



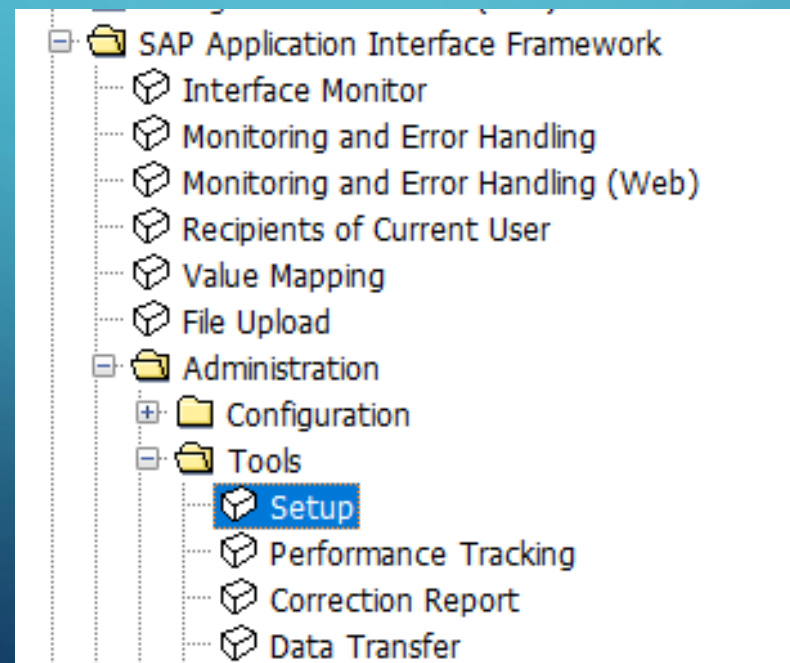
AIF (APPLICATION PROGRAMMING INTERFACE)

PART 1

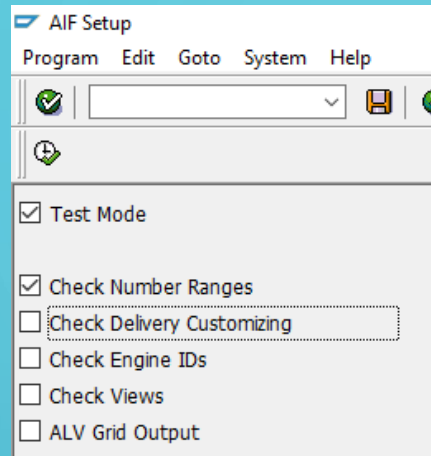
MY TRAINING PROJECTS BY AIF TUTORIALS FROM
SAPCODES.COM([HTTPS://SAPCODES.COM/AIF-APPLICATION-PROGRAMMING-
INTERFACE/](https://sapcodes.com/aif-application-programming-interface/))

1. AIF Set Up

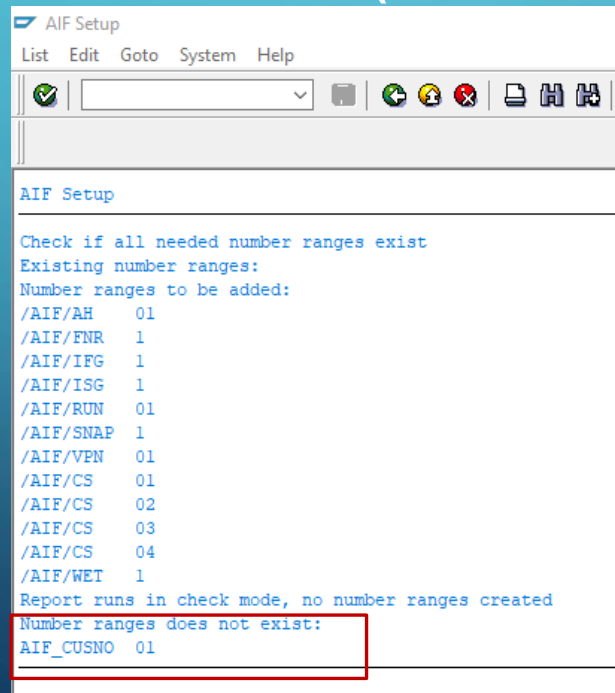
SAP AIF PROVIDES TRANSACTION TX- /AIF/SETUP TO CHECK AND CREATE REQUIRED NUMBER RANGES AND OTHER THINGS. BEFORE DOING ANY PROCESSING IN AIF, THIS MUST BE CHECKED AND CREATED FIRST. FROM THE ARE MENU /AIF/ , SELECT TX- /AIF/SETUP



