Test connection] to confirm that the connection is successful, then click [Save]. Follow the same procedure to change the respective settings for "Order to Cash," "Inventory Management," "Finance" and "Procurement" depending on the package type used.



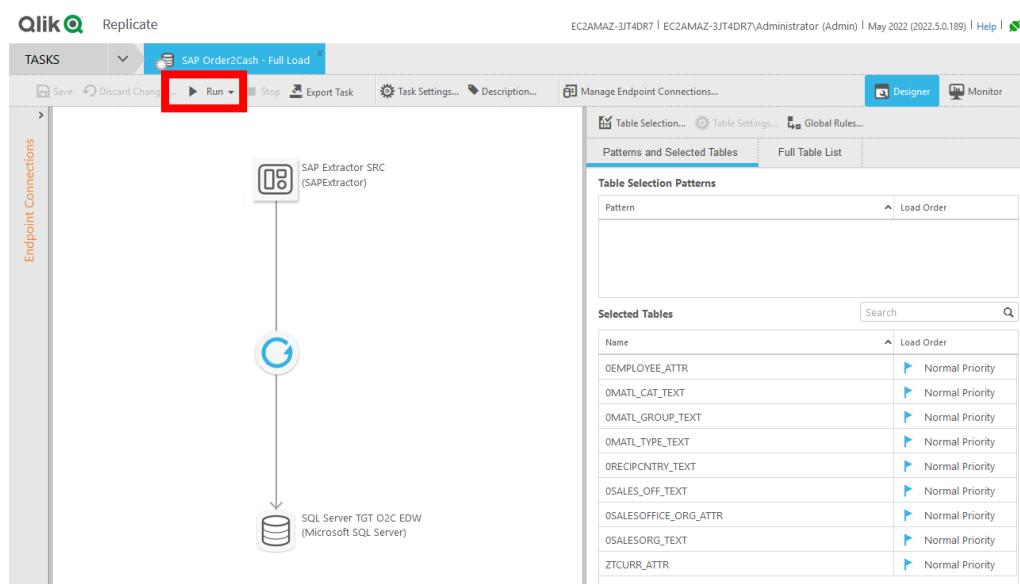
11.4 Task execution

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

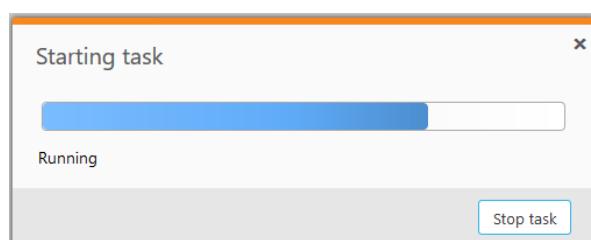
- ① Double-click the task to be executed.



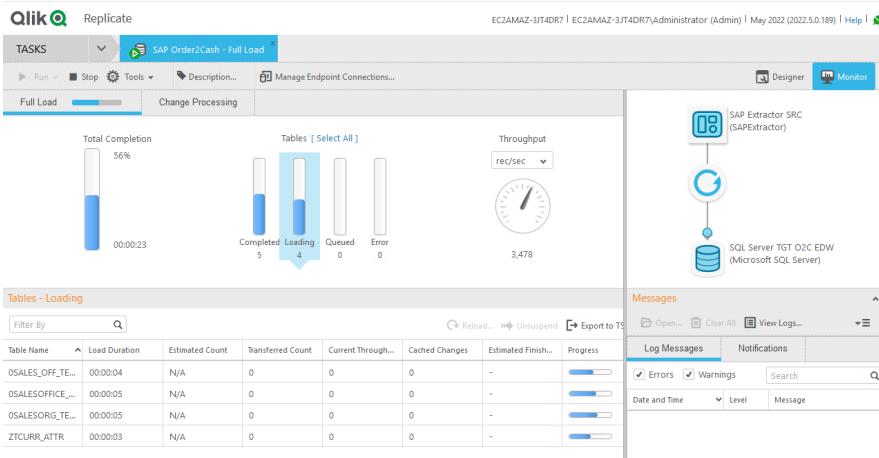
- ② Click [Run].



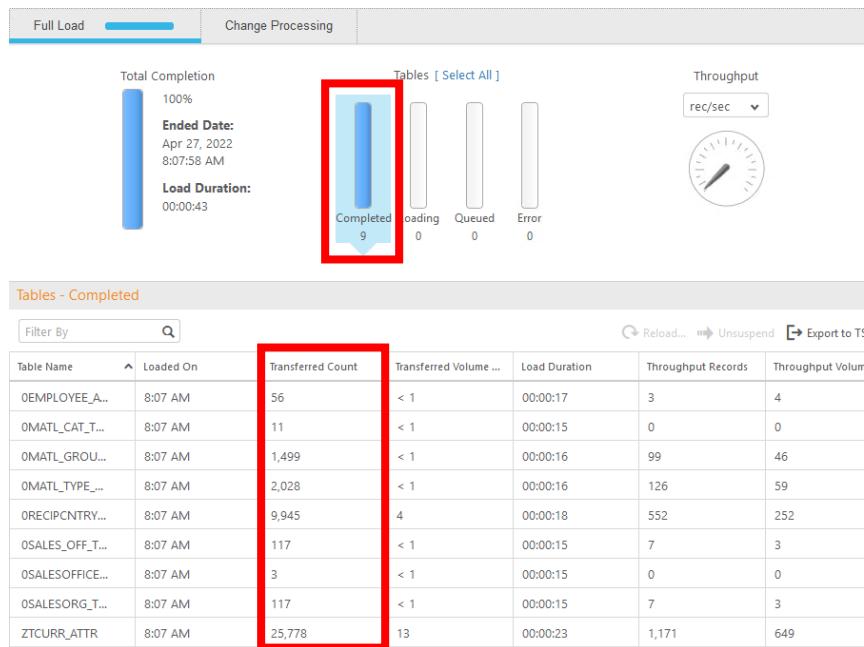
- ③ The task execution is started.



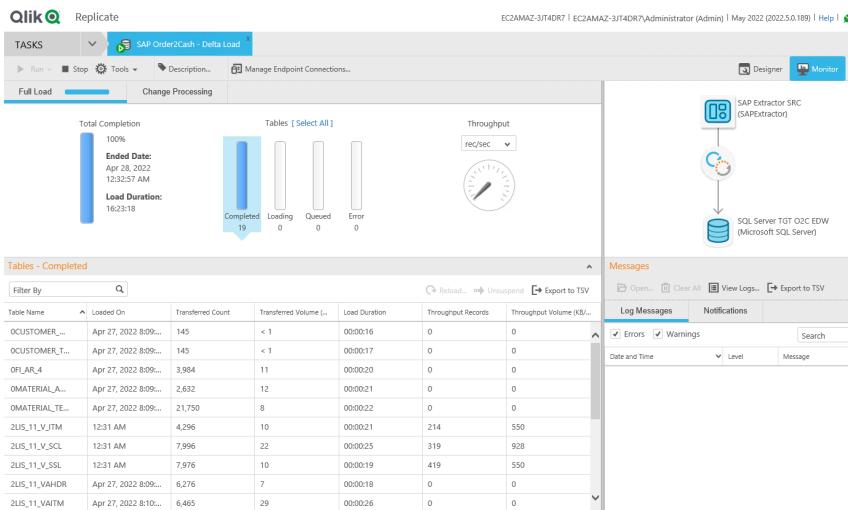
- ④ When the execution starts, the screen transitions to the Monitor screen.



- 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.



- 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.

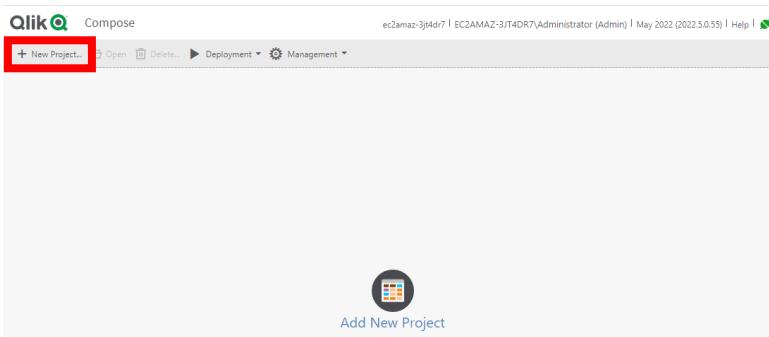


12 DWH and DM creation with Qlik Compose

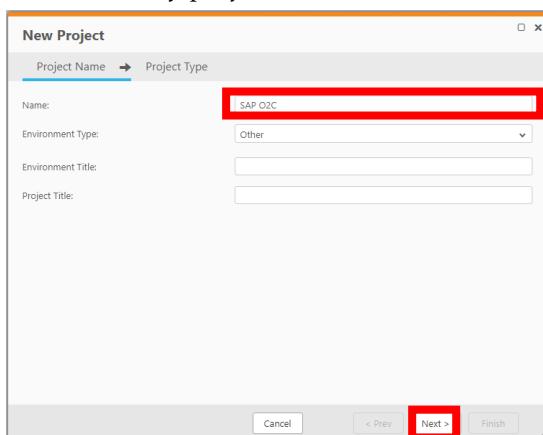
In the previous steps, Qlik Replicate has completed storing the SAP data on the target DB. Next, Qlik Compose will create a DWH and data mart using the data stored by Replicate on the target DB as input. The following steps are performed for “Order to Cash”, “Inventory Management”, “Finance”, and “Procurement”.

12.1 Create a new project

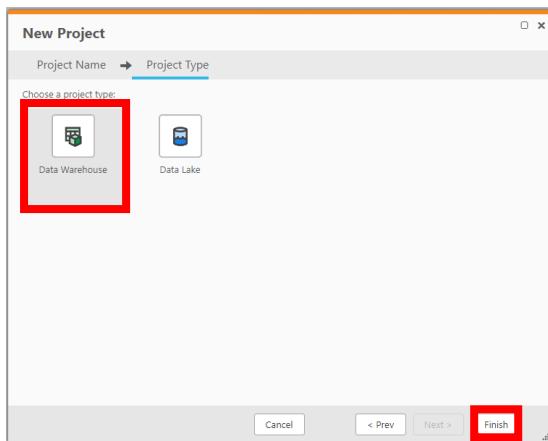
- ① Open the Qlik Compose console screen and click [New Project].



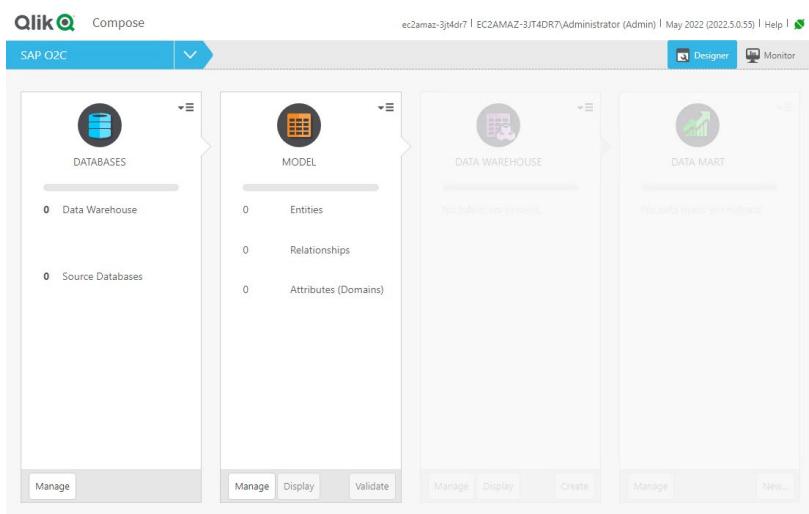
- ② Enter any project name and click [Next].



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

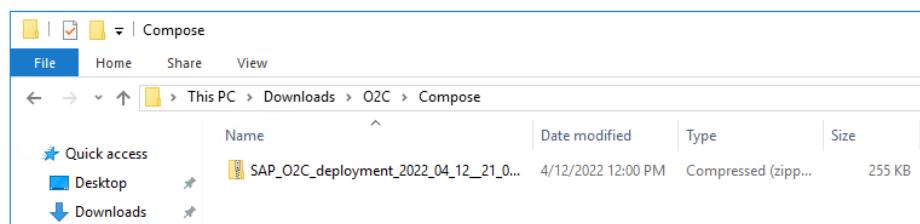


④ A new project will open.

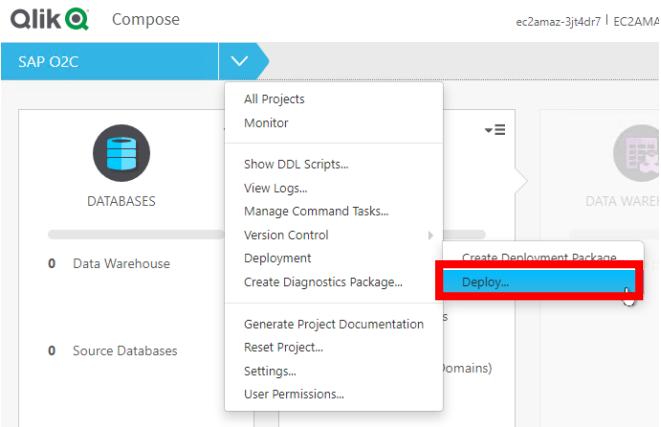


12.2 Deploying projects

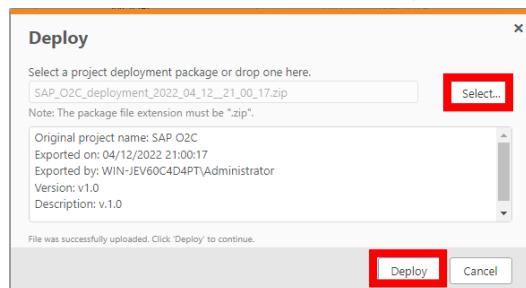
① Check the folder containing the Qlik Compose project files.



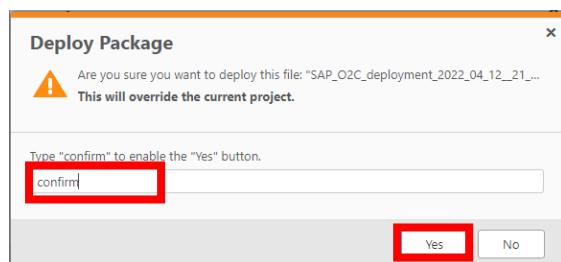
- ② Open the menu of the newly created Compose project and click [Deployment] > [Deploy].



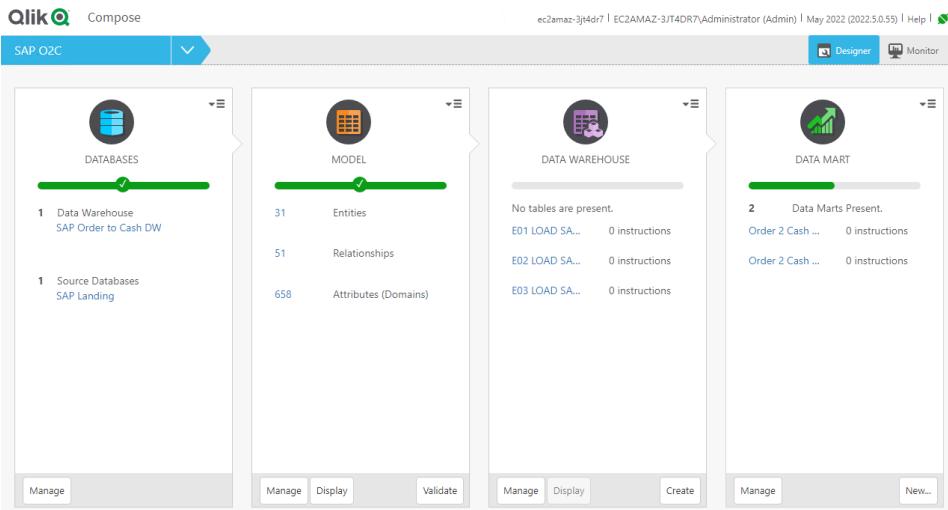
- ③ Click [Select] to select the Qlik Compose project file and click [Deploy].



- ④ Type "confirm" and click [Yes].

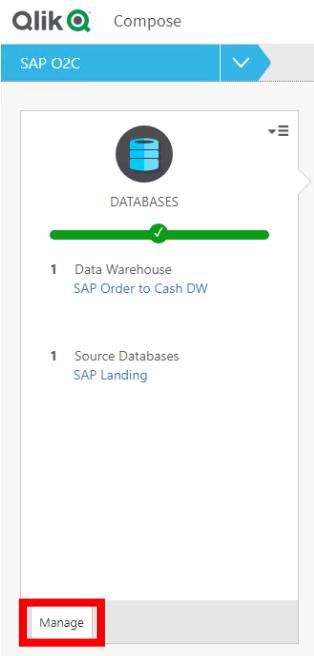


⑤ Project is imported from a Compose project file.

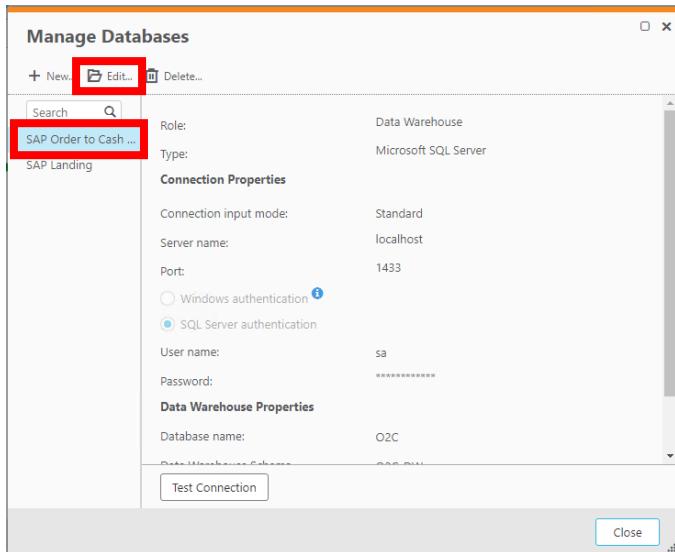


12.3 Updating connection definitions

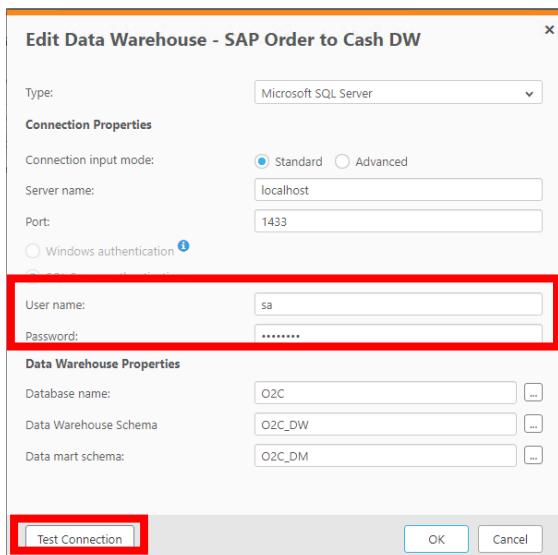
① Click [Manage] under [DATABASES].



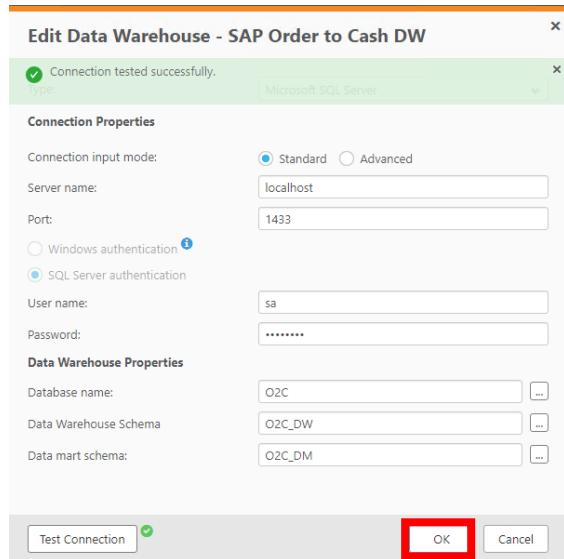
② Select the first connection definition from the list on the left and click [Edit].



