SAP Logistics Business Network, Global Track and Trace Option

Track Shipments - SAP ERP Integration

SAP Business Network
February 2021

PUBLIC

THE BEST RUN SAP

Agenda

A. Prerequisites

B. Configuration and Implementation – Basic

   B1. IDOC Configuration

   B2. Extractor Configuration

C. Download ABAP Code from GitHub

D. Configuration and Coding Guide -Advanced

A) Prerequisites

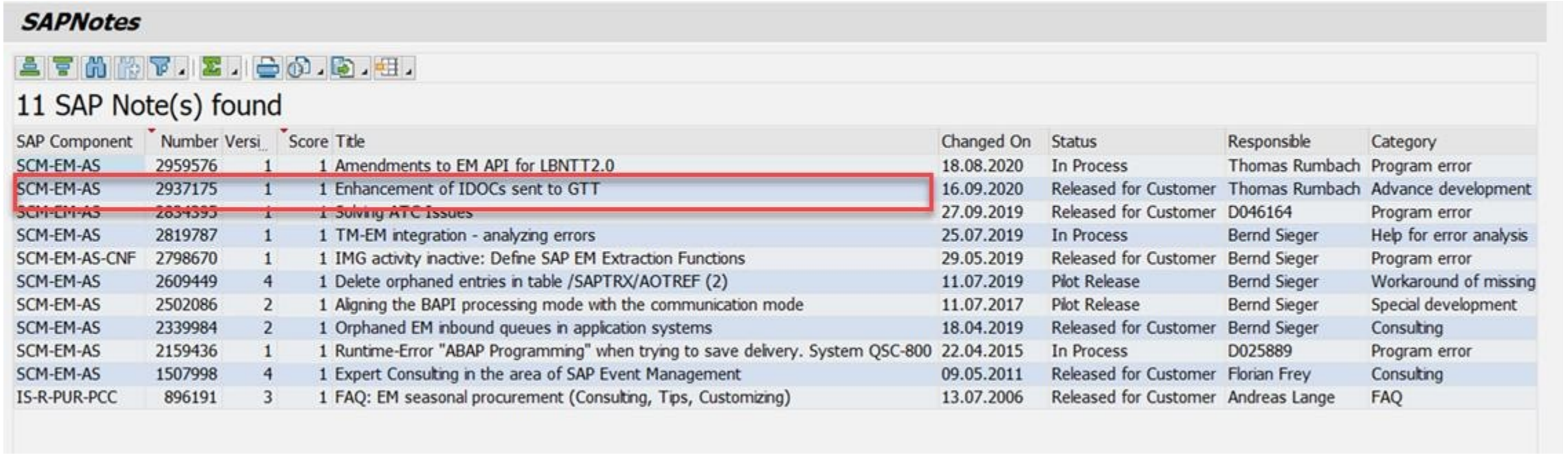
STEP 1: Check the SAP Version

1-1: The SAP Product Version shall be SAP EHP1 FOR SAP NETWEAVER 7.3 or higher

1-2: SAP NOTE 2937175 shall be implemented

TIPs:

1. SAP version reference: https://support.sap.com/en/my-support/software-downloads/support-package-stacks/product-versions.html#section
2. Note-assistant reference: https://support.sap.com/en/my-support/knowledge-base/note-assistant.html



SAPNotes

11 SAP Note(s) found

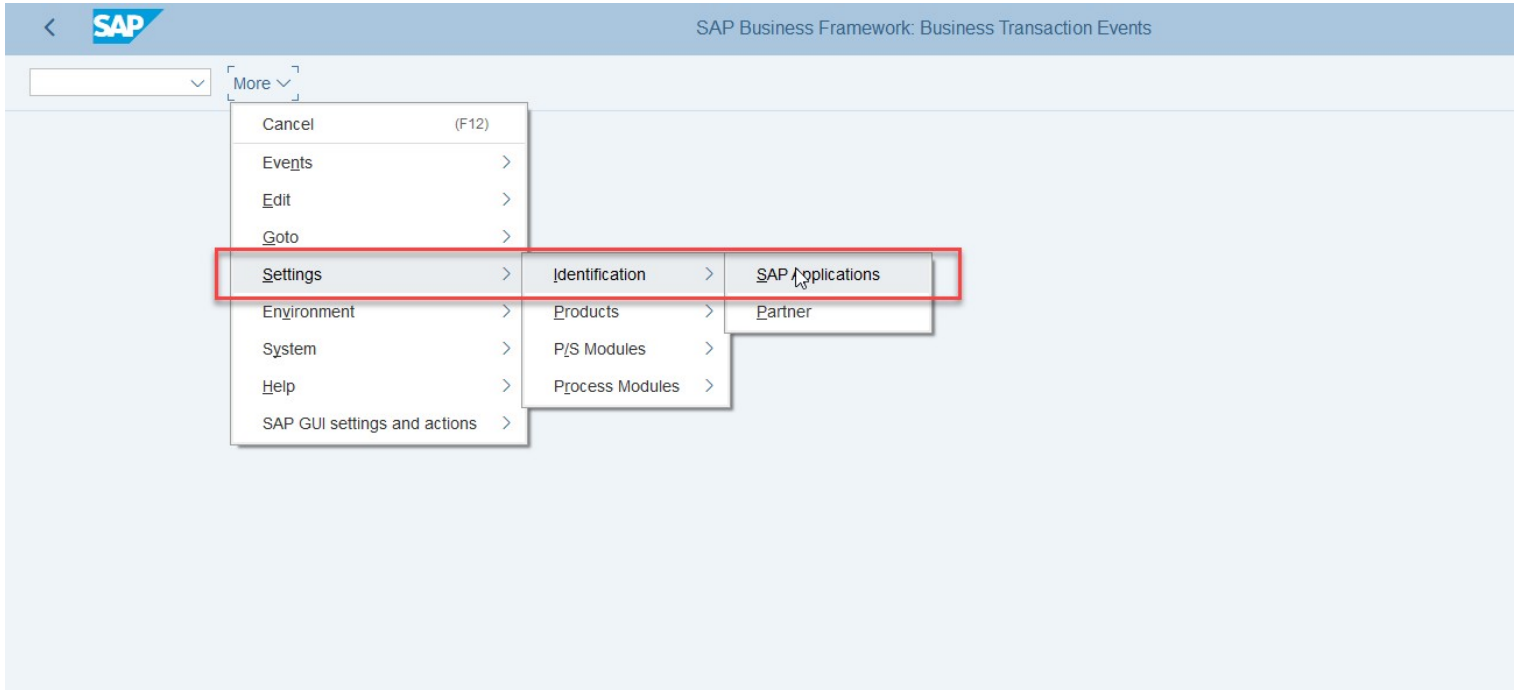
SAP Component	Number	Versi	Score	Title	Changed On	Status	Responsible	Category
SCM-EM-AS	2959576	1	1	Amendments to EM API for LBNTT2.0	18.08.2020	In Process	Thomas Rumbach	Program error
SCM-EM-AS	2937175	1	1	Enhancement of IDOCs sent to GTT	16.09.2020	Released for Customer	Thomas Rumbach	Advance development
SCM-EM-AS	2834395	1	1	Solving ATC Issues	27.09.2019	Released for Customer	D046164	Program error
SCM-EM-AS	2819787	1	1	TM-EM integration - analyzing errors	25.07.2019	In Process	Bernd Sieger	Help for error analysis
SCM-EM-AS-CNF	2798670	1	1	IMG activity inactive: Define SAP EM Extraction Functions	29.05.2019	Released for Customer	Bernd Sieger	Program error
SCM-EM-AS	2609449	4	1	Delete orphaned entries in table /SAPTRX/AOTREF (2)	11.07.2019	Pilot Release	Bernd Sieger	Workaround of missing
SCM-EM-AS	2502086	2	1	Aligning the BAPI processing mode with the communication mode	11.07.2017	Pilot Release	Bernd Sieger	Special development
SCM-EM-AS	2339984	2	1	Orphaned EM inbound queues in application systems	18.04.2019	Released for Customer	Bernd Sieger	Consulting
SCM-EM-AS	2159436	1	1	Runtime-Error "ABAP Programming" when trying to save delivery. System QSC-800	22.04.2015	In Process	D025889	Program error
SCM-EM-AS	1507998	4	1	Expert Consulting in the area of SAP Event Management	09.05.2011	Released for Customer	Florian Frey	Consulting
IS-R-PUR-PCC	896191	3	1	FAQ: EM seasonal procurement (Consulting, Tips, Customizing)	13.07.2006	Released for Customer	Andreas Lange	FAQ

STEP 2: Log on the Development Client to Configure BTE

2-1: Ensure you have development access to the client for cross-client customizing and local development

2-2: Log on to the client and enter transaction code (T-code): **FIBF**

2-3: Click **More -> Settings -> Identification -> SAP Applications**

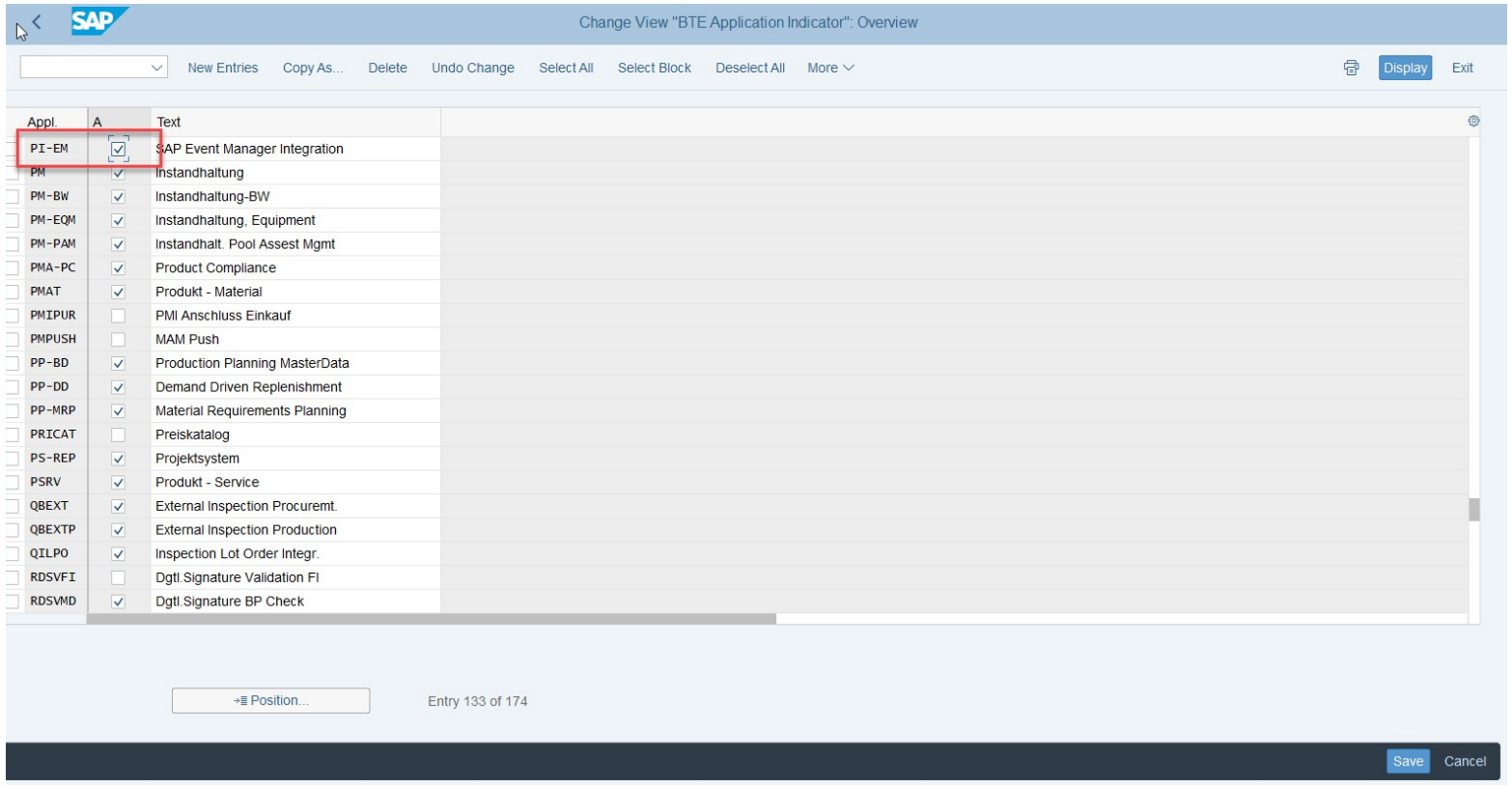


STEP 2: Activate SAP Event Manager Integration

2-4: Position on the Application ID: **PI-EM**

2-5: Check the field **Application Active**

2-6: Click **Save**



B) Configuration and Implementation - Basic

B1. IDOC Configuration

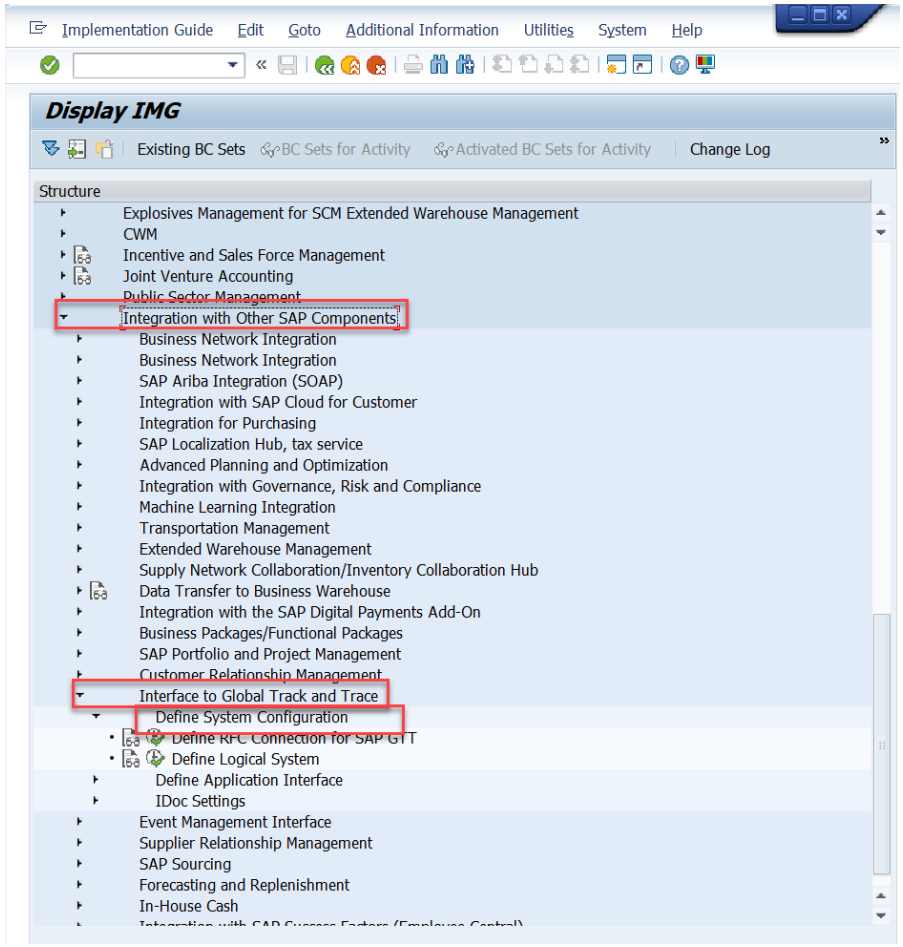
STEP 1: Define RFC Connection for GTT

1-1: Log on to the business client

1-2: Enter T-code *SPRO* and then click **SAP Reference IMG** to open **Display IMG page**

1-3: Click **Integration with Other SAP Components**
-> **Interface to Global Track and Trace**
-> **Define System Configuration**

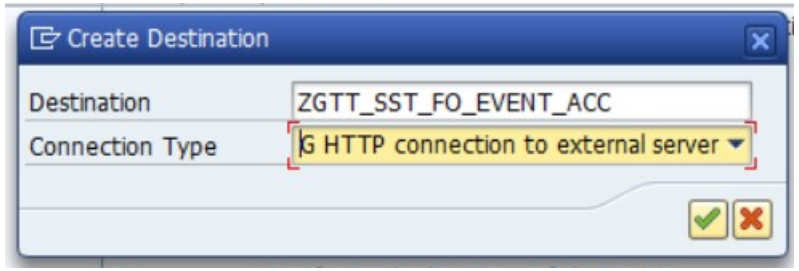
1-4: Choose activity:
Define RFC Connection for SAP GTT

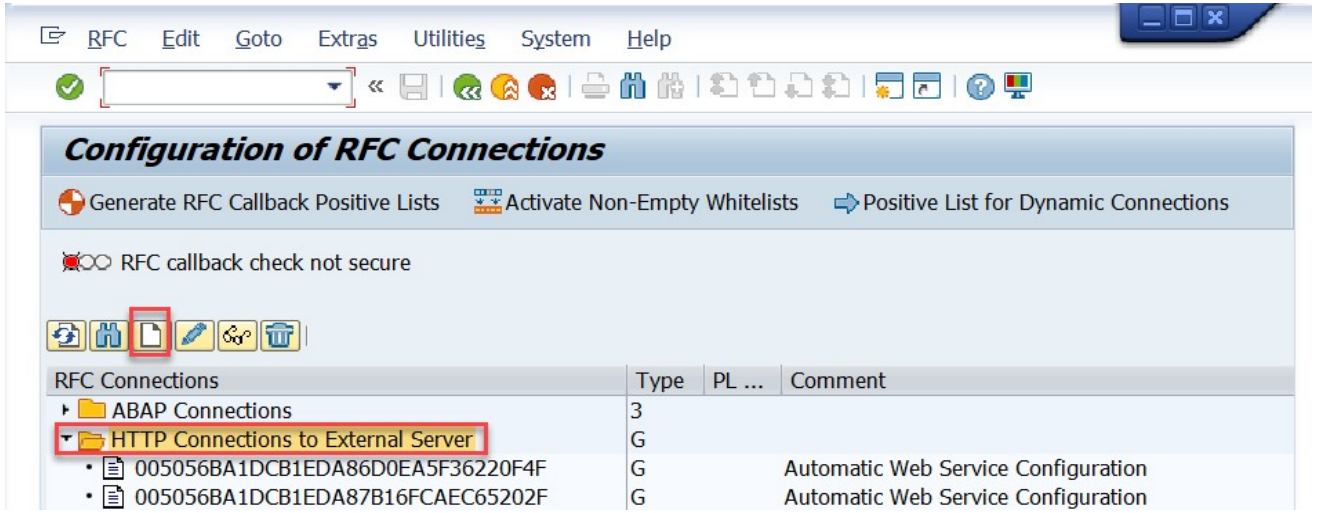


STEP 1: Define RFC Connection for GTT

1-5: Choose **HTTP Connections to External Server**, click **Create** and create a new RFC connection

1-6: Fill in the **Destination** and choose the **Connection Type:**
'G-HTTP connection to external server'





STEP 1: Define RFC Connection for GTT

1-7: Enter a description

1-8: In the **Technical Settings** tab, fill in the **Host**, **Port** and **Path Prefix**

For example, the url of solution owners is as below:

https://sat-so-01.gtt-flp-lbnplatform-pre-live.cfapps.eu10.hana.ondemand.com/

Host: *sat-so-01.gtt-flp-lbnplatform-pre-live.cfapps.eu10.hana.ondemand.com*

Port: *443*

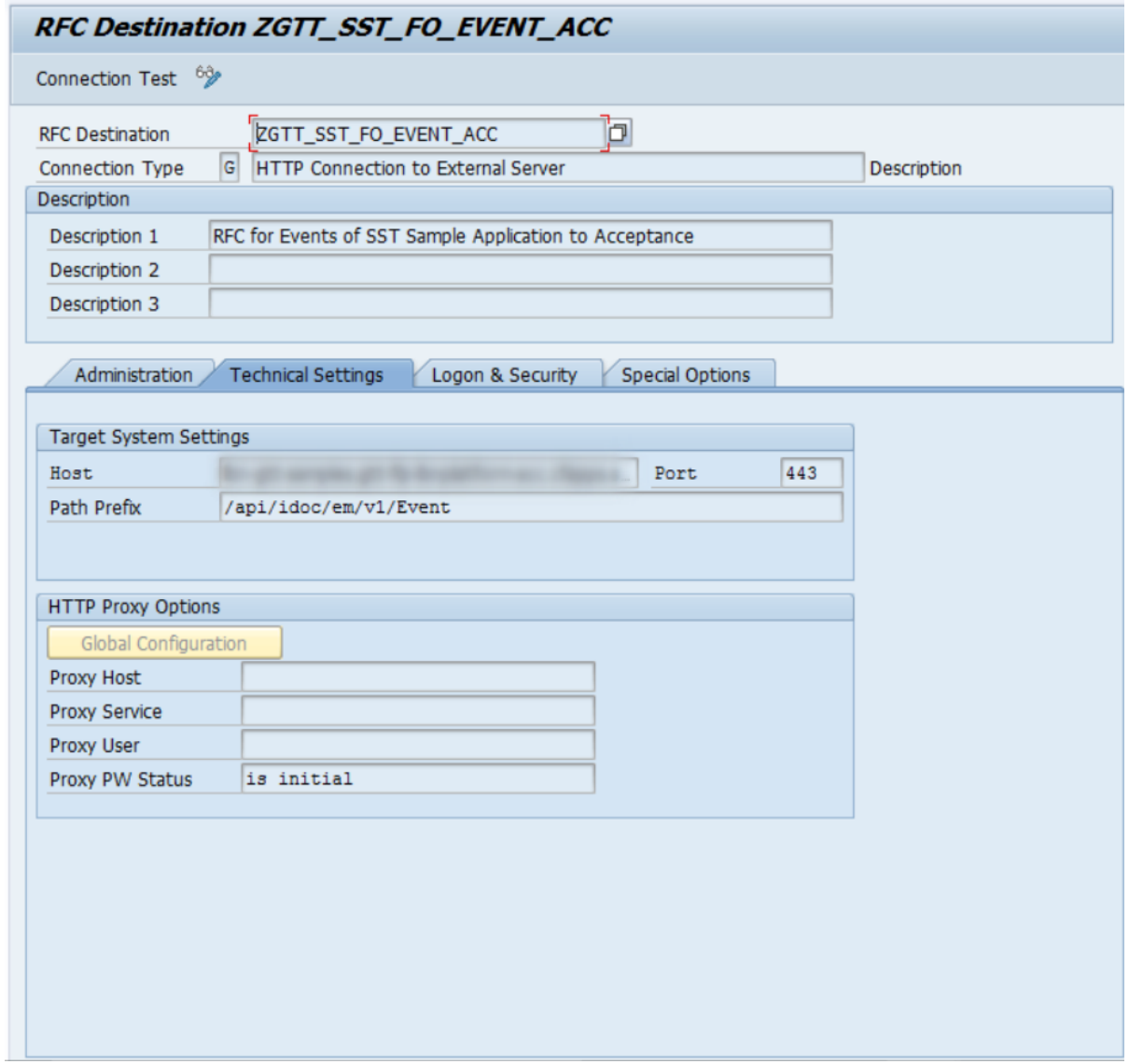
You need to configure two RFC connections separately for event and tracked process. They have different **Path Prefix**es.

For the event:

Path Prefix: */api/idoc/em/v1/Event*

For the tracked Process:

Path Prefix: */api/idoc/em/v1/TrackedProcess*



STEP 1: Define RFC Connection for GTT

1-9: In the **Logon & Security** tab, enter the Logon information.

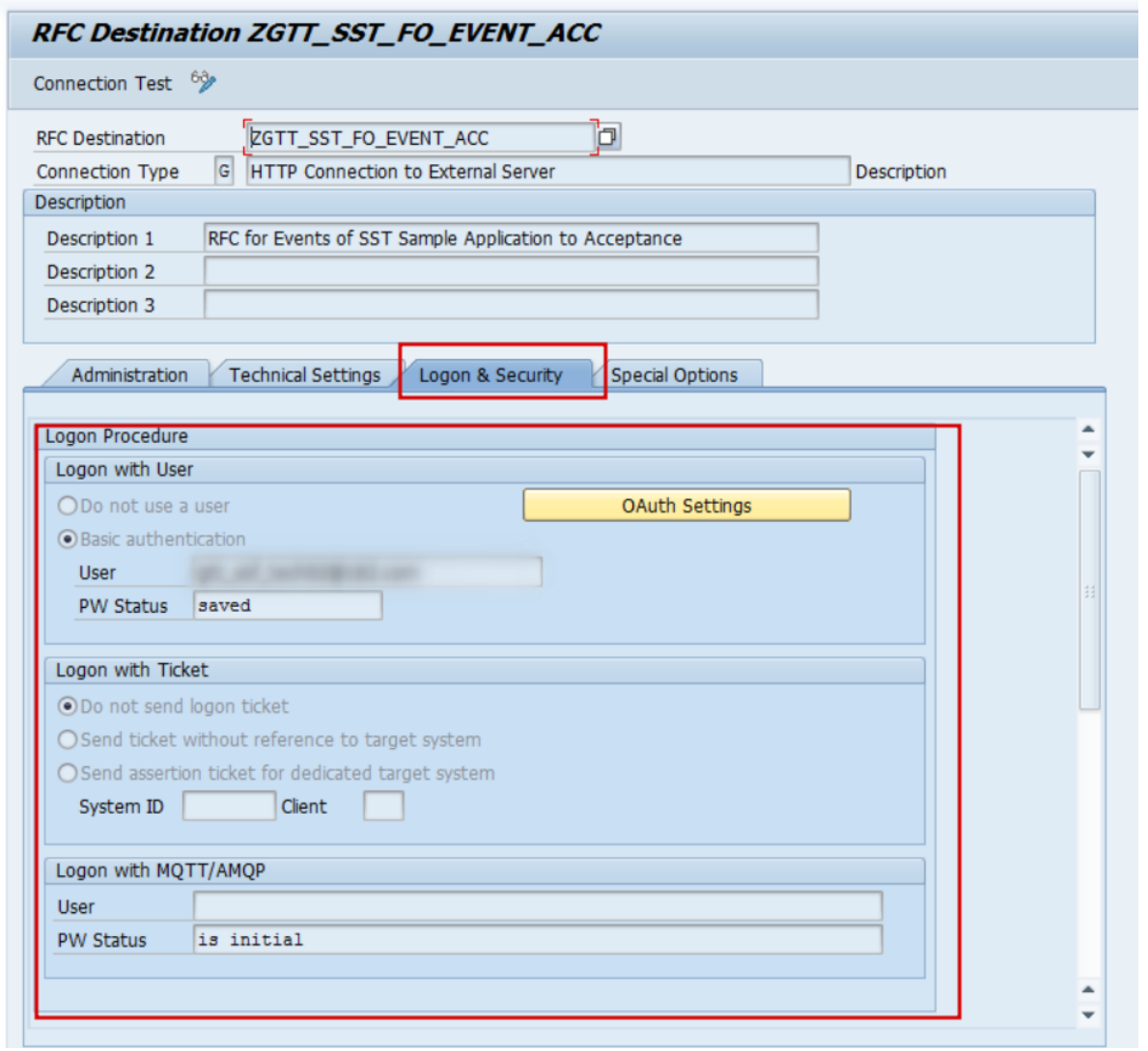
For basic authentication, the GTT technical user / password is needed. You can get this from your GTT administrator.

Also, SSL must be *Active.*
The recommended SSL Certificate is: *DFAULT SSL Client (Standard)*.

1-10: Save the configuration
1-11: Click **Connection Test.** A successful connection returns a status HTTP response of 200.

Caution: You need to configure two RFC Connections:

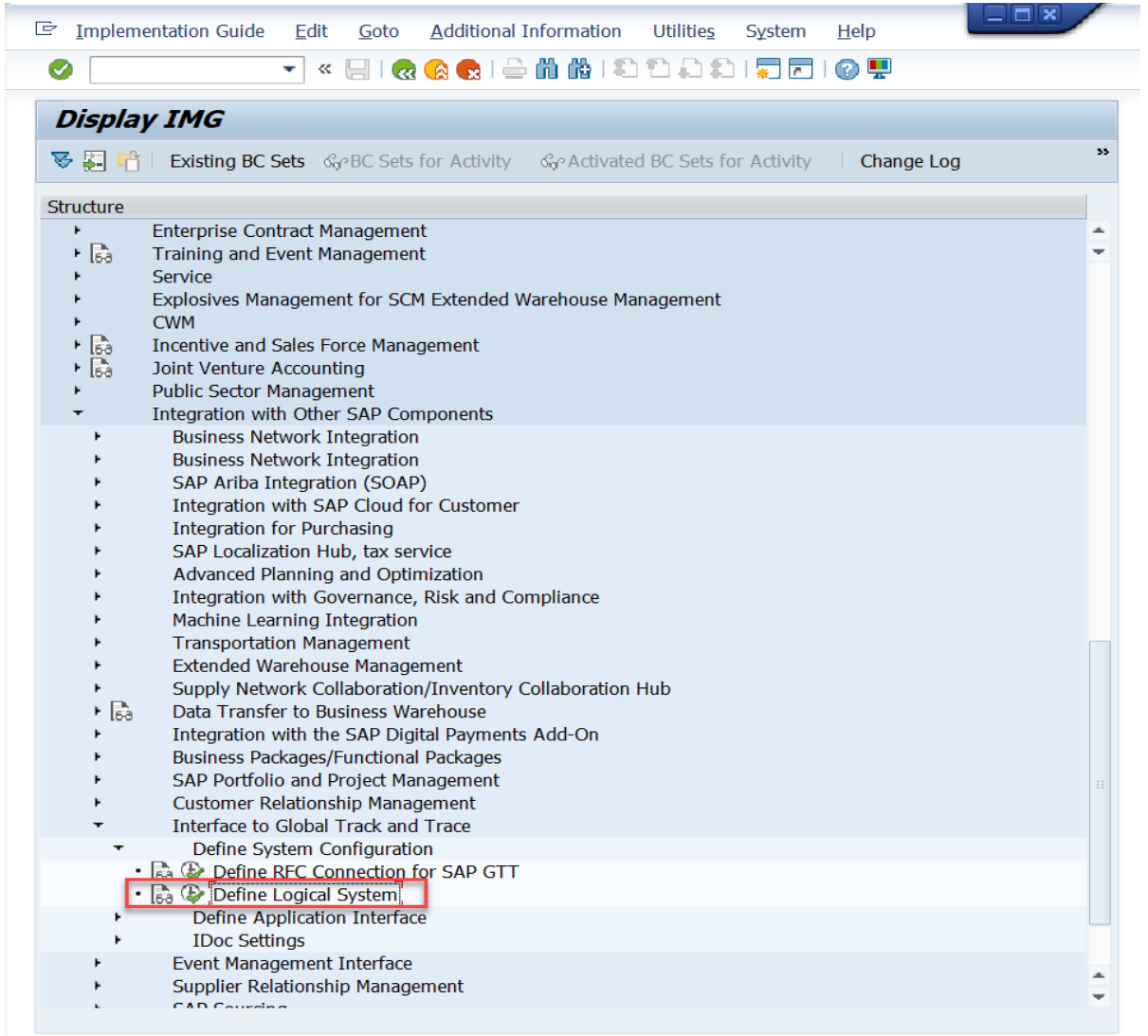
- one for event and
- the other for tracked process.



STEP 2: Define Logical System

2-1: In **Display IMG** page, click
Integration with Other SAP Components -
> Interface to Global Track and Trace -
> Define System Configuration.

2-2: Choose activity **Define Logical System**.