THE PROGRAM CAN BE RUN IN TEST MODE/REAL MODE TO CHECK NUMBER OF THINGS. IN THIS POST WILL CHECK THE AIF NUMBER RANGES. SELECT THE TEST MODE AND SELECT CHECK NUMBER RANGES AND EXECUTE.



The program result shows all the number ranges already created in the system and if not created for few, then this program can be run (without test mode) to create the number ranges in the system.



```

85 WRITE: 'Check if all needed number ranges exist'(001).NEW-LINE.
86
87 SELECT * INTO TABLE lt_existing_nriv FROM nriv WHERE object LIKE '/AIF%' or object LIKE 'AIF_%'.
88
89 WRITE: 'Existing number ranges:'(003). NEW-LINE.
90 LOOP AT lt_existing_nriv ASSIGNING <ls_nriv>.
91     WRITE: <ls_nriv>-object, <ls_nriv>-nrrangenr. NEW-LINE.
92 ENDLOOP.
93
94 * build table with all needed number ranges
95 CLEAR: ls_nriv.
96 ls_nriv-object = '/AIF/AH'.    ls_nriv-nrrangenr = '01'.    ls_nriv-fromnumber = '000001'.    ls_nriv-tonumber = '999999'.    APPEND ls_nriv TO lt_new_nriv.
97 ls_nriv-object = '/AIF/FNR'.  ls_nriv-nrrangenr = '1'.    ls_nriv-fromnumber = '000001'.    ls_nriv-tonumber = '999999'.    APPEND ls_nriv TO lt_new_nriv.
98 ls_nriv-object = '/AIF/IFG'.  ls_nriv-nrrangenr = '1'.    ls_nriv-fromnumber = '00001'.    ls_nriv-tonumber = '99999'.    APPEND ls_nriv TO lt_new_nriv.
99 ls_nriv-object = '/AIF/ISG'.  ls_nriv-nrrangenr = '1'.    ls_nriv-fromnumber = '00000001'.    ls_nriv-tonumber = '99999999'.    APPEND ls_nriv TO lt_new_nriv.
100 ls_nriv-object = '/AIF/RUN'.  ls_nriv-nrrangenr = '01'.    ls_nriv-fromnumber = '0000000001'.    ls_nriv-tonumber = '9999999998'.    APPEND ls_nriv TO lt_new_nriv.
101 ls_nriv-object = '/AIF/SNAP'.  ls_nriv-nrrangenr = '1'.    ls_nriv-fromnumber = '00000001'.    ls_nriv-tonumber = '99999999'.    APPEND ls_nriv TO lt_new_nriv.
102 ls_nriv-object = '/AIF/VPN'.  ls_nriv-nrrangenr = '01'.    ls_nriv-fromnumber = '0000000001'.    ls_nriv-tonumber = '9999999999'.    APPEND ls_nriv TO lt_new_nriv.
103 ls_nriv-object = '/AIF/CS'.  ls_nriv-nrrangenr = '01'.    ls_nriv-fromnumber = '00000001'.    ls_nriv-tonumber = '29999999'.    APPEND ls_nriv TO lt_new_nriv.
104 ls_nriv-object = '/AIF/CS'.  ls_nriv-nrrangenr = '02'.    ls_nriv-fromnumber = '30000000'.    ls_nriv-tonumber = '59999999'.    APPEND ls_nriv TO lt_new_nriv.
105 ls_nriv-object = '/AIF/CS'.  ls_nriv-nrrangenr = '03'.    ls_nriv-fromnumber = '60000000'.    ls_nriv-tonumber = '69999999'.    APPEND ls_nriv TO lt_new_nriv.
106 ls_nriv-object = '/AIF/CS'.  ls_nriv-nrrangenr = '04'.    ls_nriv-fromnumber = '70000000'.    ls_nriv-tonumber = '79999999'.    APPEND ls_nriv TO lt_new_nriv.
107 ls_nriv-object = '/AIF/WET'.  ls_nriv-nrrangenr = '1'.    ls_nriv-fromnumber = '00000001'.    ls_nriv-tonumber = '99999999'.    APPEND ls_nriv TO lt_new_nriv.
108 ls_nriv-object = 'AIF_CUSNO'.  ls_nriv-nrrangenr = '01'.    ls_nriv-fromnumber = '00000001'.    ls_nriv-tonumber = '02000000'.    APPEND ls_nriv TO lt_new_nriv.
109
110 * check which number ranges are already there
111 CLEAR: lv_need_update.
112 LOOP AT lt_new_nriv ASSIGNING <ls_nriv>.
113     READ TABLE lt_existing_nriv TRANSPORTING NO FIELDS WITH KEY object = <ls_nriv>-object.
114     IF sy-subrc <> 0.
115         * check if the number range exists. Only if the number range exists the interval has to be set
116         SELECT SINGLE * FROM tnr INTO ls_tnr WHERE object = <ls_nriv>-object.
117         IF sy-subrc = 0.
118             IF lv_need_update IS INITIAL.
119                 lv_need_update = 'X'.
120                 WRITE: 'Number ranges to be added:'(004). NEW-LINE.
121             ENDIF.
122             WRITE: <ls_nriv>-object, <ls_nriv>-nrrangenr. NEW-LINE.
123         ELSE.
124             lv_need_update = 'X'.
125             APPEND <ls_nriv> TO lt_no_existing_nriv.
126             DELETE lt_new_nriv.
127         ENDIF.
128     ELSE.
129         DELETE lt_new_nriv.
130     ENDIF.
131 ENDLOOP.
132