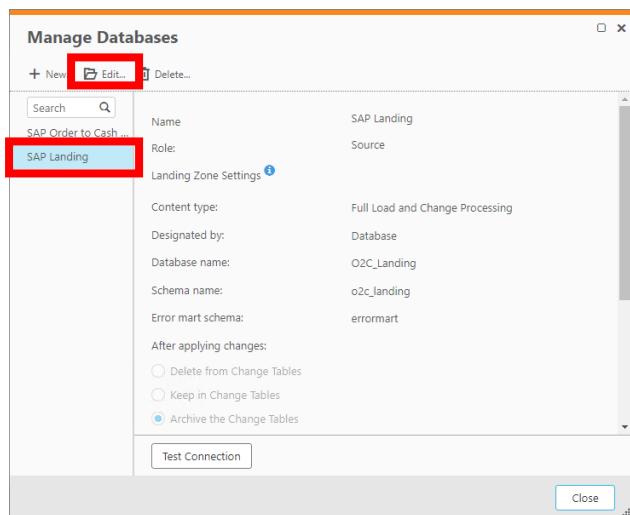
③ Correct the user name and password, and click [Test Connection].



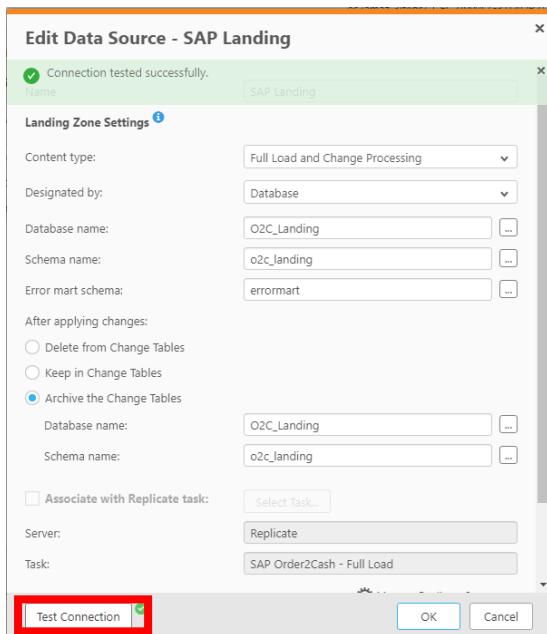
- ④ Confirm that the connection test was successful and click OK.



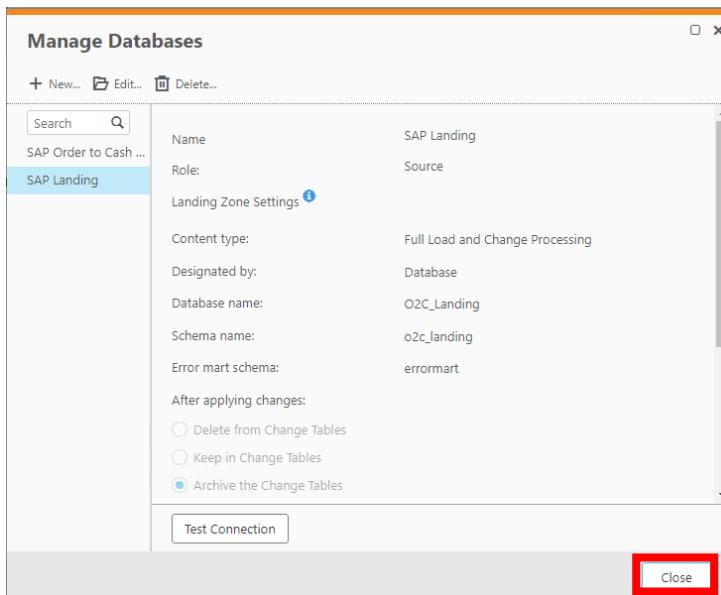
- ⑤ Select the second connection definition from the list on the left and click [Edit].



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

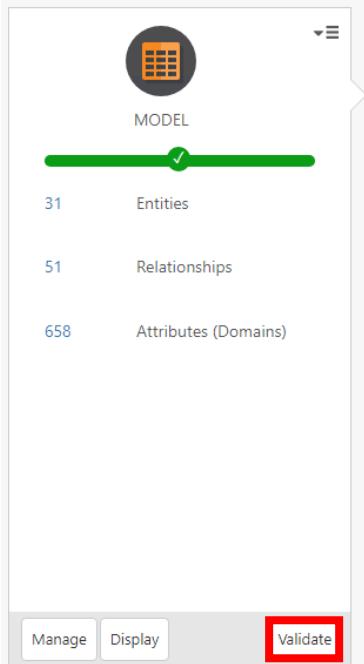


⑦ Click [Close].

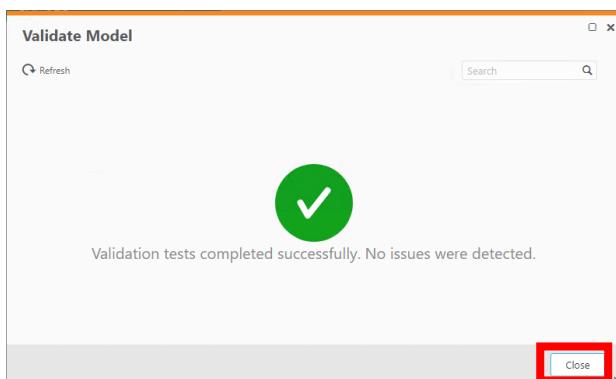


12.4 Model validation

- ① Click [Validate] under [MODEL].

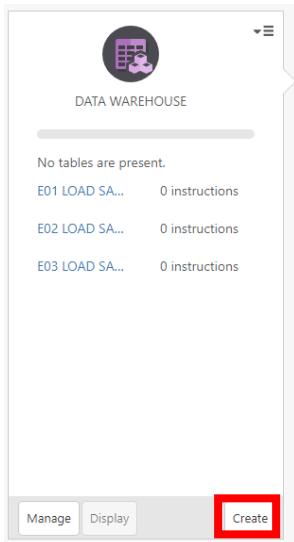


- ② Click [Close] after confirming that the model validation completes without any problems.

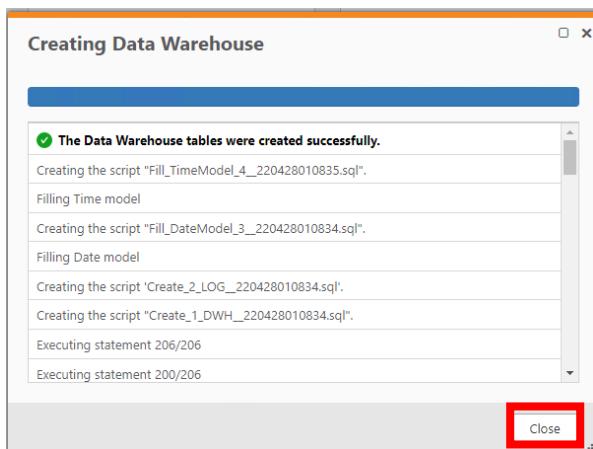


12.5 DWH creation and data loading

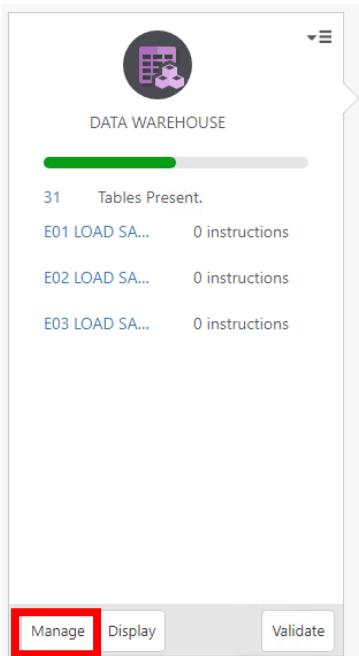
- ① Click [Create] under [DATA WAREHOUSE].



- 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:

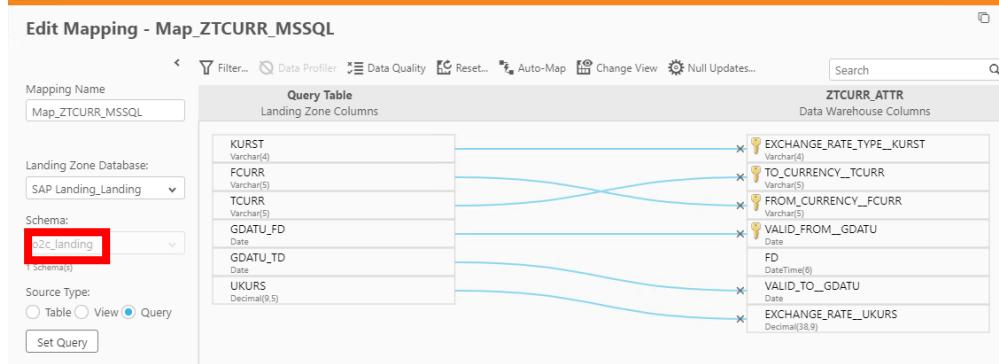
- When using "Order to Cash", "Procure to Pay", or "Finance", check ON one of the Mapping checkboxes depending on the target DWH used in "ZTCURR_ATTR".
Then click on the checked Mapping.

The screenshot shows a list of logical entities and their mappings. A specific mapping for 'ZTCURR_ATTR' is selected, showing four available options. One checkbox is checked.

Logical Entity	Mappings
E2LIS_11_V_SCL	<input type="checkbox"/> Map_E2LIS_11_V_SCL_SAP Landing
E2LIS_11_V_SSL	<input checked="" type="checkbox"/> Map_E2LIS_11_V_SSL_SAP Landing
E2LIS_11_VAHD	<input checked="" type="checkbox"/> Map_E2LIS_11_VAHD_SAP Landing
E2LIS_11_VAITM	<input checked="" type="checkbox"/> Map_E2LIS_11_VAITM_SAP Landing
E2LIS_11_VAKON	<input checked="" type="checkbox"/> Map_E2LIS_11_VAKON_SAP Landing
E2LIS_11_VASC	<input checked="" type="checkbox"/> Map_E2LIS_11_VASC_SAP Landing
E2LIS_11_VASTH	<input checked="" type="checkbox"/> Map_E2LIS_11_VASTH_SAP Landing
E2LIS_11_VASTI	<input checked="" type="checkbox"/> Map_E2LIS_11_VASTI_SAP Landing
E2LIS_12_VCHDR	<input checked="" type="checkbox"/> Map_E2LIS_12_VCHDR_SAP Landing
E2LIS_12_VCITM	<input checked="" type="checkbox"/> Map_E2LIS_12_VCITM_SAP Landing
E2LIS_13_VDHDR	<input checked="" type="checkbox"/> Map_E2LIS_13_VDHDR_SAP Landing
E2LIS_13_VDITM	<input checked="" type="checkbox"/> Map_E2LIS_13_VDITM_SAP Landing
E2LIS_13_VDKON	<input checked="" type="checkbox"/> Map_E2LIS_13_VDKON_SAP Landing
Time	<input type="checkbox"/>
ZTCURR_ATTR	<input type="checkbox"/> Map_ZTCURR_ATTR_Snowflake <input checked="" type="checkbox"/> Map_ZTCURR_MSSQL <input type="checkbox"/> Map_ZTCURR_ATTR_BigQuery <input type="checkbox"/> Map_ZTCURR_ATTR_Redshift

35 Entities, 36 Mappings

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].

The screenshot shows the 'Edit Mapping Select Query: Map_ZTCURR_MSSQL' dialog. At the top, it says 'Test Success'. The central area contains a SQL query:

```

1: SELECT TOP(10000000)
2:     [KURST]
3:     ,[FCURR]
4:     ,[TCURR]
5:     ,CONVERT(DATE,LEFT(9999999-[GDATU],8)) AS GDATU_FD
6:     ,CASE
7:         WHEN [KURST]=(LAG([KURST],1) OVER (ORDER BY [KURST],[FCURR],[TCURR] DESC,[GDATU]
8:             ASC))
9:             AND [TCURR]=(LAG([TCURR],1) OVER (ORDER BY [KURST],[FCURR],[TCURR] DESC,[GDATU]
10:                ASC))
11:                 AND [FCURR]=(LAG([FCURR],1) OVER (ORDER BY [KURST],[FCURR],[TCURR] DESC,[GDATU]
12:                    ASC))
13:                     THEN DATEADD(DAY, -1, CONVERT(DATE,LEFT(9999999-(LAG([GDATU],1) OVER (ORDER BY
14: [KURST],[FCURR],[TCURR] DESC,[GDATU] ASC)),8)))
15:                     ELSE CONVERT(DATE,CAST('99991231' AS VARCHAR))
16:                 END AS GDATU_TO
17:                 ,[UKURS]
18:             FROM [O2C].[o2c_landing].[ZTCURR_ATTR]
19:             ORDER BY [KURST],[FCURR],[TCURR] DESC,[GDATU] ASC

```

On the left, there is a list of columns from the 'o2c_landing' schema, including 'TASK_NAME', 'TABLE_OWNER', 'TABLE_NAME', 'ERROR_TIME', etc. At the bottom, there is a note: 'Note: Query testing and execution are performed on the Data Warehouse database.' and buttons for 'Test', 'OK', and 'Cancel'.

- Data sources with a check mark in the "Query" column of the data source list are those that use SQL queries for data mapping, and the SQL query may need to be modified.

A	B	C	D	E	F	G	H	I	J
No.	Datasource Name	Description in English	Description in Japanese	Mimetype	Full / Delta	Delta Mod	Full	Delta	Query
1	OGL_ACCOUNT_ATTR	G/L Account Master	勘定コード	SAP-R/3->FI->FTI-O	F, D	A			
2	OGL_ACCOUNT_TEXT	G/L Account Text	文書タイプ	SAP-R/3->FI->FTI-O	F		○	○	
3	OAC_DOC_TYP_TEXT	Document Type		SAP-R/3->FI->FTI-O	F		○	○	
4	OFL_AR_4	Accounts Receivable	徴収先: デルク抽出による明細	SAP-R/3->FI-AR	F, D	AIE	○		
5	OCUSTOMER_ATTR	Customer Master	消費者	SAP-R/3->LO->LO-I0	F, D	NEWE	○		
6	OCUSTOMER_TEXT	Customer Text	消費者	SAP-R/3->LO->LO-I0	F, D	A	○		
7	DMATERIAL_ATTR	Material Master	品目コード	SAP-R/3->MM->MM-I0	F, D	NEWE	○		
8	DMATERIAL_ID	Material ID	品目コード	SAP-R/3->MM->MM-I0	F, D	NEWE	○		
9	DMATL_CAT_TEXT	Material Category	品目グループ	SAP-R/3->MM->MM-I0	F		○	○	
10	DMATL_GROUP_TEXT	Material Group	品目グループ	SAP-R/3->MM->MM-I0	F		○	○	
11	DEMLOYEE_ATTR	Employee Master	従業員	SAP-R/3->PA->PA->PA-PA-I0	F				
12	ZLIS_11_V_ITM	Open Sales Order Lines	帳売: 出荷割当明細子→サ	SAP-R/3->SD	F, D	ABR	○		
13	ZLIS_11_V_SCL	Allocation Scheduled Lines	帳売: 出荷割当納日日程行	SAP-R/3->SD	F, D	ABR	○		
14	ZLIS_11_V_SSL	Order Delivery Scheduled Lines	帳売: 在庫受注出荷	SAP-R/3->SD	F, D	ABR	○		
15	ZLIS_11_VA_HDRL	Sales Document Header	帳売: 在庫ヘッデータ	SAP-R/3->SD	F, D	ABR	○		
16	ZLIS_11_VA_ITM	Sales Document Line Items	帳売: 在庫明細データ	SAP-R/3->SD	F, D	ABR	○		
17	ZLIS_11_VAKON	Sales Document Header Conditions	帳売: 在庫条件	SAP-R/3->SD	F, D	ABR	○		
18	ZLIS_11_VASCL	Scheduled Line Items	帳売: 在庫ヘッデータ	SAP-R/3->SD	F, D	ABR	○		
19	ZLIS_11_VASTH	Sales Document Header Status	帳売: 在庫ヘッデータ	SAP-R/3->SD	F, D	ABR	○		
20	ZLIS_11_VASTI	Sales Document Line Item Status	帳売: 在庫明細ヘッデータ	SAP-R/3->SD	F, D	ABR	○		
21	ZLIS_12_VCHDR	Sales Delivery Header	出荷在庫ヘッデータ	SAP-R/3->SD	F, D	ABR	○		
22	ZLIS_12_VCTHM	Sales Delivery Line Items	出荷在庫明細データ	SAP-R/3->SD	F, D	ABR	○		
23	ZLIS_13_VDHDR	Billing Document Header	請求在庫ヘッデータ	SAP-R/3->SD	F, D	ABR	○		
24	ZLIS_13_VDTMT	Billing Document Line Items	請求在庫明細データ	SAP-R/3->SD	F, D	ABR	○		
25	ZLIS_13_VDKON	Billing Item Conditions	請求在庫条件	SAP-R/3->SD	F, D	ABR	○		
26	ODISTR_CHAN_TEXT	Distribution Channel	流通チャネル	SAP-R/3->SD->SD-I0	F		○	○	
27	ODIVISION_ATTR	Division	部門	SAP-R/3->SD->SD-I0	F		○	○	
28	DMATL_TYPE_TEXT	Material Type	品目タイプ	SAP-R/3->SD->SD-I0	F		○	○	
29	OPRCPCNTRY_TEXT	Customer Country	仕向国	SAP-R/3->SD->SD-I0	F		○	○	
30	OSALES_GRP_TEXT	Sales Group	営業グループ	SAP-R/3->SD->SD-I0	F		○	○	
31	OSALES_OFF_TEXT	Sales Office Text	営業所	SAP-R/3->SD->SD-I0	F		○	○	
32	OSALESORG_TEXT	Sales Organization	販売組織	SAP-R/3->SD->SD-I0	F		○	○	
33	ZTCURR_ATTR	Currency Exchange Rates (Table: TCURR)	換算レート		F		○	○	

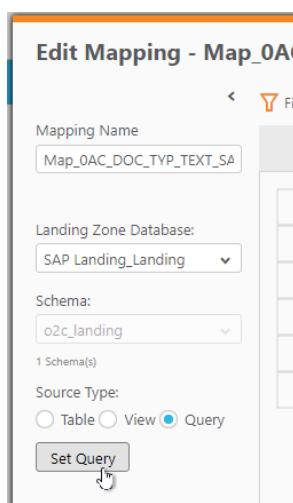
- To make changes to an SQL query, on the Mappings screen, click on Mappings for the data source to be modified.

Mappings Pre Loading ETL Multi Table ETL Single Table ETL Post Loading ETL

+ New Mapping... Clear Landing Cache Show: All Enabled Only

Logical Entities	Handle Duplicates	Mappings
Date	<input checked="" type="checkbox"/>	
E0AC_DOC_TYP_TEXT	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/> Map_0AC_DOC_TYP_TEXT_SAP Landing
EOCUSTOMER_ATTR	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/> Map_E0CUSTOMER_ATTR_SAP Landing
EOCUSTOMER_TEXT	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/> Map_E0CUSTOMER_TEXT_SAP Landing
EODISTR_CHAN_TEXT	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/> Map_EODISTR_CHAN_TEXT_SAP Landing
EODIVISION_TEXT	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/> Map_EODIVISION_TEXT_SAP Landing

- Click on the [Set Query] button.