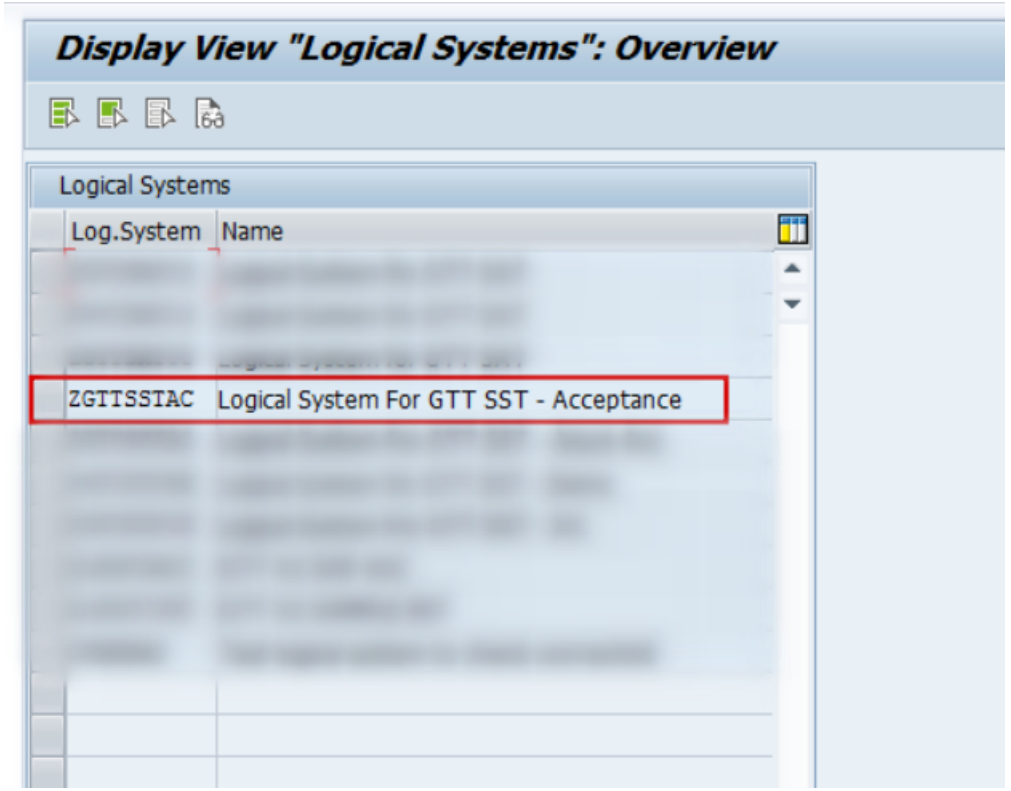


STEP 2: Define Logical System

2-3: Create **New Entries** to create a new Logical System, fill in the:

- Logical system code and
- Name of the new logical system

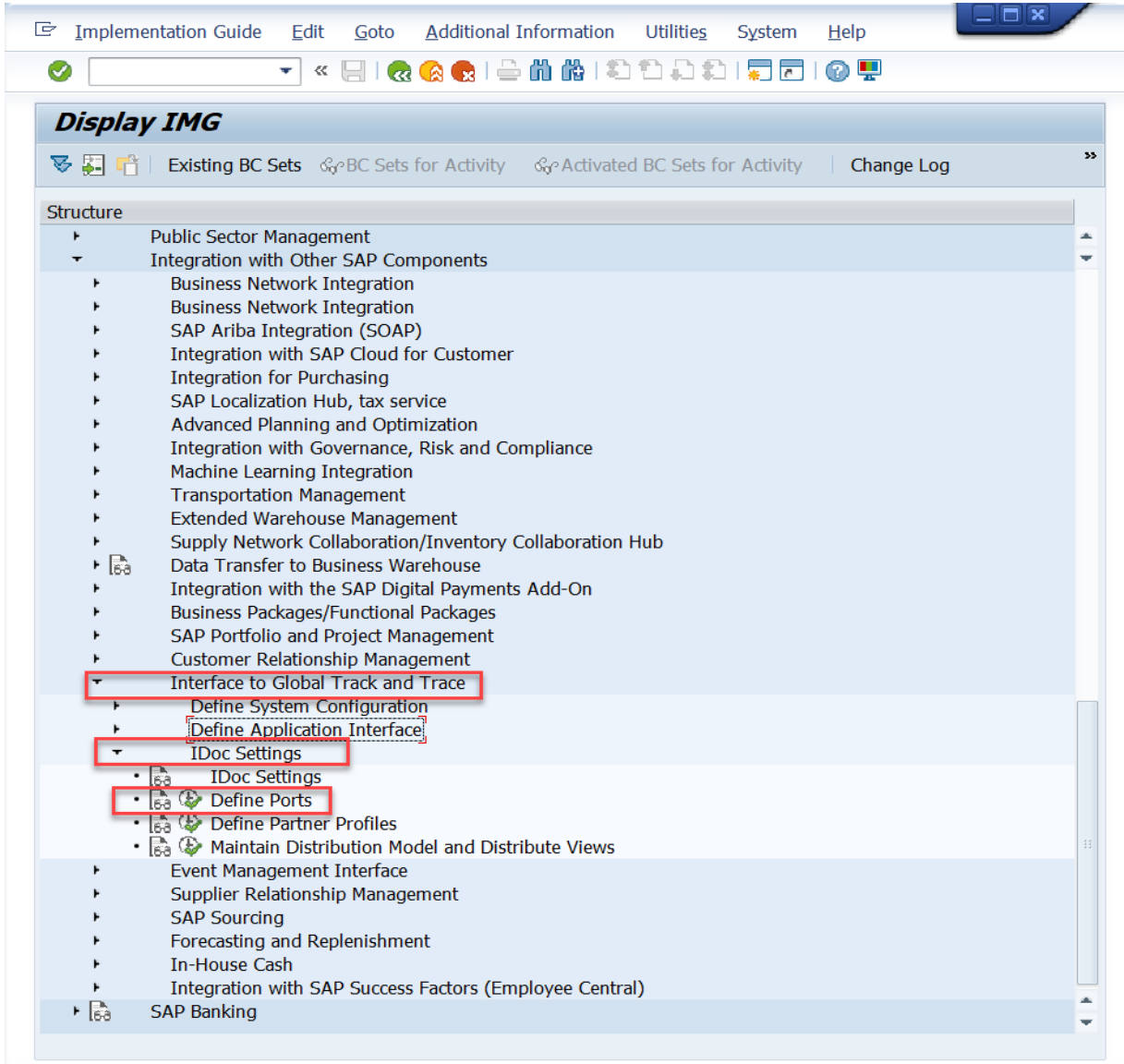
2-4: Save the configuration



STEP 3: Define Ports

3-1: In **Display IMG** page, click **Integration with Other SAP Components** -
> **Interface to Global Track and Trace** -
> **IDoc Settings**

3-2: Choose activity **Define Ports**



STEP 3: Define Ports

3-3: Choose **XML HTTP** folder, and click **Create** to create a new port

3-4: Fill in the **RFC Destination**, it is the RFC connection you created in STEP 1

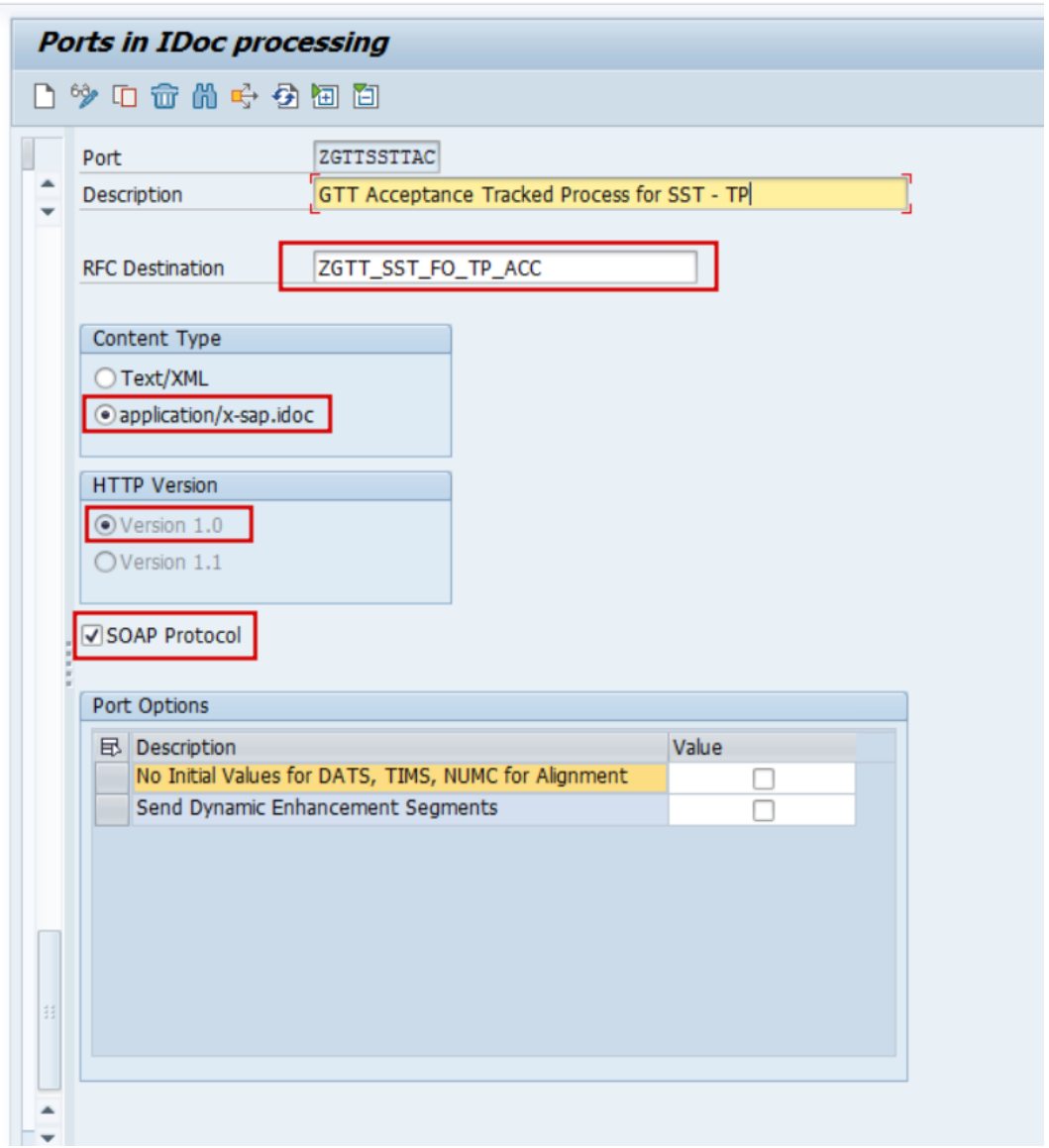
3-5: Choose **Content Type** as *application/x-sap.idoc*

3-6: Choose **HTTP Versio**n as *Version 1.0*

3-7: Mark it as SOAP Protocol 8.

Save the configuration

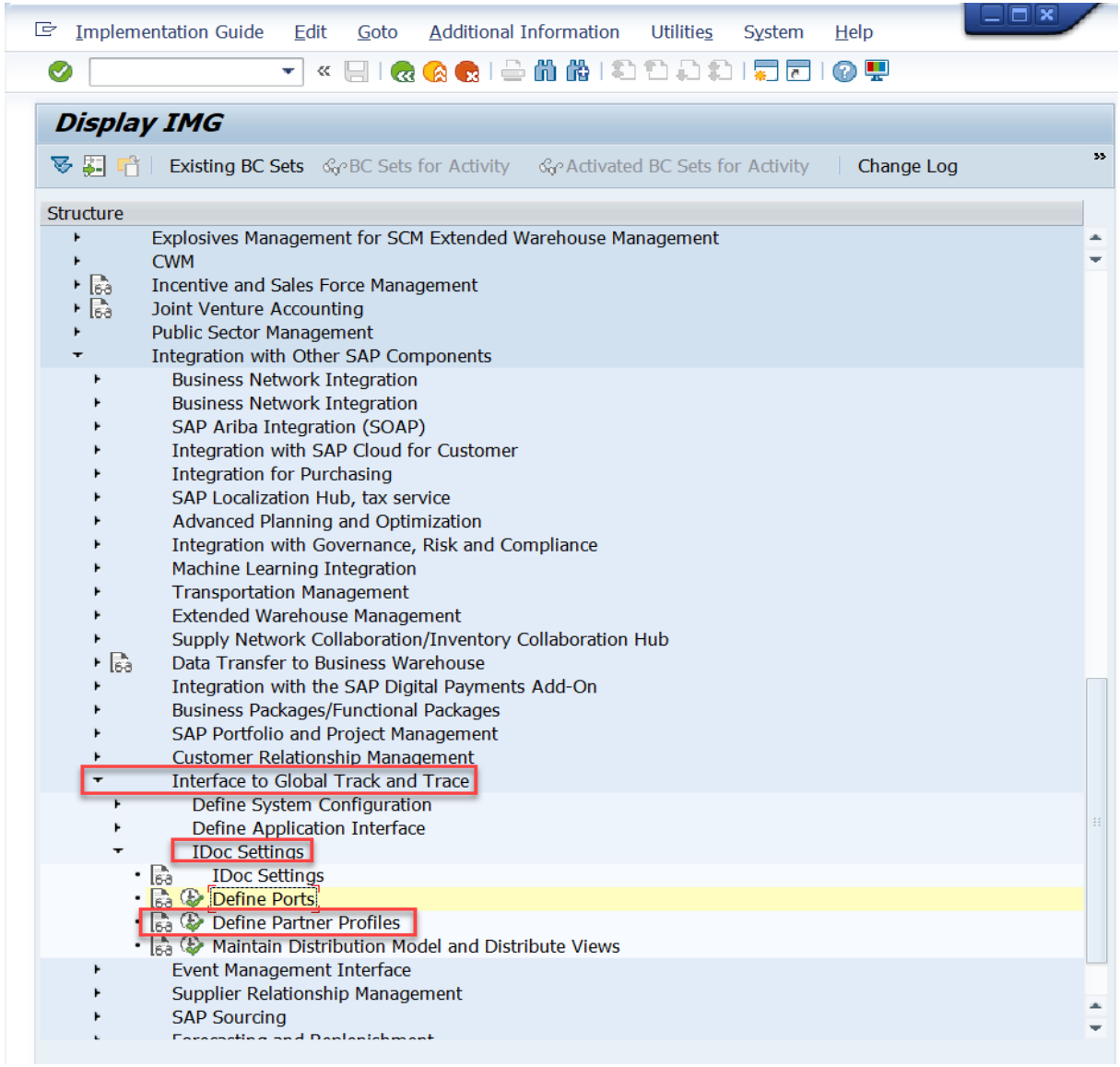
Caution: You need to define two ports, one for event and the other for tracked process.



STEP 4: Define Partner Profiles

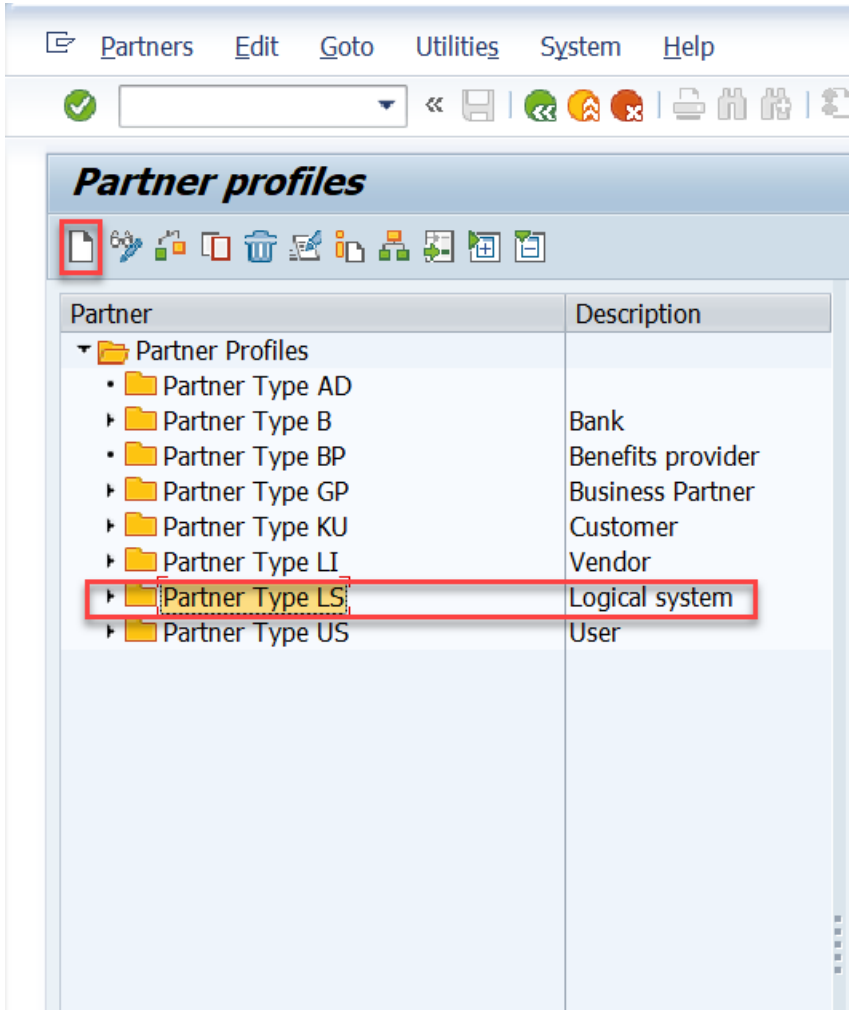
4-1: In **Display IMG** page, unfold **Integration with Other SAP Components** -
> **Interface to Global Track and Trace** -
> **IDoc Settings**

4-2: Choose activity **Define Partner Profiles**



STEP 4: Define Partner Profiles

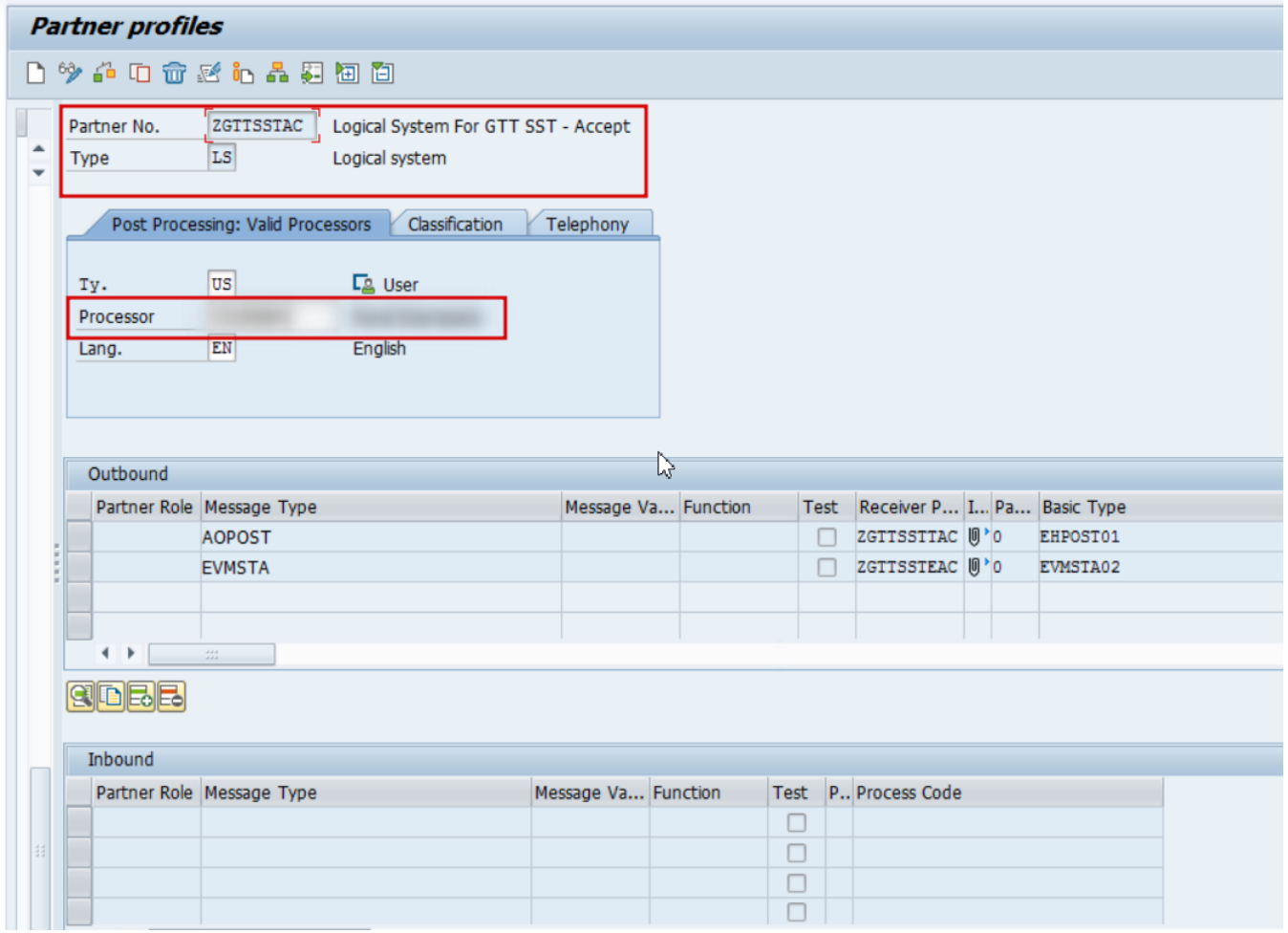
4-3: Choose **Partner Type LS** folder, and click **Create** to create a new partner profile



STEP 4: Define Partner Profiles

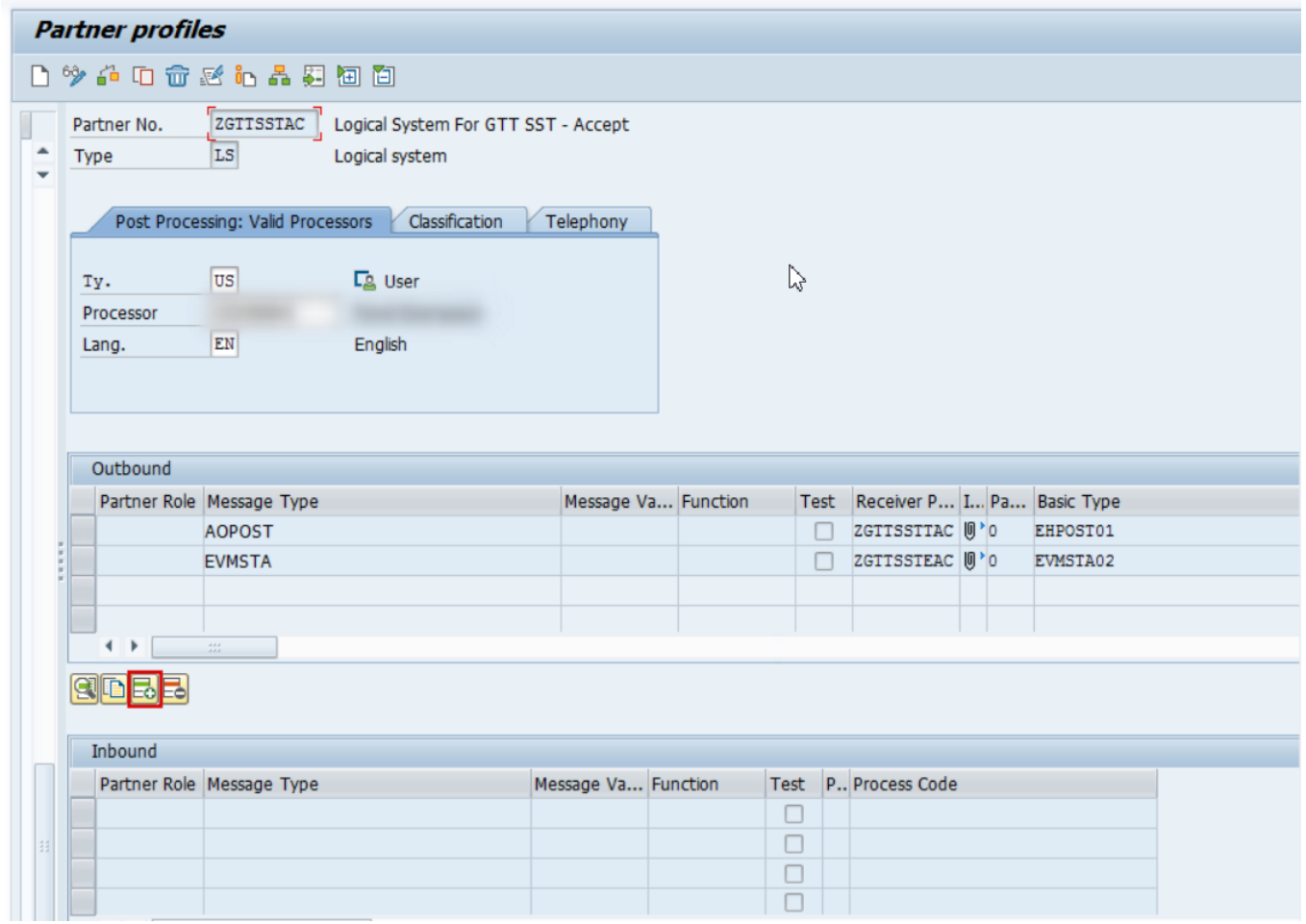
4-4: Fill in the **Partner No.** that you created in STEP 2

4-5: Fill in the **Processor** information



STEP 4: Define Partner Profiles

4-6: Click **Add** under **Outbound** box to create a new outbound parameter



STEP 4: Define Partner Profiles

4-7: Fill in the Message Type.

For the event:

Message Type: *EVMSTA*

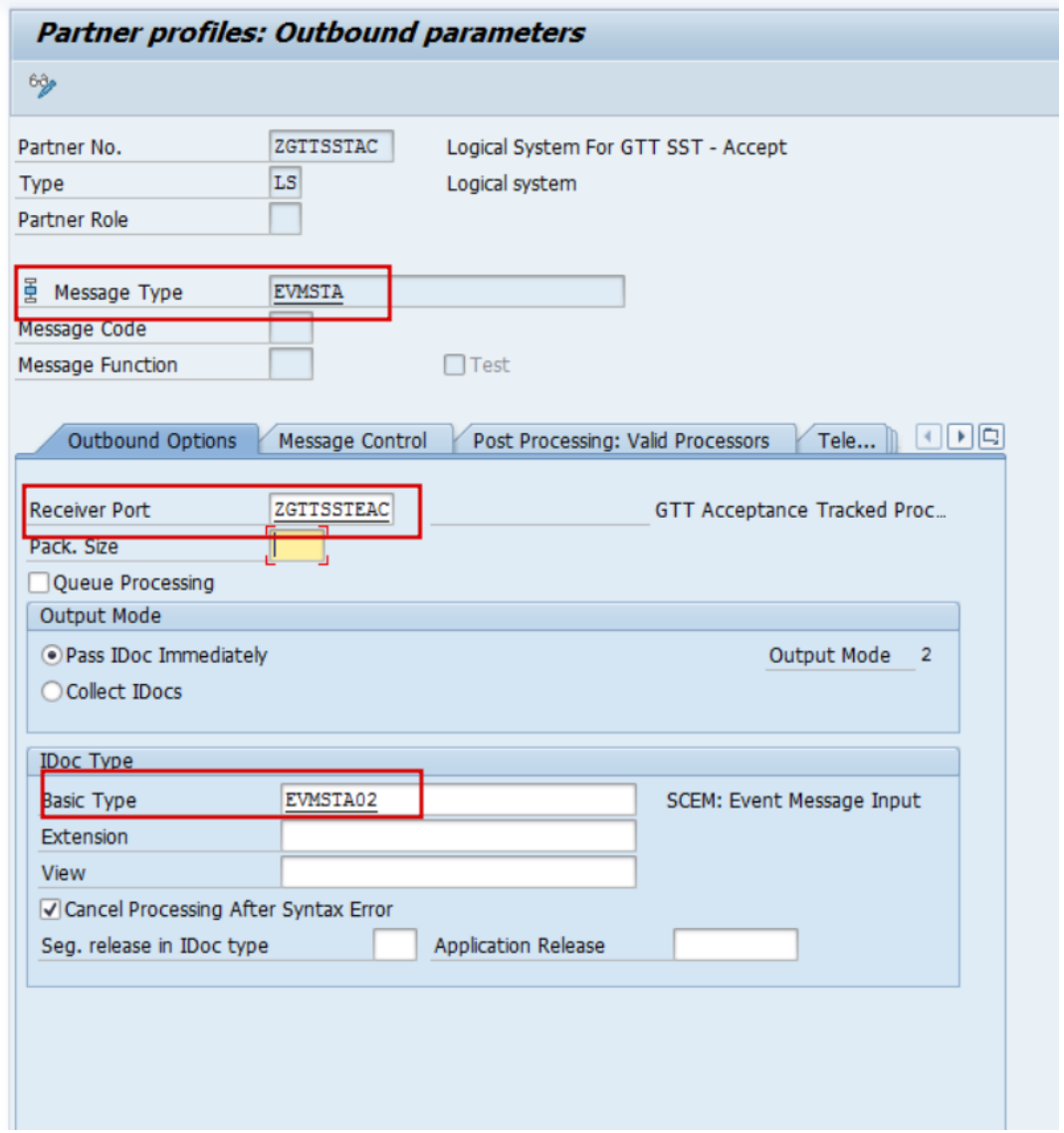
For the tracked Process:

Message Type: *AOPOST*

4-8: Fill in the Receiver Port that you created in STEP 3

4-9: Save the configuration

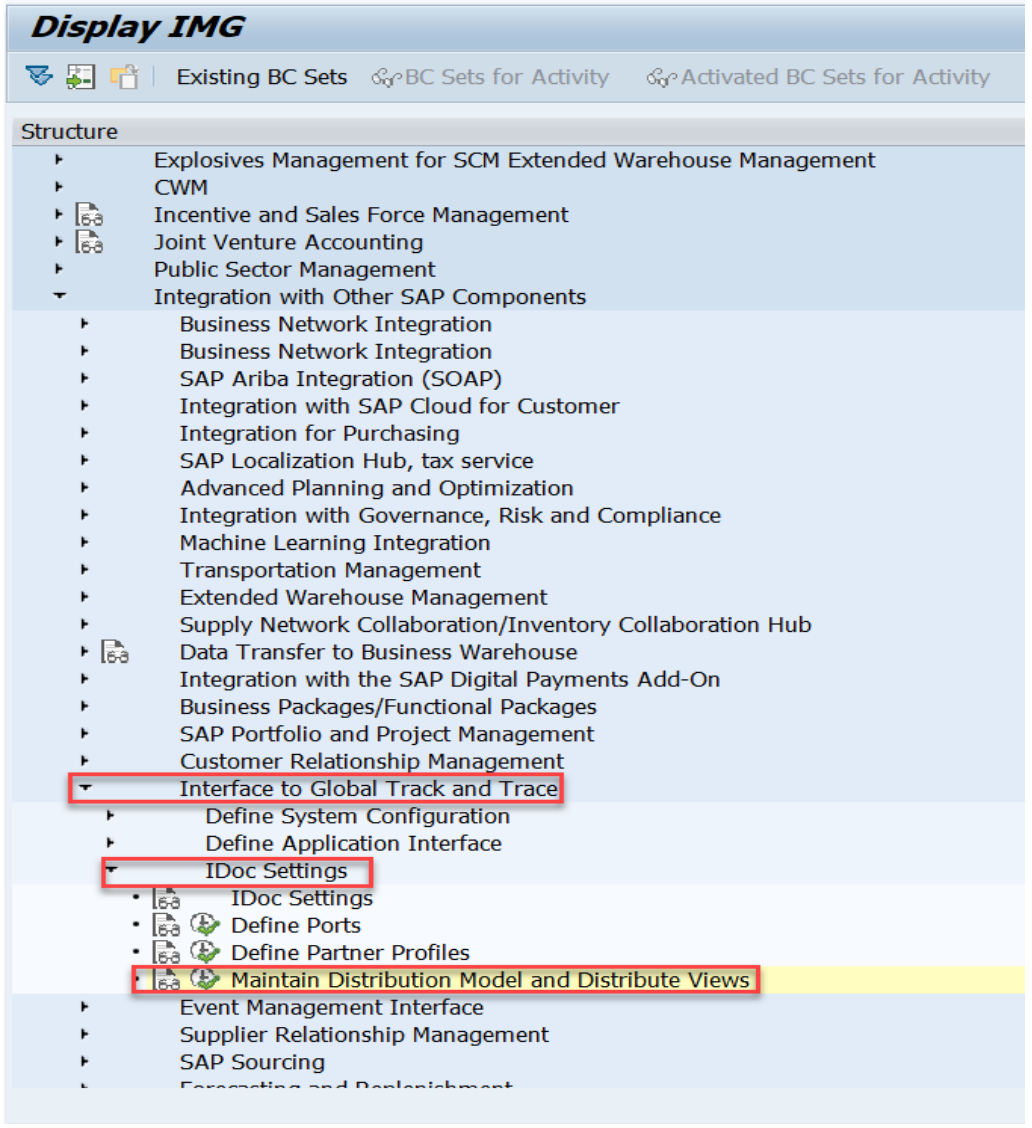
Caution: In this step, you need to repeat steps 6 ~ 9 to add two outbound parameters, one for event and the other for tracked process.