```

Data Browser: Table NRIV Select Entries 12

Table Entry Edit Goto Settings System Help

Check Table...

	CLIE...	OBJECT	SUBOBJE...	NRRANGE...	TOYE...	FROMNUMB...	TONUMBER	NRLEVEL	EXTERNI...	
	100	/AIF/AH		01		000001	999999	00000000000000000000		EXTERNIND
	100	/AIF/CS		01		00000001	29999999	00000000000000000000		
	100	/AIF/CS		02		30000000	59999999	00000000000000000000		
	100	/AIF/CS		03		60000000	69999999	00000000000000000000		
	100	/AIF/CS		04		70000000	79999999	00000000000000000000		
	100	/AIF/FNR		1		000001	999999	00000000000000000000		
	100	/AIF/IFG		1		00001	99999	00000000000000000000		
	100	/AIF/ISG		1		00000001	99999999	00000000000000000000		
	100	/AIF/RUN		01		0000000001	9999999998	00000000000000000000		
	100	/AIF/SNAP		1		00000001	99999999	00000000000000000000		
	100	/AIF/VPN		01		0000000001	9999999999	00000000000000000000		
	100	/AIF/WET		1		00000001	99999999	00000000000000000000		

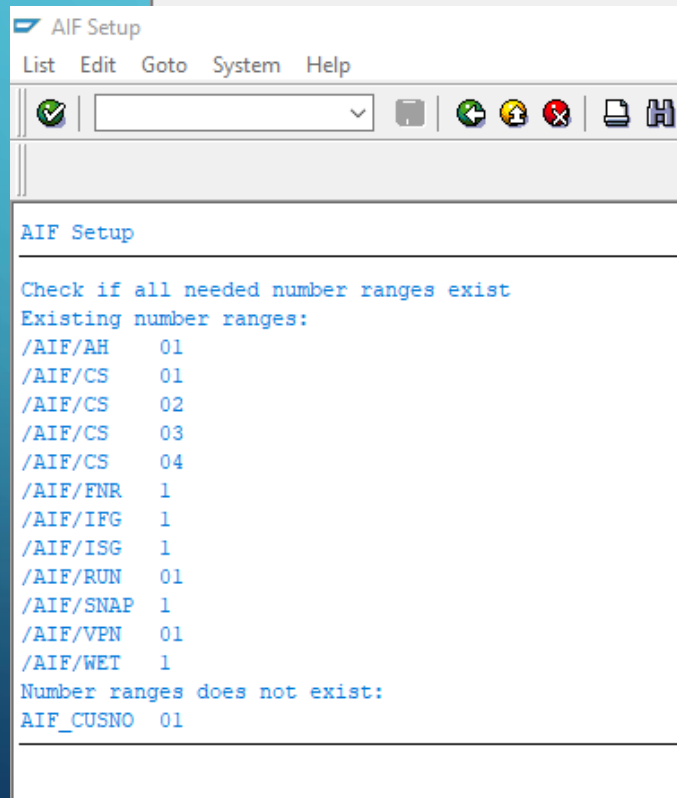
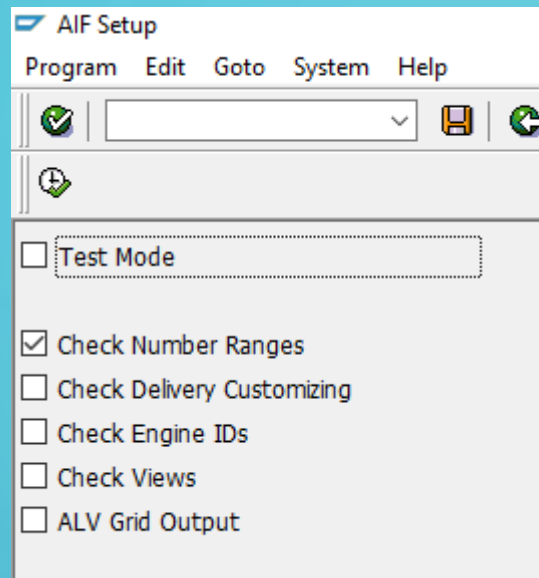
```

132
133 IF lv_need_update IS INITIAL.
134     WRITE: 'All needed number ranges exist already'(005). NEW-LINE.
135     ULINE.
136     RETURN.
137 ENDIF.
138
139 IF NOT ip_test IS INITIAL.
140     WRITE: 'Report runs in check mode, no number ranges created'(006). NEW-LINE.