- The SQL query will be displayed and you can modify the SQL query here.

```

1 SELECT /*BLART*/
2   MAX(CASE WHEN SPRAS = 'E' OR SPRAS = 'S' THEN [LTEXT] END) AS EN_TXT,
3   MAX(CASE WHEN SPRAS = 'F' OR SPRAS = 'I' THEN [LTEXT] END) AS SP_TXT,
4   MAX(CASE WHEN SPRAS = 'D' OR SPRAS = 'A' THEN [LTEXT] END) AS DE_TXT,
5   MAX(CASE WHEN SPRAS = 'J' THEN [LTEXT] END) AS FR_TXT,
6   MAX(CASE WHEN SPRAS = 'Z' THEN [LTEXT] END) AS ITA_TXT
7 FROM [O2C].[O2C_Landing].[OAC_DOC_TYP_TEXT]
8 GROUP BY [BLART]
  
```

Note: Query testing and execution are performed on the Data Warehouse database.

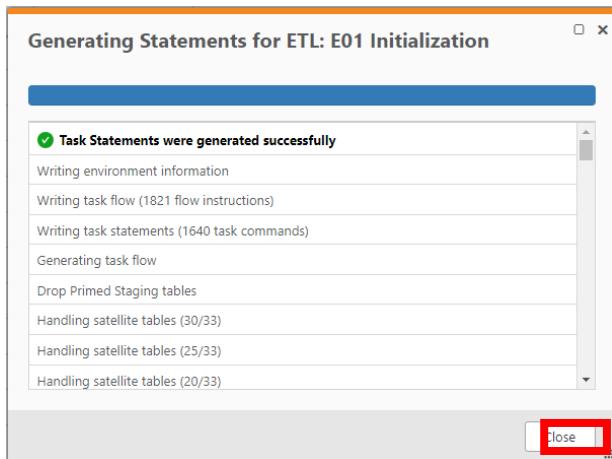
- When using "Finance" and the data source is SAP S/4 HANA, turn on the "EFI_ACDOCA_20" check box and turn off "E0FI_GL_10". If the data source is SAP ECC, turn off the "EFI_ACDOCA_20" check box and turn on "E0FI_GL_10".

Mappings	Pre Loading ETL	Multi Table ETL	Single Table ETL	Post Loading ETL
+ New Mapping...	Show: <input checked="" type="radio"/> All <input type="radio"/> Enabled Only			
Logical Entities	<input type="checkbox"/> Handle Duplicates	<input type="checkbox"/> Mappings		
E01_AR_4	<input type="checkbox"/>	<input checked="" type="checkbox"/> Map_E01_AR_4_SAP Landing		
E01_AP_4	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/> Map_E01_AP_4_SAP Landing		
E01_GL_10	<input type="checkbox"/>	<input type="checkbox"/> Map_E01_GL_10_SAP Landing		
E01_GL_14	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/> Map_E01_GL_14_SAP Landing		

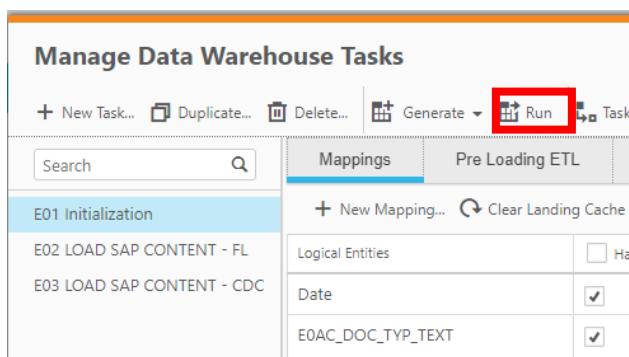
- ⑤ Select the task named "E01 Initialization", the first one in the list on the left, and click [Generate].

Manage Data Warehouse Tasks																
+ New Task... Delete... Run	Generate															
<table border="1"> <thead> <tr> <th>Search</th> <th>Mappings</th> <th>Pre Loading ETL</th> </tr> </thead> <tbody> <tr> <td></td> <td>+ New Mapping... </td> <td></td> </tr> <tr> <td>E01 Initialization</td> <td></td> <td></td> </tr> <tr> <td>E02 LOAD SAP CONTENT - FL</td> <td></td> <td></td> </tr> <tr> <td>E03 LOAD SAP CONTENT - CDC</td> <td></td> <td></td> </tr> </tbody> </table>		Search	Mappings	Pre Loading ETL		+ New Mapping...		E01 Initialization			E02 LOAD SAP CONTENT - FL			E03 LOAD SAP CONTENT - CDC		
Search	Mappings	Pre Loading ETL														
	+ New Mapping...															
E01 Initialization																
E02 LOAD SAP CONTENT - FL																
E03 LOAD SAP CONTENT - CDC																

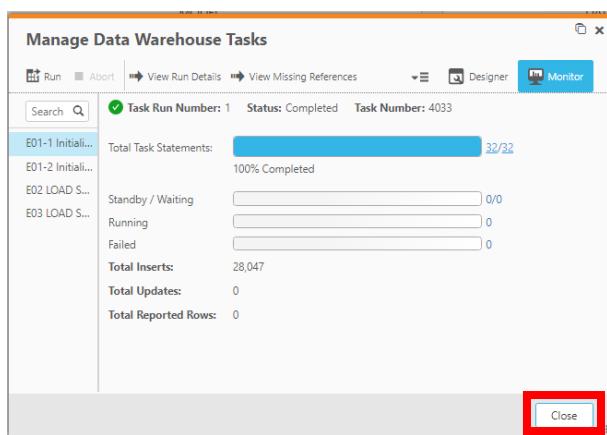
- ⑥ Confirm that the task was created without any problems and click [Close].



- ⑦ Click [Run] to execute the task.

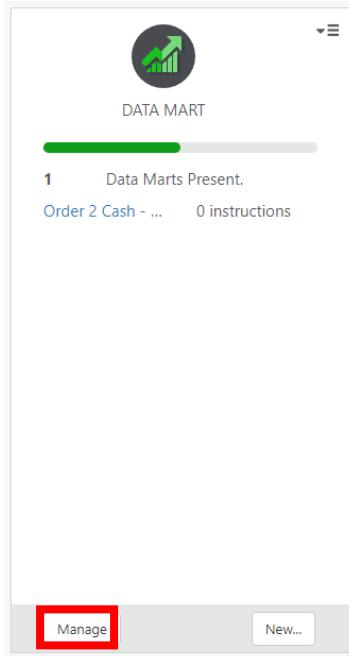


- ⑧ Confirm that the task has been completed without problems and click [Close].

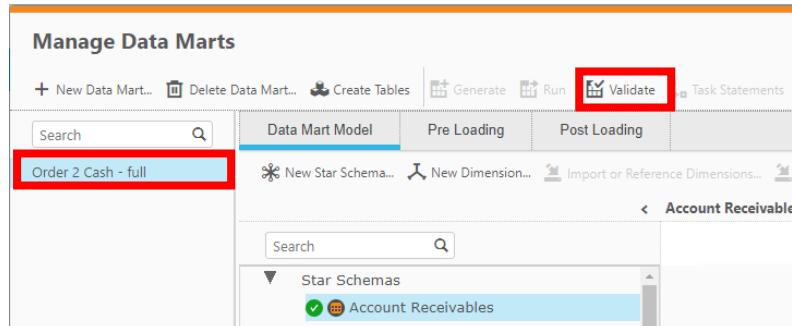


12.6 Creating Data Marts

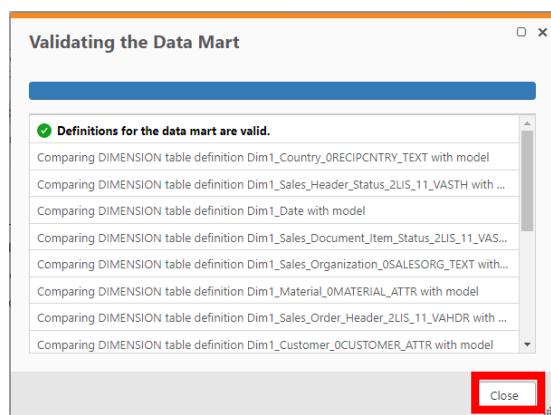
- ① Click on [Manage] under [DATA MART].



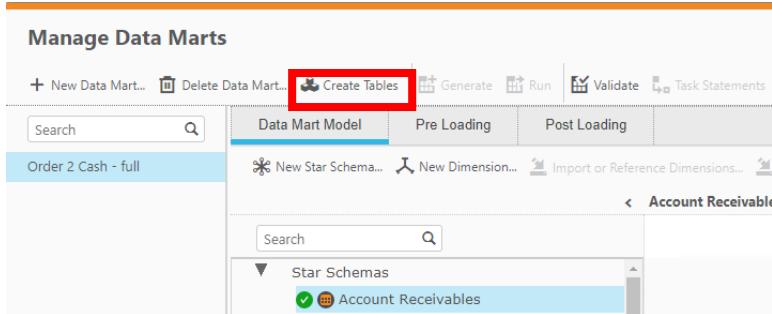
- ② Select the first task in the list on the left and click [Validate].



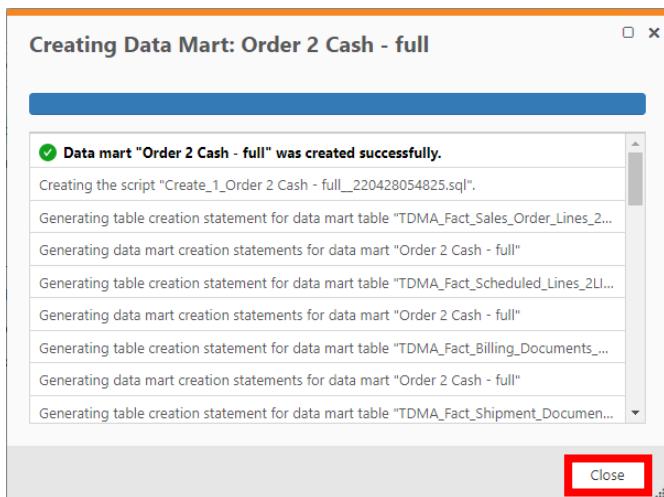
- ③ Confirm that the verification has completed without problems and click [Close].



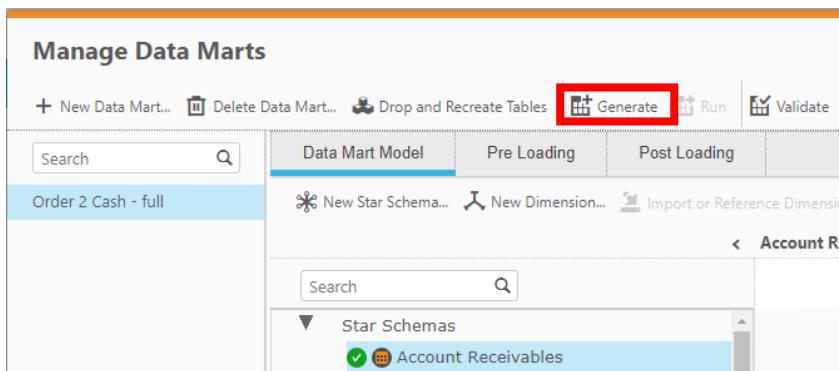
④ Click [Create Tables].



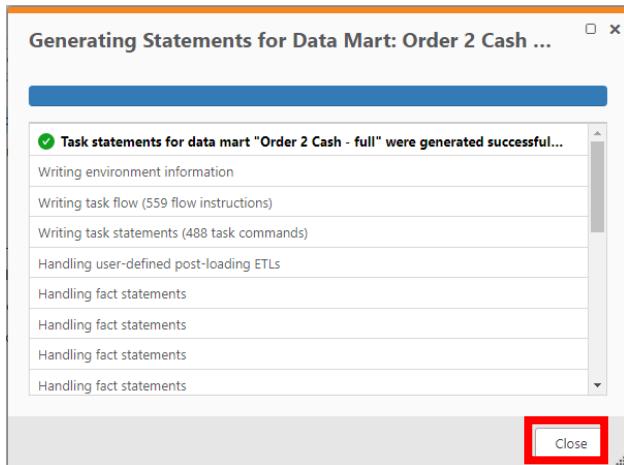
⑤ Confirm that the table has been created without any problems and click [Close].



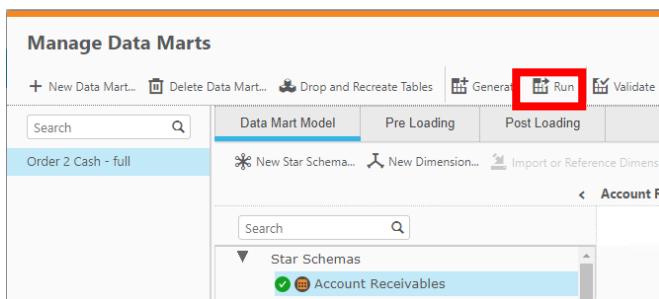
⑥ Click [Generate].



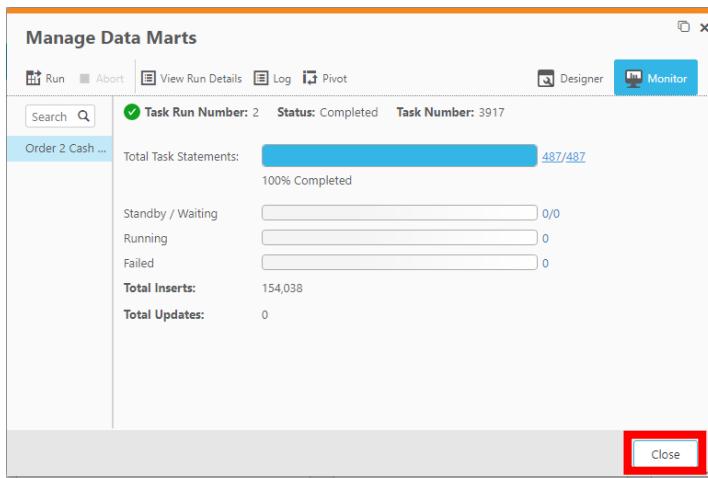
⑦ Confirm that the task was created without any problems and click [Close].



⑧ Click [Run] to execute the task.



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

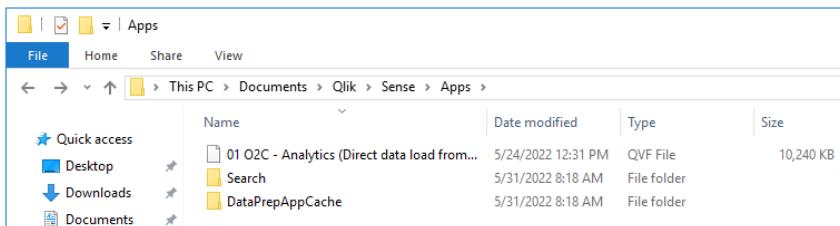


13 Visualization with Qlik Sense

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.

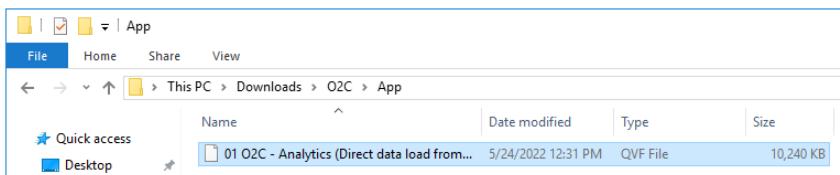
13.1 Qlik Sense Desktop

- ① Check the folder containing the Qlik Sense app.

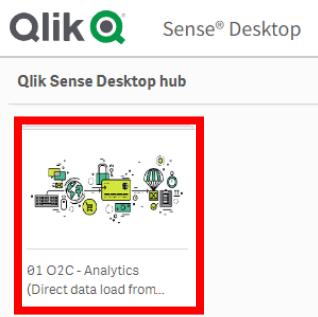


- ② Copy the app files to the folder

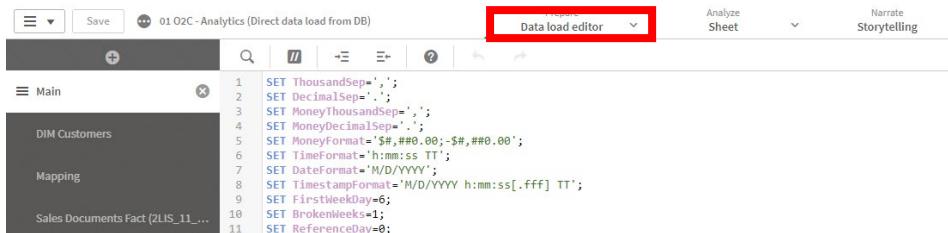
"C:\Users\%USERNAME%\Documents\Qlik\Sense\Apps".



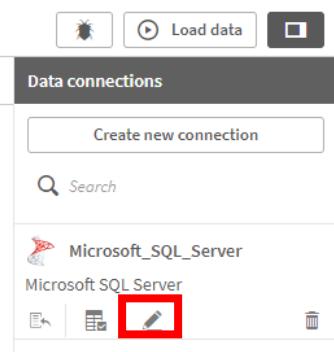
- ③ Launch Qlik Sense and click on the application.



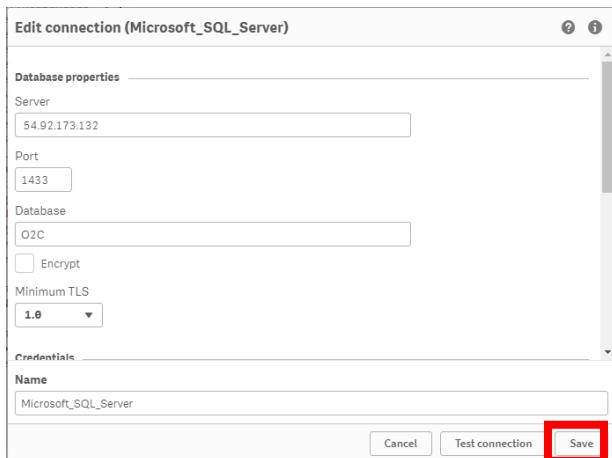
④ Open the Data Load Editor screen.



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.



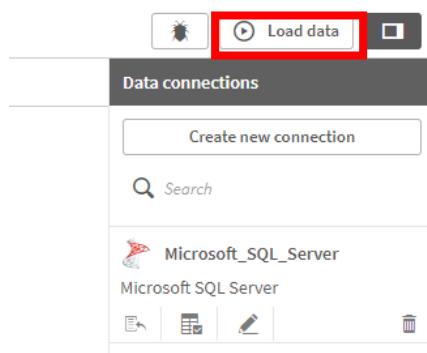
- ⑦ Depending on the app, variable settings may be required in the "Main" tab of the load script, so set the appropriate values for the variables. For "Finance" apps, there are variable settings for Chart of Account and Financial Statement Version. Please refer to [Appendix 8: Checking Chart of Account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

```

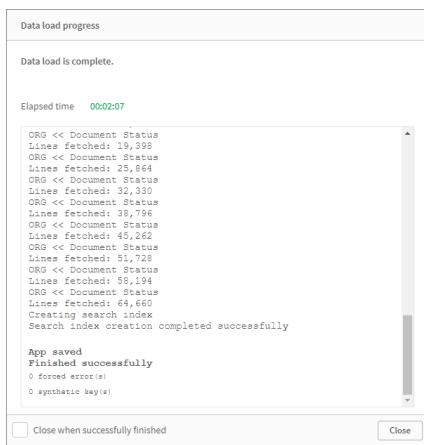
1 SET ThousandSep(',');
2 SET DecimalSep '.';
3 SET MoneyThousandSep(',');
4 SET MoneyDecimalSep '.';
5 SET Moneyformat="#,##0;-,##0";
6 SET Timeformat="h:mm:ss";
7 SET Dateformat="YYYY/MM/DD hh:mm:ss[.ffff]";
8 SET Ticketformat="YYYY/MM/DD hh:mm:ss[.ffff]";
9 SET FirstWeekDay=2;
10 SET BrokenWeek=1;
11 SET ReferenceDay=0;
12 SET FirstMonthOfYear=1;
13 SET CollationName='ja_JP';
14 SET DateSeparatorInLabel=1;
15 SET MonthNames='1月:2月:3月:4月:5月:6月:7月:8月:9月:10月:11月:12月';
16 SET LongMonthNames='1月:2月:3月:4月:5月:6月:7月:8月:9月:10月:11月:12月';
17 SET DayNames='月曜日:火曜日:水曜日:木曜日:金曜日:土曜日:日曜日';
18 SET LongDayNames='月曜日:火曜日:水曜日:木曜日:金曜日:土曜日:日曜日';
19 SET NumericalAbbreviation='3kk:6kk:9kk:G12;1;T15:P18:E21;Z;24;Y;-3:n;-6:u';
20
21 LIB CONNECT TO [SAP Accelerator Dev:Microsoft_SQL_Server];
22
23 // Financial Statement Version
24 Let vFSV = '1099';
25
26 // Chart of Accounts
27 Let vCOA = '100M';
28
29 // Company Code
30 Let vCompanyCode = '1710';
31
32 // Language Key
33 Let vLanguage = 'J';
34
35 // Min Fiscal Year
36 Let vfiscalYearFrom = '2000';
37
38 // Max Fiscal Year
39 Let vfiscalYearTo = '2022';

```

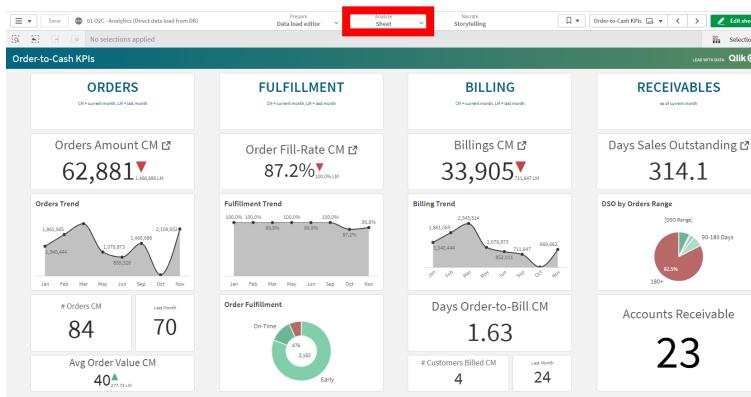
- ⑧ Click [Load data].