STEP 5: Maintain Distribution Model and Distribute Views

5-1: In **Display IMG** page, click **Integration with Other SAP Components** -
> Interface to Global Track and Trace -
> IDoc Settings

5-2: Choose activity **Maintain Distribution Model and Distribute Views**



STEP 5: Maintain Distribution Model and Distribute Views

5-3: Click **Edit**, then click **Create Model View** to create a new model view

5-4: Fill in the Short Text and Technical Name of the model view

5-5: Select the new model view and click **Add Message Type** to create a new message

5-6: Fill in the logical systems of Sender and Receiver, and the message type to continue.

For the event:

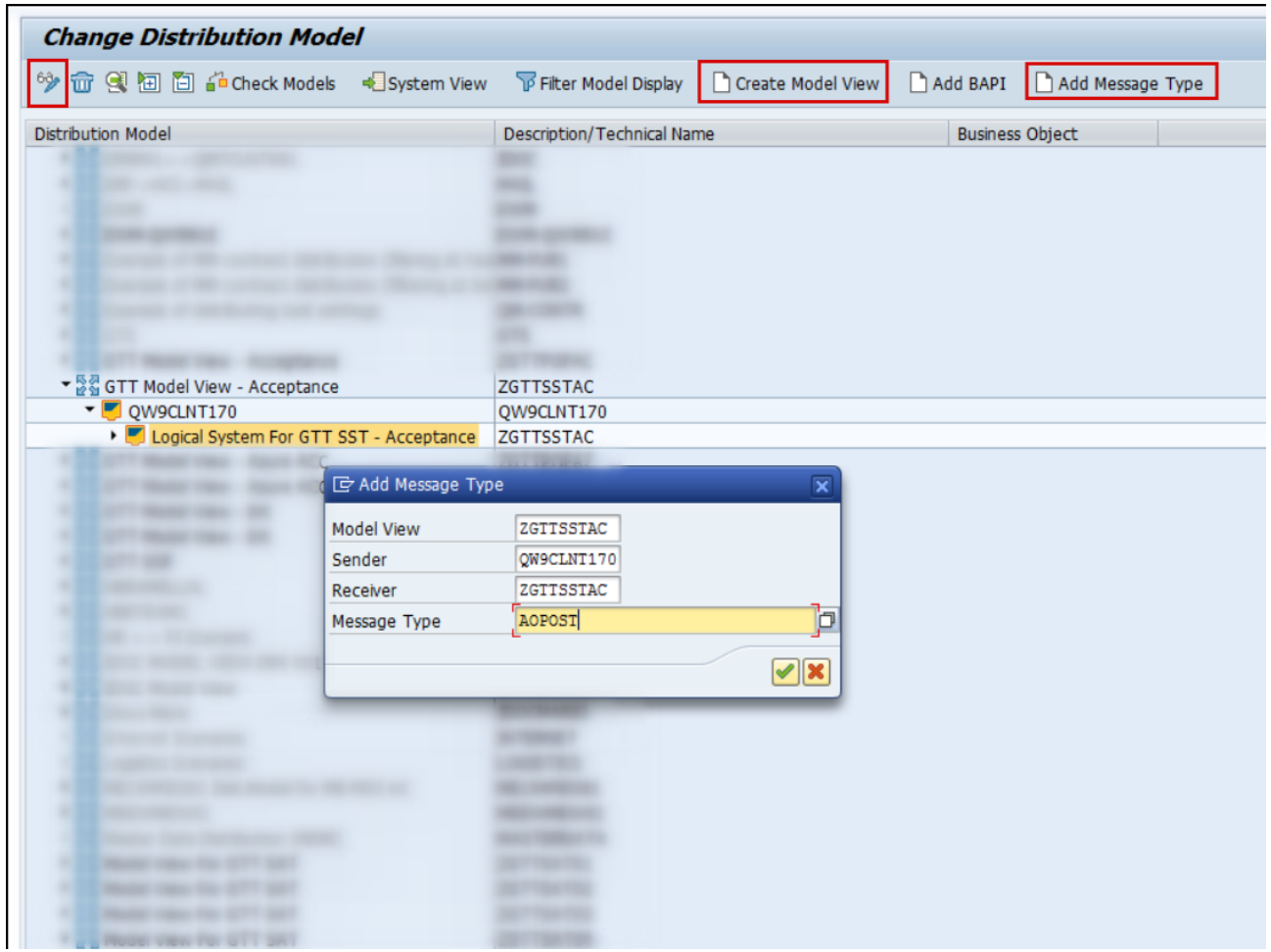
Message Type:

EVMSTA For the tracked

Process: **Message Type**:

AOPOST

5-7: Save the configuration



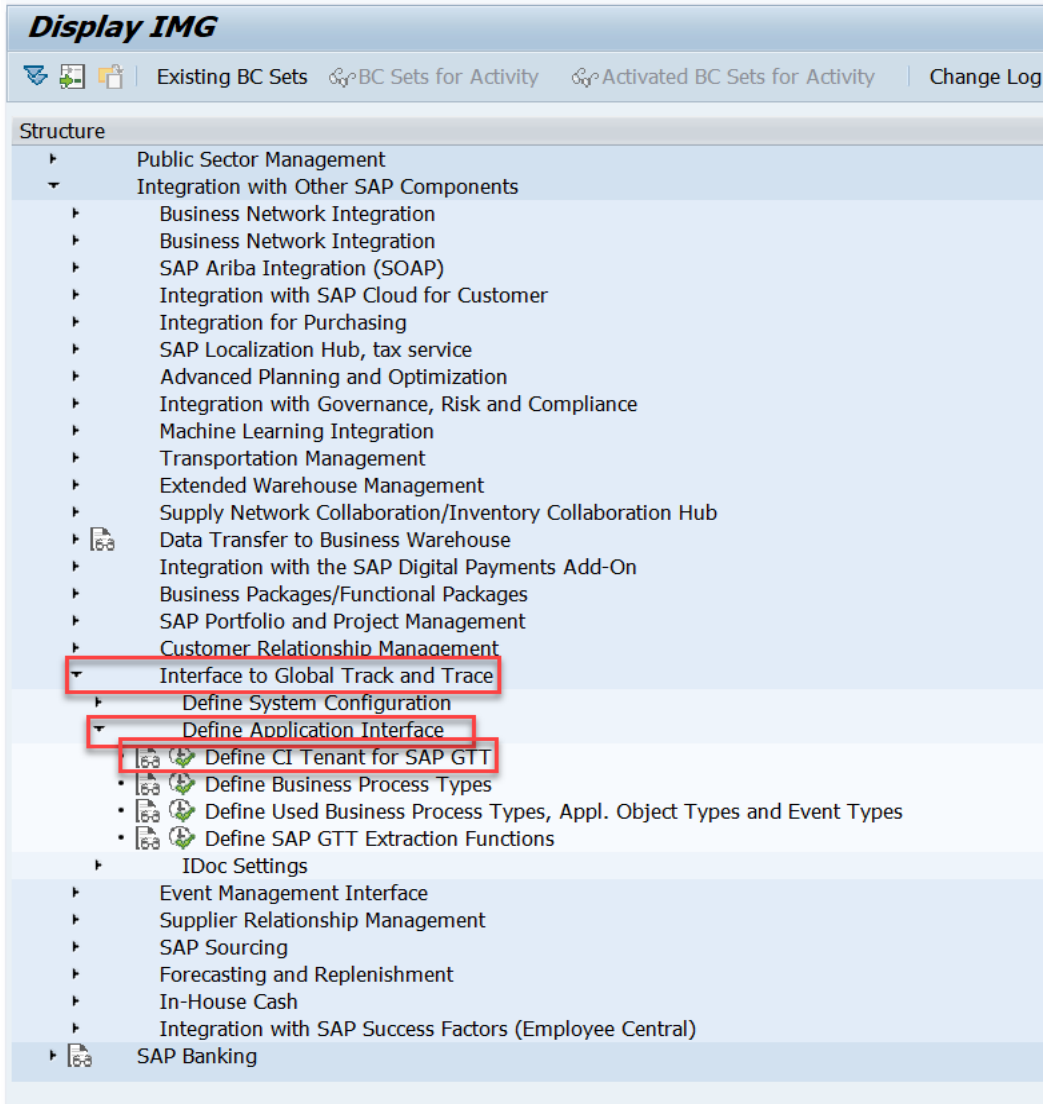
B) Configuration and Implementation - Basic

B2. Extractor Configuration

STEP 6: Define CI Tenant for GTT

6-1: In **Display IMG** page, click
Integration with Other SAP Components -
> Interface to Global Track and Trace -
> Define Application Interface

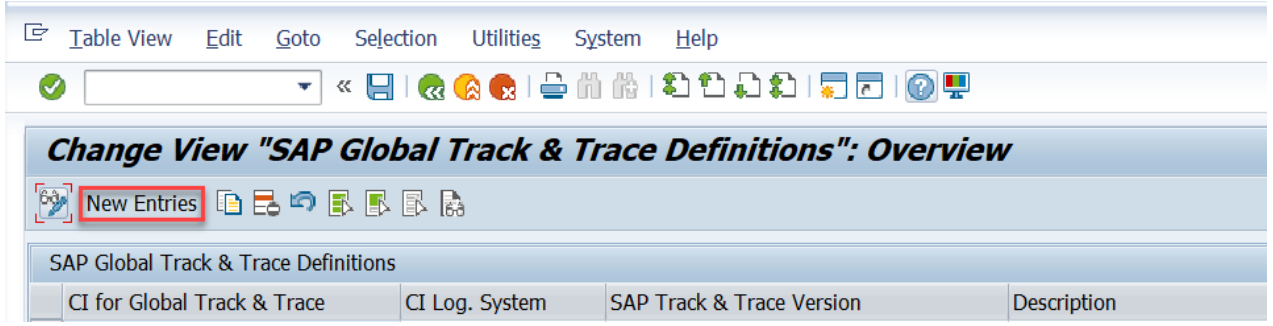
6-2: Choose activity
Define CI Tenant for SAP GTT

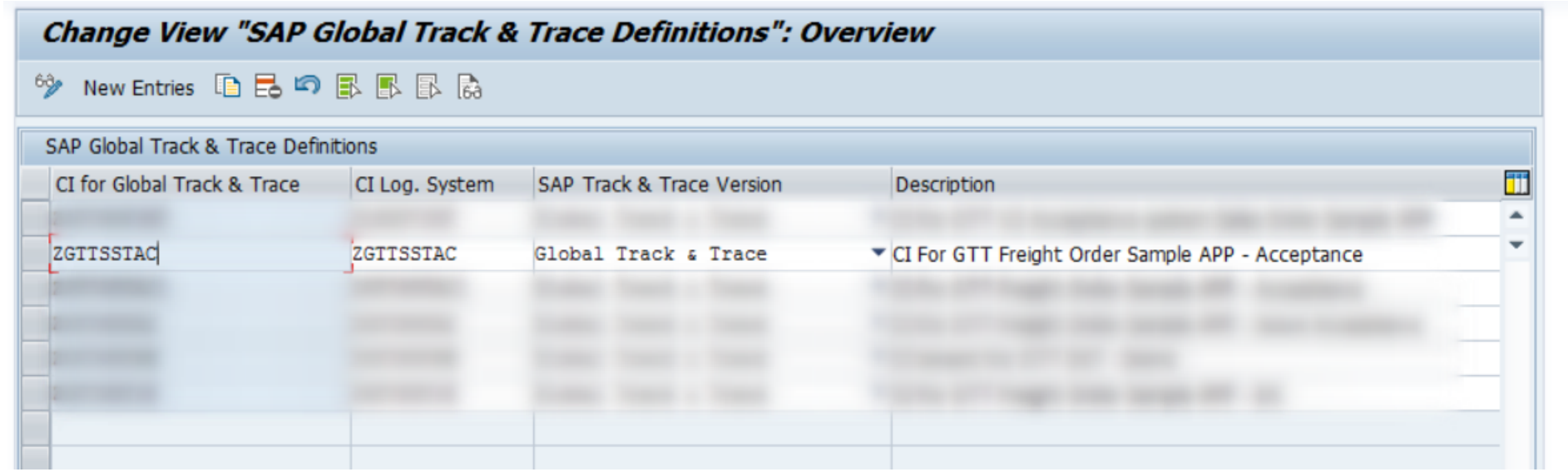


STEP 6: Define CI Tenant for GTT

6-3: Click **New Entries** to create a new CI tenant for GTT

6-4: Fill in the information for the new CI tenant. The **CI Log. System** is the logical system you created in STEP 2.

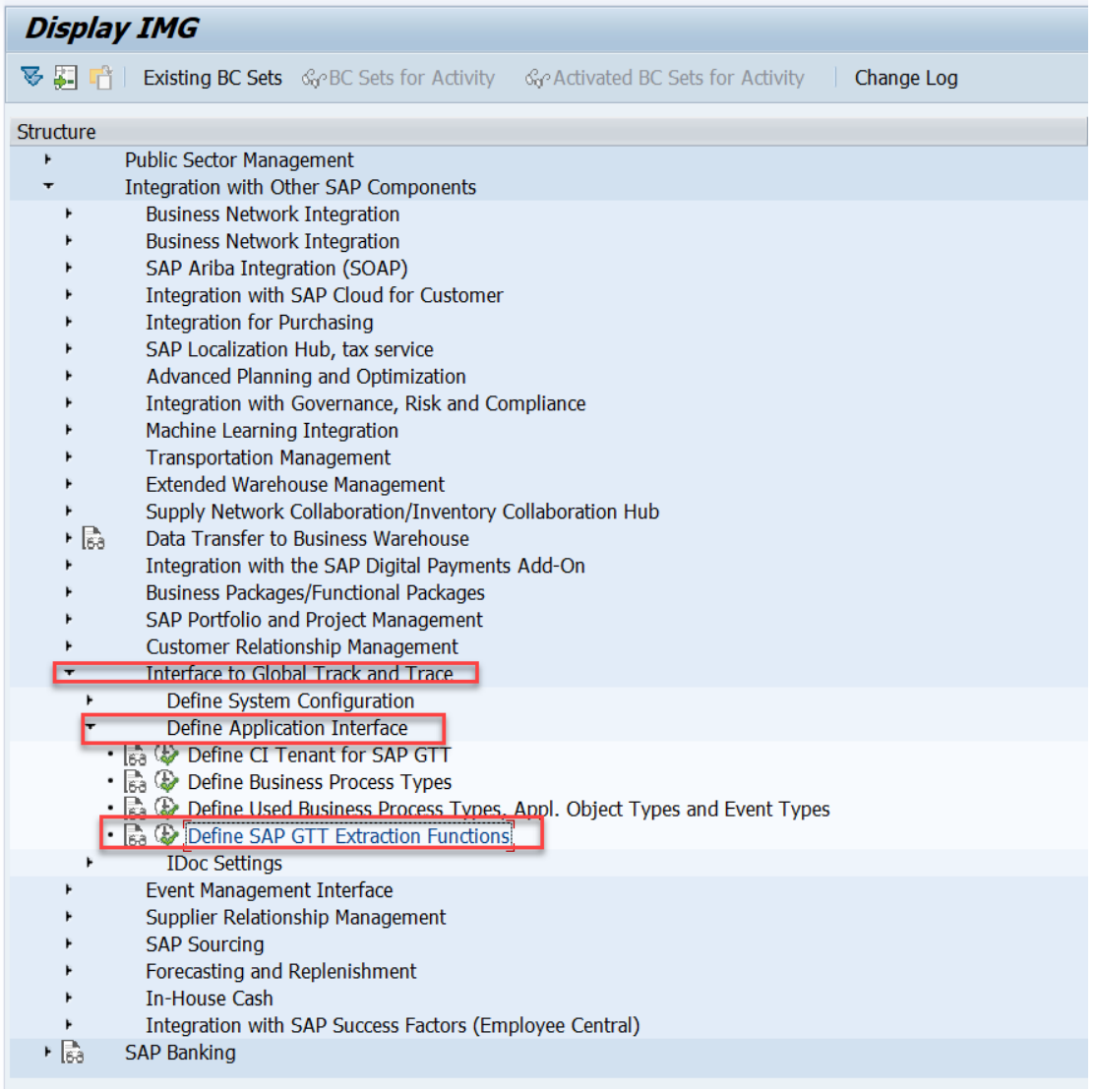




STEP 7: Define GTT Extraction Functions

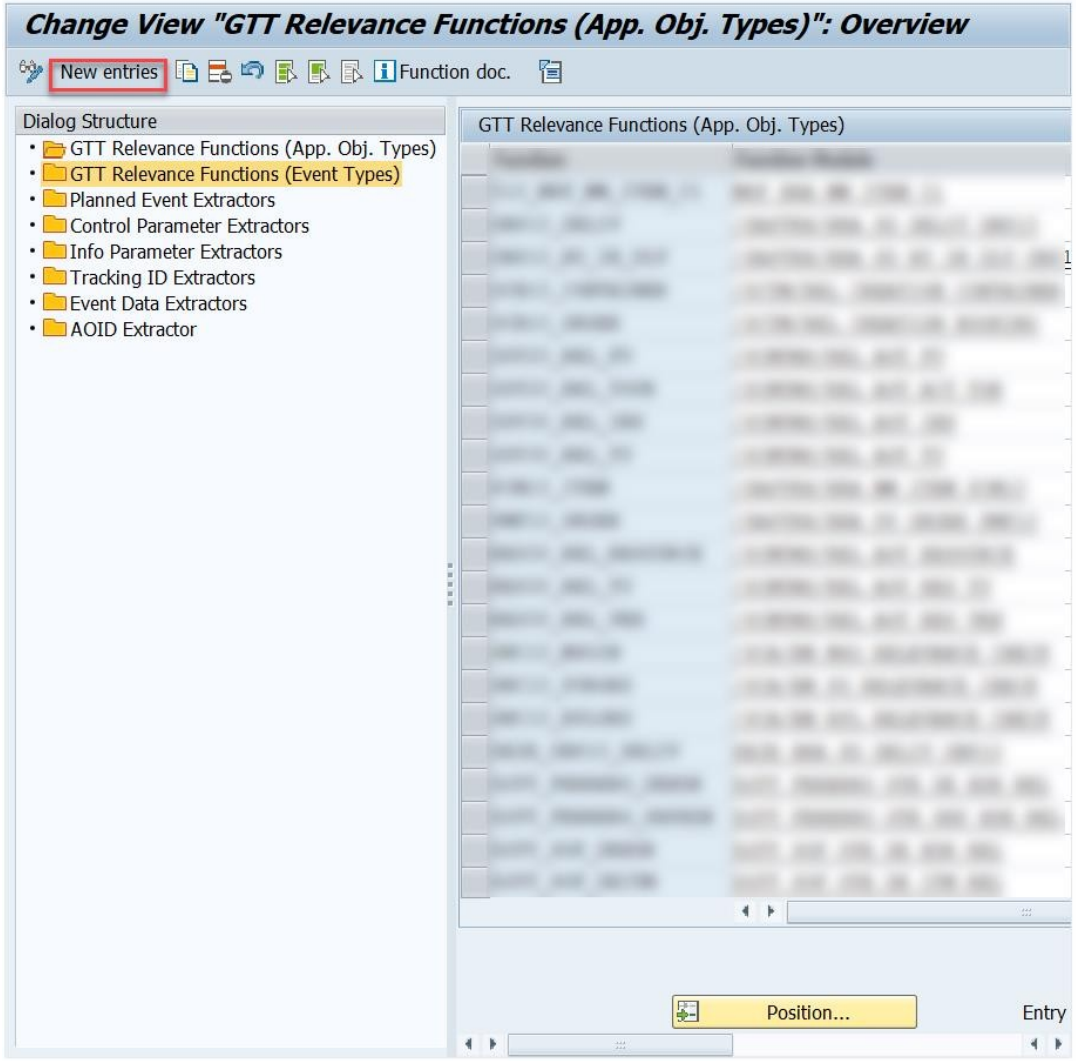
7-1: In **Display IMG** page, click
Integration with Other SAP Components -
> Interface to Global Track and Trace -
> Define Application Interface

7-2: Choose activity
Define SAP GTT Extraction Functions



STEP 7: Define GTT Extraction Functions

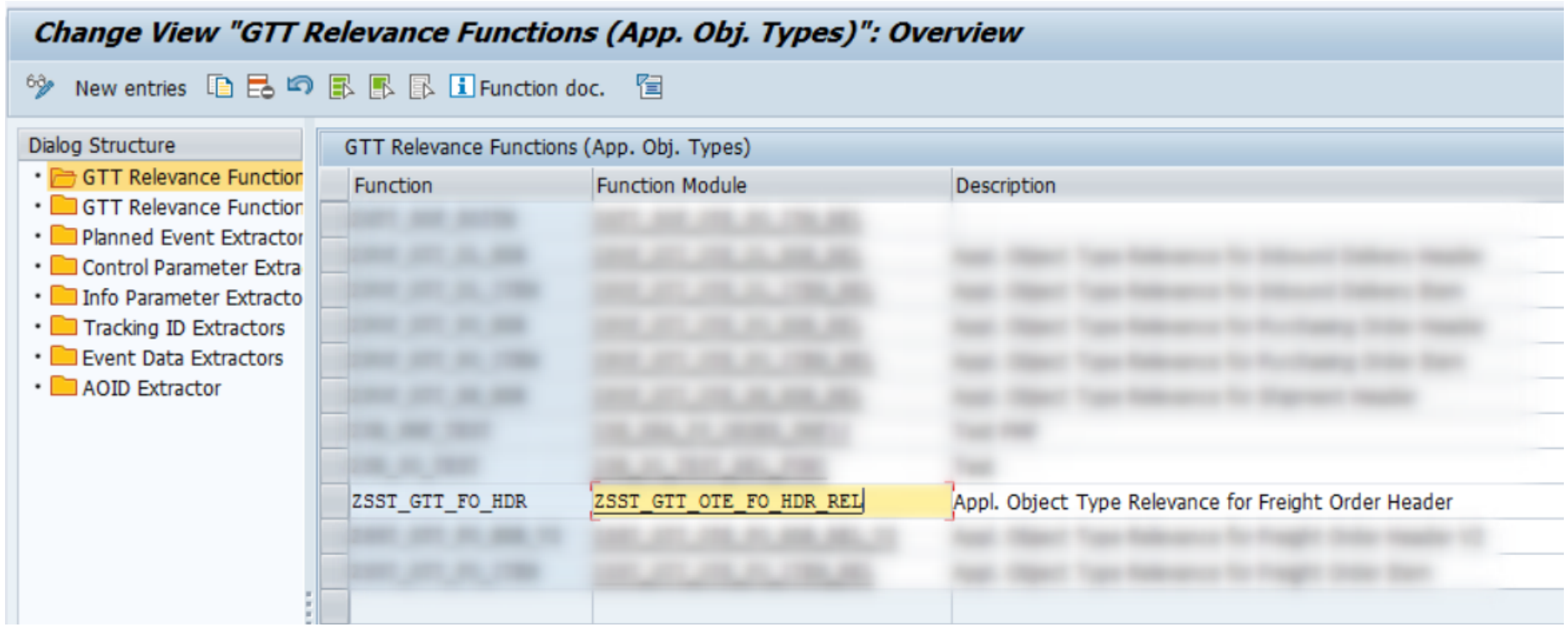
7-3: Choose the type of Extraction Function you want to create from the **Dialog Structure,** and click **New entries**



STEP 7: Define GTT Extraction Functions

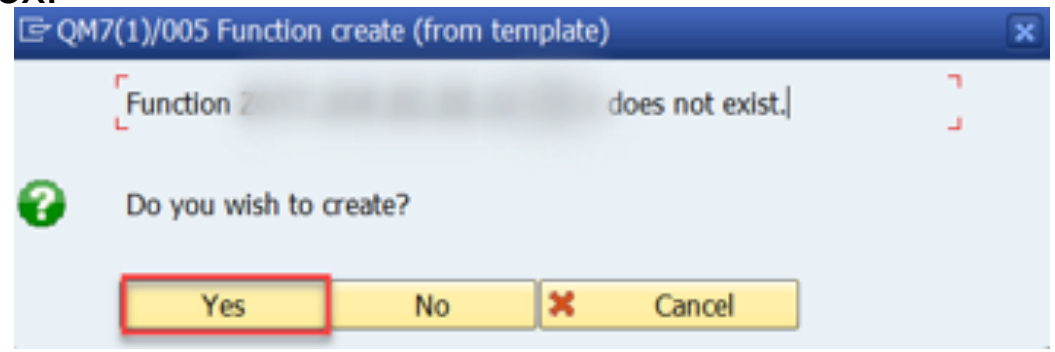
7-4: Input the **Function** name and **Function Module** for the newly created extraction function

7-5: Click **Save**



STEP 7: Define GTT Extraction Functions

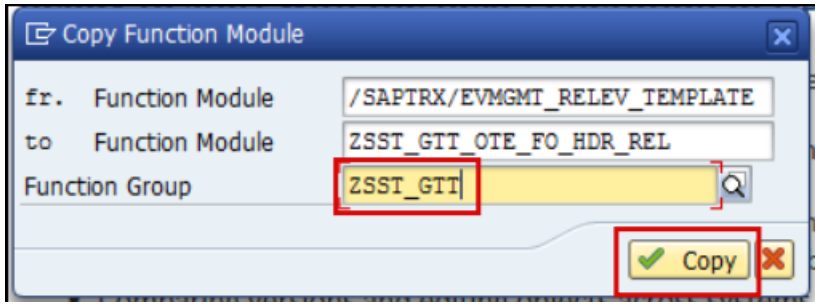
7-6: If the function module you use to create the extraction function has not been created yet, then a dialog reminds you to create the function module. Click **Yes** in the dialog box.



STEP 7: Define GTT Extraction Functions

7-7: Input the **Function Group** where the function module is to be created

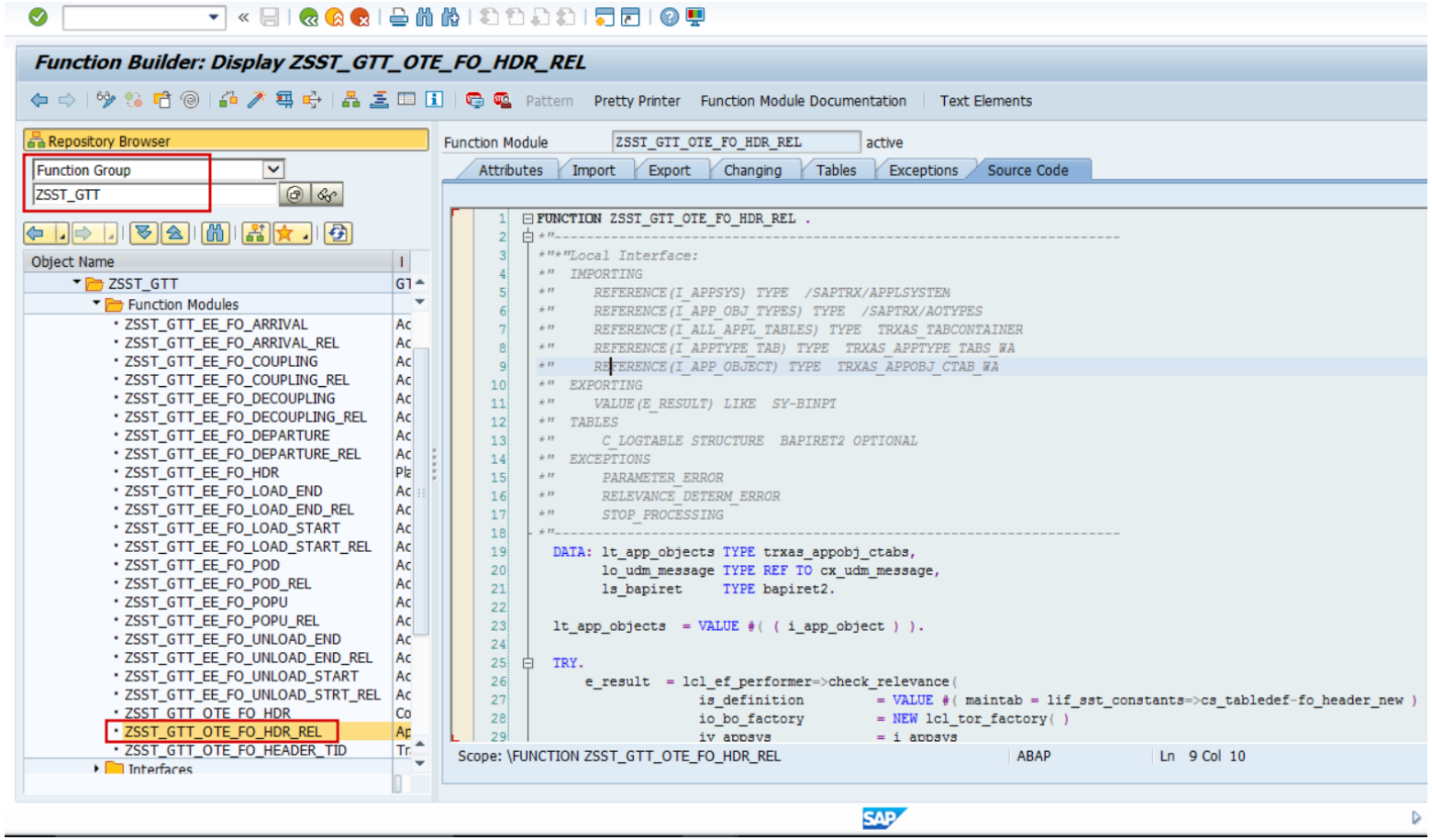
7-8: Click **Copy**



STEP 7: Define GTT Extraction Functions

7-9: Use T-Code SE80 to check the function module you just created

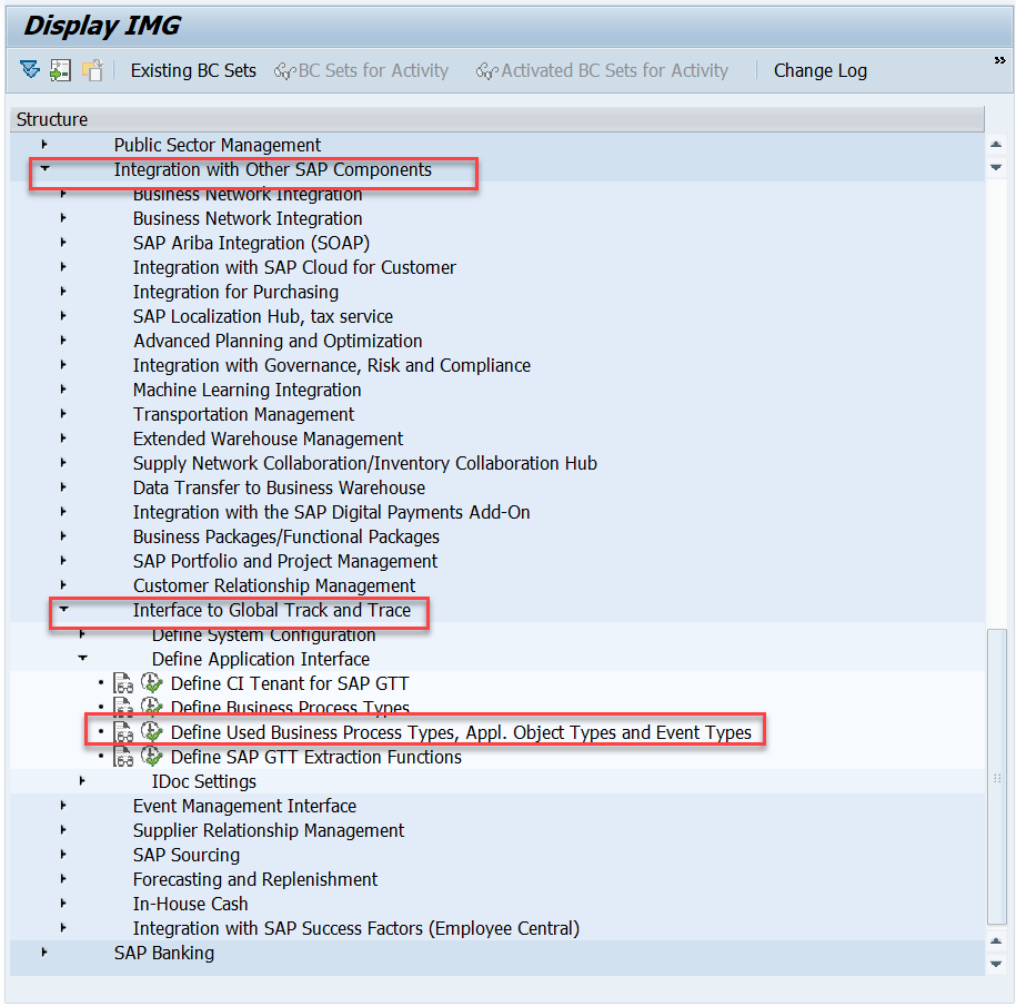
Caution: More information on how to implement extraction functions and the relevant sample code is introduced later.