141 ELSE.
142     IF lt_new_nriv IS NOT INITIAL.
143         INSERT nriv FROM TABLE lt_new_nriv.
144         IF sy-subrc = 0.
145             CALL FUNCTION 'DB_COMMIT'.
146             WRITE: 'Report runs in save mode, number ranges were created'(007). NEW-LINE.
147         ELSE.
148             WRITE: 'Report runs in save mode, but number ranges were NOT created!'(008). NEW-LINE.
149         ENDIF.
150     ENDIF.
151 ENDIF.
152 IF lt_no_existing_nriv IS NOT INITIAL.
153     WRITE: 'Number ranges does not exist:'(028). NEW-LINE.
154     LOOP AT lt_no_existing_nriv ASSIGNING <ls_nriv>.
155         WRITE: <ls_nriv>-object, <ls_nriv>-nrrangenr. NEW-LINE.
156     ENDOLOOP.
157 ENDIF.
158 ULINE.
159
160 ENDFORM.

```

"f check number ranges

The report details: it really creates number ranges which not yet created in the system except of ranges that don't exist in the table TNRO.



2. AIF INTRO & PROCESSING FIRST MESSAGE IN AIF

THE SAP APPLICATION INTERFACE FRAMEWORK (AIF) ENABLES TO DEVELOP AND MONITOR INTERFACES AS WELL AS EXECUTE ERROR HANDLING IN A SINGLE FRAMEWORK .

IT IS MOSTLY USEFUL IN A COMPLEX HETEROGENEOUS SYSTEM LANDSCAPE WITH SAP PI SYSTEM. BUSINESS USER(NOT TECHNICAL USER) CAN PERFORM ERROR MONITORING AND THE ERROR HANDLING.