- ⑨ Verify that the data has been successfully loaded.

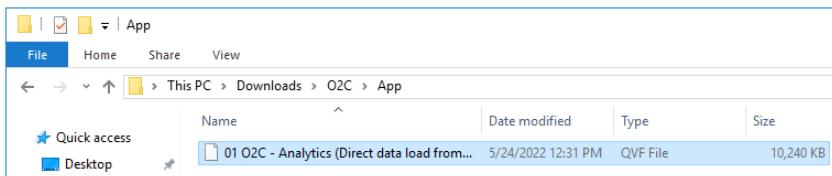


- ⑩ Display the sheet screen and verify that the values are displayed without problems.



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].

The screenshot shows the QMC Start screen. The left sidebar has a red box around the 'Apps' option under 'MANAGE CONTENT'. The main area has several sections: 'Tasks' (with filters '#My tasks', '#Everyone', '#Monitoring apps'), 'Users' (with a note about importing users), 'App objects' (with filter '#My app objects'), 'Streams' (with filter '#My streams'), and 'License management' (with a note about License Enabler File). The top navigation bar includes 'Start', 'Help', and 'qmi'.

- ③ Click [Import].

The screenshot shows the QMC Apps screen. It displays a table with two rows: 'License Monitor' and 'Operations Monitor'. At the bottom, there are buttons for 'Edit', 'Delete', 'Publish', 'Move', 'Import' (which is highlighted with a red box), and 'More actions'. The top navigation bar includes 'Start', 'Help', and 'qmi'.

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

The screenshot shows the 'Import app' dialog box. It has fields for 'Choose File' (highlighted with a red box) and 'App name' ('01 O2C - Analytics (Direct data load from DB)'). A yellow box contains a note: 'If the name of a data connection in the imported app is the same as the name of an existing data connection, the data connection will not be imported.' There is also a checkbox for 'Replace existing app'. At the bottom are 'Cancel' and 'Import' buttons (the latter is highlighted with a red box).

- ⑤ Confirm that the application has been imported without problems.

The screenshot shows the Qlik Sense Enterprise interface. At the top, there's a navigation bar with 'Start', 'Help', and a user icon. Below it is a 'Apps' section with a table titled 'Showing: 3 Selected: 0'. The table has columns for 'Name', 'Owner', 'Published', 'Stream', and 'Tags'. Three items are listed: 'License Monitor' (sa_repository [INTERNAL]), 'Operations Monitor' (sa_repository [INTERNAL]), and '01 O2C - Analytics (Dir...)' (qmi [QMI-QS-FF97]). Below this is a 'Stream' section titled 'Ongoing transports: 1 items'. It shows a single entry: 'Import' (Process), '01 O2C - Analytics (Direct data load from DB)' (Name), and '00:00:02' (Duration). At the bottom of this section are buttons for 'Edit', 'Delete', 'Publish', 'Move', 'Import', and 'More actions'.

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

The screenshot shows the Qlik Sense Hub screen. On the left is a sidebar with a user profile for 'qmi', a dropdown for 'Personal', and categories like 'Work' (which is selected and highlighted in green), 'Published', 'Streams', 'Everyone', and 'Monitoring apps'. The main area is titled 'Work' and contains a thumbnail for the '01 O2C - Analytics' application, which is highlighted with a red box. Below the thumbnail is the application name and a brief description: '(Direct data load from...)'.

- ⑦ Open the Data Load Editor screen.

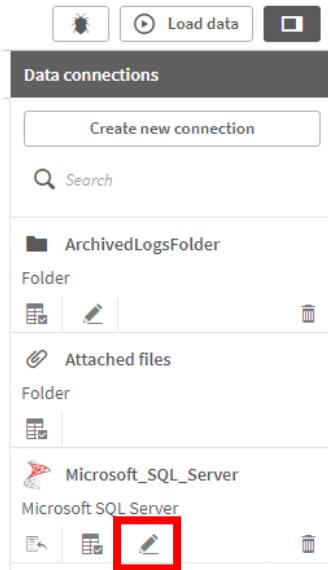
The screenshot shows the Qlik Data Load Editor screen. At the top, there's a navigation bar with 'Prepare', 'Data load editor' (which is highlighted with a red box), 'Analyze', 'Sheet', 'Narrate', and 'Storytelling'. Below the navigation is a toolbar with icons for search, refresh, and other functions. The main area is divided into sections: 'Main' (containing code), 'DIM Customers' (containing code), and 'Mapping' (containing code). The code in the 'Main' section is as follows:

```

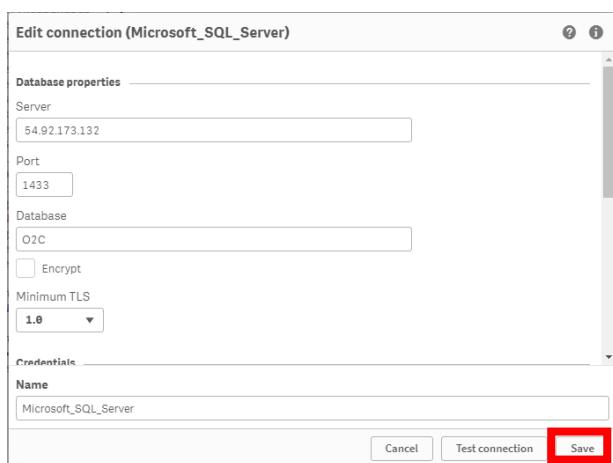
1 SET ThousandSep=',';
2 SET DecimalSep='.';
3 SET MoneyThousandSep=',';
4 SET MoneyDecimalSep='.';
5 SET MoneyFormat='$#,##0.00-$#,##0.00';
6 SET TimeFormat='h:mm:ss TT';
7 SET DateFormat='M/D/YYYY';
8 SET TimestampFormat='M/D/YYYY h:mm:ss[.fff] TT';
9 SET FirstWeekDay=6;

```

- 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.

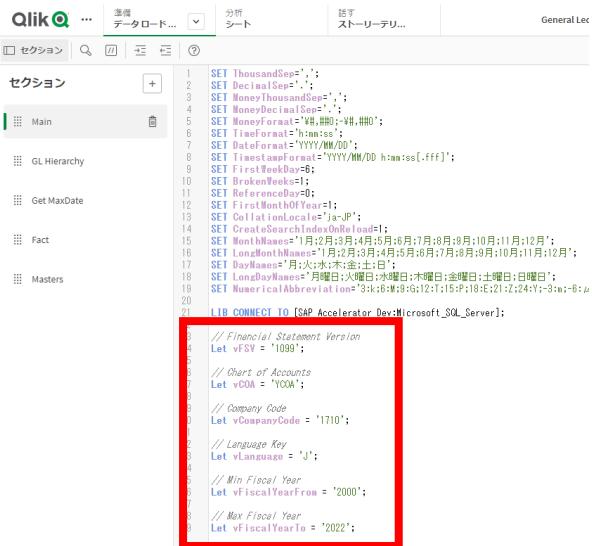
The screenshot shows the 'Microsoft_SQL_Server' connection details in the 'Data connections' interface. The connection name is 'Microsoft_SQL_Server (qmi-qs-ff97_qmi)'. The edit button (pencil icon) is highlighted with a red box.

```

15 SET MonthNames='Jan;Feb;Mar;Apr;May;Jun;Jul;Aug;Sep;Oct;Nov;Dec';
16 SET LongMonthNames='January;February;March;April;May;June;July;August;September;October;November;December';
17 SET DayNames='Mon;Tue;Wed;Thu;Fri;Sat;Sun';
18 SET LongDayNames='Monday;Tuesday;Wednesday;Thursday;Friday;Saturday;Sunday';
19 SET NumericalAbbreviation= 3:k;6:M;9:B;12:T;15:P;18:E;21:Z;24:Y;-3:m;-6:u;-9:n;-12:p;-15:f;-18:a;-21:z;-24:y';
20 SET HidePrefix='_';
21
22 // Step 1 - Create and Identify what Library connection will be used to talk to DB
23 // LIB CONNECT TO 'Microsoft_SQL_Server';
24 LIB CONNECT TO 'Microsoft_SQL_Server (qmi-qs-ff97_qmi)';
25

```

- 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.

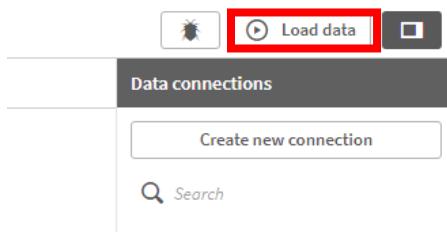


```

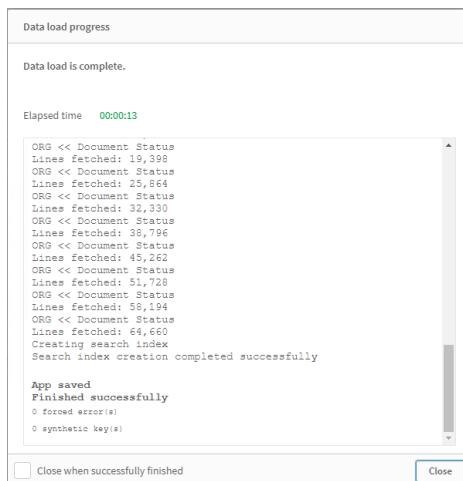
SET ThousandSep(',');
SET DecimalSep '.';
SET MoneyThousandSep(',');
SET MoneyDecimalSep '.';
SET Moneyformat="#,##0;#,##0";
SET Timeformat="h:mm:ss";
SET Dateformat="YYYY/MM/DD h:mm:ss[.ffff]";
SET Ticketformat="YYYY/MM/DD h:mm:ss[.ffff]";
SET FirstWeekDay=2;
SET BrokenWeek=1;
SET ReferenceDay=0;
SET FirstMonthOfYear=1;
SET CollationName='ja_JP';
SET MonthNames='1月:2月:3月:4月:5月:6月:7月:8月:9月:10月:11月:12月';
SET LongMonthNames='1月:2月:3月:4月:5月:6月:7月:8月:9月:10月:11月:12月';
SET DayNames='月:火:水:木:金:土:日';
SET LongDayNames='月曜日:火曜日:水曜日:木曜日:金曜日:土曜日:日曜日';
SET NumericalAbbreviation='3kk:6tt:8G12:t15:P18:E21:Z:24:Y:-3:n:-6:μ
LIB CONNECT TO [SAP Accelerator Dev:Microsoft_SQL_Server];
// Financial Statement Version
Let vFSV = '1099';
// Chart of Accounts
Let vCOA = 'Y00M';
// Company Code
Let vCompanyCode = '1710';
// Language Key
Let vLanguage = 'J';
// Min Fiscal Year
Let vFiscalYearFrom = '2000';
// Max Fiscal Year
Let vFiscalYearTo = '2022';

```

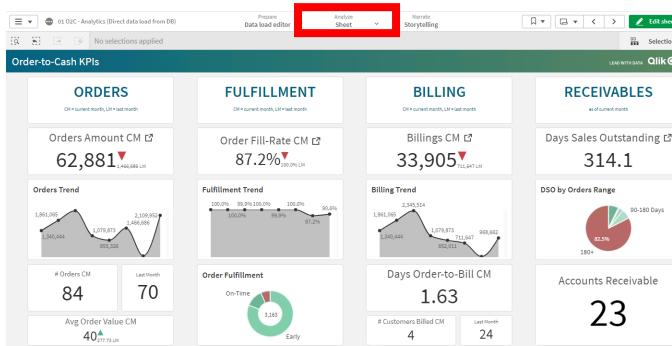
- ⑫ Click [Load data].



- ⑬ Verify that the data has been successfully loaded.

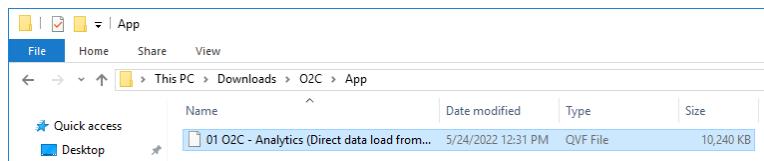


- ⑯ Display the sheet screen and verify that the values are displayed without problems.

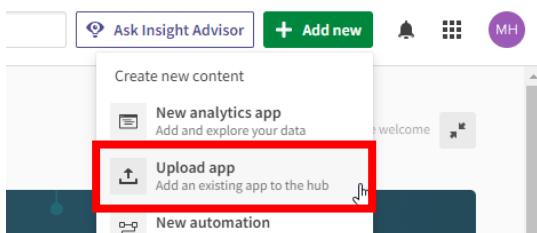


13.3 Qlik Sense SaaS

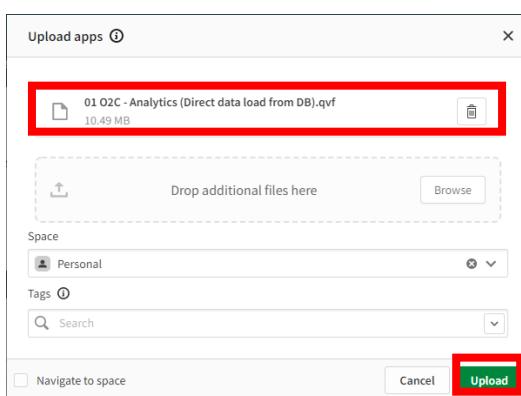
- ① Check the folder containing the Qlik Sense app.



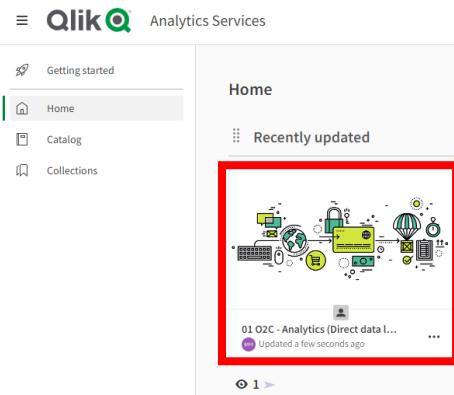
- ② Log on to the Qlik Sense SaaS screen and select [Add new]>[Upload app] in the upper right corner of the screen.



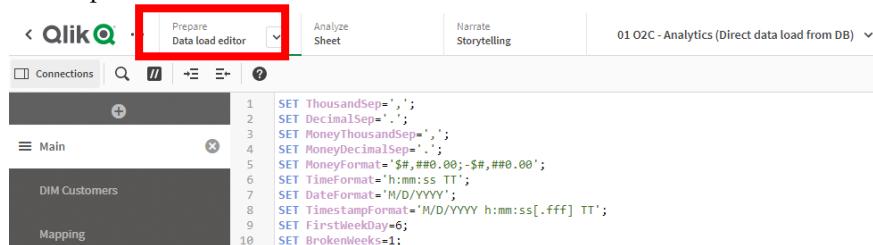
- ③ Select the app file and click Upload.



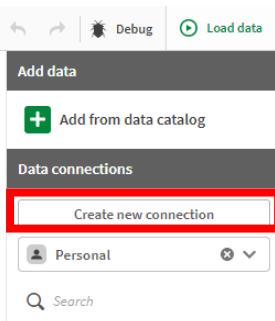
- ④ Click on the added app to open it.



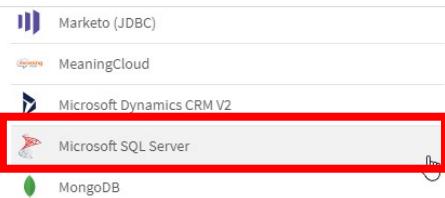
- ⑤ Open the Data Load Editor screen.



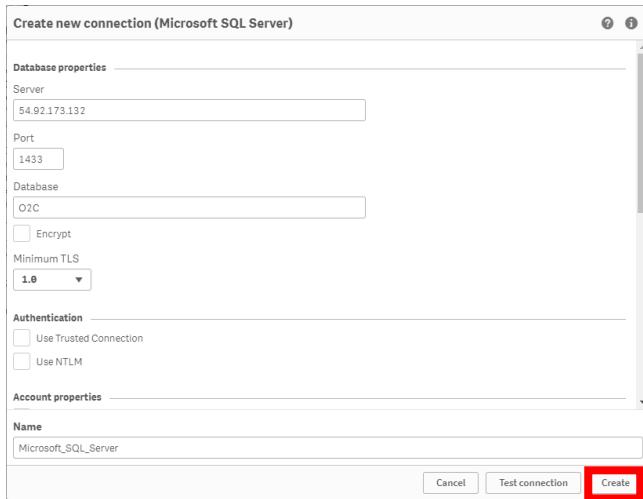
- ⑥ From the data connection definition, click [Create new connection].



- 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.