STEP 8: Define Used Business Process Types, Appl. Object Types and Event Types

8-1: In **Display IMG** page, click
Integration with Other SAP Components -
> Interface to Global Track and Trace -
> Define Application Interface

8-2: Choose activity **Define Used Business Process Types, Appl. Object Types and Event Types**

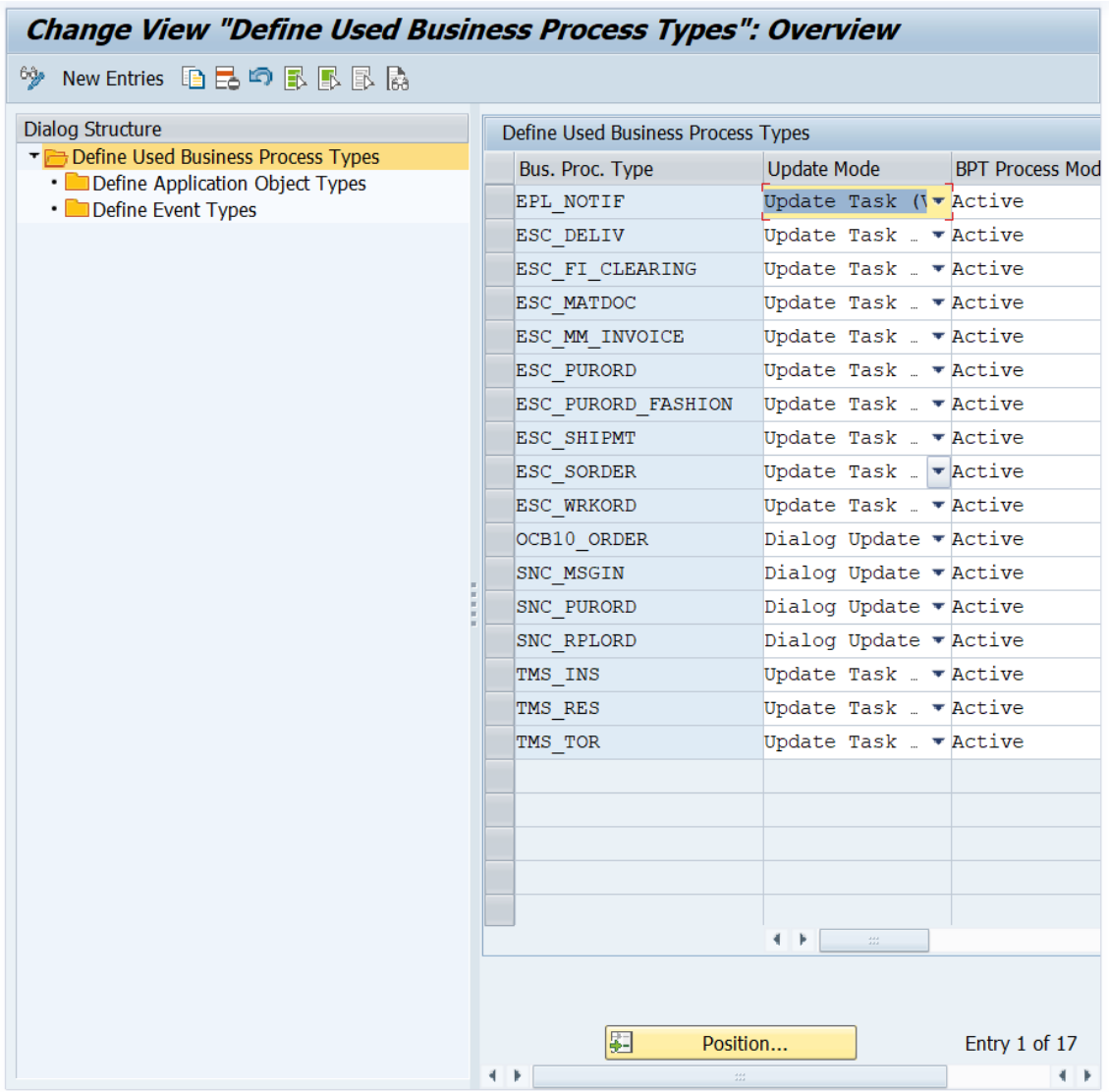


STEP 8: Define Used Business Process Types, Appl. Object Types and Event Types

You can create event types and application object types for each business process type.

In the following:

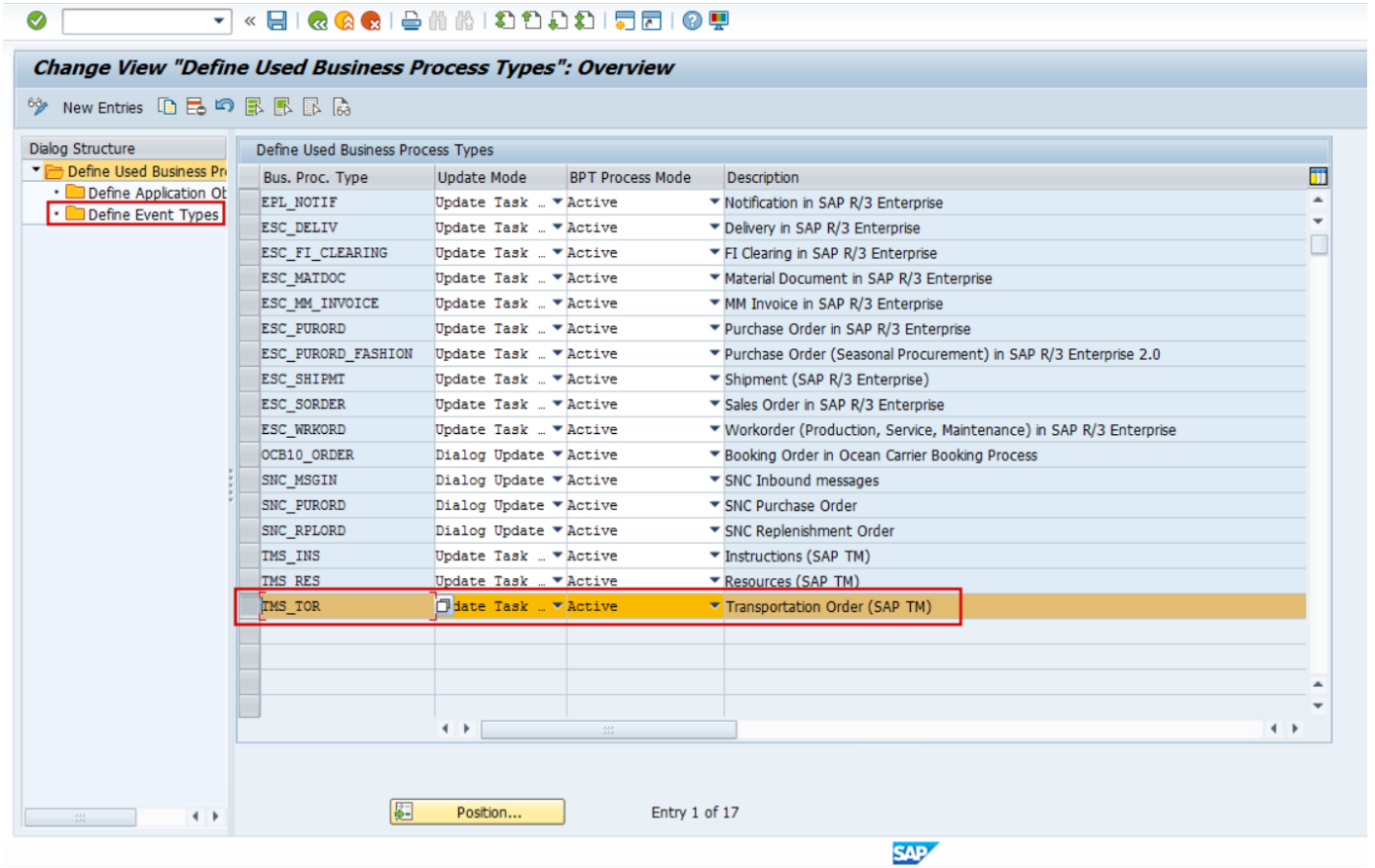
- Steps 3 to 10 demonstrate how to create an *Event Type* for a given business process type
- Steps 11 to 21 demonstrate how to create an *Application Object Type* for a given business process type



STEP 8: Define Used Business Process Types, Appl. Object Types and Event Types

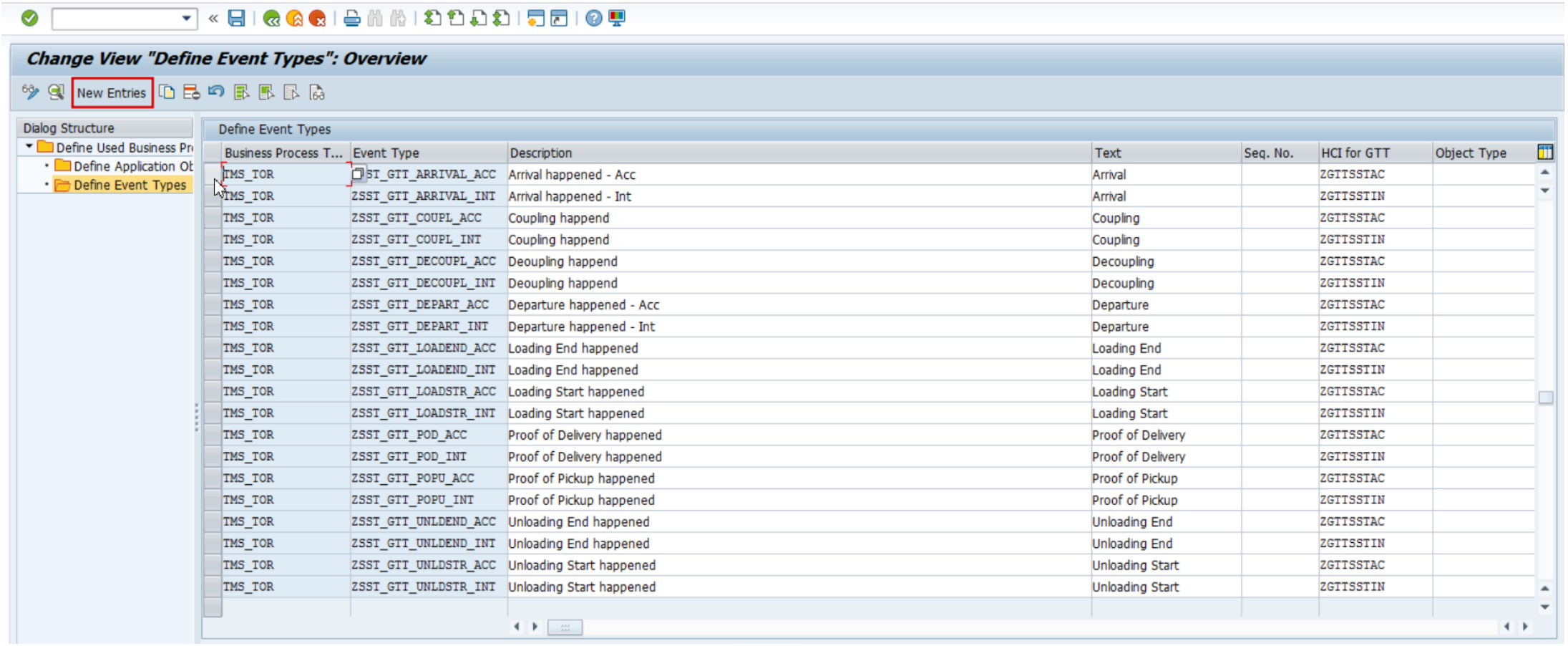
8-3: Choose the business process type from the **Define Used Business Process Types** on the right side

8-4: Double click **Define Event Types**



STEP 8: Define Used Business Process Types, Appl. Object Types and Event Types

8-5: Click **New Entries** to create a new event type



Business Process T...	Event Type	Description	Text	Seq. No.	HCI for GTT	Object Type
TMS_TOR	ST_GIT_ARRIVAL_ACC	Arrival happened - Acc	Arrival		ZGTTSSTAC	
TMS_TOR	ZSST_GIT_ARRIVAL_INT	Arrival happened - Int	Arrival		ZGTTSSTIN	
TMS_TOR	ZSST_GIT_COUPL_ACC	Coupling happend	Coupling		ZGTTSSTAC	
TMS_TOR	ZSST_GIT_COUPL_INT	Coupling happend	Coupling		ZGTTSSTIN	
TMS_TOR	ZSST_GIT_DECOUPL_ACC	Deoupling happend	Decoupling		ZGTTSSTAC	
TMS_TOR	ZSST_GIT_DECOUPL_INT	Deoupling happend	Decoupling		ZGTTSSTIN	
TMS_TOR	ZSST_GIT_DEPART_ACC	Departure happened - Acc	Departure		ZGTTSSTAC	
TMS_TOR	ZSST_GIT_DEPART_INT	Departure happened - Int	Departure		ZGTTSSTIN	
TMS_TOR	ZSST_GIT_LOADEND_ACC	Loading End happened	Loading End		ZGTTSSTAC	
TMS_TOR	ZSST_GIT_LOADEND_INT	Loading End happened	Loading End		ZGTTSSTIN	
TMS_TOR	ZSST_GIT_LOADSTR_ACC	Loading Start happened	Loading Start		ZGTTSSTAC	
TMS_TOR	ZSST_GIT_LOADSTR_INT	Loading Start happened	Loading Start		ZGTTSSTIN	
TMS_TOR	ZSST_GIT_POD_ACC	Proof of Delivery happened	Proof of Delivery		ZGTTSSTAC	
TMS_TOR	ZSST_GIT_POD_INT	Proof of Delivery happened	Proof of Delivery		ZGTTSSTIN	
TMS_TOR	ZSST_GIT_POPU_ACC	Proof of Pickup happened	Proof of Pickup		ZGTTSSTAC	
TMS_TOR	ZSST_GIT_POPU_INT	Proof of Pickup happened	Proof of Pickup		ZGTTSSTIN	
TMS_TOR	ZSST_GIT_UNLDEND_ACC	Unloading End happened	Unloading End		ZGTTSSTAC	
TMS_TOR	ZSST_GIT_UNLDEND_INT	Unloading End happened	Unloading End		ZGTTSSTIN	
TMS_TOR	ZSST_GIT_UNLDSTR_ACC	Unloading Start happened	Unloading Start		ZGTTSSTAC	
TMS_TOR	ZSST_GIT_UNLDSTR_INT	Unloading Start happened	Unloading Start		ZGTTSSTIN	

STEP 8: Define Used Business Process Types, Appl. Object Types and Event Types

8-6: Fill in the **Event Type** and **Text**

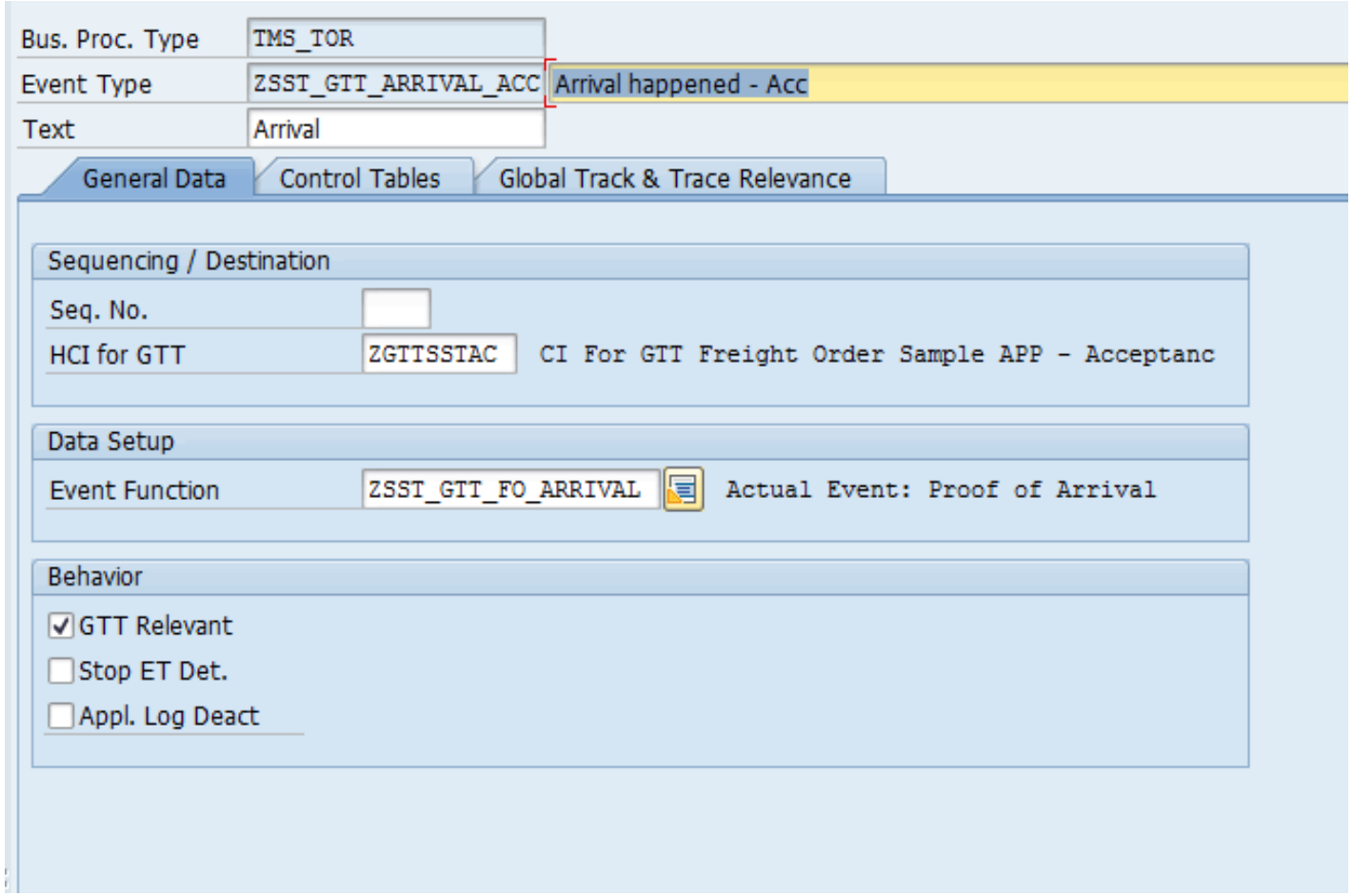
fields

8-7: Fill in the information required in

the **General Data** tab.

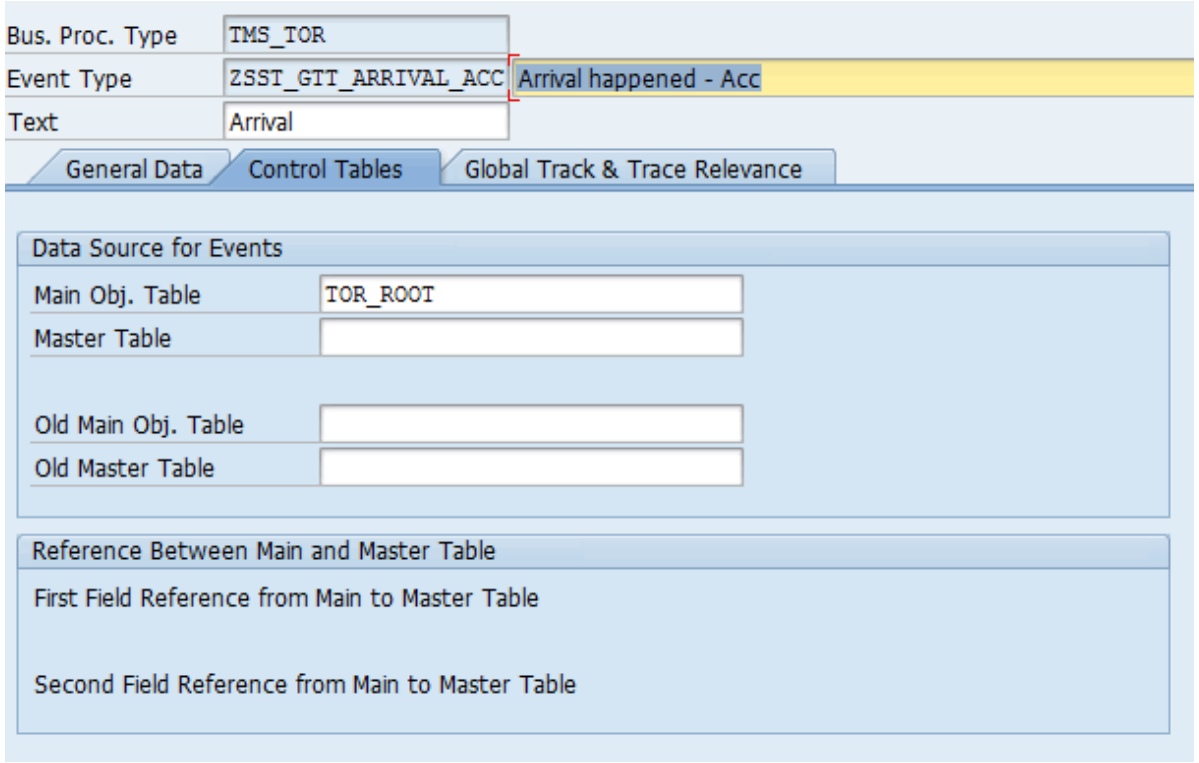
HCI for GTT is the CI Tenant you created in STEP 6.
Event Function is the extractor function you created in STEP 7.

8-8: Check **GTT Relevant**



STEP 8: Define Used Business Process Types, Appl. Object Types and Event Types

8-9: Fill in the **Main Object Table** and **Master Table**.



Caution:

If the event type or application object type is on the header level, then you only need to assign the **Main Object Table**.

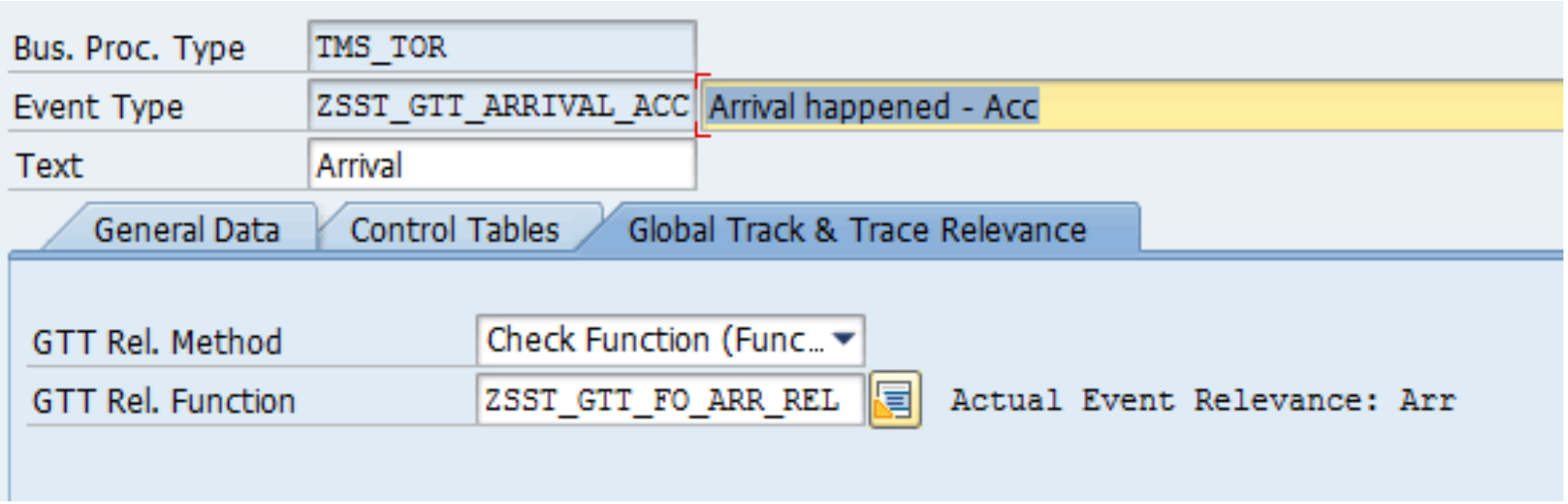
Otherwise, if the event type or application object type is on the item level, then you need to assign the **Main Object Table** and **Master Table**, and assign the reference between the **Main Object Table** and **Master Table**.

STEP 8: Define Used Business Process Types, Appl. Object Types and Event Types

8-10: In the **Global Track & Trace Relevance** tab, choose the **GTT Relevance Method** you need.

If you choose the **GTT Relevance Method** *Check Function*, then you need to define a relevance function according to STEP 7 and fill in the relevance function name here.

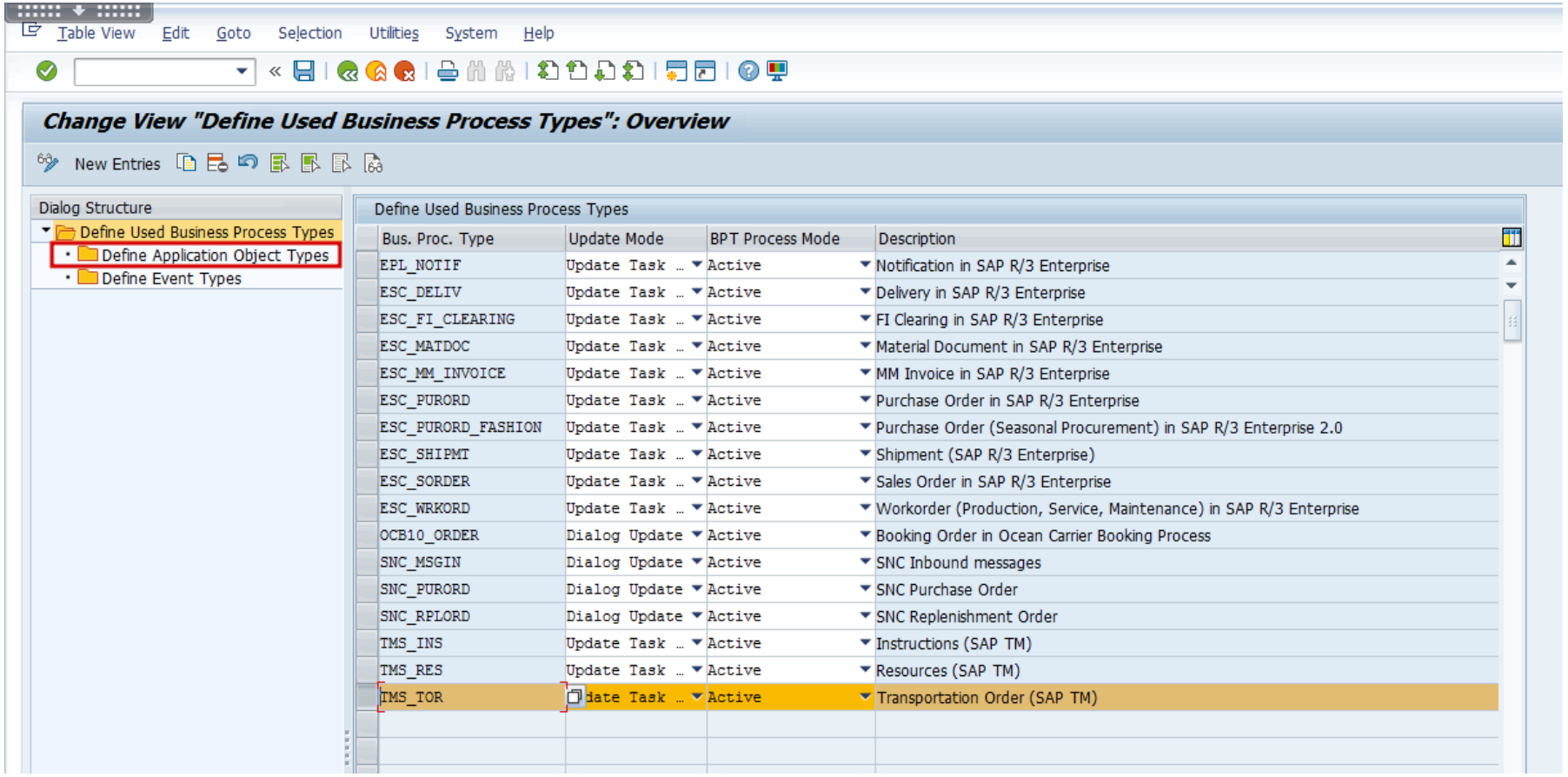
Click **Save**.



STEP 8: Define Used Business Process Types, Appl. Object Types and Event Types

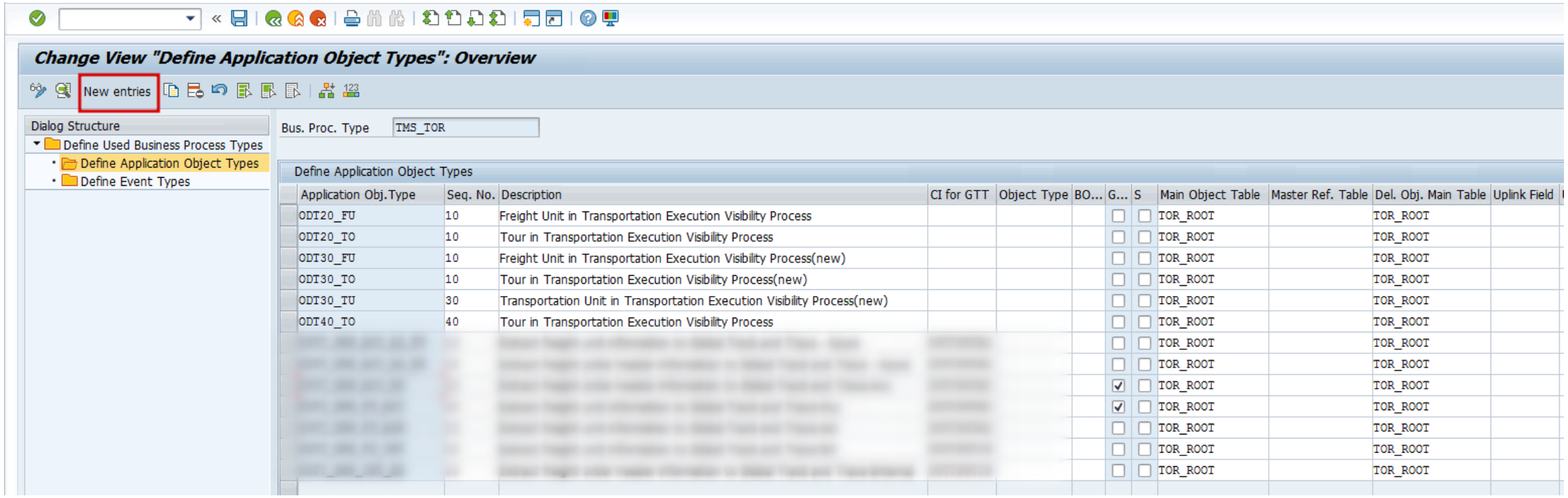
8-11: Choose the business process type from the **Define Used Business Process Types** on the right side.