AIF IS MOSTLY USEFUL WHEN DATA TRANSFER HAPPENS BETWEEN DIFFERENT SAP SYSTEMS.

FOR THE BELOW POST USE CASE- CONSIDER WE HAVE TWO SYSTEMS

1. SOURCE SYSTEM WHICH SENDS THE DATA

2. TARGET SYSTEM WHICH RECEIVES THE DATA VIA AIF AND PROCESS IT THEN

SO AS RECEIVED MESSAGE TO BE PROCESSED IN TARGET SYSTEM VIA AIF, THEN CERTAIN AIF CUSTOMIZING NEEDED.

BELOW STEP EXPLAINS AIF CUSTOMIZING STEPS NEEDED IN TARGET SYSTEM.

CREATE DDIC STRUCTURE (THIS IS THE STRUCTURAL FORMAT TARGET SYSTEM RECEIVES THE DATA)

Structure

ZDEMO_S_SPFLI_AIF_RAW

Active

Short Description










AIF flight raw

Attributes

Components

Input Help/Check

Currency/quantity fields



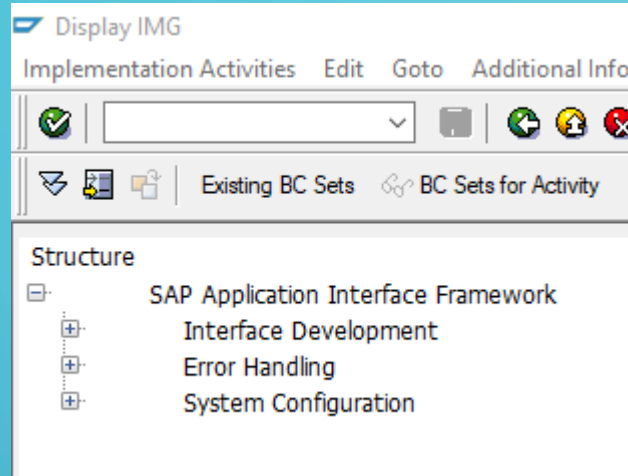
Built-In Type

1 / 17

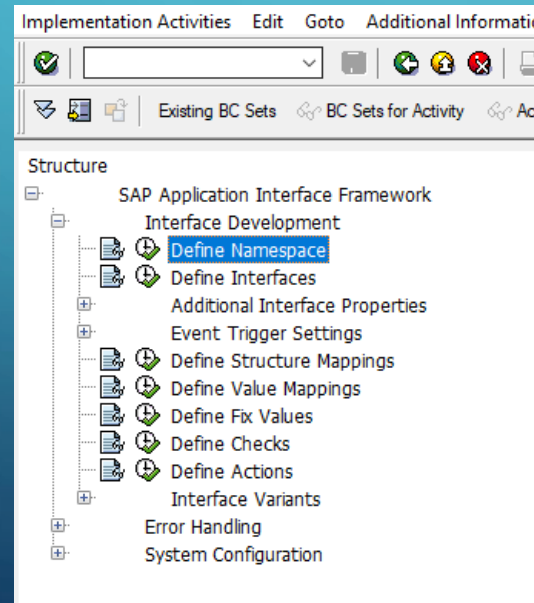
Component	Typing Method	Component Type	Data Type	Length	Decim...	Coordinate	Short Description
<u>.INCLUDE</u>	Types	SPFLI		0	0	0	Flight schedule
<u>MANDT</u>	Types	S_MANDT	CLNT	3	0	0	Client
<u>CARRID</u>	Types	S_CARR_ID	CHAR	3	0	0	Airline Code
<u>CONNID</u>	Types	S_CONN_ID	NUMC	4	0	0	Flight Connection Number
<u>COUNTRYFR</u>	Types	LAND1	CHAR	3	0	0	Country/Region Key
<u>CITYFROM</u>	Types	S_FROM_CIT	CHAR	20	0	0	Departure city
<u>AIRPFROM</u>	Types	S_FROMAIRP	CHAR	3	0	0	Departure airport
<u>COUNTRYTO</u>	Types	LAND1	CHAR	3	0	0	Country/Region Key
<u>CITYTO</u>	Types	S_TO_CITY	CHAR	20	0	0	Arrival city
<u>AIRPTO</u>	Types	S_TOAIRP	CHAR	3	0	0	Destination airport
<u>FLTIME</u>	Types	S_FLTIME	INT4	10	0	0	Flight time
<u>DEPTIME</u>	Types	S_DEP_TIME	TIMS	6	0	0	Departure time
<u>ARRTIME</u>	Types	S_ARR_TIME	TIMS	6	0	0	Arrival time
<u>DISTANCE</u>	Types	S_DISTANCE	QUAN	9	4	0	Distance
<u>DISTID</u>	Types	S_DISTID	UNIT	3	0	0	Mass unit of distance (kms, miles)
<u>FLTYPE</u>	Types	S_FLTYPE	CHAR	1	0	0	Flight type
<u>PERIOD</u>	Types	S_PERIOD	INT1	3	0	0	Arrival n day(s) later