QlikQ ... データロード... 分析 シート 言語 ストーリーテリ... General Loc

セクション +

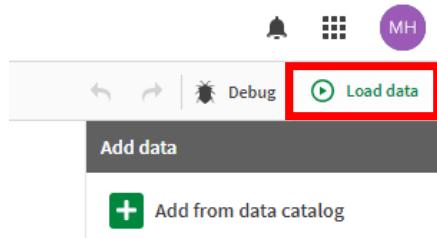
Main

```

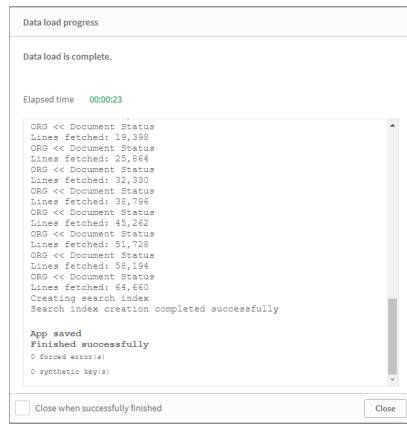
1 SET ThousandSep(',');
2 SET DecimalSep '.';
3 SET MoneyThousandsSep ',',';
4 SET MoneyDecimalSep '.';
5 SET Moneyformat='###,##0-###,##0';
6 SET Timeformat='HH:MM:SS';
7 SET Dateformat='YYYY/MM/DD';
8 SET Timestampformat='YYYY/MM/DD hh:mm:ss[.ffff]';
9 SET FirstWeekDay=1;
10 SET BrokenWeek=1;
11 SET ReferenceKey=0;
12 SET FirstMonthOfYear=1;
13 SET First12MonthsIndex=1;
14 SET CreateSearchIndexWithLoad=1;
15 SET MonthNames='1月;2月;3月;4月;5月;6月;7月;8月;9月;10月;11月;12月';
16 SET LongMonthNames='1月;2月;3月;4月;5月;6月;7月;8月;9月;10月;11月;12月';
17 SET DayNames='月曜日;火曜日;水曜日;木曜日;金曜日;土曜日;日曜日';
18 SET LongDayNames='月曜日;火曜日;水曜日;木曜日;金曜日;土曜日;日曜日';
19 SET NumericalAbbreviation='3sk;6W;9G;12T;15P;18E;2Z;2;24Y;3n;-6;μ
20 LIB CONNECT TO [SAP Accelerator Dev:Microsoft_SQL_Server];
21 // Financial Statement Version
22 Let vFSV = '1098';
23
24 // Chart of Accounts
25 Let vCOA = 'Y00M';
26
27 // Company Code
28 Let vCompanyCode = '1710';
29
30 // Language Key
31 Let vLanguage = 'J';
32
33 // Min Fiscal Year
34 Let vFiscalYearFrom = '2000';
35
36 // Max Fiscal Year
37 Let vFiscalYearTo = '2022';

```

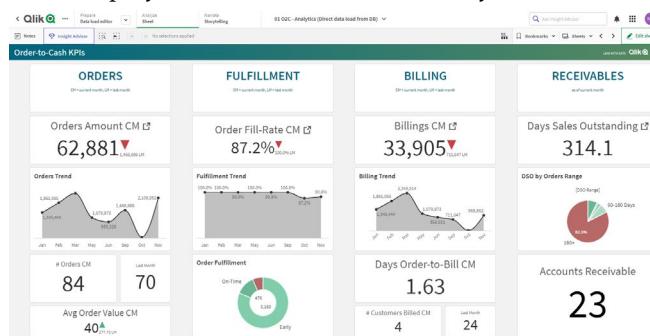
⑩ Click [Load data].



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.



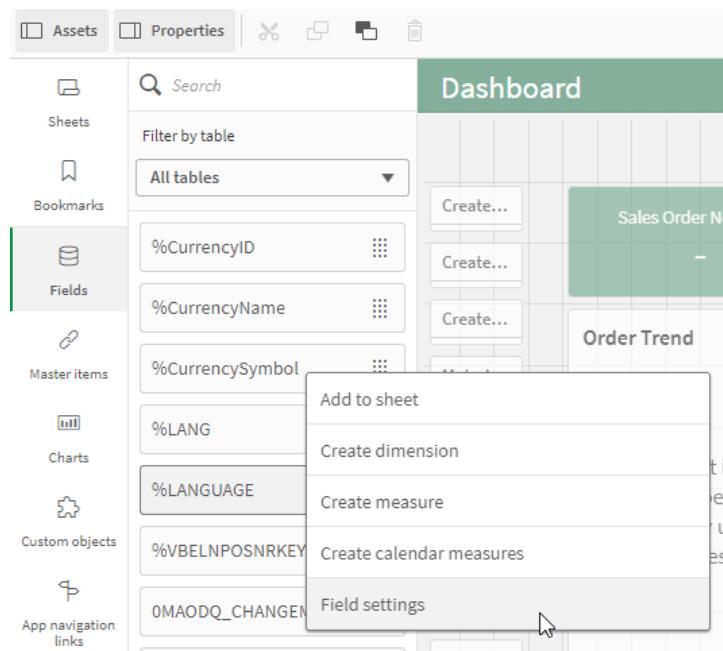
- ① Open the "Language" tab of the load script editor, comment out the following line of SET HidePrefix, and run reload.

```

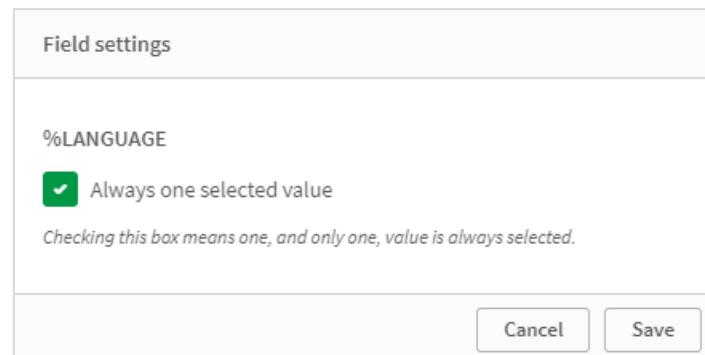
361 //SH11,販賣額度,Assume Details
362 SH12,減值償却明細,Posted Depre
363 SH13,總勘定元帳殘高,Leading Ledg
364 SH14,殘高累計額,Accumulative B
365 ;
366 ;
367 ;
368 // SET HidePrefix = '%';

```

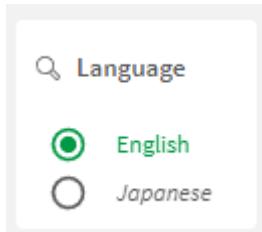
- ② Open the sheet, enter edit mode, right-click on "%LANGUAGE" for language settings or "%CurrencyName" for currency settings from Fields, and select [Field settings].



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



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

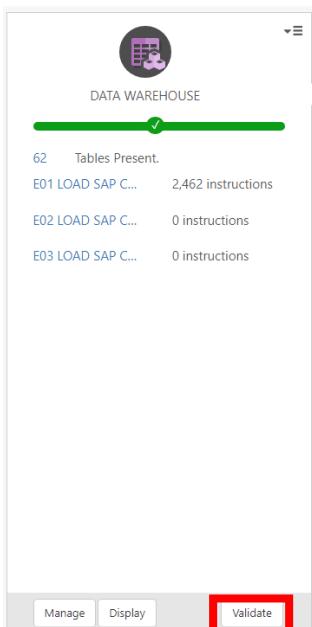


Appendix 1: Setting up CO-PA in Finance

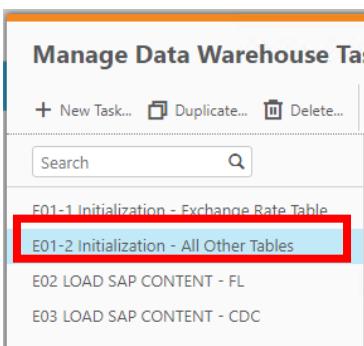
To extract CO-PA data, it is a prerequisite that CO-PA settings have been completed in advance on the SAP side. The following is an overview of the work required to extract the data, assuming that the settings have been completed.

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.

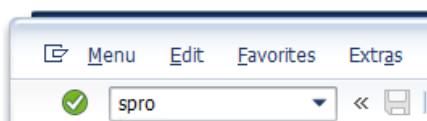
E0VENDOR_TEXT	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/> Map_E0VENDOR_TEXT_SAP Landing
E1_CO_PA_DS2	<input checked="" type="checkbox"/>	<input type="checkbox"/> Map_E1_CO_PA_DS2_SAP Landing <input checked="" type="checkbox"/> Map_E1_CO_PA_DS2_S4_HANA_SAP Landing
Time	<input checked="" type="checkbox"/>	

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

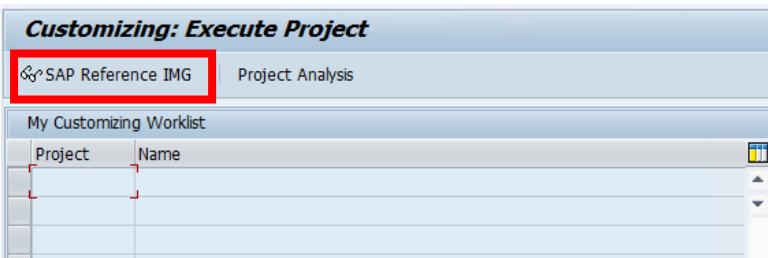
Confirmation of Operating Concern

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.

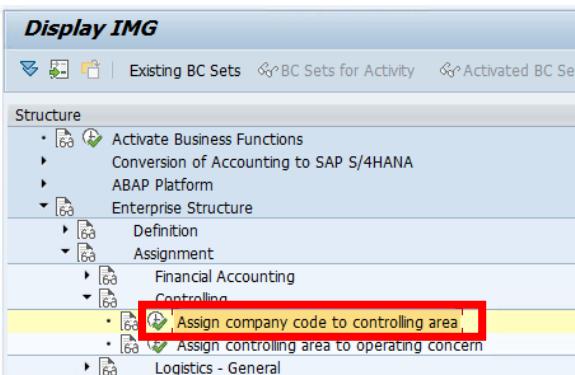
- ① Enter T-code "spro".



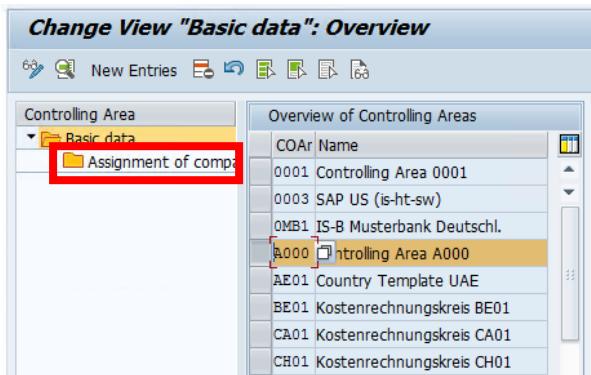
- ② Select [SAP Reference IMG].



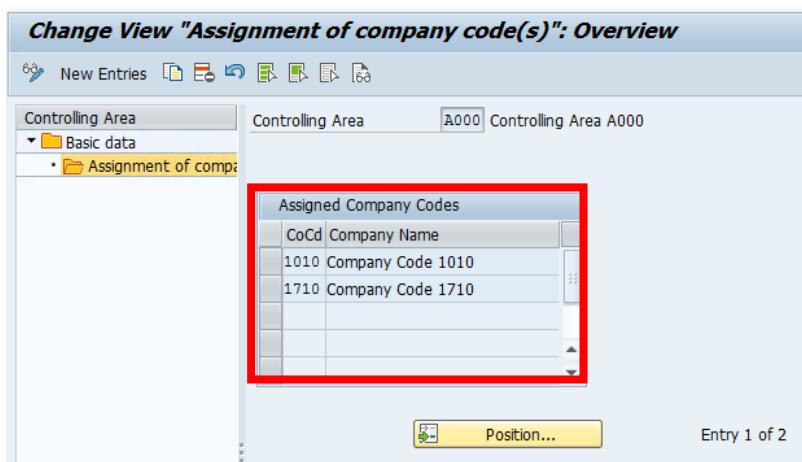
- ③ Click on [Enterprise Structure] > [Assignment] > [Controlling] > [Assign company code to controlling area].



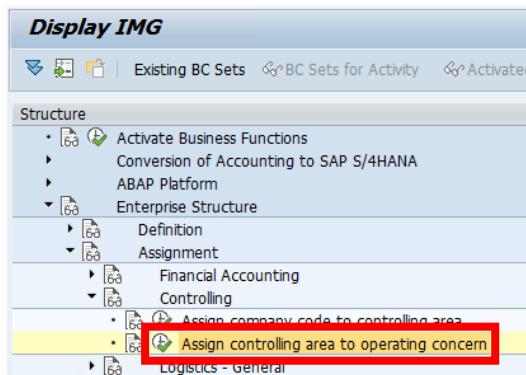
- ④ Select Controlling Area from the list and click [Assignment of company code].



- 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].

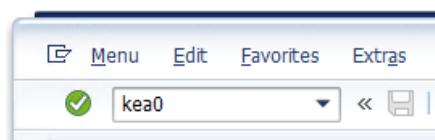


- ⑦ You can check the Operating Concern assigned to the Controlling Area.

Change View "Assignment Operating concern -> CO Area": Overview			
COAr	Name	OpCo	Name
0001	Controlling Area 0001	S001	Example Operating Concern 1
0003	SAP US (is ht sw)	S001	Example Operating Concern 1
OMB1	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".

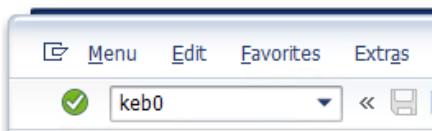


- ② Enter [Operating Concern] as confirmed in the previous step and press [Enter]. Confirm that [Costing-based] is ON. If not, you need to activate it.

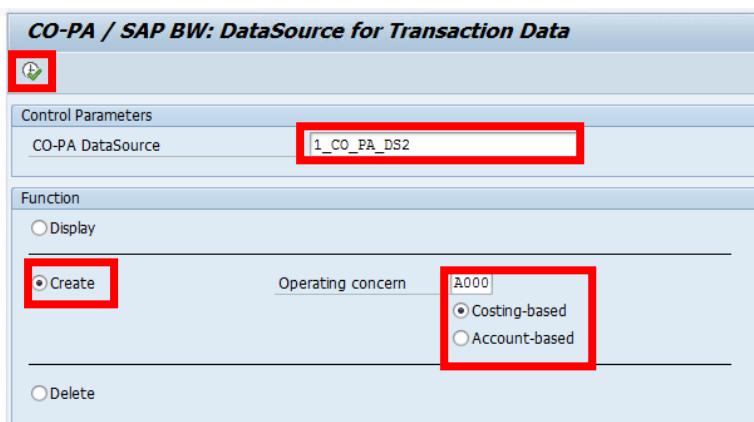
Maintain Operating Concern	
<input type="button" value="Actions"/>	<input type="button" value="Data structure"/>
Operating Concern Status	<input type="text" value="A000"/> Best Practices <input checked="" type="checkbox"/> CC
<input type="button" value="Data Structure"/> <input type="button" value="Attributes"/> <input type="button" value="Environment"/>	
Description: Best Practices Type of Profitability Analysis: <input checked="" type="checkbox"/> Costing-based <input checked="" type="checkbox"/> Margin Analysis <input type="checkbox"/> Combined	
Data structure: <input type="button" value="Display"/> Status: CC <input type="button" value="H"/>	

CO-PA data source activation

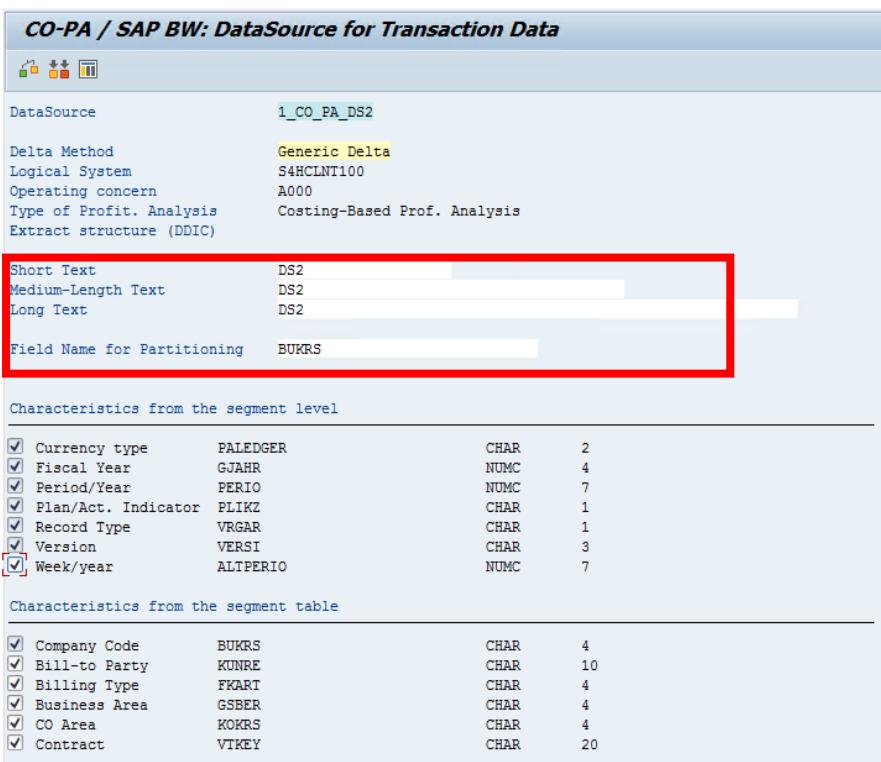
- ① Enter transaction code "keb0".



- 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.

CO-PA / SAP BW: DataSource for Transaction Data

<input checked="" type="checkbox"/>	Total var. COGM	COPACOGSV	CURR	23 REC_WAERS
<input checked="" type="checkbox"/>	CM I	COPAMRGN1	CURR	23 REC_WAERS
<input checked="" type="checkbox"/>	Material Overhd Cst	COPAMATCH	CURR	23 REC_WAERS
<input checked="" type="checkbox"/>	Fixed prod. costs	COPAPRDCF	CURR	23 REC_WAERS
<input checked="" type="checkbox"/>	Total fixed COGM	COPACOGSF	CURR	23 REC_WAERS
<input checked="" type="checkbox"/>	CM II	COPAMRGN2	CURR	23 REC_WAERS
<input checked="" type="checkbox"/>	Total Variances	COPAVRNCS	CURR	23 REC_WAERS
<input checked="" type="checkbox"/>	CM III	COPAMRGN3	CURR	23 REC_WAERS
<input checked="" type="checkbox"/>	Marketing Overhead	COPAOHMRK	CURR	23 REC_WAERS
<input checked="" type="checkbox"/>	Sales Overhead	COPAOHSLS	CURR	23 REC_WAERS
<input checked="" type="checkbox"/>	Admin. Overhead	COPAOHADM	CURR	23 REC_WAERS
<input checked="" type="checkbox"/>	R & D Overhead	COPAOHRND	CURR	23 REC_WAERS
<input checked="" type="checkbox"/>	Logistical Overhead	COPAOHLOG	CURR	23 REC_WAERS
<input checked="" type="checkbox"/>	Other Overhead Costs	COPAOHOTH	CURR	23 REC_WAERS
<input checked="" type="checkbox"/>	Total Overhead Cst	COPAOVHDC	CURR	23 REC_WAERS
<input checked="" type="checkbox"/>	Operating profit	COPAPROFI	CURR	23 REC_WAERS
<input checked="" type="checkbox"/>	Ratio 1	COPAUSR01	CURR	23 REC_WAERS
<input checked="" type="checkbox"/>	Ratio 2	COPAUSR02	CURR	23 REC_WAERS
<input checked="" type="checkbox"/>	Key Figure 3	COPAUSR03	CURR	23 REC_WAERS
<input checked="" type="checkbox"/>	Key Figure 4	COPAUSR04	CURR	23 REC_WAERS
<input checked="" type="checkbox"/>	Key Figure 5	COPAUSR05	CURR	23 REC_WAERS
<input checked="" type="checkbox"/>	Key Figure 6	COPAUSR06	CURR	23 REC_WAERS
<input checked="" type="checkbox"/>	Key Figure 7	COPAUSR07	CURR	23 REC_WAERS
<input checked="" type="checkbox"/>	Key Figure 8	COPAUSR08	CURR	23 REC_WAERS
<input checked="" type="checkbox"/>	Key Figure 9	COPAUSR09	CURR	23 REC_WAERS
<input checked="" type="checkbox"/>	Total COGM	COPACOGS	CURR	23 REC_WAERS

Characteristics Calculated upon Extraction
(No selection conditions may be entered for the upload of transaction data to SAP BW)

Cust. lifetime COPACLT NUMC 4

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



- ⑥ Click [Save].