8-12: Double click **Define Application Object Types.**



STEP 8: Define Used Business Process Types, Appl. Object Types and Event Types

8-13: Click **New Entries** to create a new AOT



STEP 8: Define Used Business Process Types, Appl. Object Types and Event Types

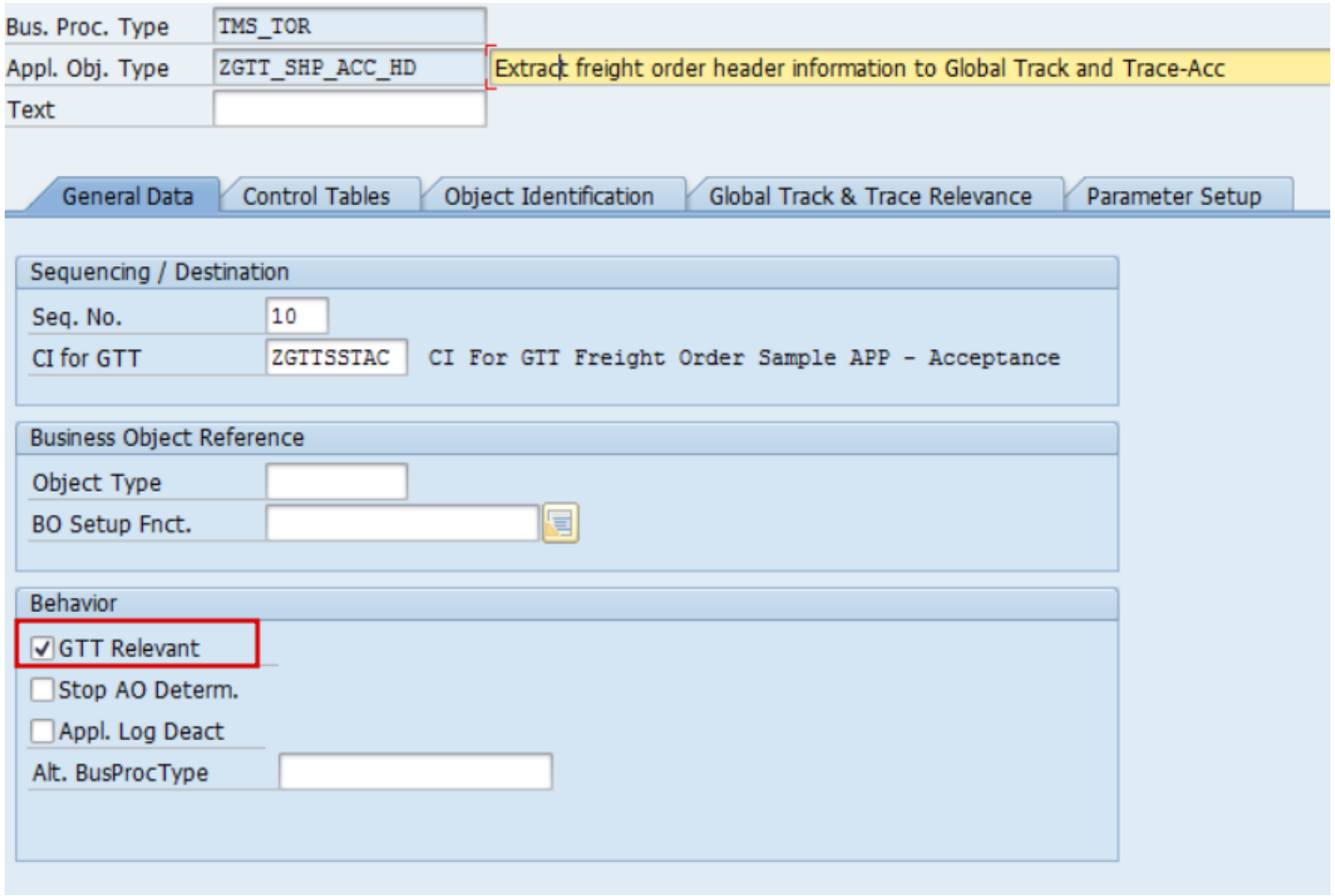
8-14: Fill in the **Appl. Obj. Type** and **Text** fields

8-15: Fill in the information required in

the **General Data** tab.

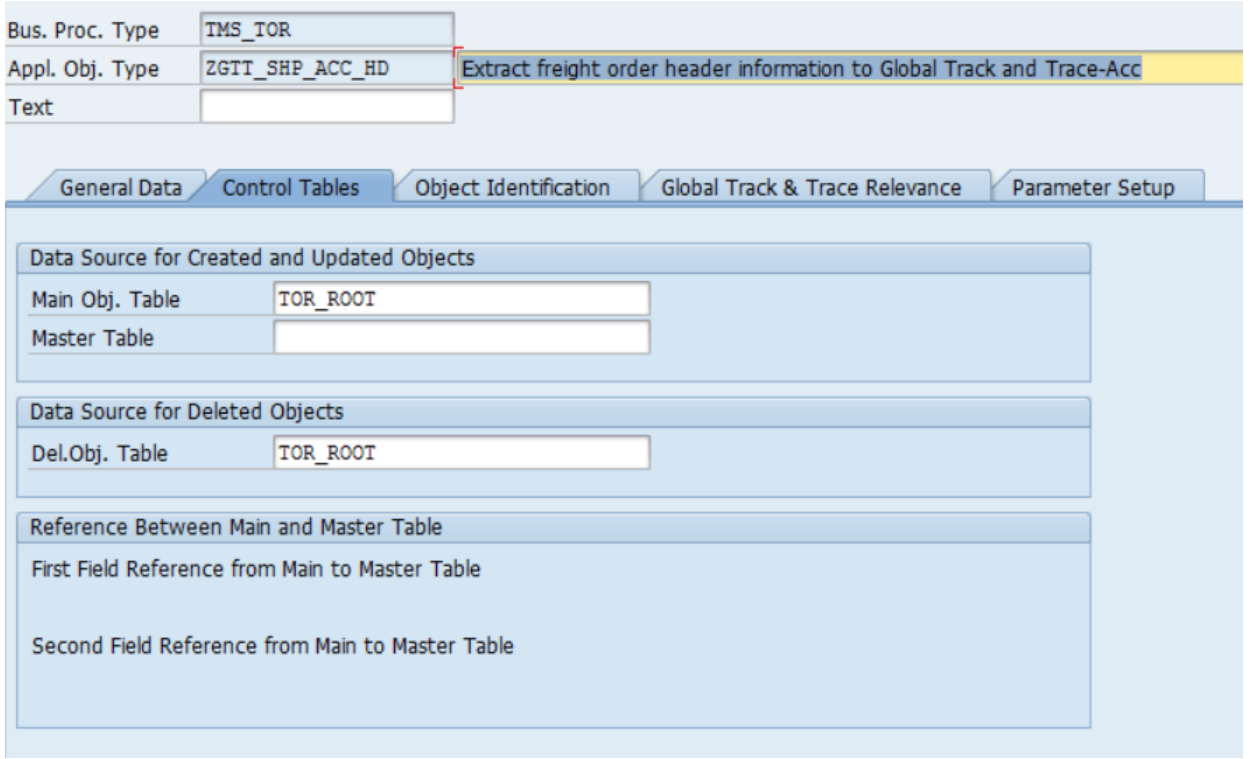
HCI for GTT is the CI Tenant you created in STEP 6.
Event Function is the extractor function you created in STEP 7.

8-16: Check **GTT Relevant**



STEP 8: Define Used Business Process Types, Appl. Object Types and Event Types

8-17: Fill in the **Main Object Table** and **Master Table**.



Caution:

If the event type or application object type is on the header level, then you only need to assign the **Main Object Table**.

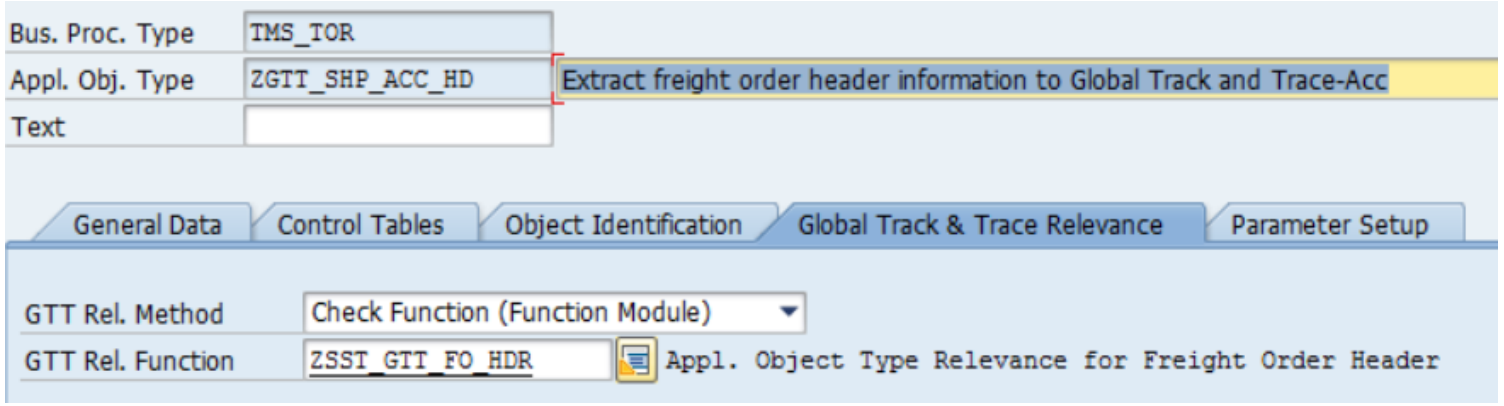
Otherwise, if the event type or application object type is on the item level, then you need to assign the **Main Object Table** and **Master Table**, and assign the reference between the **Main Object Table** and **Master Table**.

STEP 8: Define Used Business Process Types, Appl. Object Types and Event Types

8-18: In the **Global Track & Trace Relevance** tab, choose the **GTT Relevance Method** you need.

If you choose the **GTT Relevance Method** *Check Function*, then you need to define a relevance function according to STEP 7 and fill in the relevance function name here.

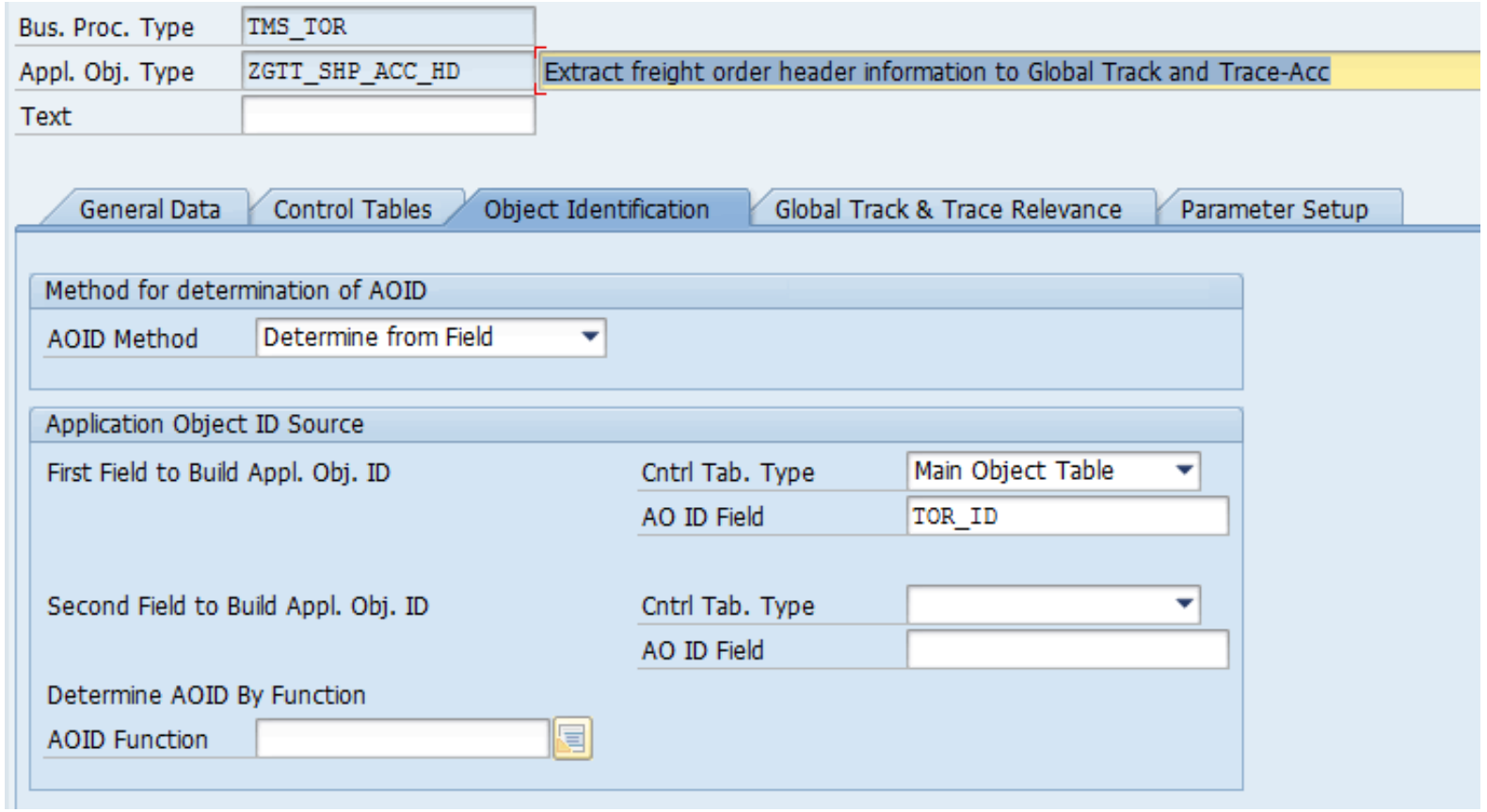
Click **Save**.



STEP 8: Define Used Business Process Types, Appl. Object Types and Event Types

8-19: In the **Object Identification** tab, choose the **AOID Method** and **Cntrl Tab Type.**

Click **Save**.



STEP 8: Define Used Business Process Types, Appl. Object Types and Event Types

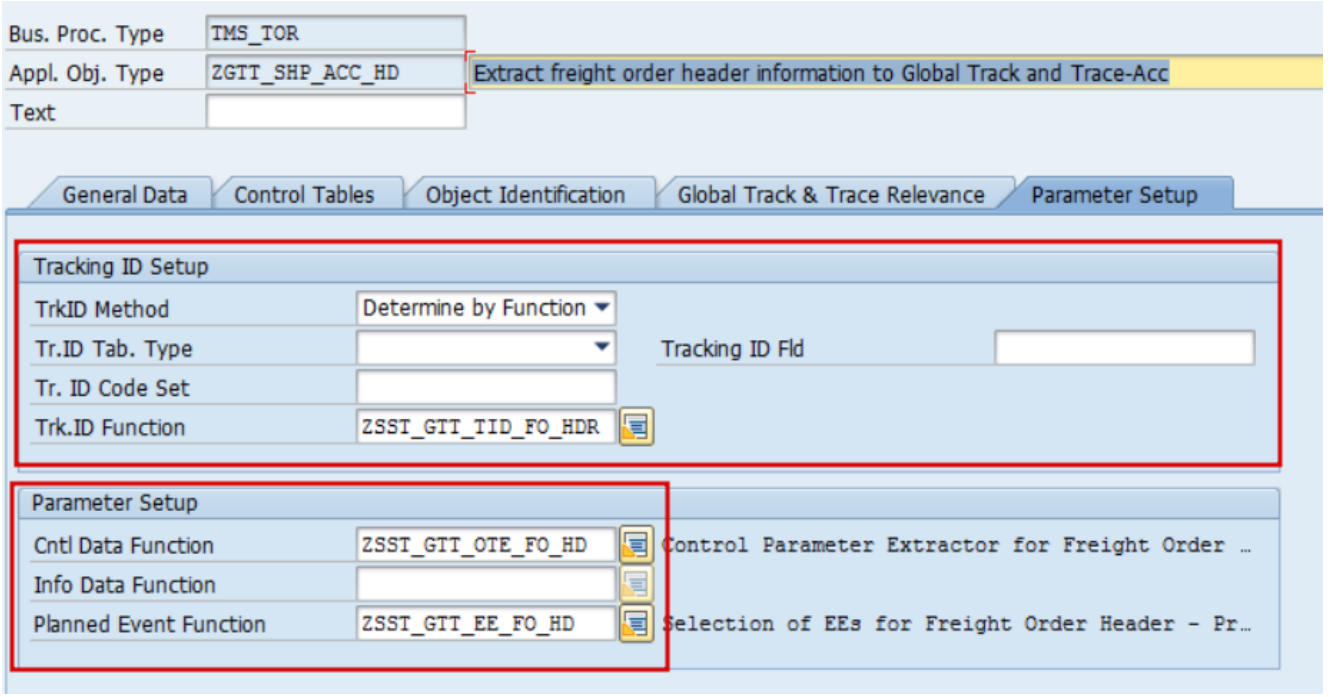
8-20: In the **Parameter Setup** tab, choose the **TrkID Method** as you need.

If you choose the **TrkID Method** as *Determine by Function*, then you need to define a tracking ID function according to STEP 7, and fill in the relevance function name here.

If no customized logic exists, for **TrkID Method** choose *Determine from Field,* then you need to fill in the key field and name the Code Set for the AOT.

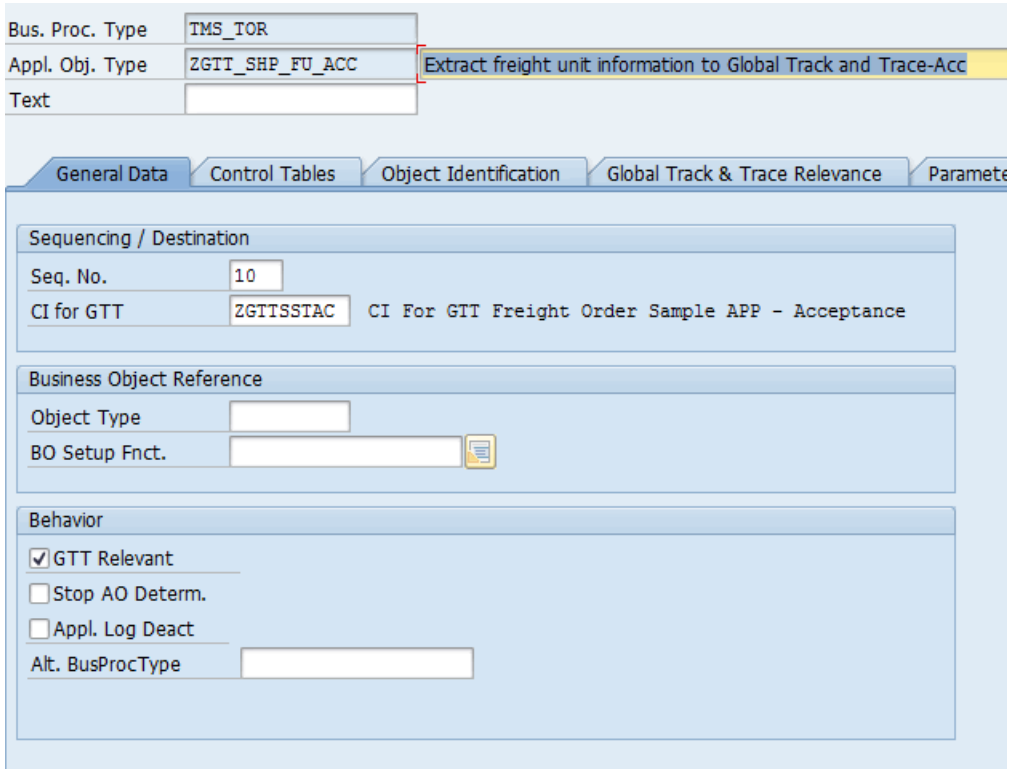
Fill in the extractor functions for **Control Data, Info Data(optional), Planned Event.**

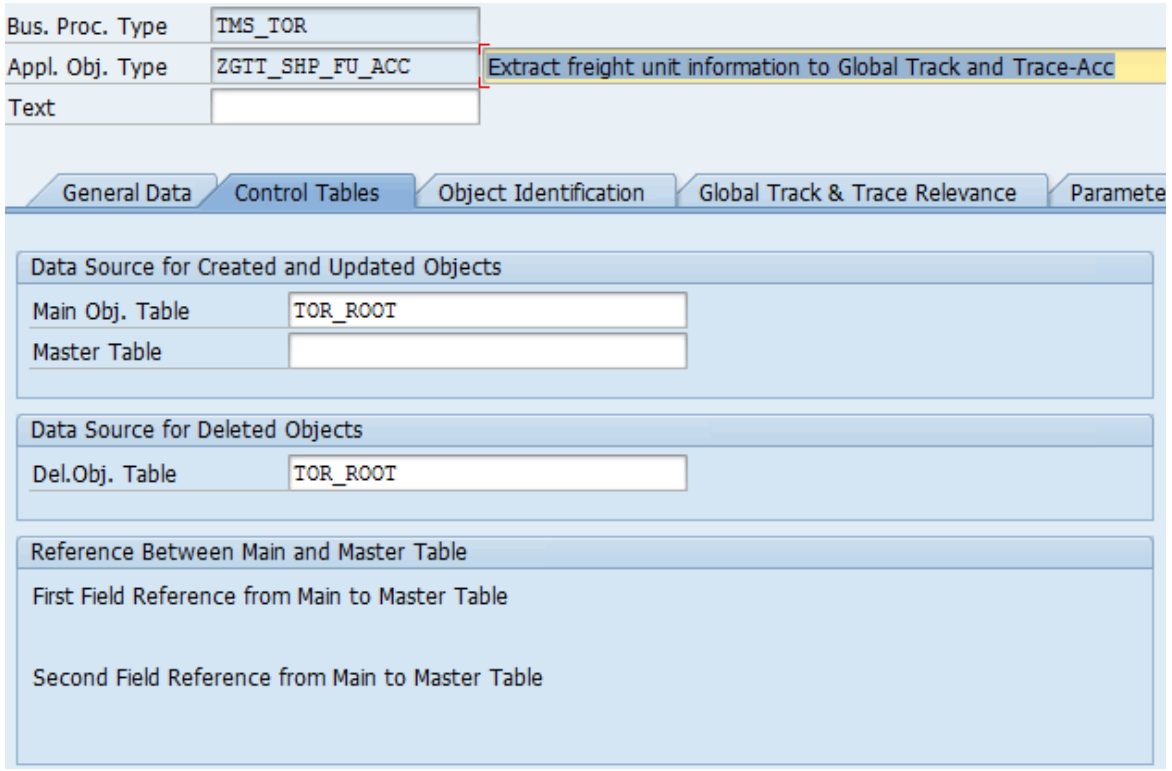
Click **Save**.



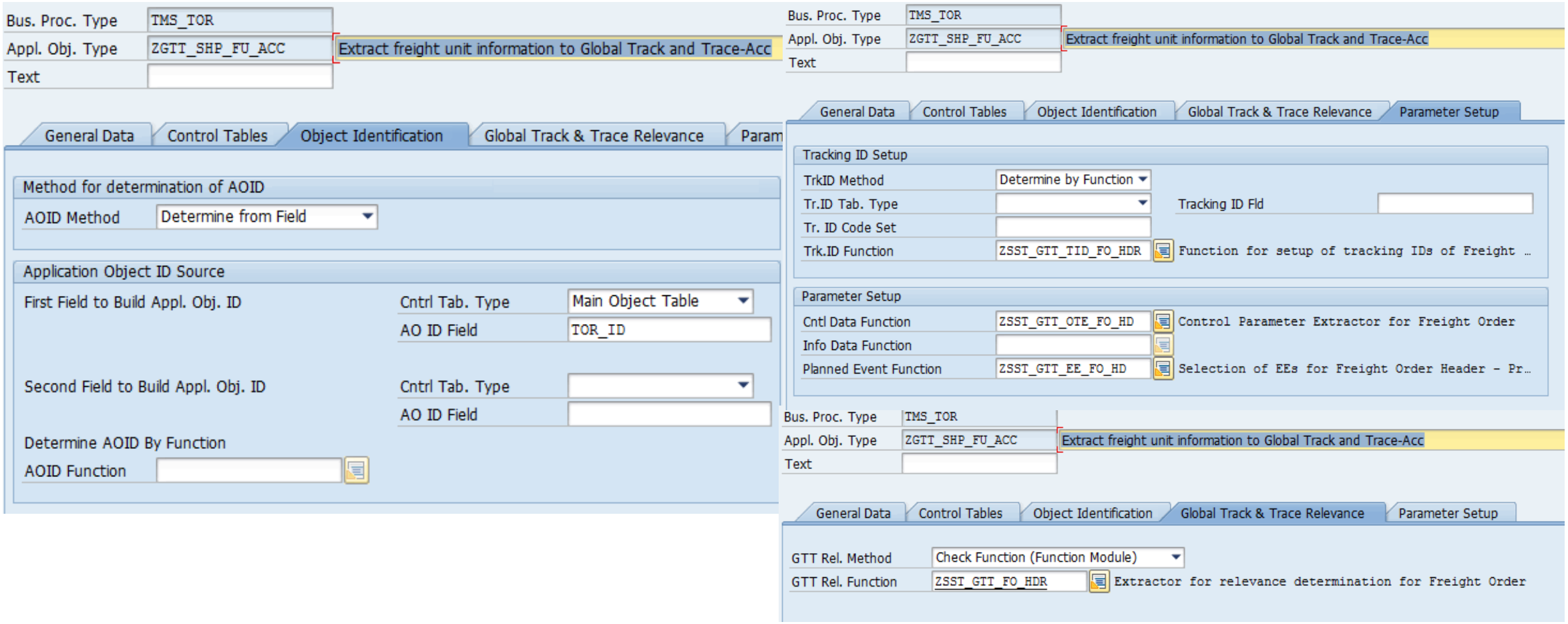
STEP 8: Define Used Business Process Types, Appl. Object Types and Event Types

8-21: Also need to create additional AOT for FU. Configuration is shown as below.





STEP 8: Define Used Business Process Types, Appl. Object Types and Event Types



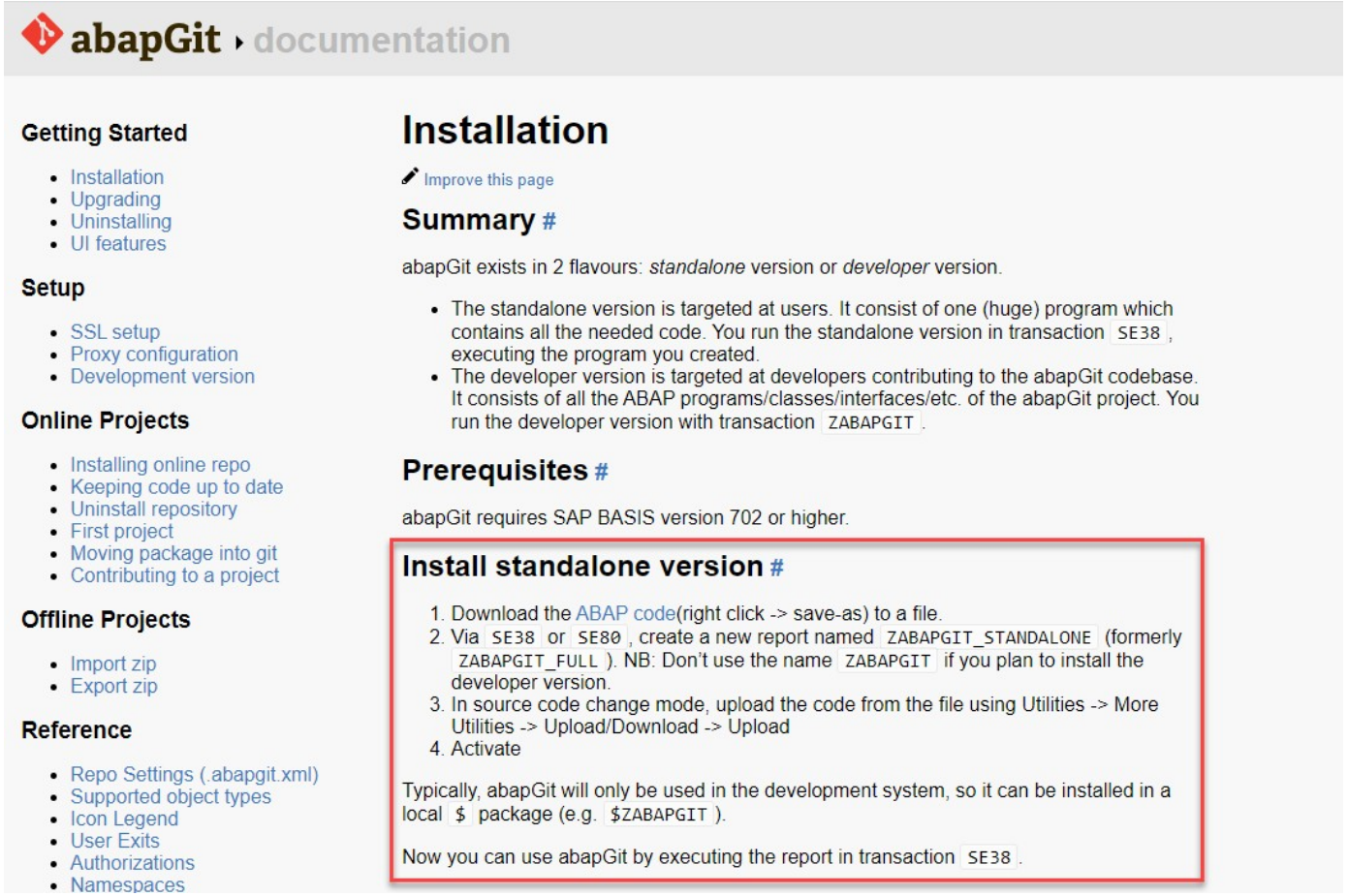
C) Download ABAP Code from GitHub

STEP 1: Install abapGit

You need to install abapGit before downloading codes from GitHub.

To install abapGit, follow the instructions on https://docs.abapgit.org/guide-install.html.
Make sure you **install the standalone version** in your dev system.

When installation is complete, a new report is created, *ZABAPGIT_STANDALONE*.



abapGit › documentation

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- Uninstalling
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- Proxy configuration
- Development version

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Installation

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Summary

abapGit exists in 2 flavours: *standalone* version or *developer* version.

- The standalone version is targeted at users. It consist of one (huge) program which contains all the needed code. You run the standalone version in transaction `SE38`, executing the program you created.
- The developer version is targeted at developers contributing to the abapGit codebase. It consists of all the ABAP programs/classes/interfaces/etc. of the abapGit project. You run the developer version with transaction `ZABAPGIT`.

Prerequisites

abapGit requires SAP BASIS version 702 or higher.

Install standalone version

1. Download the ABAP code(right click -> save-as) to a file.
2. Via `SE38` or `SE80`, create a new report named `ZABAPGIT_STANDALONE` (formerly `ZABAPGIT_FULL`). NB: Don't use the name `ZABAPGIT` if you plan to install the developer version.
3. In source code change mode, upload the code from the file using Utilities -> More Utilities -> Upload/Download -> Upload
4. Activate

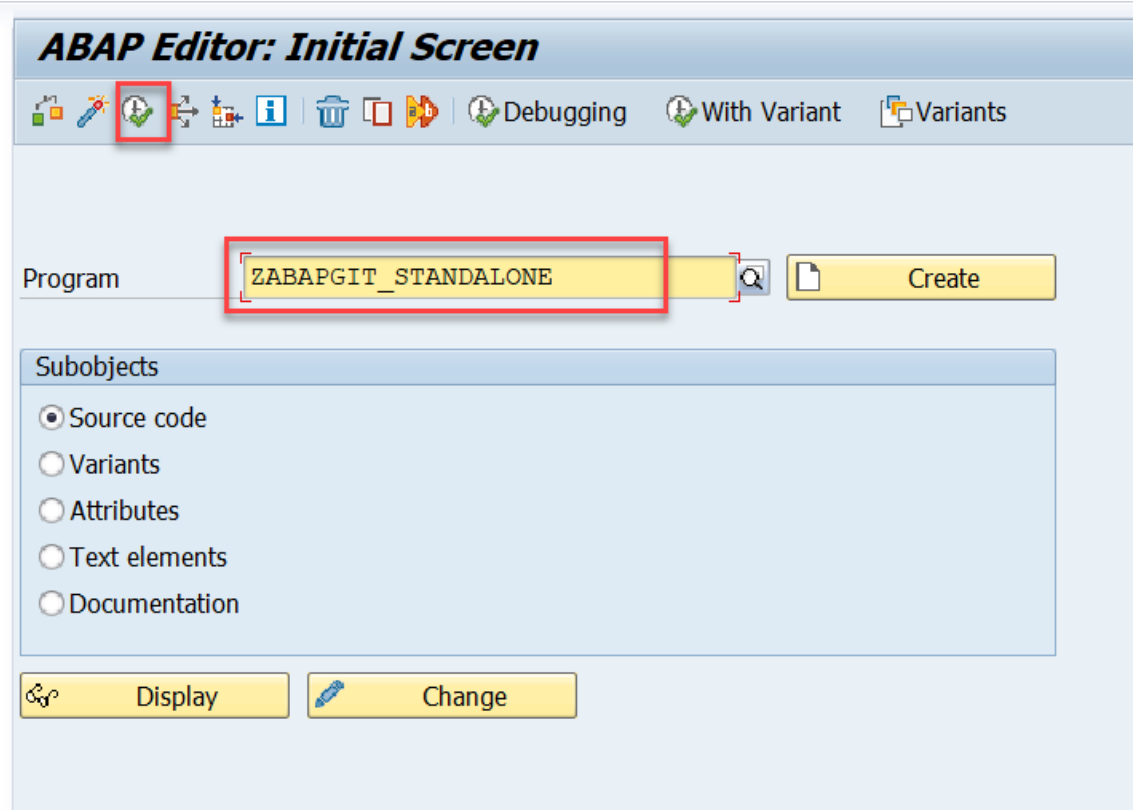
Typically, abapGit will only be used in the development system, so it can be installed in a local `$` package (e.g. `$ZABAPGIT`).