<

EXECUTE TX- /AIF/CUST





















Expand the IMG tree and choose option- Define Namespace.



Change View "Define Namespace": Overview


Table View Edit Goto Selection Utilities System Help


 New Entries       

Define Namespace

NS	Namespace Description
/AIF/	
/CIF	CIF Interfaces
/CMDBP	Business Partner, Cust, Vend Integration
/CMDPR	CMD:Product Integration
/CMMFD	CDOTE Commodity Management
/CMSOM	Subscription Integration
/EDOCL	Chile: eDocument
/EDOPE	eDocument Peru
/EDOTW	Twaiwan: eDocument
/EDTRD	Turkey Delivery Note
/FINAC	AIF for Accounting
/FINCF	Central Finance
/FINPF	Advanced Payment Management (FIN)
/GLOFC	Globalization Finance
/LOGCC	Material Integration Cloud for Customer
/LOGGC	Global Trade Cond Contract Settlement
/MDI	Master Data Integration
/MDO	Master Data Orchestration
/NFHIR	Patient Accounting FHIR intergration
/NPACM	Patient Accouting
/SDDP	Sales Document with Down Payment

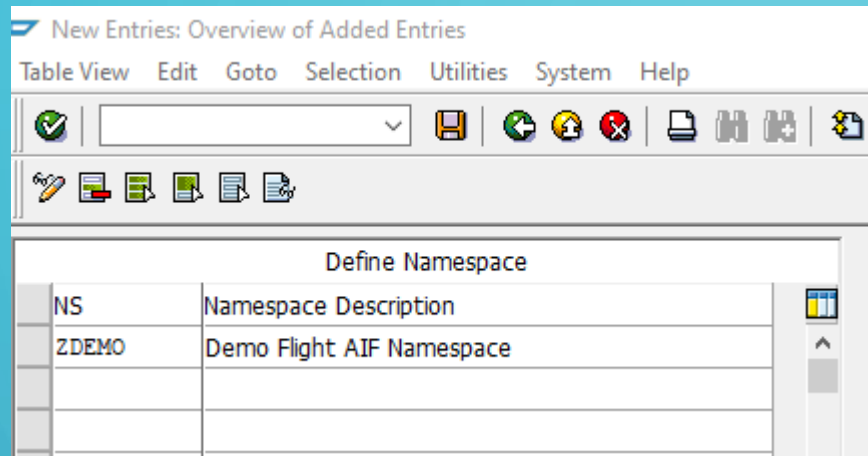
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< >

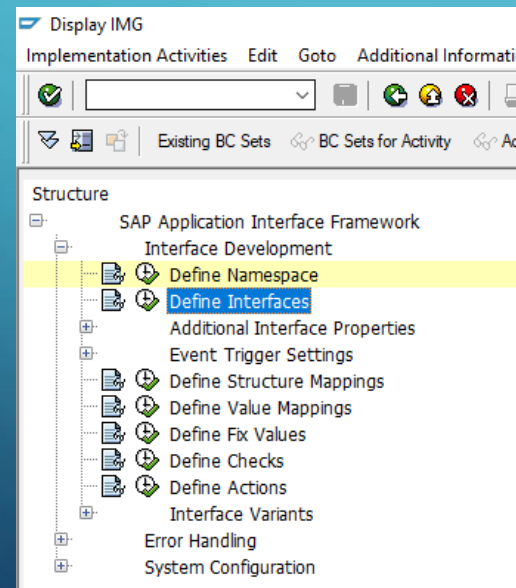
 Position...