DataSource: Customer version Edit

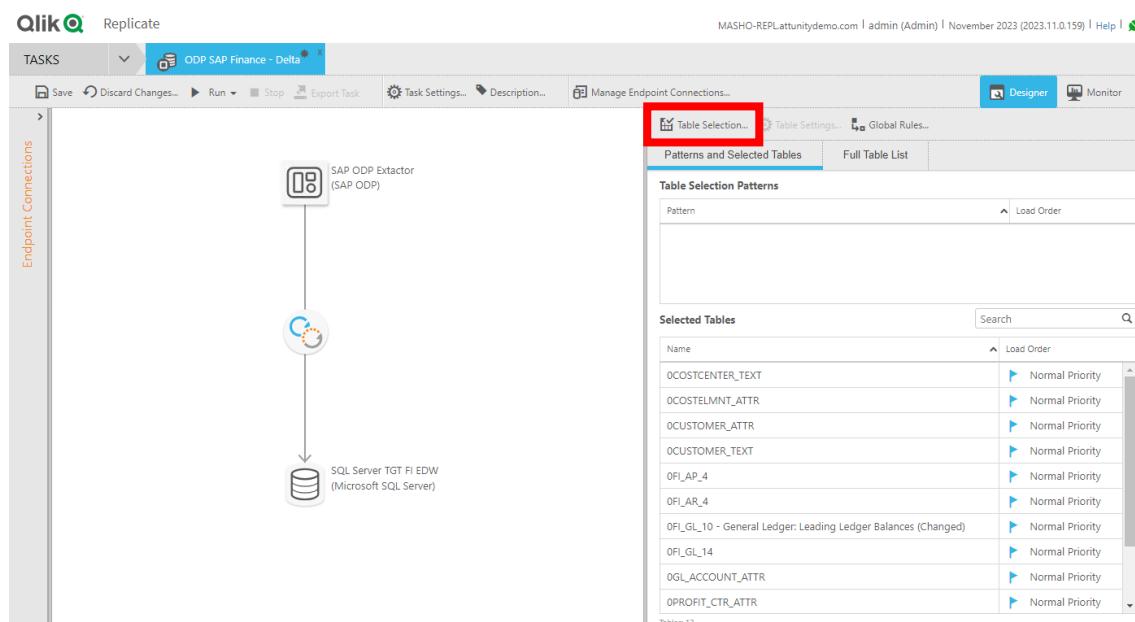
Header Data																																																																																														
DataSource	1_CO_PA_DS2	Package																																																																																												
Description	DS2																																																																																													
Extraction																																																																																														
ExtractStruct.	ZOXS4H0111																																																																																													
Direct Access	2																																																																																													
Delta Update	<input checked="" type="checkbox"/>	DataSource for Reconciliation																																																																																												
<table border="1"> <thead> <tr> <th>Field Name</th> <th>Short text</th> <th>Selection</th> <th>Hide field</th> <th>Inversion</th> <th>Field only..</th> </tr> </thead> <tbody> <tr><td>CURTYPE</td><td>Currency type</td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td></tr> <tr><td>VALUTYP</td><td>Valuation</td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td></tr> <tr><td>GJAHM</td><td>Fiscal Year</td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td></tr> <tr><td>PERIV</td><td>Fiscal Year Variant</td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td></tr> <tr><td>PERIO</td><td>Period/Year</td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td></tr> <tr><td>WRTIP</td><td>Value type for Reporting</td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td></tr> <tr><td>VRGAAT</td><td>Record Type</td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td></tr> <tr><td>VERS1</td><td>Plan version (CO-PA)</td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td></tr> <tr><td>CALWEEK</td><td>Calendar year / week</td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td></tr> <tr><td>BUKRS</td><td>Company Code</td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td></tr> <tr><td>KUNRE</td><td>Bill-to Party</td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td></tr> <tr><td>FKART</td><td>Billing Type</td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td></tr> <tr><td>GSBER</td><td>Business Area</td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td></tr> <tr><td>KOKRS</td><td>Controlling Area</td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td></tr> </tbody> </table>					Field Name	Short text	Selection	Hide field	Inversion	Field only..	CURTYPE	Currency type	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	VALUTYP	Valuation	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	GJAHM	Fiscal Year	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	PERIV	Fiscal Year Variant	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	PERIO	Period/Year	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	WRTIP	Value type for Reporting	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	VRGAAT	Record Type	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	VERS1	Plan version (CO-PA)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	CALWEEK	Calendar year / week	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	BUKRS	Company Code	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	KUNRE	Bill-to Party	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	FKART	Billing Type	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	GSBER	Business Area	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	KOKRS	Controlling Area	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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- 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](#)".

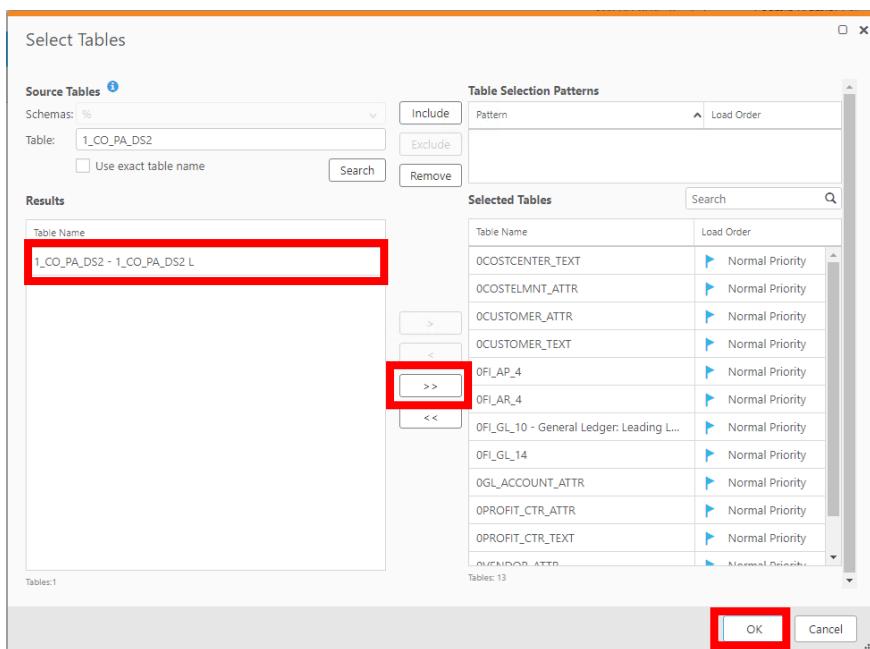


Adding a CO-PA table to a Qlik Replicate task

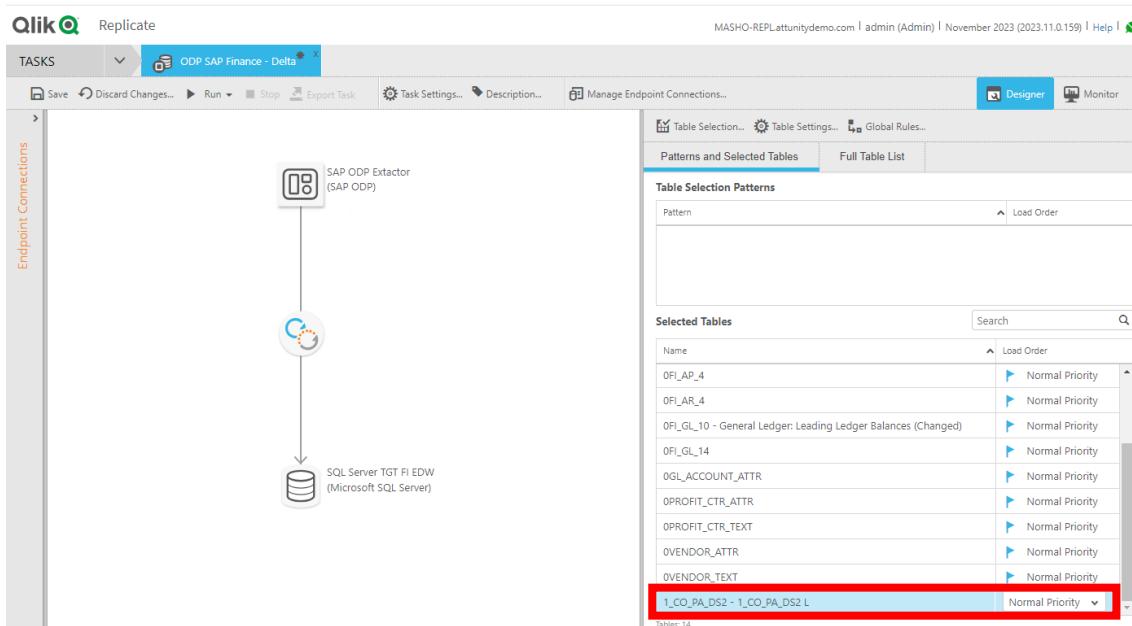
On the Qlik Replicate console, open the Finance task and click [Table Selection..]



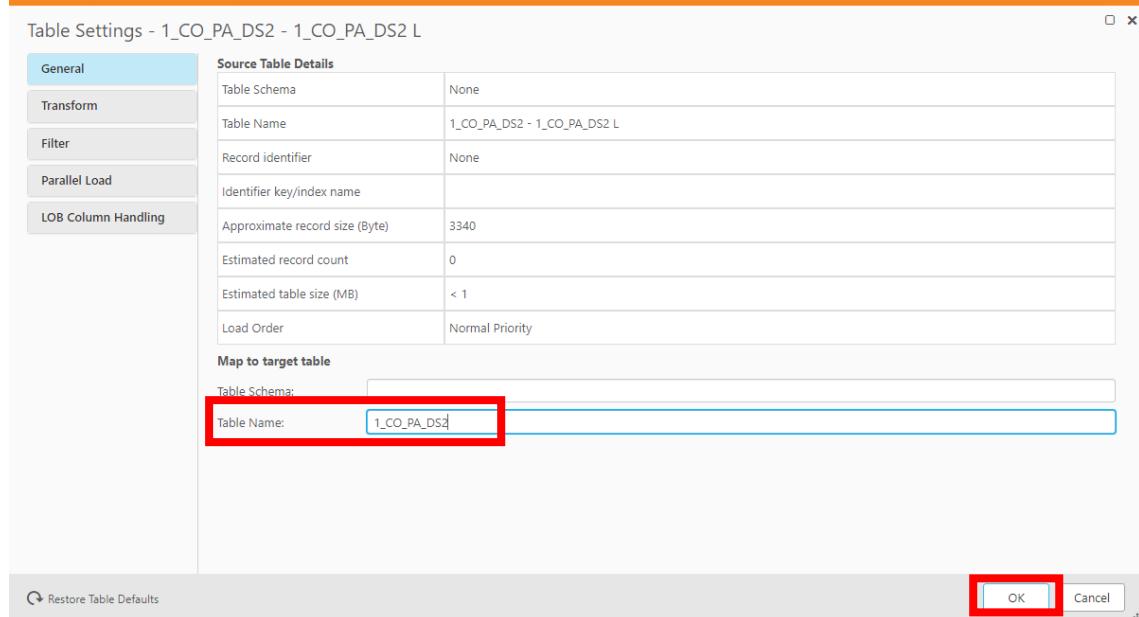
Add the "1_CO_PA_DS2" data source to [Selected Tables] and click [OK].



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



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

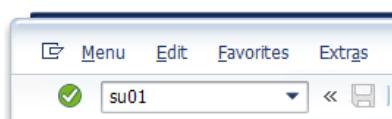


Appendix 2: Creating user for Qlik Replicate

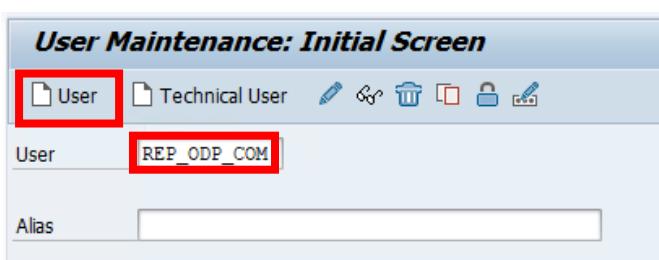
Creating user

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].

The screenshot shows the SAP 'Maintain Users' interface. The title bar says 'Maintain Users'. The user is set to 'REP_ODP_COM' and the status is 'User with Classic Address'. The tabs at the top are Documentation, Address, Logon Data, SNC, Defaults, Parameters, Roles, and Profile. The 'Address' tab is selected. Below it, there's a 'Person' section with fields for Title, Last Name, First Name, Academic Title, Full Name, and Language. The 'Last Name' field contains 'REP_ODP_COM' and is highlighted with a red box.

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

The screenshot shows the SAP 'Maintain Users' interface with the 'Logon Data' tab selected. The user is 'REP_ODP_COM' and the status is 'User with Classic Address'. The 'User Type' dropdown is set to 'Communications Data' and is highlighted with a red box. Below it, there's a 'Password' section with 'New Password' and 'Repeat Password' fields. Both fields contain a series of asterisks and are highlighted with a red box. There's also a link 'New Password Rules (Case-Sensitive)'.

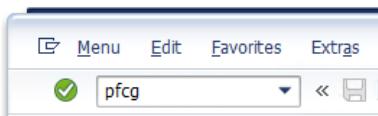
- ⑤ Click the [Defaults] tab, set [Decimal Notation] to "1,234,567.89" and click [Save].

The screenshot shows the SAP 'Maintain Users' interface with the 'Defaults' tab selected. The user is 'REP_ODP_COM' and the status is 'User with Classic Address'. The 'Decimal Notation' field is set to '1,234,567.89' and is highlighted with a red box. Other settings include Logon Language (EN), Date Format (MM/DD/YYYY (Gregorian Date)), and Time Format (24 Hour Format). The 'Start menu' field is empty.

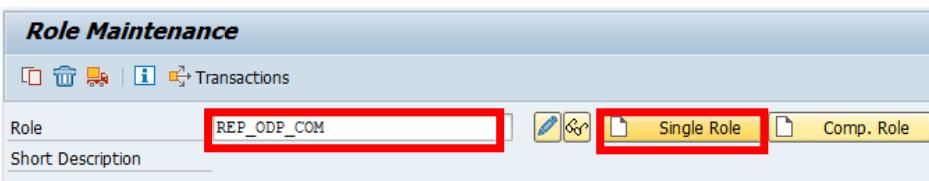
Creating role profiles

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

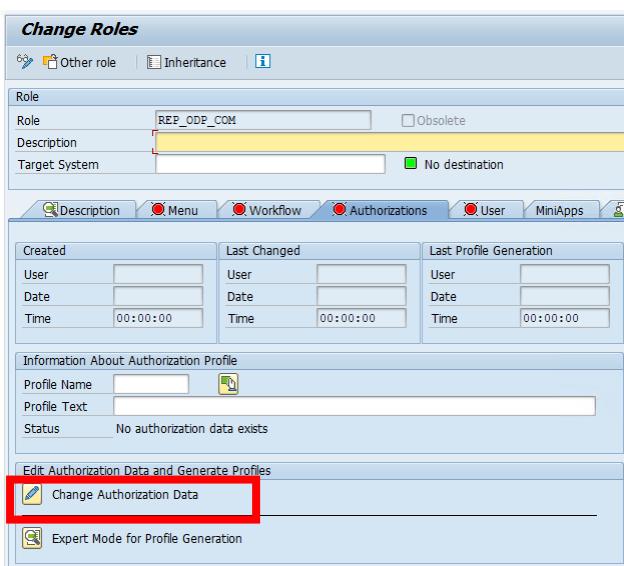
- ① Enter T-code "pfcg".



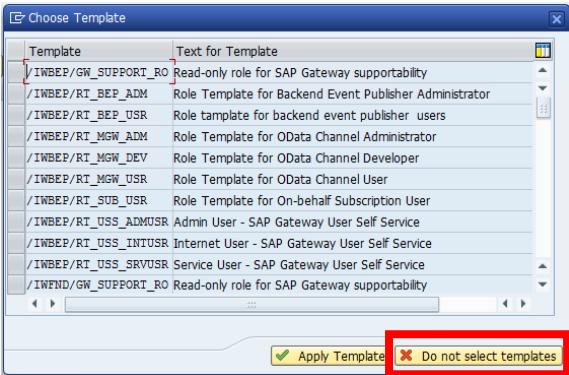
- ② Enter a role name in [Role] and click [Single Role].



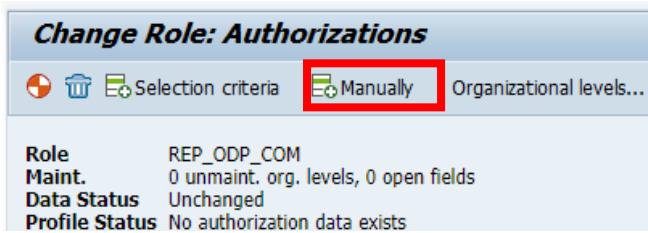
- ③ [Open the Authorizations tab and click on [Change Authorization Data].



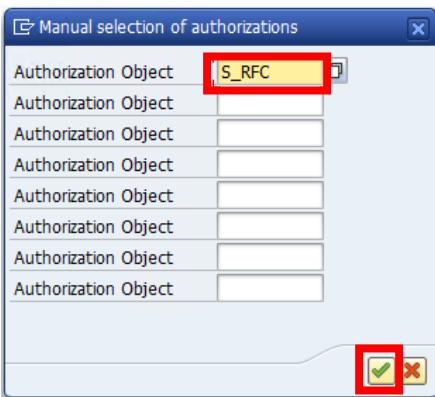
④ Click on [Do not select templates].