Now you can use abapGit by executing the report in transaction `SE38`.

STEP 2: Download ABAP Code

2-1: Enter T-code *SE38* and fill in the report name from STEP 1, *ZABAPGIT_STANDALONE*

2-2: Click **Execute** to run the report



STEP 2: Download ABAP Code

2-3: Click **New Online** to download the code

STEP 2: Download ABAP Code

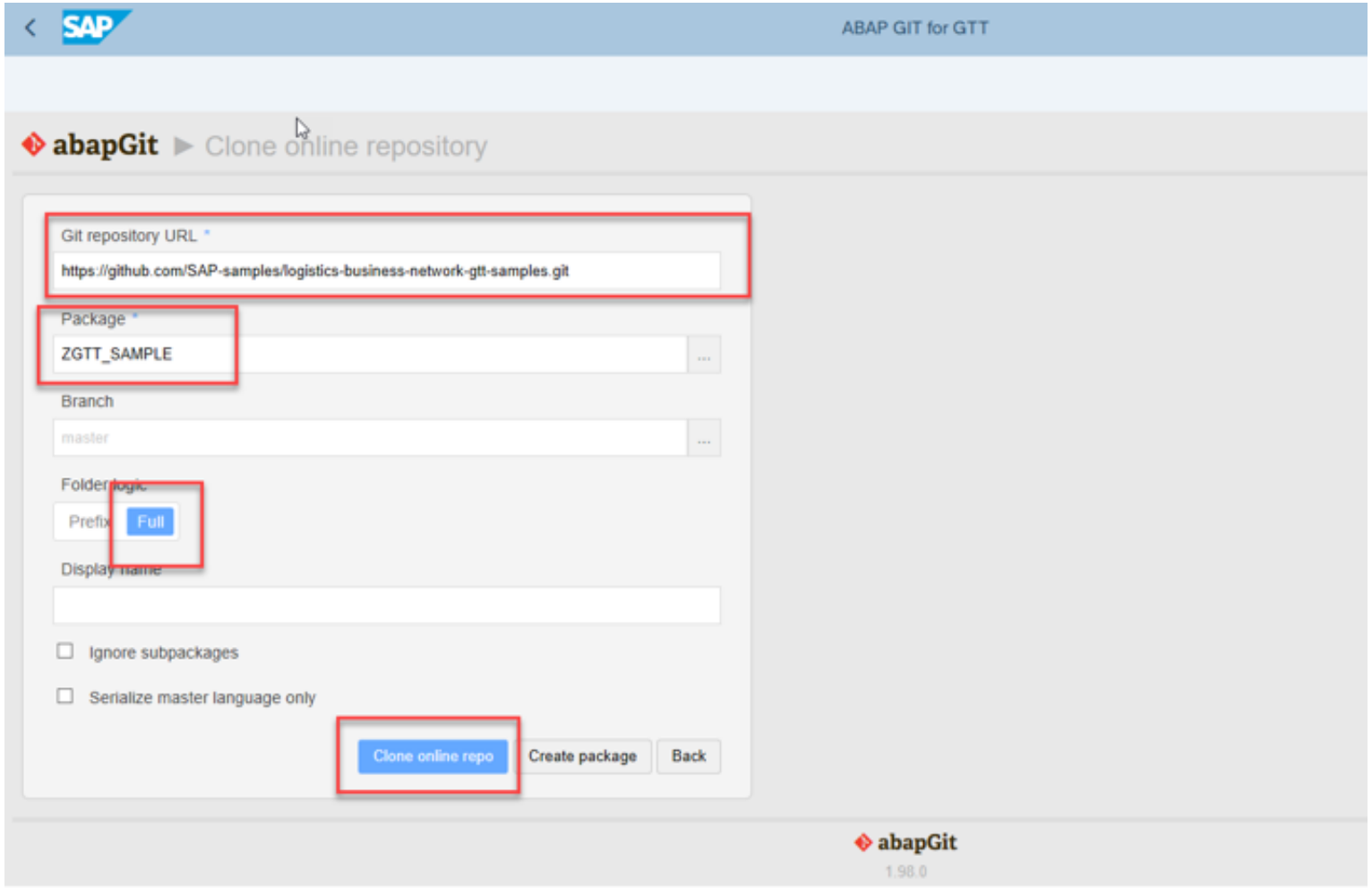
2-4: Fill in the **Git repository URL**:

https://github.com/SAP-samples/logistics-business-network-gtt-samples.git

2-5: Fill in the **Package** where you want to create the new ABAP code. If the package does not exist yet, click **Create package** to create it.

2-6: Set *Full* for **Folder Logic**

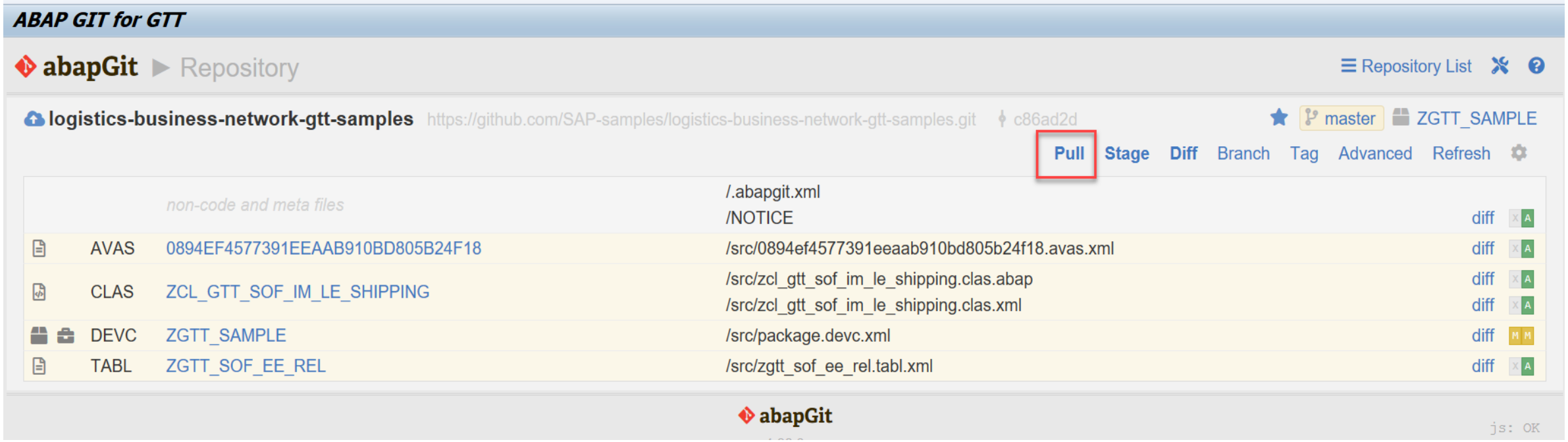
2-7: Click **Clone online repo** to download the code



STEP 2: Download ABAP Code

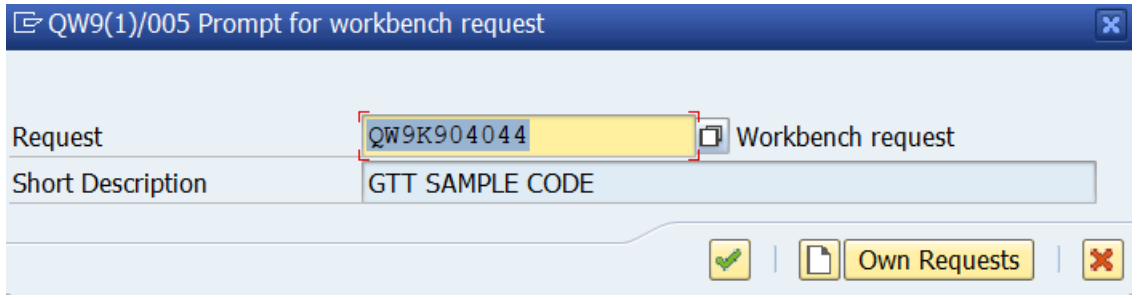
2-8: Click **Pull** to pull down the latest version code

TIP: Clicking **Pull** action will download the whole package of the sample codes. If you want to download codes from a specified folder in Github, please refer to steps from 3-1 to 3-8.



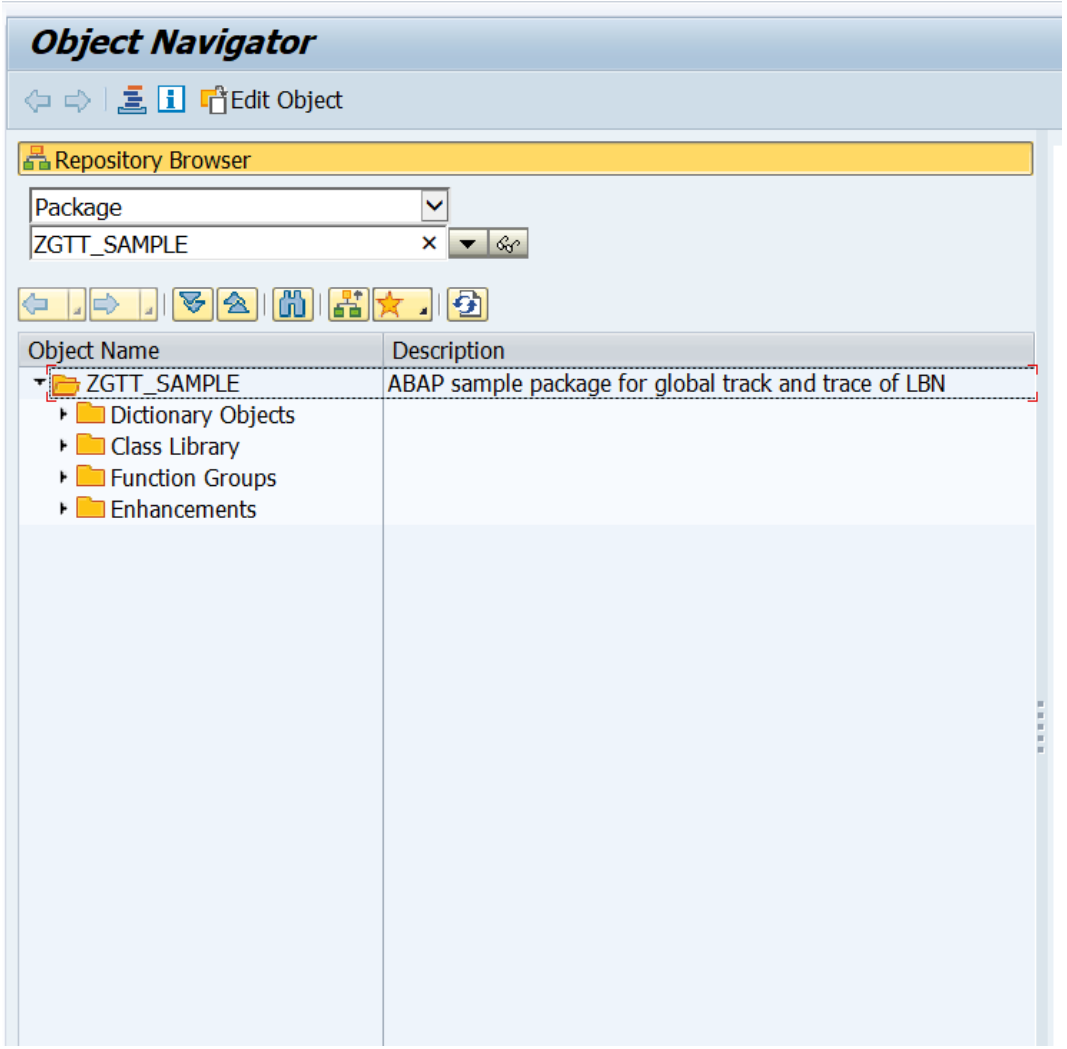
STEP 2: Download ABAP Code

2-9: Assign the change to a change request. If you do not have any available change requests, create a new one.



STEP 2: Download ABAP Code

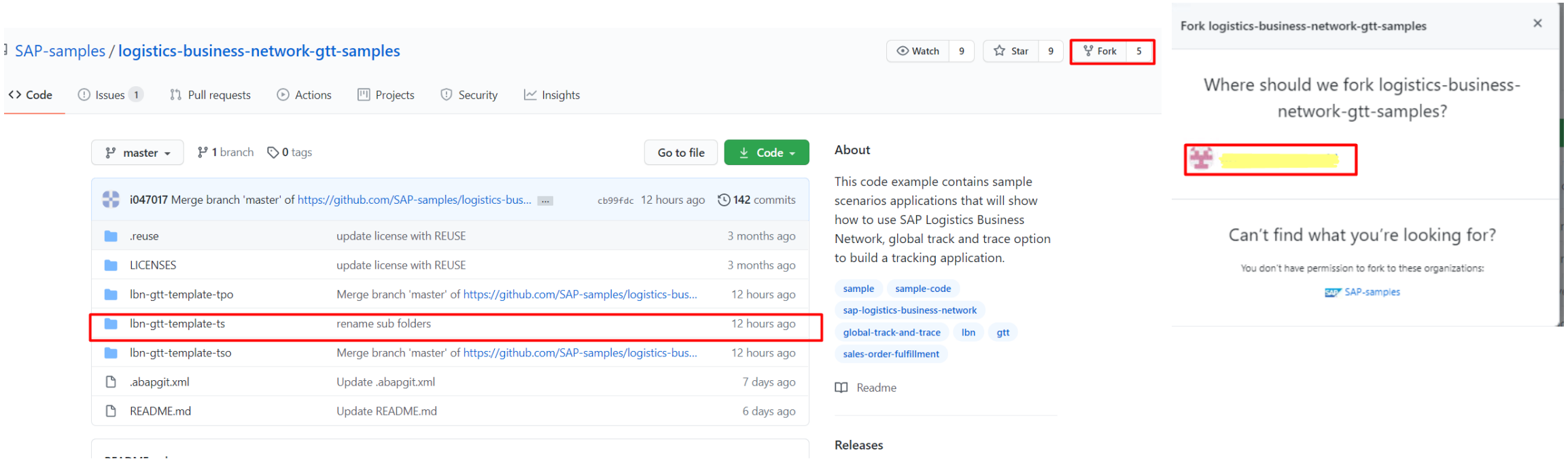
2-10: After you download the codes, you can check them with T-code *SE80*.



Step 3: Download ABAP Code Within the Specified Folder

3-1: If you only want to download the sample codes in the folder of ‘lbn-gtt-sst-sample’ from Github instead of downloading all of them, click **Fork** button to pop up a dialog window.

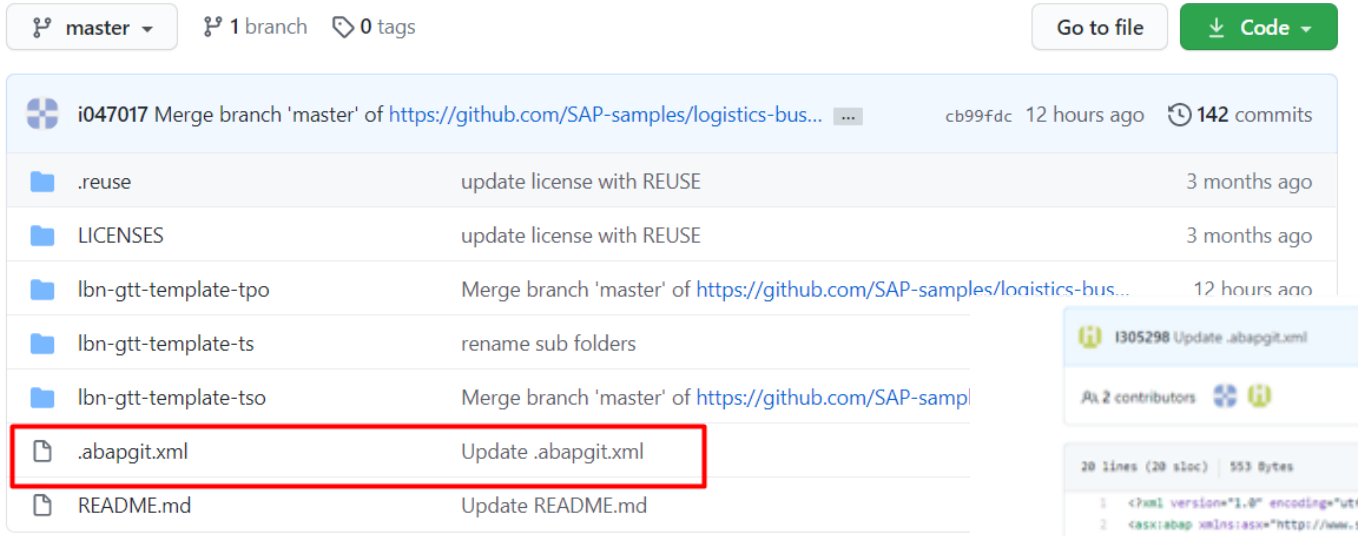
3-2: Click the user account and the newest version will be copied into the user’s account.

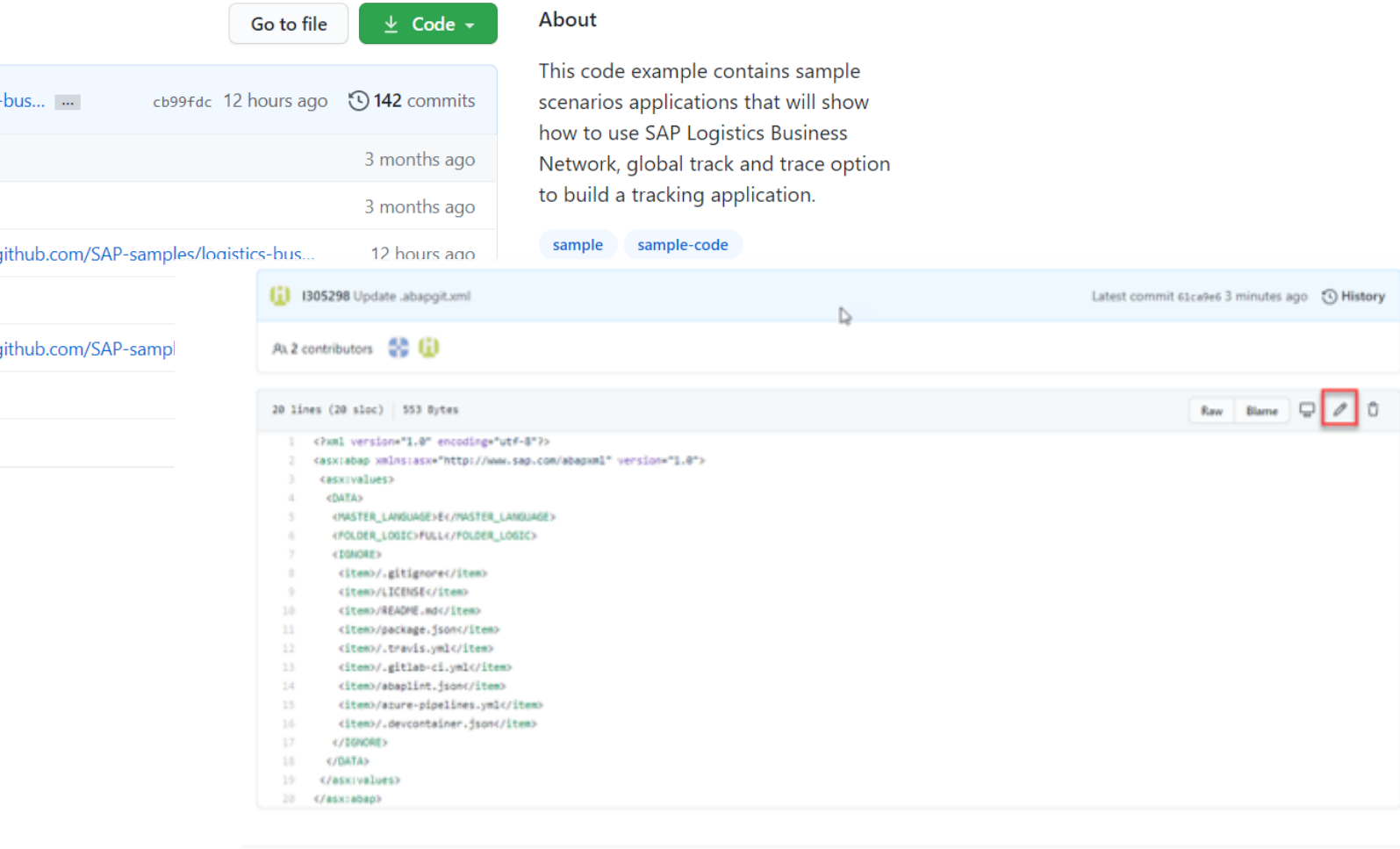


Step 3: Download ABAP Code Within the Specified Folder

3-3: In the user account's repository, click the file '.abapgit.xml'

3-4: Click ✎ button to edit the file

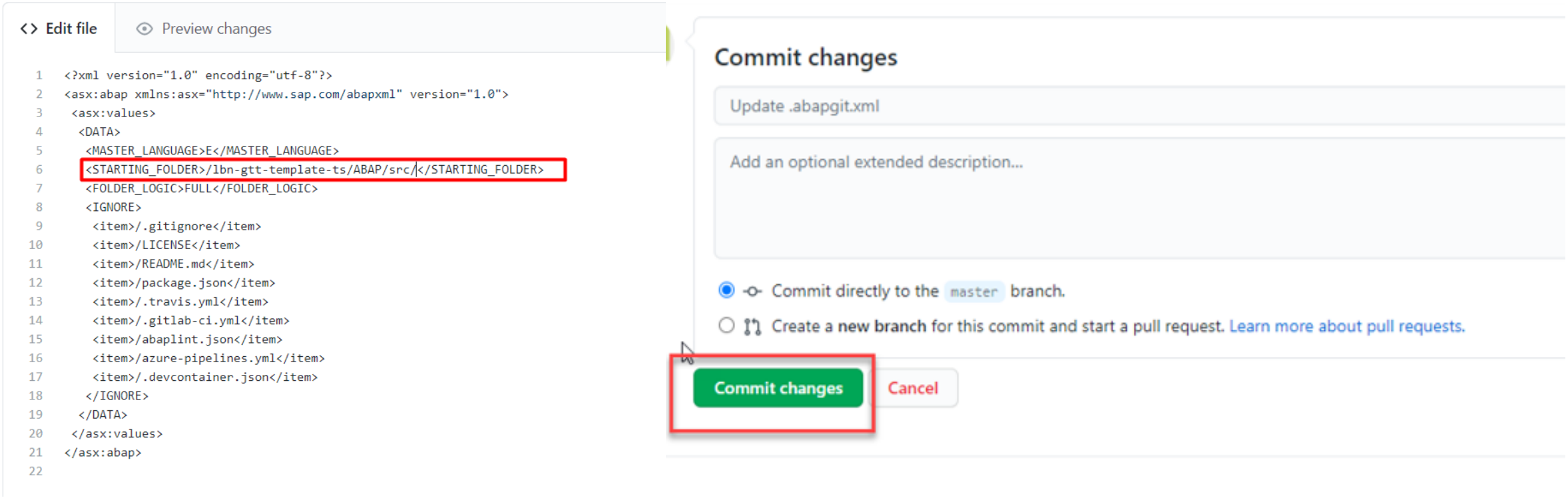




Step 3: Download ABAP Code Within the Specified Folder

3-5: Add the line “<STARTING_FOLDER>/lbn-gtt-template-ts/ABAP/zsrc/</STARTING_FOLDER>”

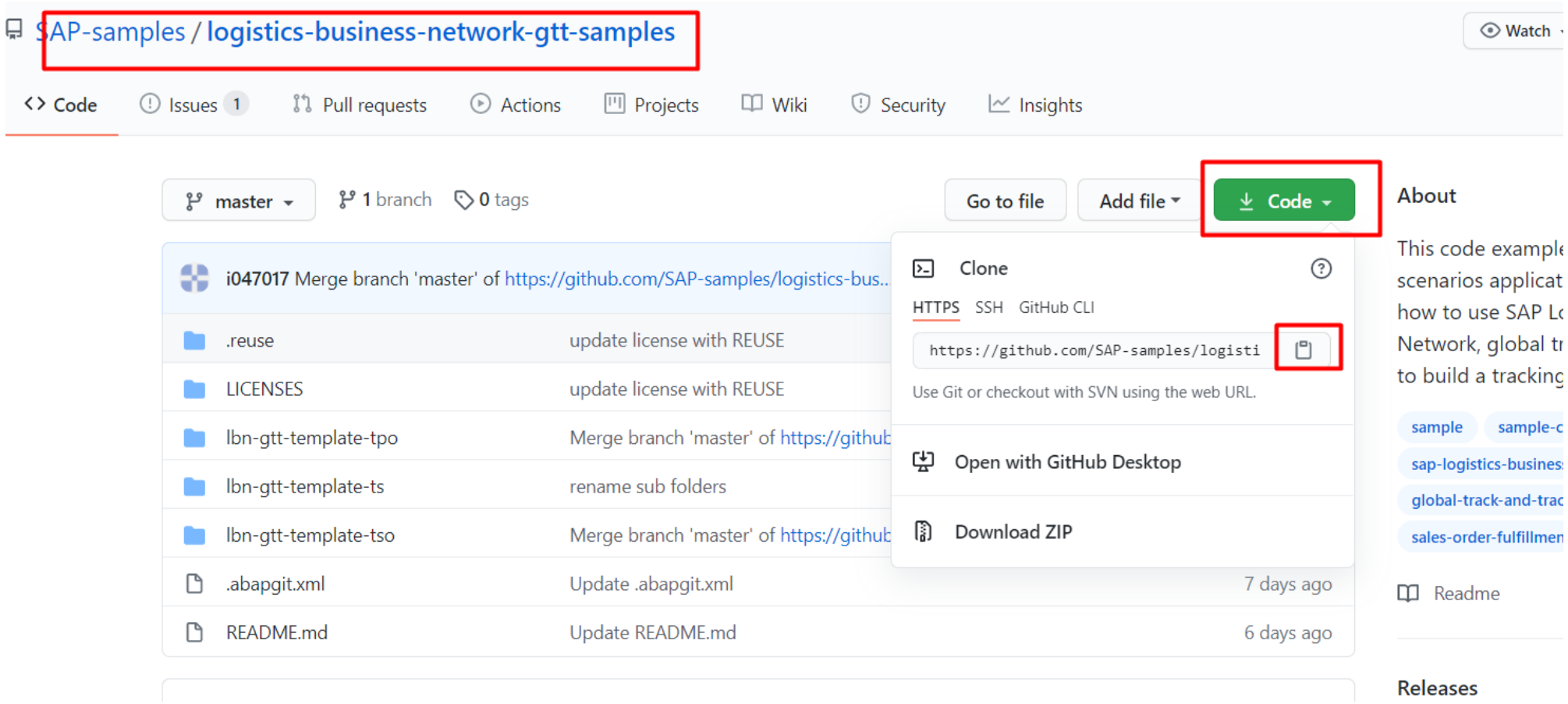
3-6: Click **Commit changes**



Step 3: Download ABAP Code Within the Specified Folder

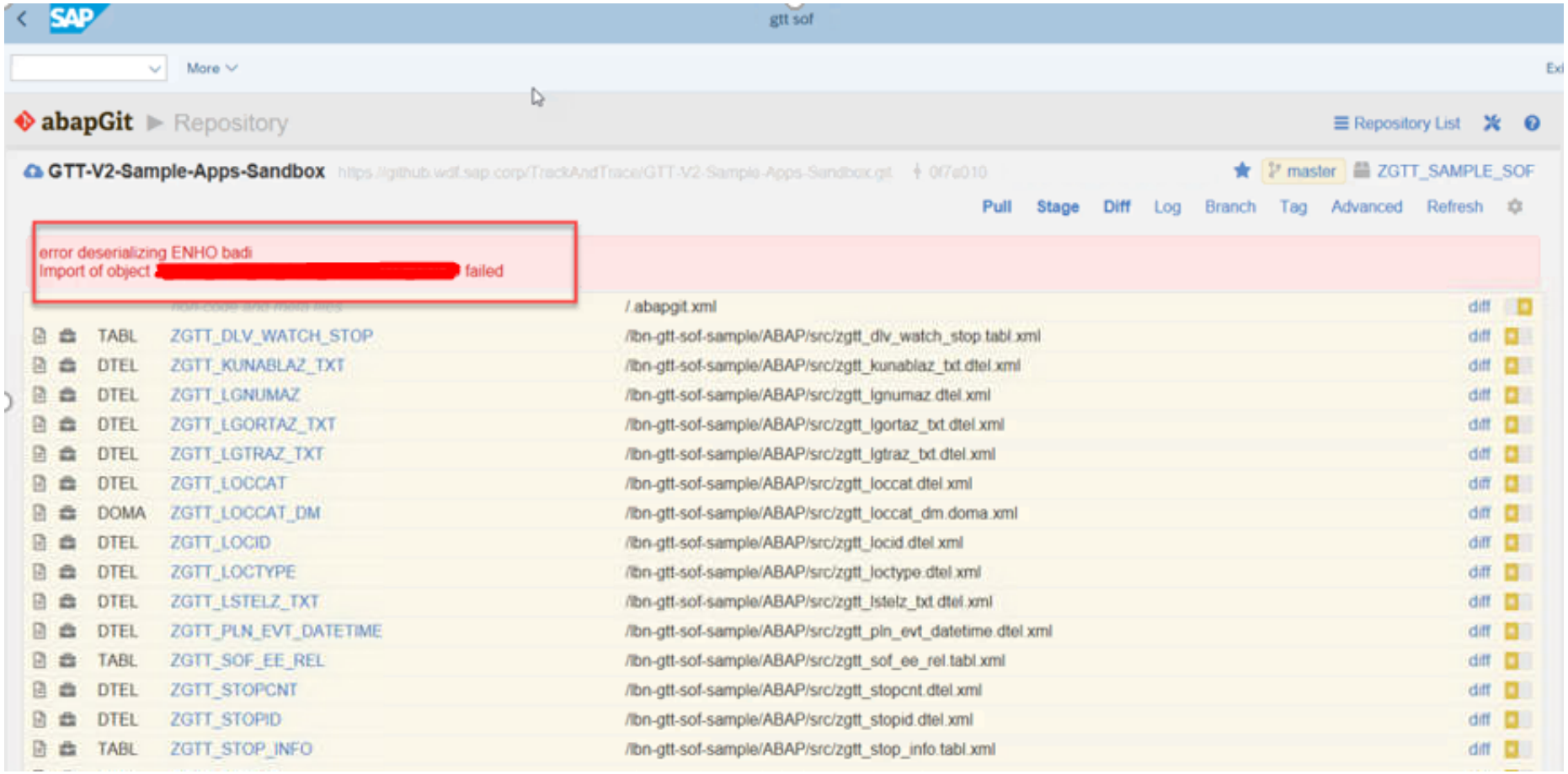
3-7: Go to the root and copy the repository URL by clicking button

3-8: Repeat Step 2-4 – 2.10



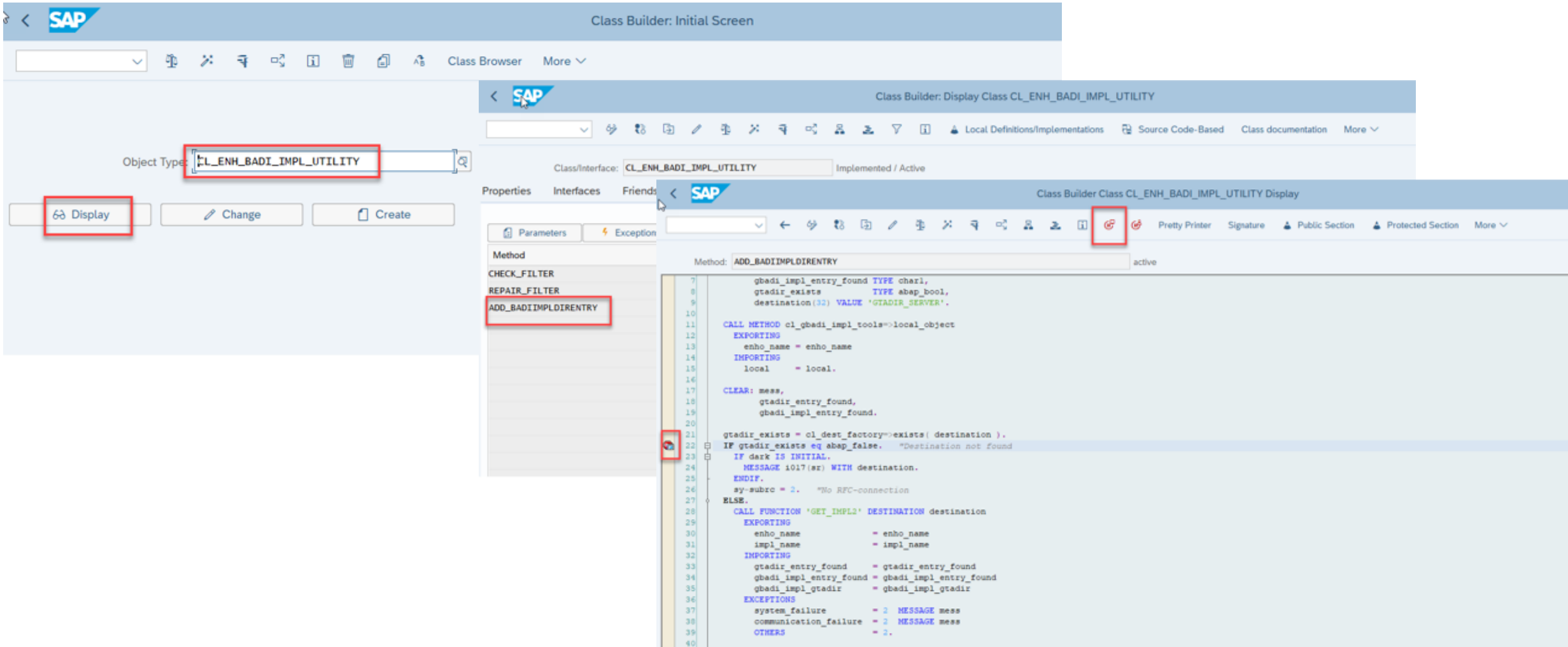
Potential Issue: Failure of New BADI Importing

Symptom: If you want to update an existing New BADI by reporting *ZABAPGIT_STANDALONE,* a deserialization exception will be captured which will lead to the failure of BADI update, even if the BADI has been deleted manually before.