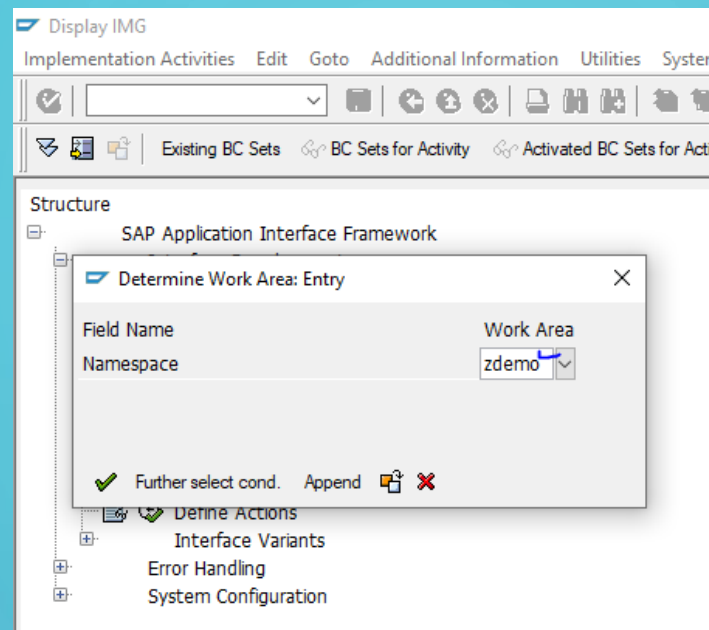
Entry 1 of 26

Create a namespace 'ZDEMO' and save it.



Next step is to create Interface. Choose define Interface option.





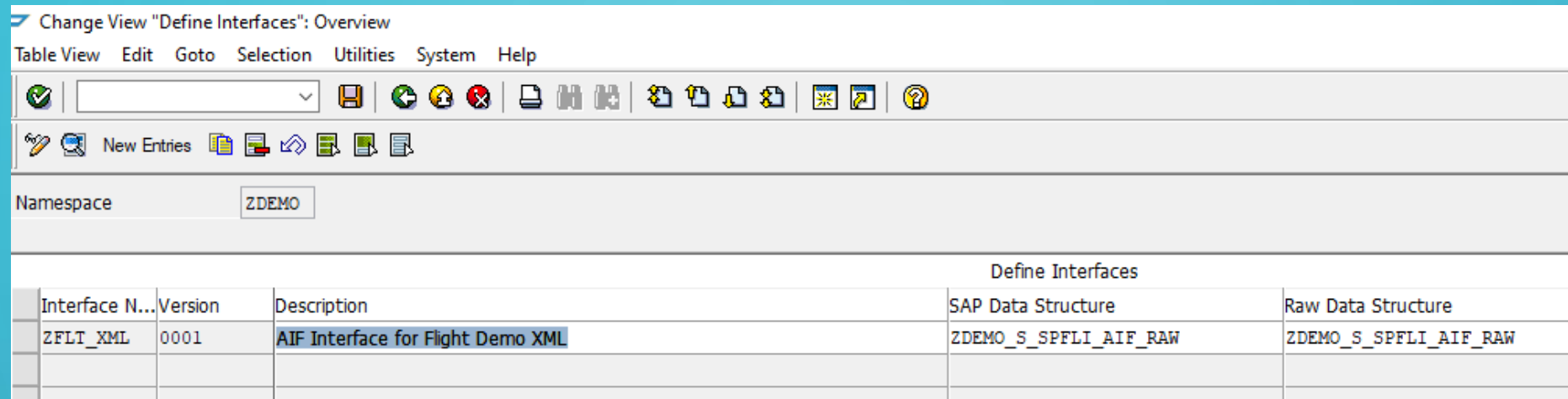
Choose New Entries button.