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

Group/Object/Authorization/Field	Maintain...	Value	Text
Object class AAAB	Manually		Cross-application Authorization Objects
Authorization Object S_RFC	Manually		Authorization Check for RFC Access
Authorization. 00	Manually		Authorization Check for RFC Access
• RFC_TYPE	Manually		Type of RFC object to which access is to be allowed
• RFC_NAME	Manually		Name (Allowlist) of RFC object to which access is all...
• ACTVT	Manually		Activity

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

	Object Class RS	Manual	SAP BW/4HANA
	Authorization Object S_RS_ADSO	Manual	Data Warehouse Modeling - DataStore Object
	Authorization T-AH29000800	Manual	Data Warehouse Modeling - DataStore Object
	RSINFOAREA	Manual	InfoArea
	RSOADSONM	Manual	DataStore Object Name
	RSOADSOPAR	Manual	Subobject for ADSO
	ACTVT	Manual	Activity

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

S_RS_COMP

	Authorization Object S_RS_COMP	Manually	Business Explorer - Components
	Authorization_00	Manually	Business Explorer - Components
	RSINFOAREA	Manually	InfoArea
	RSINFOCUBE	Manually	InfoCube
	RSZCOMPTP	Manually	Type of a reporting component
	RSZCOMPID	Manually	Name (ID) of a reporting component
	ACTVT	Manually	Activity

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

S_RS_COMP1

	Authorization Object S_RS_COMP1	Manually	Business Explorer - Components: Enhancements to ..
	Authorization_00	Manually	Business Explorer - Components: Enhancements to ..
	RSZCOMPID	Manually	Name (ID) of a reporting component
	RSZCOMPTP	Manually	Type of a reporting component
	RSZOWNER	Manually	Owner (Person Responsible) for a Reporting Compo..
	ACTVT	Manually	Activity

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

OCB Authorization Object S_RS_DS	Manual		Data Warehouse Modeling - DataSource
OCB Authorization T-AH29000800	Manual		Data Warehouse Modeling - DataSource
· RSDS	Manual	*	DataSource
· RSLOGSYS	Manual	*	Source System
· RSDSPART	Manual	All values	Subobject for New DataSource
· ACTVT	Manual	Maintain	Activity

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

S_RS_HCPR

OCB Authorization Object S_RS_HCPR	Manual		Central CompositeProvider
OCB Authorization T-AH29000800	Manual		Central CompositeProvider
· RSINFOAREA	Manual	*	InfoArea
· RSHCPR	Manual	*	HanaCompositeProvider: Name
· ACTVT	Manual	Maintain	Activity
· RSHCPROBJ	Manual	All values	Hana Composite Provider - Subobject

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

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

S_RS_HYBR

※ Obsolete on BW4/HANA

Authorization Object S_RS_HYBR	Manually		Data Warehousing Workbench - HybridProvider
Authorizat. 00	Manually		Data Warehousing Workbench - HybridProvider
· RSHYBPROV	Manually	*	HybridProvider
· ACTVT	Manually	Maintain	Activity
· RSHYBROBJ	Manually	All values	HybridProvider Subobject

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

S_RS_ICUBE

※ Obsolete on BW4/HANA

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	Maintain	Activity

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

S_RS_IOBJ

※ Obsolete on BW4/HANA

OC Authorization Object S_RS_IOBJ	Manually		Data Warehousing Workbench - InfoObject (InfoO...)
OC Authorizat. 00	Manually		Data Warehousing Workbench - InfoObject (InfoO...)
RSIOBJCAT	Manually		InfoObject catalog
RSIOBJ	Manually		InfoObject
RSIOBJPART	Manually		Subobject of InfoObject
ACTVT	Manually		Activity

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

S_RS_IOMAD

※ Obsolete on BW4/HANA

OC Authorization Object S_RS_IOMAD	Manually		Data Warehousing Workbench - Maintain Master Data
OC Authorizat. 00	Manually		Data Warehousing Workbench - Maintain Master Data
RSAPPLNM	Manually		Application Component
RSINFOAREA	Manually		InfoArea
RSIOBJNM	Manually		InfoObject
ACTVT	Manually		Activity

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

S_RS_ISET

※ Obsolete on BW4/HANA

OC Authorization Object S_RS_ISET	Manually		Data Warehousing Workbench - InfoSet
OC Authorizat. 00	Manually		Data Warehousing Workbench - InfoSet
RSINFOAREA	Manually		InfoArea
RSINFOSET	Manually		InfoSet
ACTVT	Manually		Activity
RSISETOBJ	Manually		InfoSet-Subobject

Field Name	value
InfoArea (RSINFOAREA)	*

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

S_RS_MPRO

※ Obsolete on BW4/HANA

OC Authorization Object S_RS_MPRO	Manually		Data Warehousing Workbench - MultiProvider
OC Authorizat. 00	Manually		Data Warehousing Workbench - MultiProvider
· RSINFOAREA	Manually	*	InfoArea
· RSMPRO	Manually	*	MultiProvider
· RSMPROOBJ	Manually	All values	MultiProvider Subobject
· ACTVT	Manually	Maintain	Activity

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

S_RS_ODP_H

OC Authorization Object S_RS_ODP_H	Manually		ODP: Extraction from SAP HANA
OC Authorizat. 00	Manually		ODP: Extraction from SAP HANA
· ACTVT	Manually	Display	Activity
· RSODPHPKG	Manually	*	SAP HANA Package
· RSODPHNAME	Manually	*	SAP HANA Object Name

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

S_RS_ODSO

※ Obsolete on BW4/HANA

OC Authorization Object S_RS_ODSO	Manually		Data Warehousing Workbench - DataStore Object
OC Authorization Object S_RS_ODSO	Manually		Data Warehousing Workbench - DataStore Object
RSINFOAREA	Manually	*	InfoArea
RSODSOBJ	Manually	*	DataStore Object
RSODSPART	Manually	All values	Subobject for ODS Object
ACTVT	Manually	Maintain	Activity

OC Authorization Object S_RS_ODSO	Manually		Data Warehousing Workbench - DataStore Object
OC Authorization Object S_RS_ODSO	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

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

S_RS_ODSV

OC Authorization Object S_RS_ODSV	Manually		Data Warehousing Workbench - Open ODS View
OC Authorization Object S_RS_ODSV	Manually		Data Warehousing Workbench - Open ODS View
ACTVT	Manually	Display	Activity
RSINFOAREA	Manually	*	InfoArea
RSFBPNAME	Manually	*	View name
RSFBPOBJ	Manually	All values	View Subobject

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

S_RO_OSOA

OC Object class RO	Manually		Authorizations: BW Service API
OC Authorization Object S_RO_OSOA	Manually		SAP DataSource Authorizations
OC Authorization Object S_RO_OSOA	Manually		SAP DataSource Authorizations
OLTPSOURCE	Manually	*	DataSource (OSOA/OSOD)
OSOAAPCO	Manually	*	Application Component of a DataSource (OSOA/OSOD)
OSOAPART	Manually	All values	Subobject for DataSource
ACTVT	Manually	Display	Activity

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

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

S_ADMIN_FCD

Object class BC_A	Manually	Basis: Administration
Authorization Object S_ADMIN_FCD	Manually	System Authorizations
Authorizat. 00	Manually	System Authorizations
S_ADMIN_FCD	Manually	Process administration using trans... System administration function

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

S_ADT_RES

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

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

S_DEVELOP

Authorization Object S_DEVELOP	Manually	ABAP Workbench
Authorizat. 00	Manually	ABAP Workbench
DEVCLASS	Manually	Package
OBJTYPE	Manually	Object Type
OBJNAME	Manually	Repository object name
P_GROUP	Manually	ABAP Program Authorization Group
ACTVT	Manually	Activity

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

Object class AAAB	Manually	Cross-application Authorization Objects
Authorization Object S_RFC	Manually	Authorization Check for RFC Access
Authorization Object S_TCODE	Manually	Transaction Code Check at Transaction Start
Authorizat. 00	Manually	Transaction Code Check at Transaction Start
TCD	Manually	Transaction Code

Field Name	value
Transaction Code (TCD)	ST22

S_BTCH_ADMIN

Object class BC_A	Manually	Basis: Administration
Authorization Object S_ADMIN_FCD	Manually	System Authorizations
Authorization Object S_BTCH_ADMIN	Manually	Background Processing: Background Administrator
Authorizat. 00	Manually	Background Processing: Background Administrator
BTCADMIN	Manually	Background Administrator Authori... Background Administrator ID

Field Name	value
Background Administrator ID (BTCADMIN)	Y

S_BTCH_JOB

Object class BC_A	Manually	Basis: Administration
Authorization Object S_ADMIN_FCD	Manually	System Authorizations
Authorization Object S_BTCH_ADMIN	Manually	Background Processing: Background Administrator
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

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

S_BTCH_NAM

Object class BC_A	Manually	Basis: Administration
Authorization Object S_ADMIN_FCD	Manually	System Authorizations
Authorization Object S_BTCH_ADMIN	Manually	Background Processing: Background Administrator
Authorization Object S_BTCH_JOB	Manually	Background Processing: Operations on Background ...
Authorization Object S_BTCH_NAM	Manually	Background Processing: Background User Name
Authorizat. 00	Manually	Background Processing: Background User Name
BTCTNAME	Manually	Background User Name for Authorization Check

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

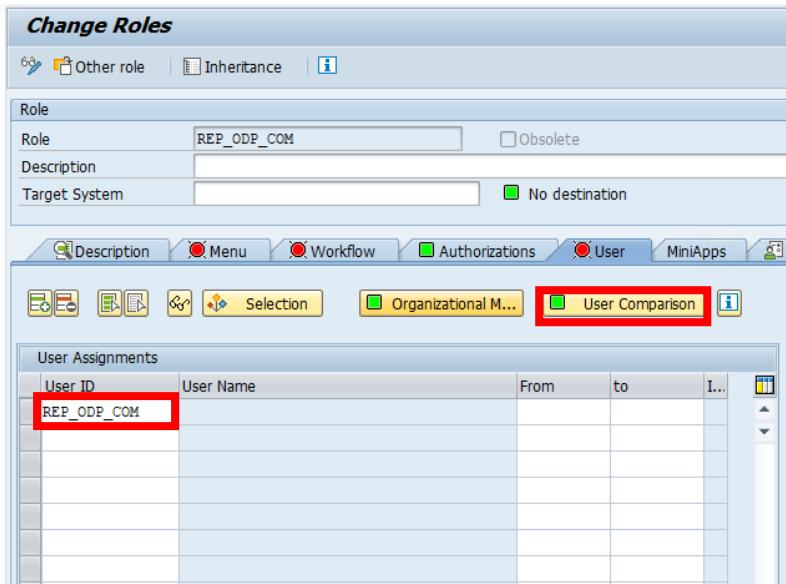
•	•	•	Authorization Object S_DEVELOP	Manually		ABAP Workbench
•	•	•	• Authorization Object S_RS_OSOA	Manually		ABAP Workbench
•	•	•	• Authorization Object S_RS_OSOA	Manually		Package
•	•	•	• OBTYPEREPO	Manually		Object Type
•	•	•	• OBTYPEREPO	Manually		Repository object name
•	•	•	• P_GROUP	Manually		ABAP Program Authorization Group
•	•	•	• ACTVT	Manually		Activity
•	•	•	• Object class RO	Manually		Authorizations: BW Service API
•	•	•	• Authorization Object S_RS_ADSO	Manually		SAP DataSource Authorizations
•	•	•	• Authorization Object S_RS_ADSO	Manually		SAP DataSource Authorizations
•	•	•	• OLTPSOURCE	Manually		DataSource (OSOA/OSOD)
•	•	•	• OSOAAPCO	Manually		Application Component of a DataSource (OSOA/OS...
•	•	•	• OSOAPART	Manually		Subobject for DataSource
•	•	•	• ACTVT	Manually		Activity
•	•	•	• Object class RS	Manually		Business Warehouse
•	•	•	• Authorization Object S_RS_ADSO	Manually		Data Warehousing Workbench - DataStore Object (...)
•	•	•	• Authorization Object S_RS_ADSO	Manually		Data Warehousing Workbench - DataStore Object (...)
•	•	•	• RSINFOAREA	Manually		InfoArea
•	•	•	• RSOADSONM	Manually		Datastore Object: Name
•	•	•	• RSOADSOPAR	Manually		Subobject for ADSO
•	•	•	• ACTVT	Manually		Activity
•	•	•	• Authorization Object S_RS_COMP	Manually		Business Explorer - Components
•	•	•	• Authorization Object S_RS_COMP	Manually		Business Explorer - Components
•	•	•	• RSINFOAREA	Manually		InfoArea
•	•	•	• RSINFOCUBE	Manually		InfoCube
•	•	•	• RSZCOMPTP	Manually		Type of a reporting component
•	•	•	• RSZCOMPID	Manually		Name (ID) of a reporting component
•	•	•	• ACTVT	Manually		Activity
•	•	•	• Authorization Object S_RS_COMP1	Manually		Business Explorer - Components: Enhancements to ...
•	•	•	• Authorization Object S_RS_COMP1	Manually		Business Explorer - Components: Enhancements to ...
•	•	•	• RSZCOMPID	Manually		Name (ID) of a reporting component
•	•	•	• RSZCOMPTP	Manually		Type of a reporting component
•	•	•	• RSZOWNER	Manually		Owner (Person Responsible) for a Reporting Compo...
•	•	•	• ACTVT	Manually		Activity
•	•	•	• Authorization Object S_RS_DS	Manually		Data Warehousing Workbench - DataSource
•	•	•	• Authorization Object S_RS_DS	Manually		Data Warehousing Workbench - DataSource
•	•	•	• RDSDS	Manually		DataSource
•	•	•	• RSLOGSYS	Manually		Source System
•	•	•	• RDSPART	Manually		Subobject for New DataSource
•	•	•	• ACTVT	Manually		Activity
•	•	•	• Authorization Object S_RS_HPCR	Manually		Central CompositeProvider
•	•	•	• Authorization Object S_RS_HPCR	Manually		Central CompositeProvider
•	•	•	• RSINFOAREA	Manually		InfoArea
•	•	•	• RSHPCR	Manually		HanaCompositeProvider: Name
•	•	•	• ACTVT	Manually		Activity
•	•	•	• RSHCROBJ	Manually		Hana Composite Provider - Subobject
•	•	•	• Authorization Object S_RS_HYBR	Manually		Data Warehousing Workbench - HybridProvider
•	•	•	• Authorization Object S_RS_HYBR	Manually		Data Warehousing Workbench - HybridProvider
•	•	•	• RSHYBRPROV	Manually		HybridProvider
•	•	•	• ACTVT	Manually		Activity
•	•	•	• RSHYBROBJ	Manually		HybridProvider Subobject

✓	OC Authorization Object S_RS_ICUBE	Manually		Data Warehousing Workbench - InfoCube
✓	✓ OC Authorization_00	Manually		Data Warehousing Workbench - InfoCube
·	RSINFOAREA	Manually		InfoArea
·	RSINFOCUBE	Manually		InfoCube
·	RSICUBEOBJ	Manually		InfoCube Subobject
·	ACTVT	Manually		Activity
✓	✓ OC Authorization Object S_RS_IJOB	Manually		Data Warehousing Workbench - InfoObject (InfoO...)
✓	✓ OC Authorization_00	Manually		Data Warehousing Workbench - InfoObject (InfoO...)
·	RSIOBJCAT	Manually		InfoObject catalog
·	RSIOBJ	Manually		InfoObject
·	RSIOBJPART	Manually		Subobject of InfoObject
·	ACTVT	Manually		Activity
✓	✓ OC Authorization Object S_RS_IOMAD	Manually		Data Warehousing Workbench - Maintain Master Data
✓	✓ OC Authorization_00	Manually		Data Warehousing Workbench - Maintain Master Data
·	RSAPPLNM	Manually		Application Component
·	RSINFOAREA	Manually		InfoArea
·	RSIOBJNM	Manually		InfoObject
·	ACTVT	Manually		Activity
✓	✓ OC Authorization Object S_RS_ISET	Manually		Data Warehousing Workbench - InfoSet
✓	✓ OC Authorization_00	Manually		Data Warehousing Workbench - InfoSet
·	RSINFOAREA	Manually		InfoArea
·	RSINFOSET	Manually		InfoSet
·	ACTVT	Manually		Activity
·	RSISETOBJ	Manually		InfoSet-Subobject
✓	✓ OC Authorization Object S_RS_IMPRO	Manually		Data Warehousing Workbench - MultiProvider
✓	✓ OC Authorization_00	Manually		Data Warehousing Workbench - MultiProvider
·	RSINFOAREA	Manually		InfoArea
·	RSMPRO	Manually		MultiProvider
·	RSMPROOBJ	Manually		MultiProvider Subobject
·	ACTVT	Manually		Activity
✓	✓ OC Authorization Object S_RS_ODP_H	Manually		ODP: Extraction from SAP HANA
✓	✓ OC Authorization_00	Manually		ODP: Extraction from SAP HANA
·	ACTVT	Manually		Activity
·	RSODPHPKG	Manually		SAP HANA Package
·	RSODPHNAME	Manually		SAP HANA Object Name
✓	✓ OC Authorization Object S_RS_ODSO	Manually		Data Warehousing Workbench - DataStore Object
✓	✓ OC Authorization_00	Manually		Data Warehousing Workbench - DataStore Object
·	RSINFOAREA	Manually		InfoArea
·	RSODSOBJ	Manually		DataStore Object
·	RSODSPART	Manually		Subobject for ODS Object
·	ACTVT	Manually		Activity
✓	✓ OC Authorization Object S_RS_ODSV	Manually		Data Warehousing Workbench - Open ODS View
✓	✓ OC Authorization_00	Manually		Data Warehousing Workbench - Open ODS View
·	ACTVT	Manually		Activity
·	RSINFOAREA	Manually		InfoArea
·	RSFBPNAME	Manually		View name
·	RSFBPOBJ	Manually		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 | [Help](#)

Role

Role	REP_ODP_COM	<input type="checkbox"/> Obsolete
Description		
Target System	<input checked="" type="checkbox"/> No destination	

Description | Menu | Workflow | Authorizations | User | MiniApps | Personalization

Organizational M... | User Comparison | [Help](#)

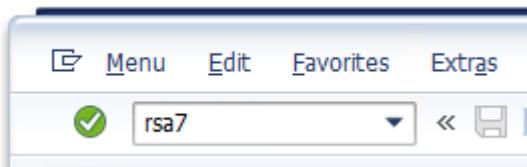
User Assignments

User ID	User Name	From	To	L...
REP_ODP_COM	REP_ODP_COM	02.05.2023	31.12.9999	Edit

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".



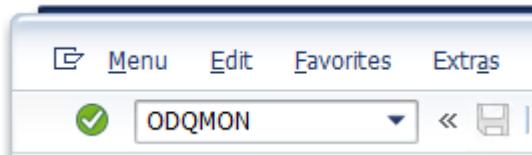
- ② The combination of [DataSource] and [BW System] displays the number of queues. Here you can see that one change to a data source such as "2LIS_11_V_SSL" is queued.

BW Delta Queue Maintenance					
St...	DataSource	BW System	Total	Stat.	
○○■	2LIS_11_V_SSL	TARGETLG1	1		
○○■	2LIS_11_V_SCL	TARGETLG1	1		
○○■	2LIS_11_V_ITM	TARGETLG1	1		
○○■	2LIS_11_VASTI	TARGETLG1	1		
○○■	2LIS_11_VASTH	TARGETLG1	1		
○○■	2LIS_11_VASCL	TARGETLG1	1		
○○■	2LIS_11_VAKON	TARGETLG1	1		
○○■	2LIS_11_VAITM	TARGETLG1	1		
○○■	2LIS_11_VAHDR	TARGETLG1	1		
○○■	2LIS_13_VDKON	TARGETLG1	0		
○○■	2LIS_13_VDITM	TARGETLG1	0		
○○■	2LIS_13_VDHDR	TARGETLG1	0		
○○■	2LIS_12_VCITM	TARGETLG1	0		
○○■	2LIS_12_VCHDR	TARGETLG1	0		
○○■	2LIS_03_UM	TARGETLG1	0		
○○■	2LIS_03_BF	TARGETLG1	0		
○○■	1_CO_PA_DS2	TARGETLG1	0		

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.

Monitor Delta Queues								
Provider		BW DataSource	Subscriber Type					
Queue			Subscriber					
Time Stamp ID			to					
<input type="checkbox"/> Calculate Data Volume (Extended View)			Request Select.		Subscriptions Only (Delta Init + Delta)			
Queue	Qu	Subscriptns	Requests	Units	Rows	Original Size in By		
Purchasing Data (Schedule Line Level)		1	0					
Produced Activity: Confirmation of Sch...		1	0					
Produced Activity: Delivery of Schedul...		1	0					
Goods Movements From Inventory Ma...		1	0					
Revaluations		1	0					
Sales Document Header Data	2	7						
Sales Document Item Data	2	6						
Sales Document Condition	2	6						
Sales Document Schedule Line	2	6						

- ③ Click on [Data Units].

Monitor Delta Queue Subscriptions										
Provider		BW DataSource	Subscriber Type		Time Zone					
Queue		2LIS_11_VAHD	Subscriber							
<input type="checkbox"/> Calculate Data Volume (Extended View)			Request Select.		Subscriptions Only (Delta Init + Delta)				Max. No. of Matches	
S..Subscriber	S...Subscription	RT	Requests	Units (Chan...	Rows (Changed)	Original Size (Changed) i...	Compressed Size (C...	Comp. %	Last TSN Confirmed	
QLIK_REPLICATE			1						{2023-05-02 06:08:...	
QLIK_REPLICATE	ODP_SAP_Order2Ca...		7							

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

The screenshot shows a software interface titled "Monitor Delta Queue Data Units". It has several filter and search fields at the top, including "Provider" (BW DataSource), "Queue" (2LIS_11_VAHDR), and "Request Select" (Subscriptions Only (Delta Init + Delta)). A "Data Preview" table below displays the following data:

Unique Time Stamp ID (such as TSN)	Transaction ID (TID)	Unit Number	Rows	Original Size in Bytes	Compressed Size in ...	Comp. %	Extraction Mode	Storage
{2023-05-02 06:08:45 000009 UTC}	{2023-05-02 06:08:45 000008 UTC}	1	6,648	2,109,184	51,629	97,6	Initial Data (Delt...	ODQDATA_C
{2023-05-01 08:16:03 000008 UTC}	{2023-05-01 08:16:03 000005 UTC}	1	1	276	423	53,3-	Data Changes (D...	ODQDATA
{2023-05-01 08:07:05 000001 UTC}	{2023-05-01 08:07:04 000001 UTC}	1	1	276	421	52,5-	Data Changes (D...	ODQDATA
{2023-05-01 07:48:40 000009 UTC}	{2023-05-01 07:48:40 000008 UTC}	1	6,648	2,109,184	51,629	97,6	Initial Data (Delt...	ODQDATA_C
			13,698	4,218,920	104,102			

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].