Potential Issue: Failure of New BADI Importing

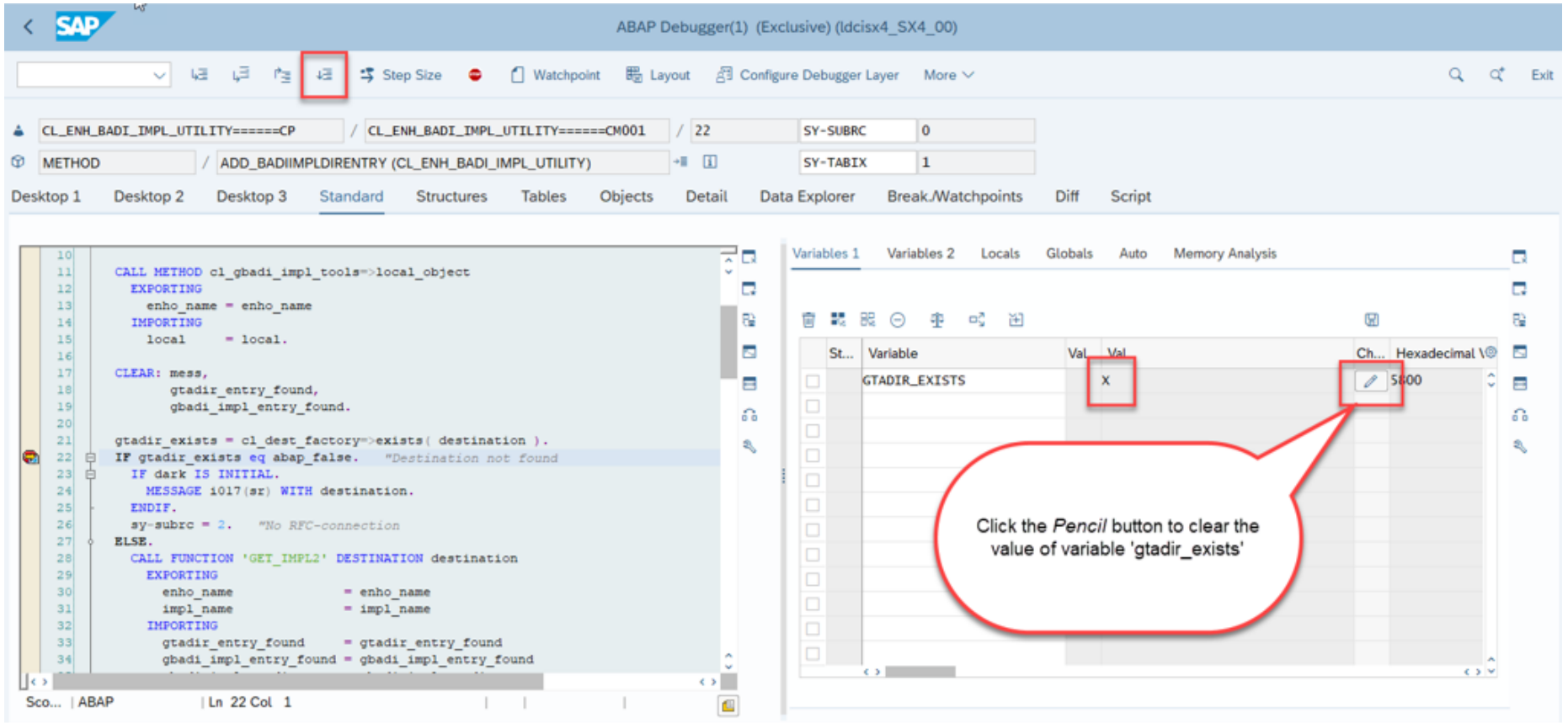
Solution: Set the breakpoint in Line 22 of class method: *CL_ENH_BADI_IMPL_UTILITY~ ADD_BADIIMPLDIRENTRY* in transaction code *SE24*



Potential Issue: Failure of New BADI importing

Solution: After setting the breakpoint, rerun the report *ZABAPGIT_STANDALONE* and repull the codes from the repository. It will go to the screen of debug mode. Clear the variable '*gtadir_exists*' and then execute by clicking  button. The BADI will be updated successfully.

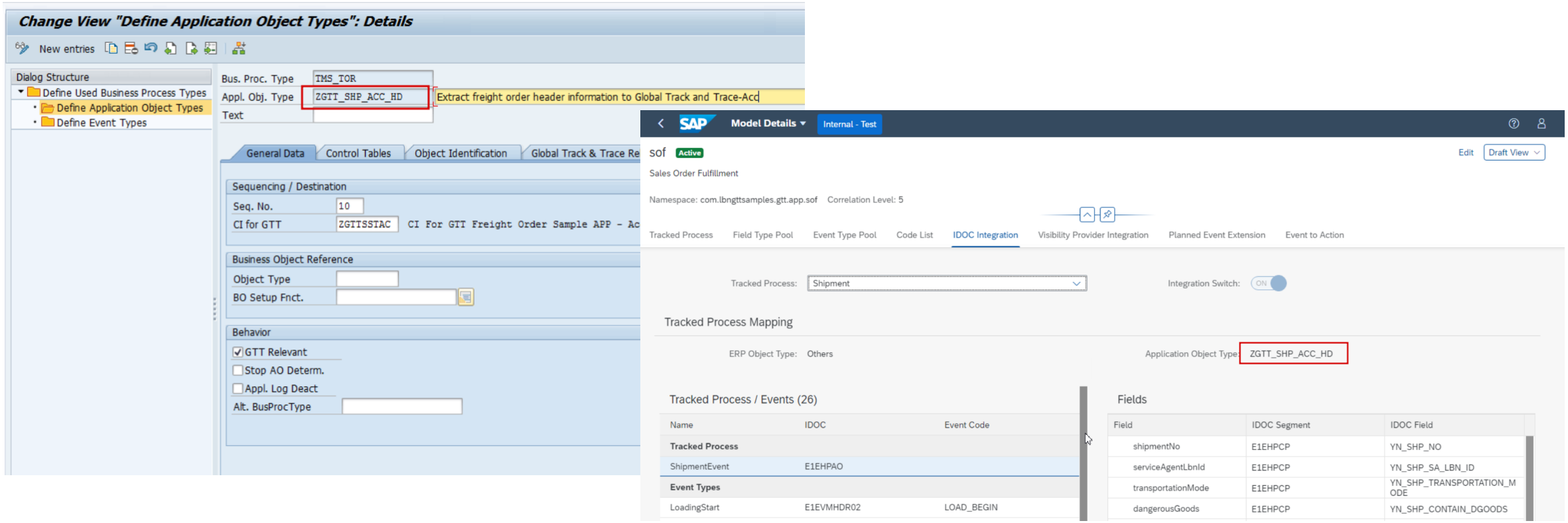
TIP: the debugging work needs related developer authorization for which the user shall ask the system administrator.



D) Configuration and Coding Guide - Advanced

1: Maintain AOT Type

When you are creating Application Object Type for one Business Process Type, make sure the AOT name must be as same as the name that is defined in the corresponding model in the Manage Models app in GTT V2.



2: Make the Customization Logic in the Function Modules and Assign Them to the Extractor Function

You can assign customization function models to the following extractor function:

1. GTT relevance function of AOT for tracked process tracking
2. GTT relevance function of Event Type for event tracking
3. Planned Event Extractors
4. Control Parameter Extractors
5. Info Parameter Extractors(optional)
6. Tracking ID Extractors
7. Event Data Extractors
8. AOT ID Extractors

Select one category above, create the extractor function and assign the corresponding modules.

For customization of GTT relevance and AOT ID, you need to enable *Determine by Function* option.

For customization of Tracking ID Type, you need to enable *Check Function(Function Module)* option.

Function	Function Module
510_WRF_MM_ITEM_01	WRF_XRA_MM_ITEM_01
OBP10_DELIV	/SAPTRX/XRA_SD_DELIV_OBP10
OBP10_HU_IN_DLV	/SAPTRX/XRA_SD_HU_IN_DLV_OBP10
OCB10_CONTAINER	/SCTM/REL_CREATION_CONTAINER
OCB10_ORDER	/SCTM/REL_CREATION_BOOKING
ODT20_REL_FU	/SCMTMS/REL_AOT_FU
ODT20_REL_TOUR	/SCMTMS/REL_AOT_ACT_TOR
ODT30_REL_INS	/SCMTMS/REL_AOT_INS
ODT30_REL_TU	/SCMTMS/REL_AOT_TU
PCM10_ITEM	/SAPTRX/XRA_MM_ITEM_PCM10
PMF10_ORDER	/SAPTRX/XRA_PP_ORDER_PMF10
RES30_REL_RESOURCE	/SCMTMS/REL_AOT_RESOURCE
RES30_REL_TU	/SCMTMS/REL_AOT_RES_TU
RES30_REL_VEH	/SCMTMS/REL_AOT_RES_VEH
SNC10_MSGIN	/SCA/EM_MSG_RELEVANCE_CHECK
SNC10_PURORD	/SCA/EM_PO_RELEVANCE_CHECK
SNC10_RPLORD	/SCA/EM_RPL_RELEVANCE_CHECK
ZE2E_OBP10_DELIV	ZE2E_XRA_SD_DELIV_OBP10
ZGTT_FERRERO_DEHDR	ZGTT_FERERRO_OTE_DE_HDR_REL
ZGTT_FERRERO_SHPHDR	ZGTT_FERERRO_OTE_SHP_HDR_REL

3: Sample Codes for the Track Shipments Template App

To support the Track Shipments template app, the sample codes cover the following cases by function group ZSST_GTT:

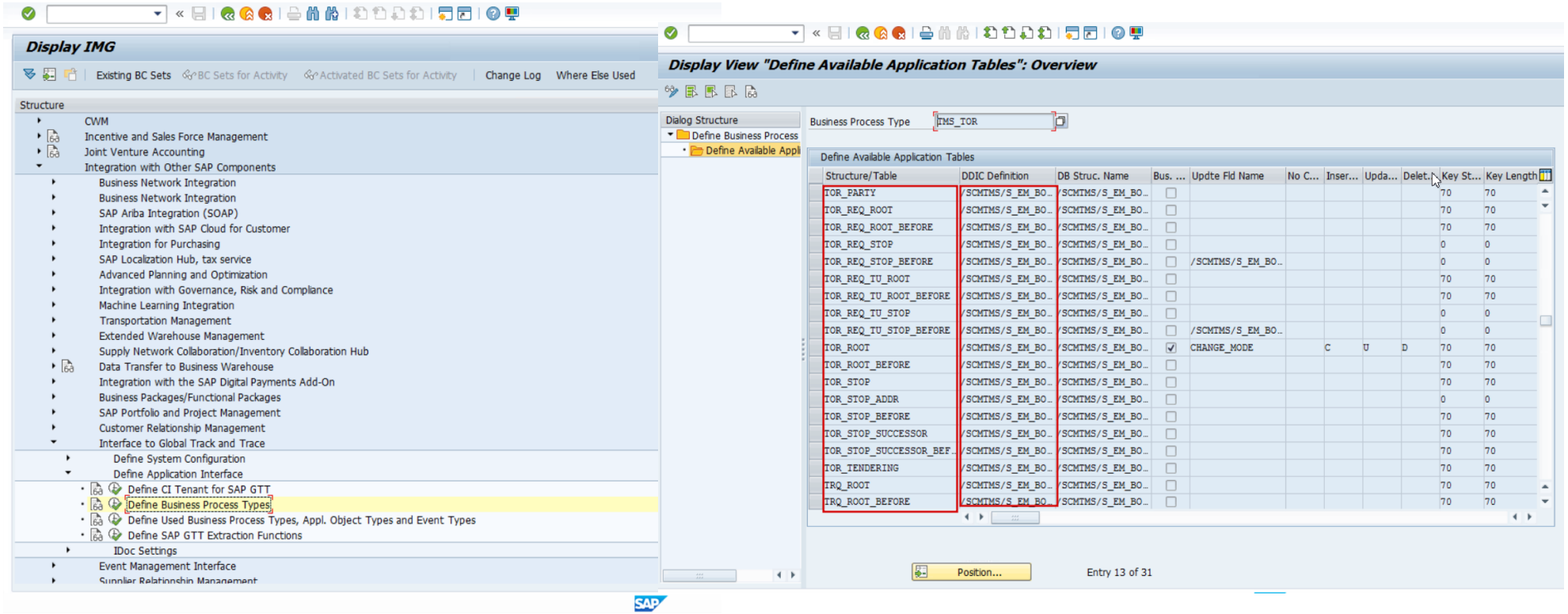
Category	Business Process Type	Function Module Name	Description
Control Parameter Extractors	TMS_TOR	ZSST_GTT_OTE_FO_HDR	Function for control parameters of Freight Order and Freight Booking
Event Data Extractors	TMS_TOR	ZSST_GTT_EE_FO_ARRIVAL	Actual Event of Arrival
Event Data Extractors	TMS_TOR	ZSST_GTT_EE_FO_COUPLING	Actual Event of Coupling
Event Data Extractors	TMS_TOR	ZSST_GTT_EE_FO_DECOUPLING	Actual Event of Decoupling
Event Data Extractors	TMS_TOR	ZSST_GTT_EE_FO_DEPARTURE	Actual Event of Departure
Event Data Extractors	TMS_TOR	ZSST_GTT_EE_FO_LOAD_END	Actual Event of Loading End
Event Data Extractors	TMS_TOR	ZSST_GTT_EE_FO_LOAD_START	Actual Event of Loading Start
Event Data Extractors	TMS_TOR	ZSST_GTT_EE_FO_POD	Actual Event of POD
Event Data Extractors	TMS_TOR	ZSST_GTT_EE_FO_POPU	Actual Event of POPU
Event Data Extractors	TMS_TOR	ZSST_GTT_EE_FO_UNLOAD_END	Actual Event of Unloading End
Event Data Extractors	TMS_TOR	ZSST_GTT_EE_FO_UNLOAD_START	Actual Event of Unloading Start
GTT relevance function of AOT	TMS_TOR	ZSST_GTT_OTE_FO_HDR_REL	Extractor for relevance determination for Freight Order and Freight Booking
GTT relevance function of Event Type	TMS_TOR	ZSST_GTT_EE_FO_ARRIVAL_REL	Extractor for relevance determination for Arrival
GTT relevance function of Event Type	TMS_TOR	ZSST_GTT_EE_FO_COUPLING_REL	Extractor for relevance determination for Coupling
GTT relevance function of Event Type	TMS_TOR	ZSST_GTT_EE_FO_DECOUPLING_REL	Extractor for relevance determination for Decoupling
GTT relevance function of Event Type	TMS_TOR	ZSST_GTT_EE_FO_DEPARTURE_REL	Extractor for relevance determination for Departure
GTT relevance function of Event Type	TMS_TOR	ZSST_GTT_EE_FO_LOAD_END_REL	Extractor for relevance determination for Load End
GTT relevance function of Event Type	TMS_TOR	ZSST_GTT_EE_FO_LOAD_START_REL	Extractor for relevance determination for Load Start
GTT relevance function of Event Type	TMS_TOR	ZSST_GTT_EE_FO_POD_REL	Extractor for relevance determination for POD
GTT relevance function of Event Type	TMS_TOR	ZSST_GTT_EE_FO_POPU_REL	Extractor for relevance determination for POPU
GTT relevance function of Event Type	TMS_TOR	ZSST_GTT_EE_FO_UNLOAD_END_REL	Extractor for relevance determination for Unload End
GTT relevance function of Event Type	TMS_TOR	ZSST_GTT_EE_FO_UNLOAD_STRT_REL	Extractor for relevance determination for Unload Start
Planned Event Extractors	TMS_TOR	ZSST_GTT_EE_FO_HDR	Planned Event for Freight Order and Freight Booking
Tracking ID Extractors	TMS_TOR	ZSST_GTT_OTE_FO_HEADER_TID	Function for setup of tracking IDs of Freight Order and Freight Booking

4: Available Contexts for the Extractors Modules

4-1: In **Display IMG** page, click
Integration with Other SAP Components -> Interface to Global Track and Trace -> Define Application Interface

4-2: Choose activity **Define Business Process Types**

4-3: Select the Business Process Types to find all the context tables and their structure info

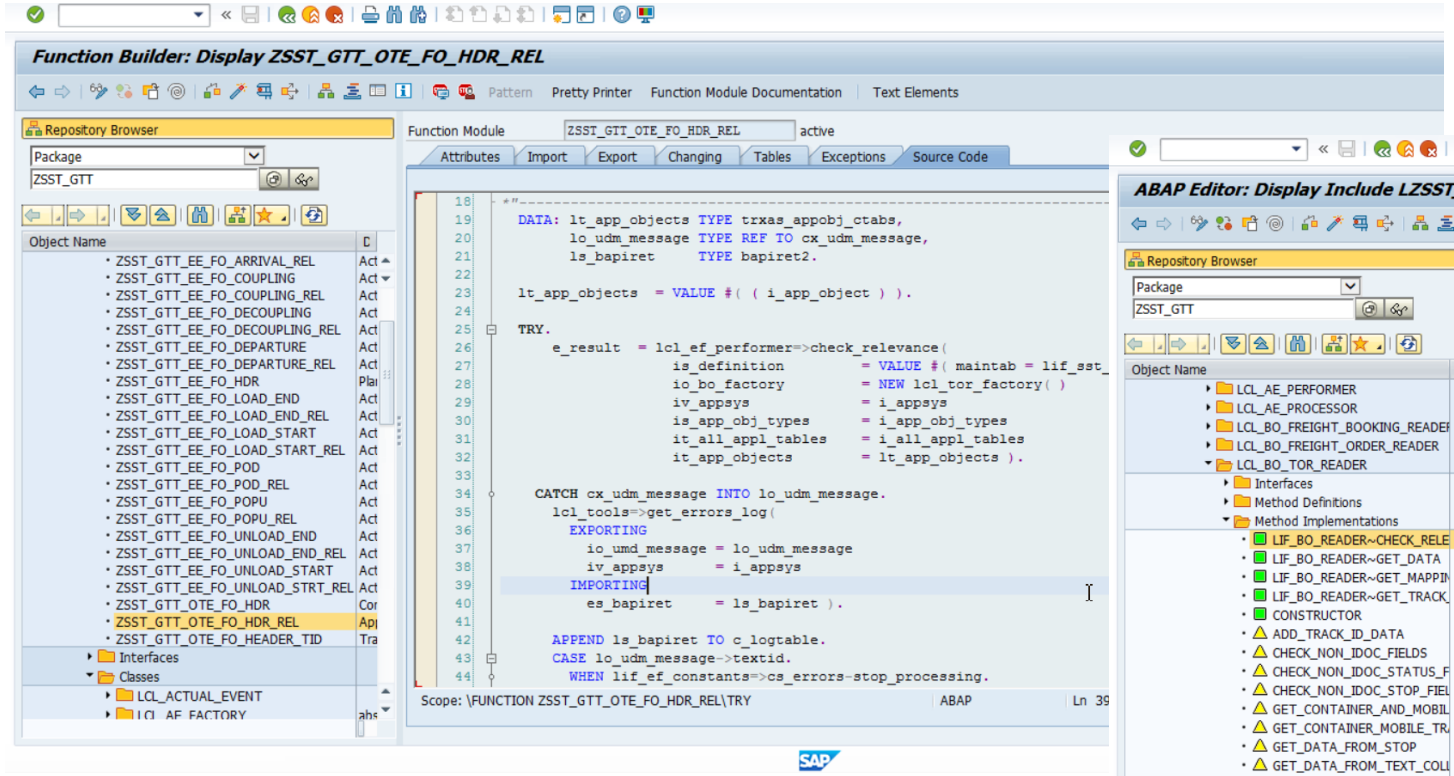


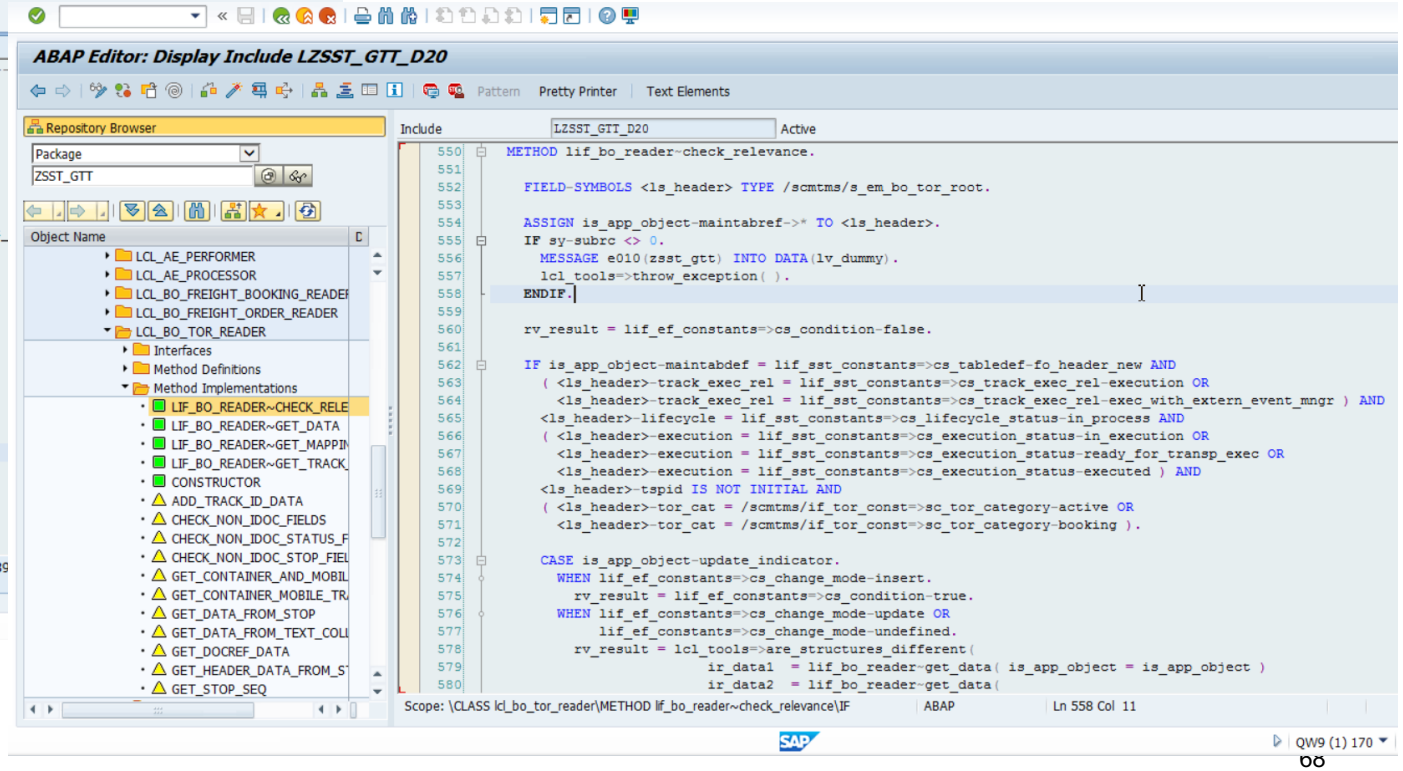
5: Coding Tips in the GTT Relevance Function Modules

To customize the GTT relevance function modules, key points are as below:

1. Make sure that the Main / Master tables are following the configuration of corresponding AOT or Event Type.
2. Add customization logics to determine the output parameters *E_RESULT*.

See sample code of function module: *ZSST_GTT_OTE_FO_HDR_REL*



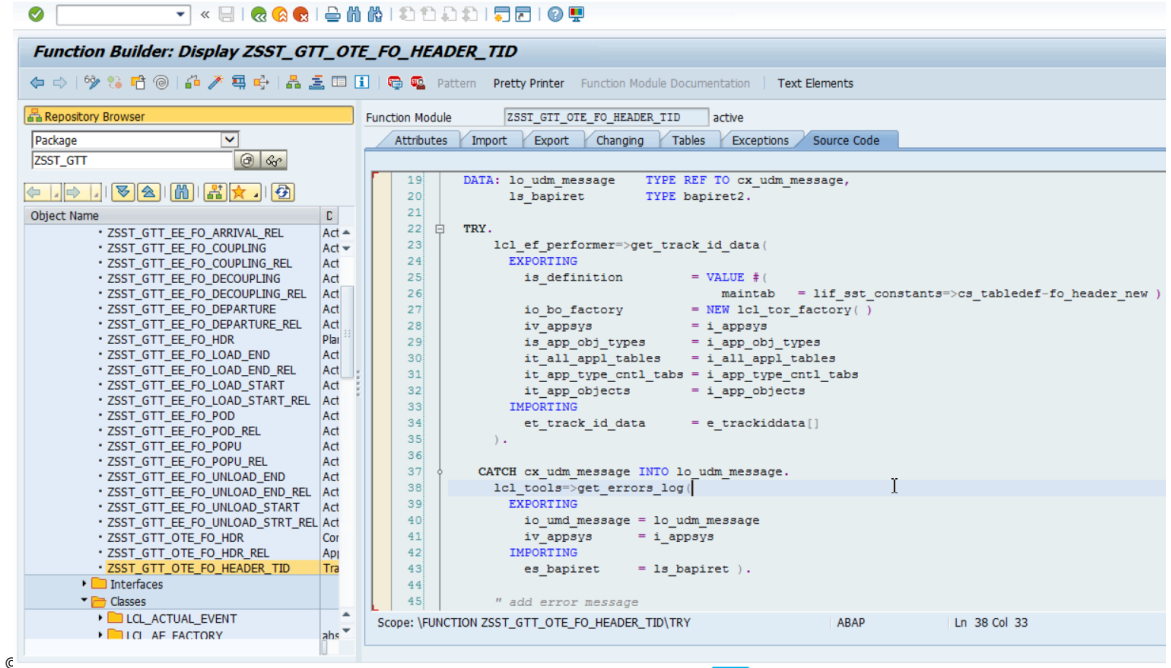


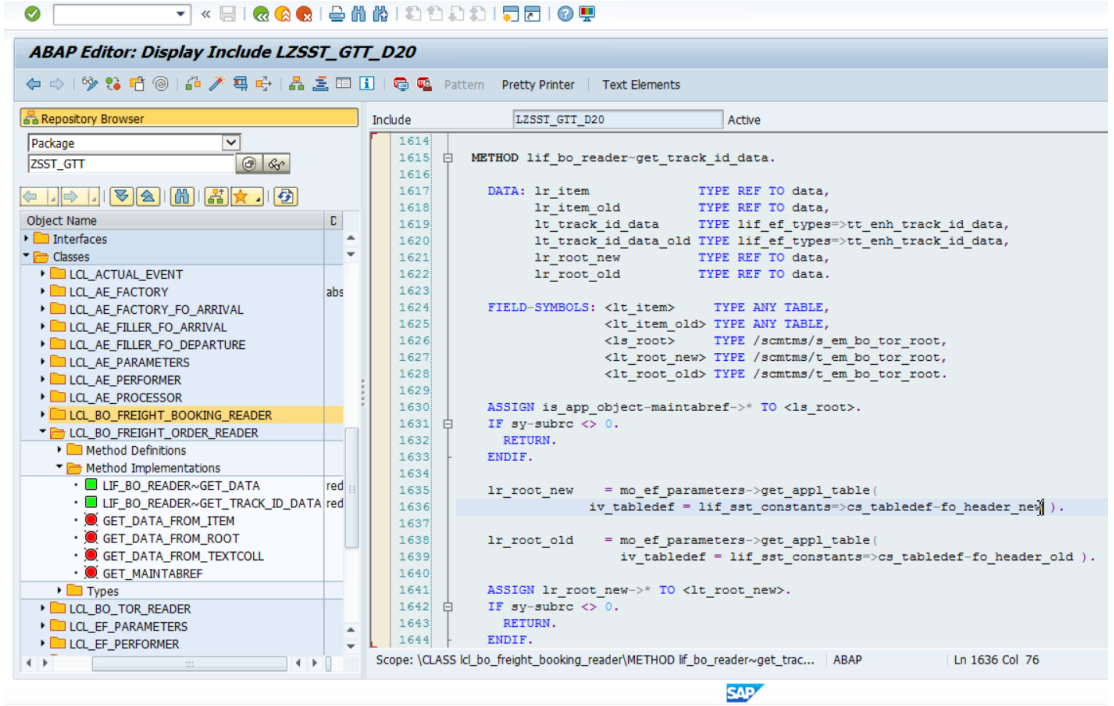
6: Coding Tips in the Tracking ID Function Modules

To customize the Tracking ID function modules, key points are as below:

1. Make sure that the Main / Master tables are following the configuration of corresponding AOT.
2. Add customization logics to fill the output table *E_TRACKIDDATA*.
3. The Tracking ID Type need to be the same as the definition in the process type of model in Manage Models application.
4. GTT v2 accepts delta transport for tracking IDs, which means that only the newly-created / changed / deleted tracking IDs shall be filled, while the ones without change need to be ignored in the logic.
5. In case of tracking ID deletion, the field *ACTION* shall be filled with 'D'.

See sample code of function module: *ZSST_GTT_OTE_FO_HEADER_TID.* Main logic for Freight Order and Freight Booking Tracking ID: LCL_BO_FREIGHT_ORDER_READER and LCL_BO_FREIGHT_BOOKING_READER, method LIF_BO_READER~GET_TRACK_ID_DATA

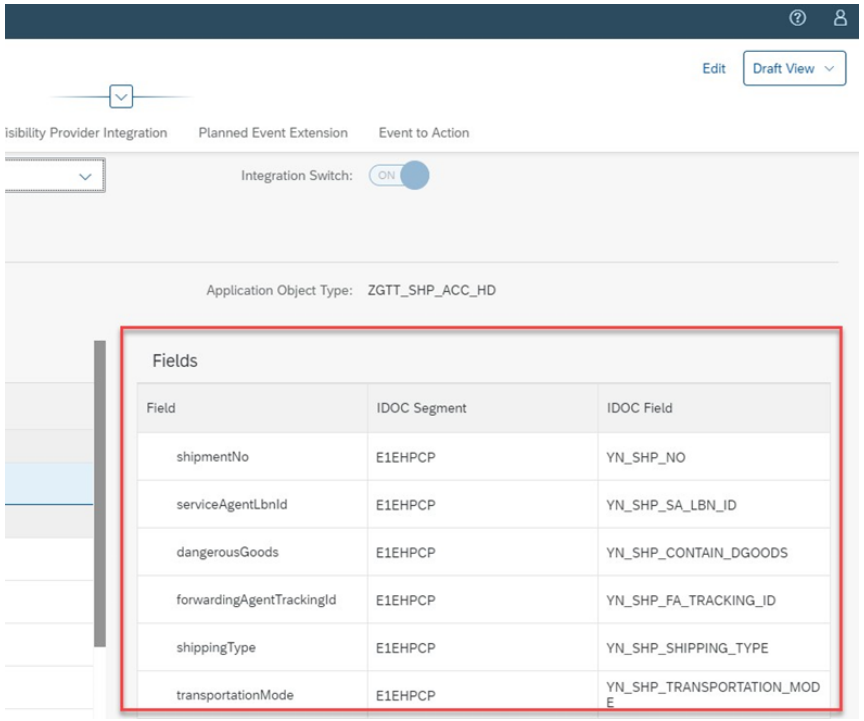




7: Coding Tips in the Control Parameter Function Modules

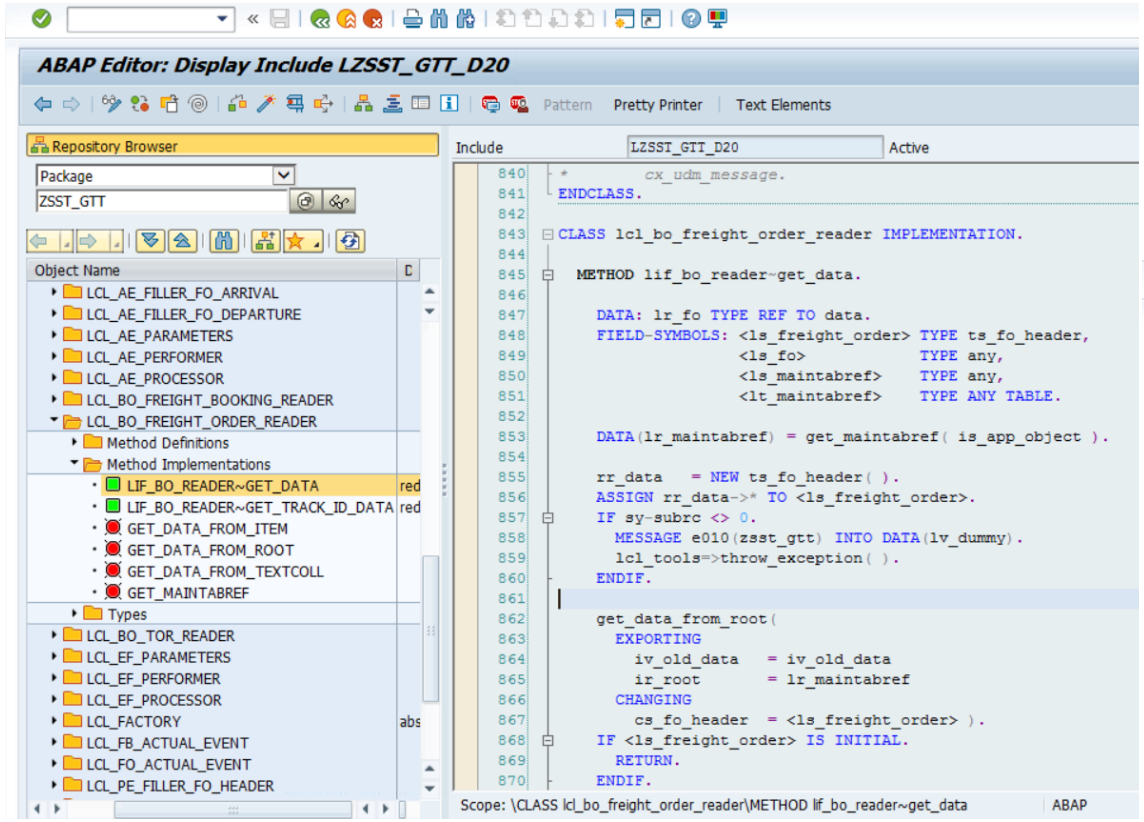
To customize the Control Parameter function modules, key points are as below:

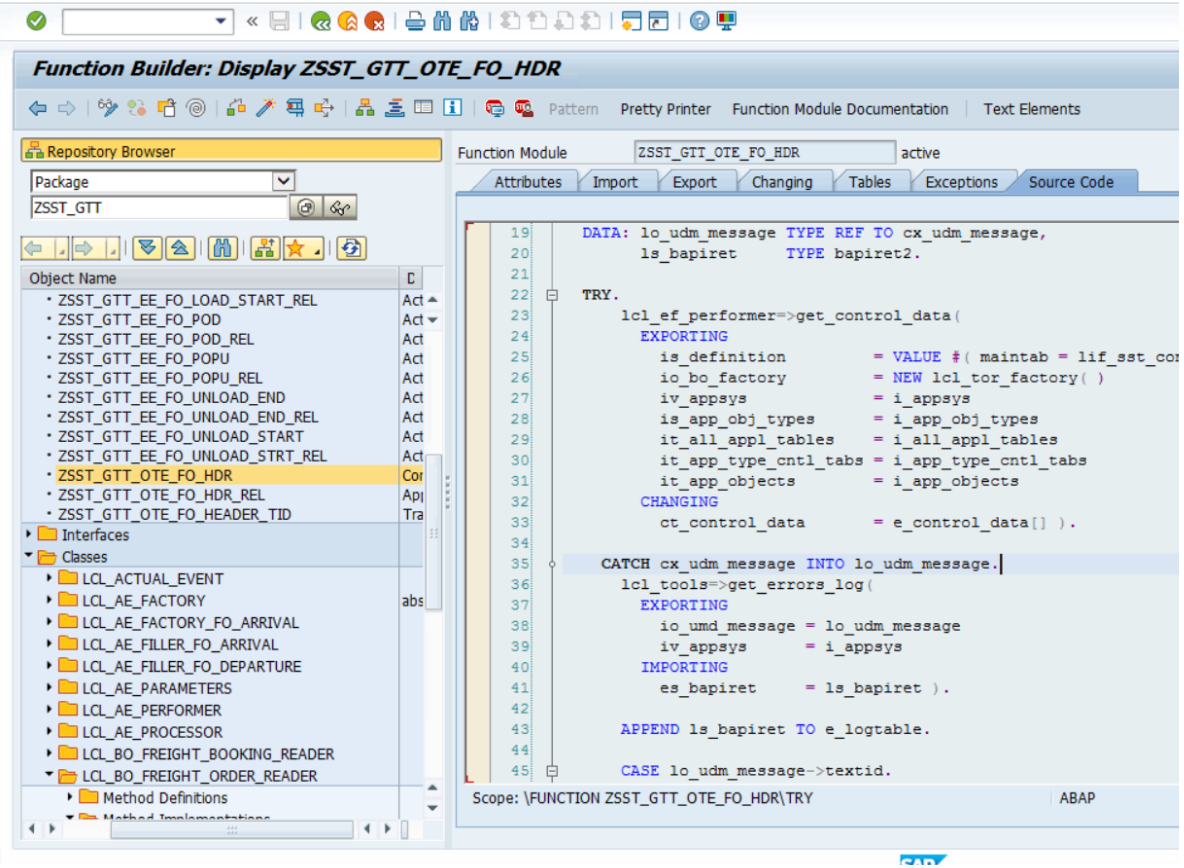
1. Make sure that the Main / Master tables are following the configuration of corresponding AOT.
2. Add customization logics to fill the output table *E_CONTROL_DATA*.
3. GTT v2 asks for full transport for all the control parameters, which means that all the fields needs to be extracted in all cases, no matter whether their values have been changed.
4. To fill up the composition (table) fields defined in Manage Model applications, use single field table types for all fields in composition, *PARAMINDEX* will be incremented automatically. If the field is empty, GTT regards it as a simple flat field.
5. To clear a composition, fill the key field using invalid values, for which key attribute has been checked in Manage Model application. It's not recommended to fill a code list type field to clear a composition even if it's a key field.
6. The field with fixed name 'ACTUAL_BUSINESS_DATETIME' and 'ACTUAL_BUSINESS_TIMEZONE' are mandatory fields to be transported for event handling sequencing in GTT V2.
7. In Manage Model application, click tab *IDOC Integration* to map the parameter names and model field names.
8. For DATE or DATETIME fields, when the source value is initial like '00000000' '000000000000000', then please ensure to only enable PARAMNAME and PARAMINDEX in the extractor code, not enable VALUE for IDOC sending.
9. For Amount field which has reference currency, please ensure to call BAPI 'BAPI_CURRENCY_CONV_TO_EXTERNAL' using the reference currency to make the amount tracked correctly by GTT v2. The BAPI will output the conversion result in 4 decimals as fixed, which needs additional rounding in the extractor if the corresponding field defined in the tracking model is of less then 4 decimals.



See sample code of function module: *ZSST_GTT_OTE_FO_HDR*. Main logic for Freight Order and Freight Booking Control parameters: LCL_BO_FREIGHT_ORDER_READER and LCL_BO_FREIGHT_BOOKING_READER, method LIF_BO_READER~GET_DATA

7: Coding Tips in the Control Parameter Function Modules



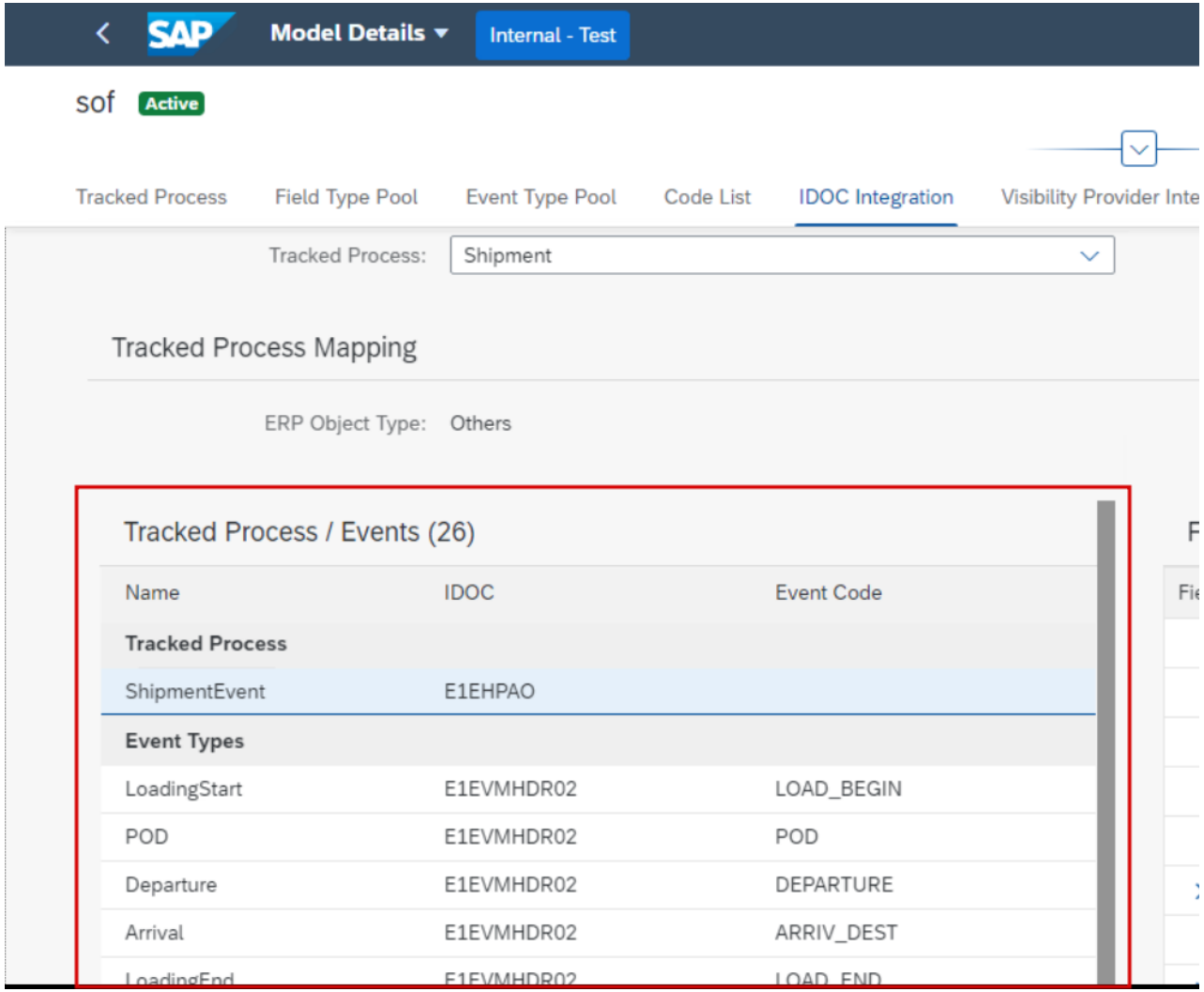


8: Coding Tips in the Planned Event Function Modules

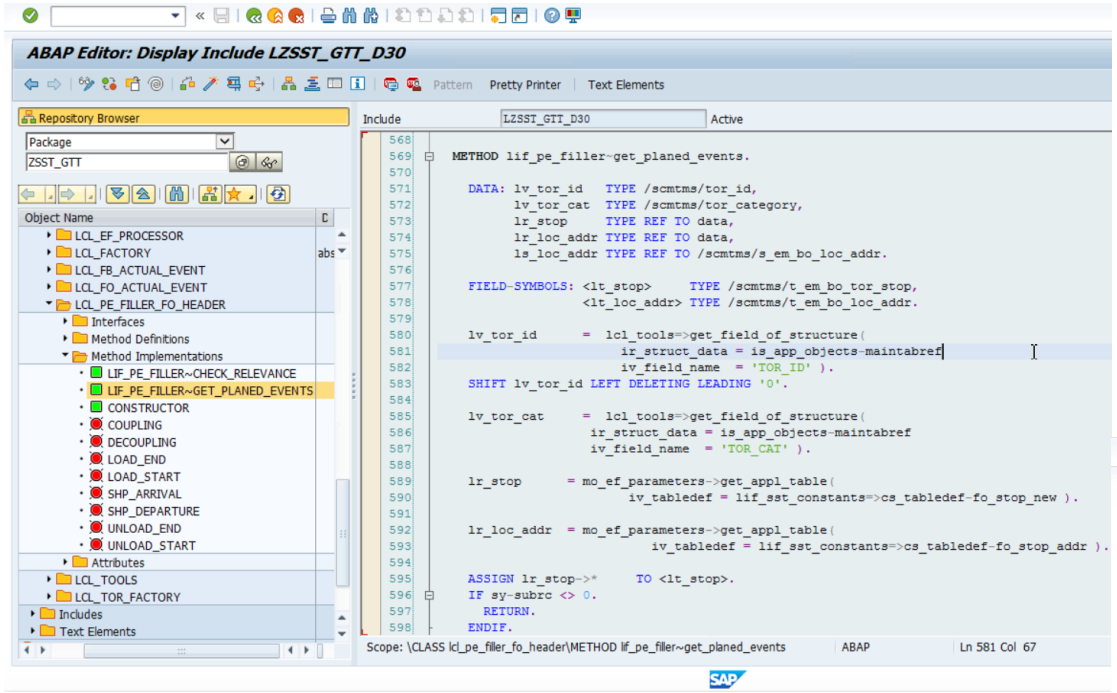
To customize the Planned Event function modules, key points are as below:

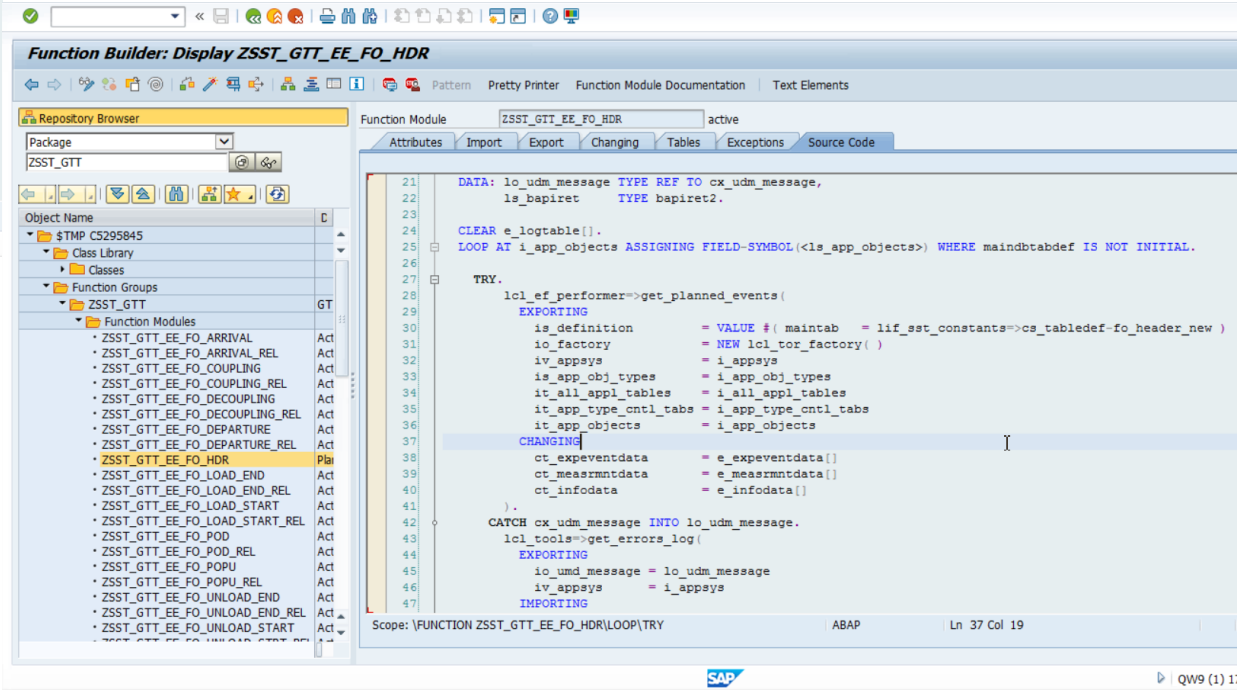
1. Make sure that the Main / Master tables are following the configuration of corresponding AOT.
2. Add customization logics to fill the output table *E_EXPEVENTDATA*.
3. GTT v2 asks for full transport for all the planned events, which means that all the events needs to be extracted in all cases, no matter whether their values have been changed.
4. The field *MILESTONE* is mandatory to be transported.
5. The field *EVT_EXP_DATETIME* is optional but need to be filled with relevant time zone *EVT_EXP_TZONE* together if it needs to be transported.
6. The field *LOC_ID1* is optional but need to be filled with relevant location type *LOCTYPE* together if it needs to be transported. The values for field *LOCTYPE* are limited by *Manage Locations* application in GTT V2.
7. The field *LOCID2* is mandatory to specify the stop ID (match key) in case of shipment tracking.

See sample code of function module: *ZSST_GTT_EE_FO_HDR,* Main logic for Freight Order and Freight Booking Control parameters: LCL_PE_FILLER_FO_HEADER, method LIF_PE_FILLER~GET_PLANED_EVENTS



8: Coding Tips in the Planned Event Function Modules





8: Coding Tips in the Planned Event Function Modules

For customers who implemented before February release 2021 and are still using SAP S/4HANA 1909 SP00 – SP01, to extract planned events, you need to apply the following Postal Address data method get_postal_address() of class lcl_tools.

Include LZSST_GTTD10 Active

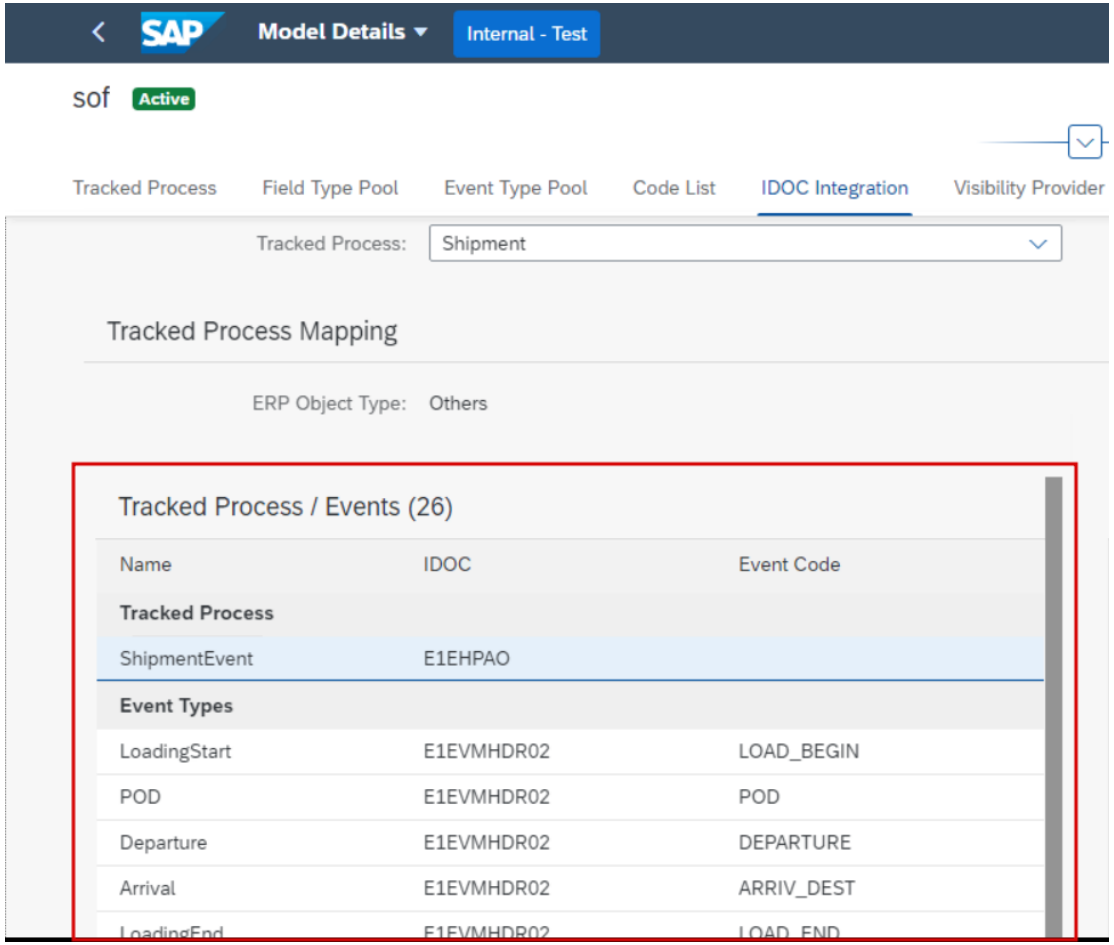
```
METHOD get_postal_address.
  DATA(lo_tor_srv_mgr) = /bobf/cl_tra_serv_mgr_factory=>get_service_manager( iv_bo_key = /scmtms/if_tor_c=>sc_bo_key ).
  DATA(lo_loc_srv_mgr) = /bobf/cl_tra_serv_mgr_factory=>get_service_manager( iv_bo_key = /scmtms/if_location_c=>sc_bo_key ).

  lo_tor_srv_mgr->retrieve_by_association(
      EXPORTING
        iv_node_key    = /scmtms/if_tor_c=>sc_node-root
        it_key         = VALUE #( ( key = iv_node_id ) )
        iv_association = /scmtms/if_tor_c=>sc_association-root-stop
      IMPORTING
        et_target_key  = DATA(lt_stop_target_key) ).

  IF lt_stop_target_key IS NOT INITIAL.
    lo_tor_srv_mgr->retrieve_by_association(
      EXPORTING
        iv_node_key    = /scmtms/if_tor_c=>sc_node-stop
        it_key         = CORRESPONDING #( lt_stop_target_key )
        iv_association = /scmtms/if_tor_c=>sc_association-stop-bo_loc_log
      IMPORTING
        et_key_link    = DATA(lt_loc_log_key_link) ).

    IF lt_loc_log_key_link IS NOT INITIAL.
      lo_loc_srv_mgr->retrieve_by_association(
      EXPORTING
        iv_node_key    = /scmtms/if_location_c=>sc_node-root
        it_key         = CORRESPONDING #( lt_loc_log_key_link MAPPING key = target_key )
        iv_association = /scmtms/if_location_c=>sc_association-root-address
      IMPORTING
        et_key_link    = DATA(lt_address_key_link) ).

      IF lt_address_key_link IS NOT INITIAL.
        TRY.
            DATA(lr_bo_conf) = /bobf/cl_frw_factory=>get_configuration( iv_bo_key = /scmtms/if_location_c=>sc_bo_key ).
          CATCH /bobf/cx_frw.
            MESSAGE e011(zsst_gtt) INTO  DATA(lv_dummy).
            lcl_tools=>throw_exception( ).
        ENDTRY.

        DATA(lv_postal_ass_key) = lr_bo_conf->get_content_key_mapping(
                        iv_content_cat      = /bobf/if_conf_c=>sc_content_ass
                        iv_do_content_key   = /bofu/if_addr_constants=>sc_association-root-postal_address
                        iv_do_root_node_key = /scmtms/if_location_c=>sc_node-/bofu/address ).
```

9: Coding Tips in the Event Data Function Modules

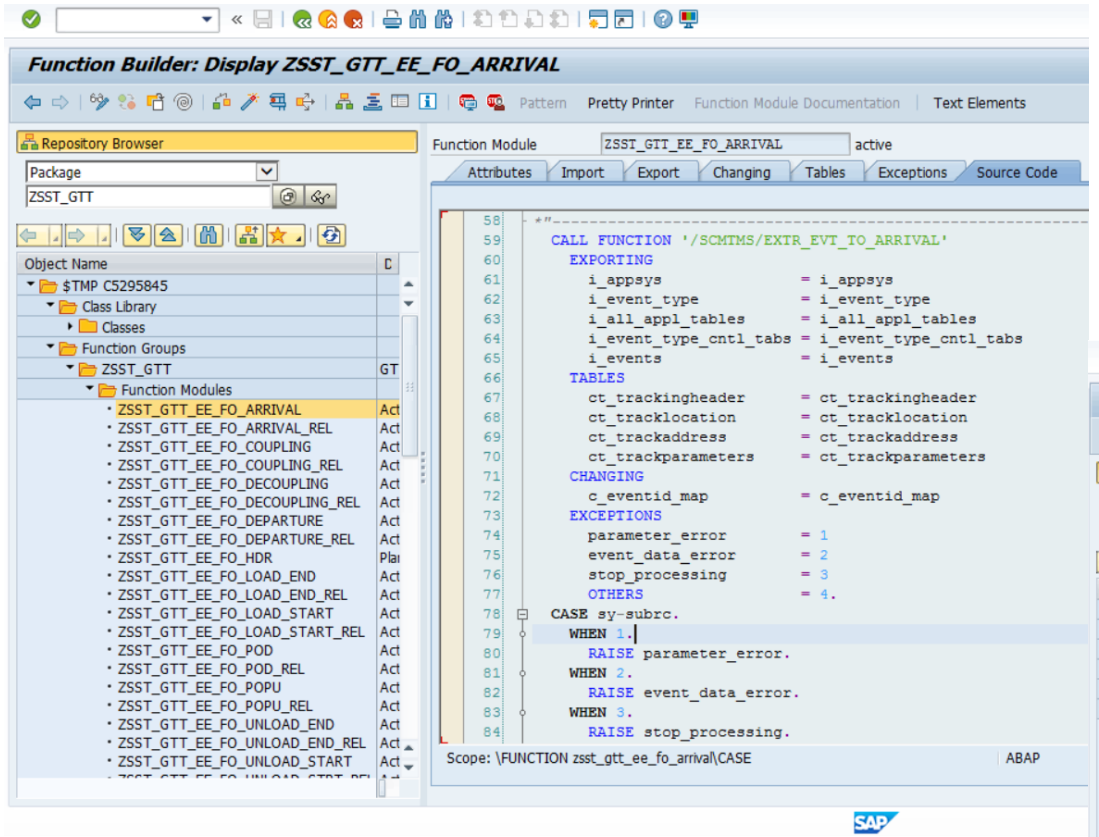
To customize the Event Data function modules, key points are as below:

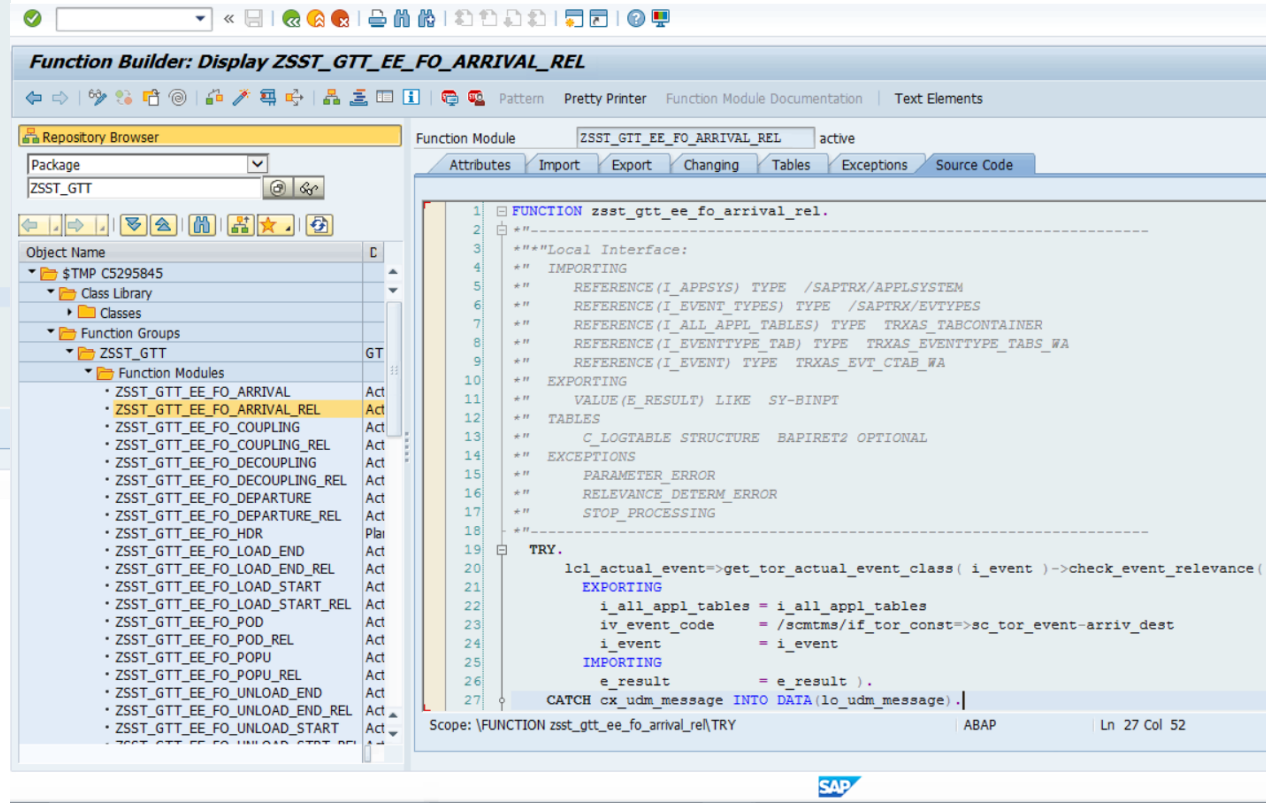
1. Make sure that the Main / Master tables are following the configuration of corresponding Event Type.
2. Add customization logics to fill the output table *CT_TRACKINGHEADER, CT_TRACKLOCATION, C_EVENTID_MAP.*
3. If the event has user-defined fields in Manage Models application, fill the table *CT_TRACKPARAMETERS.*
4. If the event has reference table information, fill the table *CT_TRACKREFERENCES.*
5. The field *CT_TRACKINGHEADER-SRCCOD, SRCID, SRCTX* is used for event reason transport.
6. In Manage Model application, click tab IDOC Integration to map the user-defined parameter names and model field names.

See sample code of function module: *ZSST_GTT_EE_FO_ARRIVAL.*
Relevance function module: *ZSST_GTT_EE_FO_ARRIVAL_REL.*



9: Coding Tips in the Event Data Function Modules





Thank you.

SAP Business Network
February 2021

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