The screenshot shows the Qlik Compose interface with a sidebar titled "DATA WAREHOUSE". The main area displays the status "31 Tables Present." and a list of three entries: "E01 LOAD SAP ... 1,978 instructio...", "E02 LOAD SAP ... 0 instructions", and "E03 LOAD SAP ... 0 instructions". At the bottom of the sidebar are buttons for "Manage", "Display", and "Validate".

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

The screenshot shows the 'Manage Data Warehouse Tasks' interface. At the top, there are buttons for 'New Task...', 'Duplicate...', 'Delete...', 'Generate', 'Run', 'Task Statements', and 'Settings...'. Below this is a search bar and a navigation bar with tabs: 'Mappings' (selected), 'Pre Loading ETL', 'Multi Table ETL', and 'Single Table ETL'. Under the 'Mappings' tab, there is a sub-navigation with 'New Mapping...', 'Clear Landing Cache', and 'Show: All' (radio button selected). A list of tasks is shown: E01 LOAD SAP CONTENT - Initialization, E02 LOAD SAP CONTENT - FL, and E03 LOAD SAP CONTENT - CDC. The last two tasks, E02 and E03, are highlighted with a red box. To the right of the tasks is a mapping table with columns: Logical Entities, Handle Duplicates, and Mappings. The table rows correspond to the logical entities listed in the task table.

Logical Entities	<input type="checkbox"/> Handle Duplicates	<input type="checkbox"/> Mappings
OCUSTOMER_ATTR	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/> Map_0CUSTOMER_ATTR
OCUSTOMER_TEXT	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/> Map_0CUSTOMER_TEXT
OEMPLOYEE_ATTR	<input type="checkbox"/>	<input type="checkbox"/> Map_0EMPLOYEE_ATTR
OFI_AR_4	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/> Map_OFI_AR_4
OMATERIAL_ATTR	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/> Map_0MATERIAL_ATTR

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.

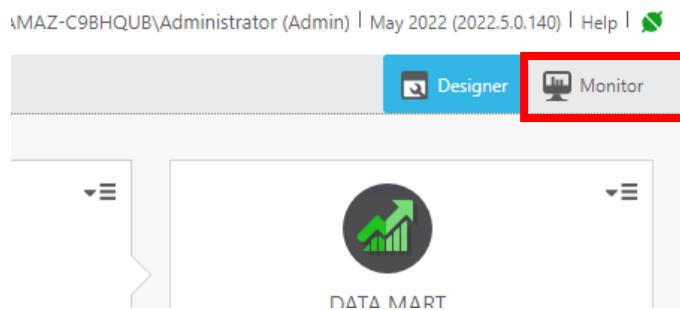
Task Name	Description.
E02 LOAD SAP CONTENT - FL	Apply data from a data source that supports Full load only to the DWH; retrieve all data from tables replicated by Qlik Replicate and store it once in a staging table, then apply changes to the DWH for only those rows that have been added or changed.
E03 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.

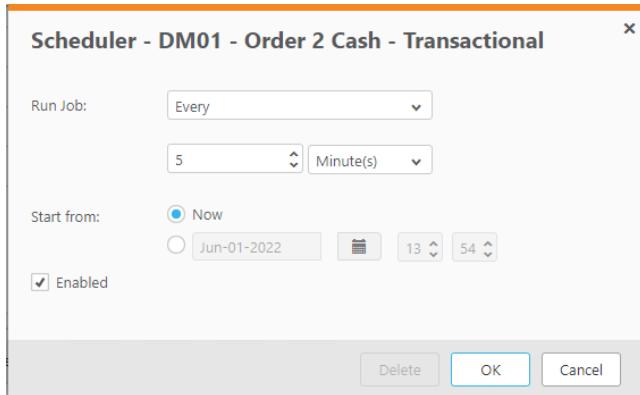


- ② Select a task and click Schedule.

A screenshot of the Qlik Compose 'Monitor' screen for the 'SAP O2C' project. The top navigation bar shows 'SAP O2C' and has a 'Schedule' button highlighted with a red box. Below the navigation bar, there is a summary section with two boxes: 'Running' (0 tasks) and 'Error' (0 tasks). To the right of this is a table titled 'SAP Order to Cash Microsoft SQL' with columns: Status, Task, Type, Started, and Ended. The table contains four rows:

Status	Task	Type	Started	Ended
✓	DM01 - Order 2 Cash - Transactional	DataMart	May 27, 20...	May 27, 20...
✓	E01 LOAD SAP CONTENT - Initialization	Data Warehouse	May 27, 20...	May 27, 20...
✓	E03 LOAD SAP CONTENT - CDC	Data Warehouse	1:27 PM	1:27 PM
	Default Workflow	Workflow	N/A	

- 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.



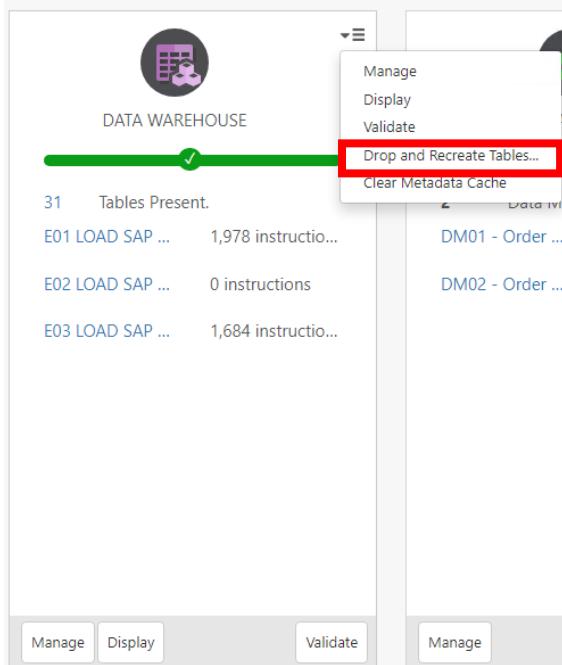
Appendix 6: How to recreate tables in Qlik Compose

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.

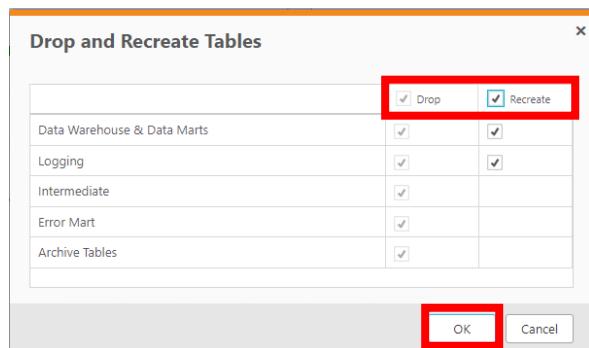
Re-create DWH tables

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].



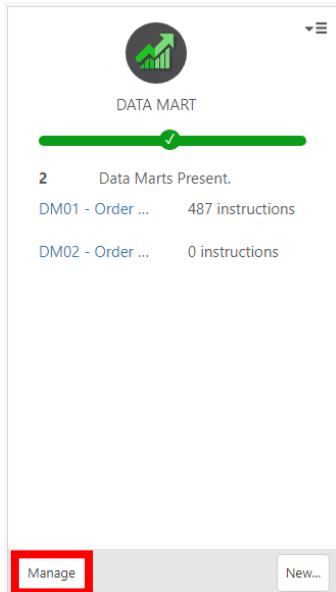
- ② Turn on the [Drop] and [Recreate] check boxes and click [OK] to execute.



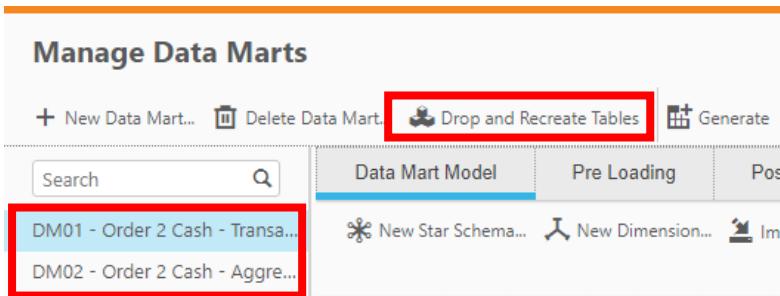
Re-create data mart tables

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

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



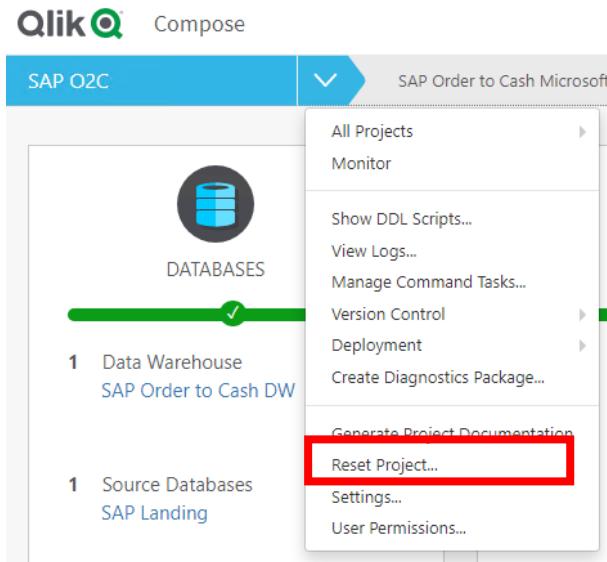
- ② Select the data mart and click [Drop and Recreate Tables].



Reset project

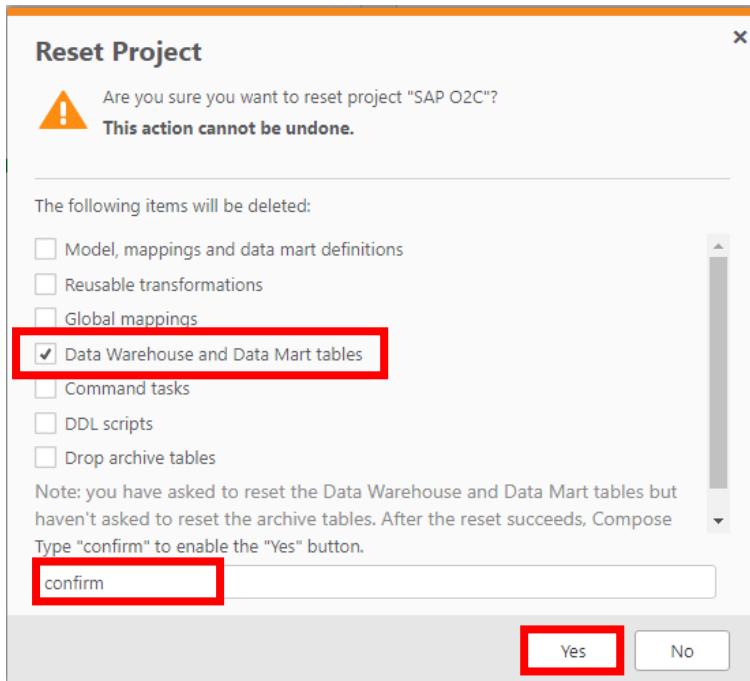
If you want to delete all DWH and Datamart tables, perform a project reset. After resetting, you can again follow the steps of "[12.5 DWH creation and data loading](#)" and "[12.6 Creating Data Marts](#)" to create tables and load data.

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



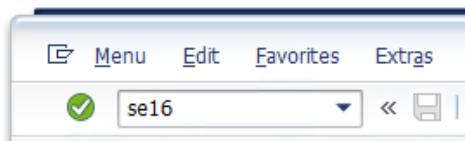
② Turn on only [Data Warehouse and Data Mart tables], enter "confirm" and click [OK].

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

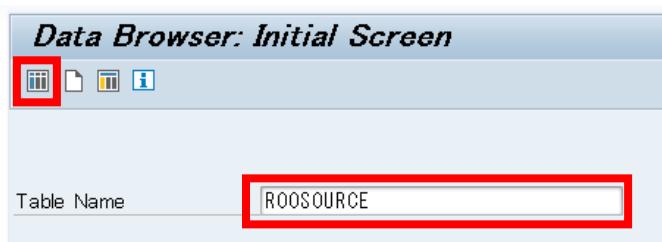


Appendix 7: How to check the delta method

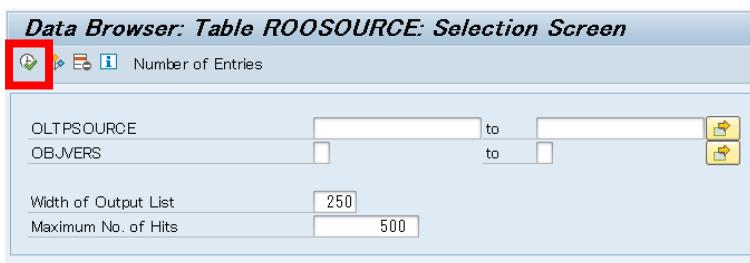
- ① Enter T-code "se16".



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



- ③ Click [Execute].

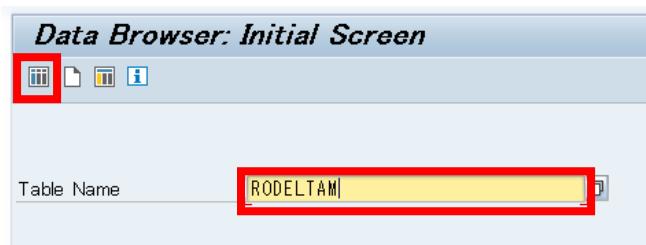


- ④ The DELTA method supported by the data source can be found in the [DELTA] column. Blank columns indicate data sources that do not support DELTA.

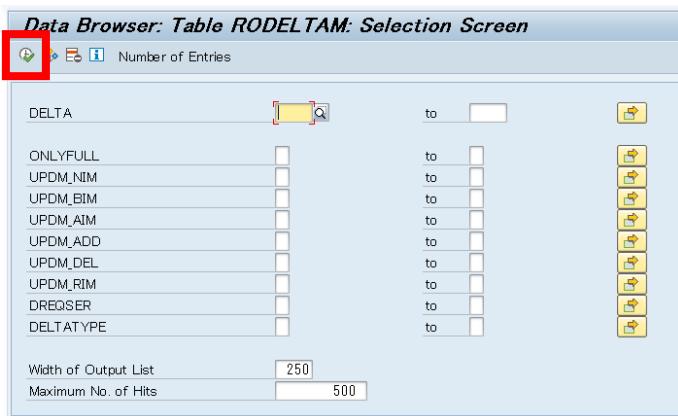
Data Browser: Table ROOSOURCE Select Entries 500

OLTPSOURCE	OBJVERS	TYPE	APPLNM	BASOSOURCE	DELTA	STOCKUPD	L
/CPD/8AVALTYPE	A	TEXT	DM-IO				
/CPD/8PFP_C01	A	TRAN	DM	/CPD/8PFP_C01	CUBE		
/CPD/8PFP_R01	A	TRAN	DM	/CPD/8PFP_R01	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		AIE		
/CPD/PFP_DS_PROJ_TEXT	D	TEXT	PFP		AIE		
/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		AIE		
/CPD/PFP_DS_WBS_TEXT	D	TEXT	PFP		AIE		
/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."

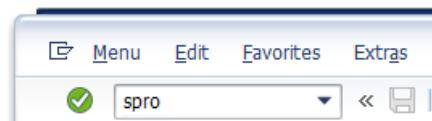


- ⑦ The type of DELTA and its description can be found in the [TXTLG] column.

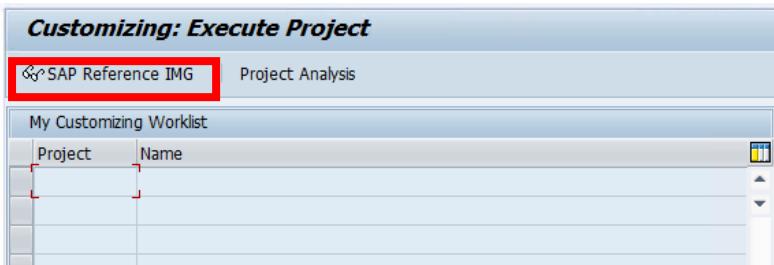
Data Browser: Table RODELTAM Select Entries 20										
Table: RODELTAM Displayed Fields: 11 of 11 Fixed Columns: 1 List Width 0250										
DELTA	ONLYFULL	UPDM_NIM	UPDM_BIM	UPDM_AIM	UPDM_ADD	UPDM_DEL	UPDM_RIM	DREQSER	DELTATYPE	TXTLG
	X			X				1		Delta Only Via Full Upload (ODS or InfoPackage Selection)
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	X		1	E	Additive Extraction Via Extracto (e.g. LIS Info Structures)
ADDO					X	X		1	D	Like 'ADD' But Via Delta Queue (Cube-Compatible)
AIE				X				2	E	After-Images Via Extractor (FI-GL/AP/AR)
AIEO				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	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
NEW0	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			0	E	ODS Extraction
ODS	X		X	X	X		X	1	X	Delta Unspecified (Do Not Use!)
X								2		

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

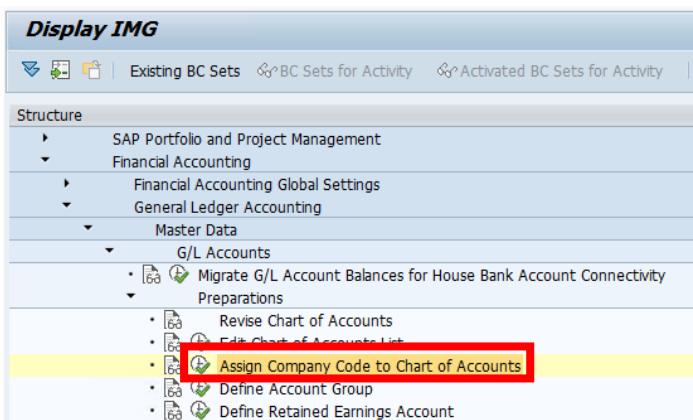
- ① Enter T-code "spro".



- ② Select [SAP Reference IMG].



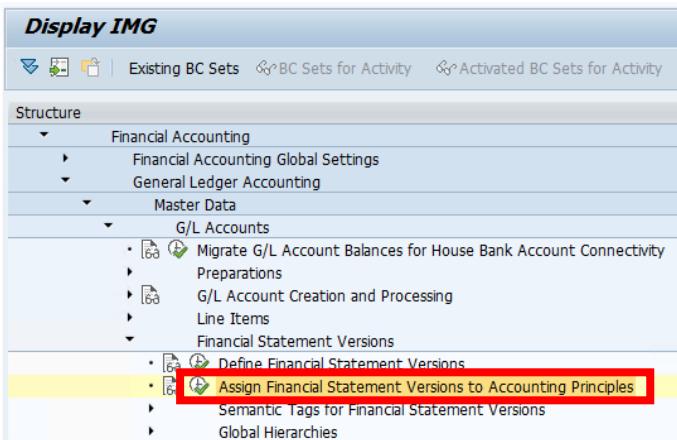
- ③ Click [Financial Accounting] > [General Ledger Accounting] > [Master Data] > [G/L Accounts] > [Preparations] > [Assign Company Code to Chart] > [Assign Company Code to Chart of Accounts].



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

Change View "Assign Company Code -> Chart Of Accounts": Overview				
CoCd	Company Name	City	Chrt/Accts	Alt. COA
0001	SAP A.G.	Walldorf	INT	
0003	SAP US (IS-HT-SW)	Palo Alto	INT	
OMB1	IS-B Musterbank Deutschl.	Walldorf	OMB1	
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].

Change View "Assign Chart of Accounts and Financial Statement Version"		
	New Entries	
Assign Chart of Accounts and Financial Statement Version		
Ac...	Ch...	Financial Statement Version Financials
DEAP	YCOA	1099
USAP	YCOA	1799