Provide interface name as- ZFLT_XML(in AIF message can be processed in different ways like XML, Proxy etc , the below demo processes the AIF message as XML, so accordingly the interface name is adopted) and interface version as 00001.

provide the structure name we have created in the very first step as SAP Data Structure and RAW Data Structure and select the Move Corresponding structure.

For this demo, the RAW and SAP structure are same but in normal business case these two structures are different. RAW structure is what is received in the target system and then it is converted to SAP structure as per different structure mapping rules in AIF which is one of the strength of AIF. Save and go back.s

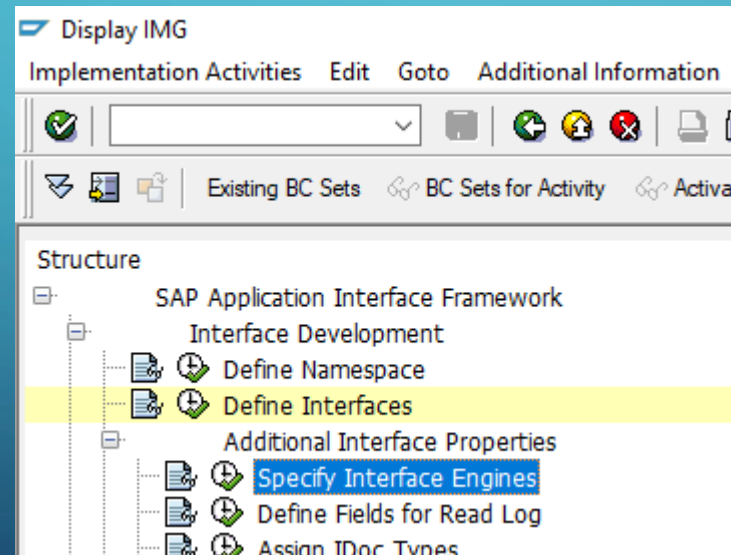
For the namespace one interface is defined.

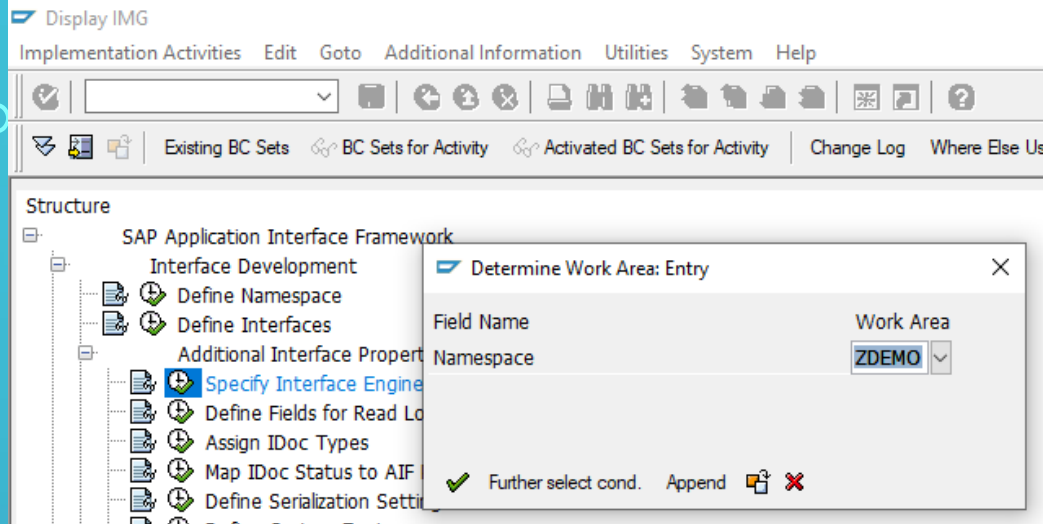


The screenshot shows the 'Define Interfaces' overview in SAP. The 'Namespace' is set to 'ZDEMO'. The table below lists the defined interfaces.

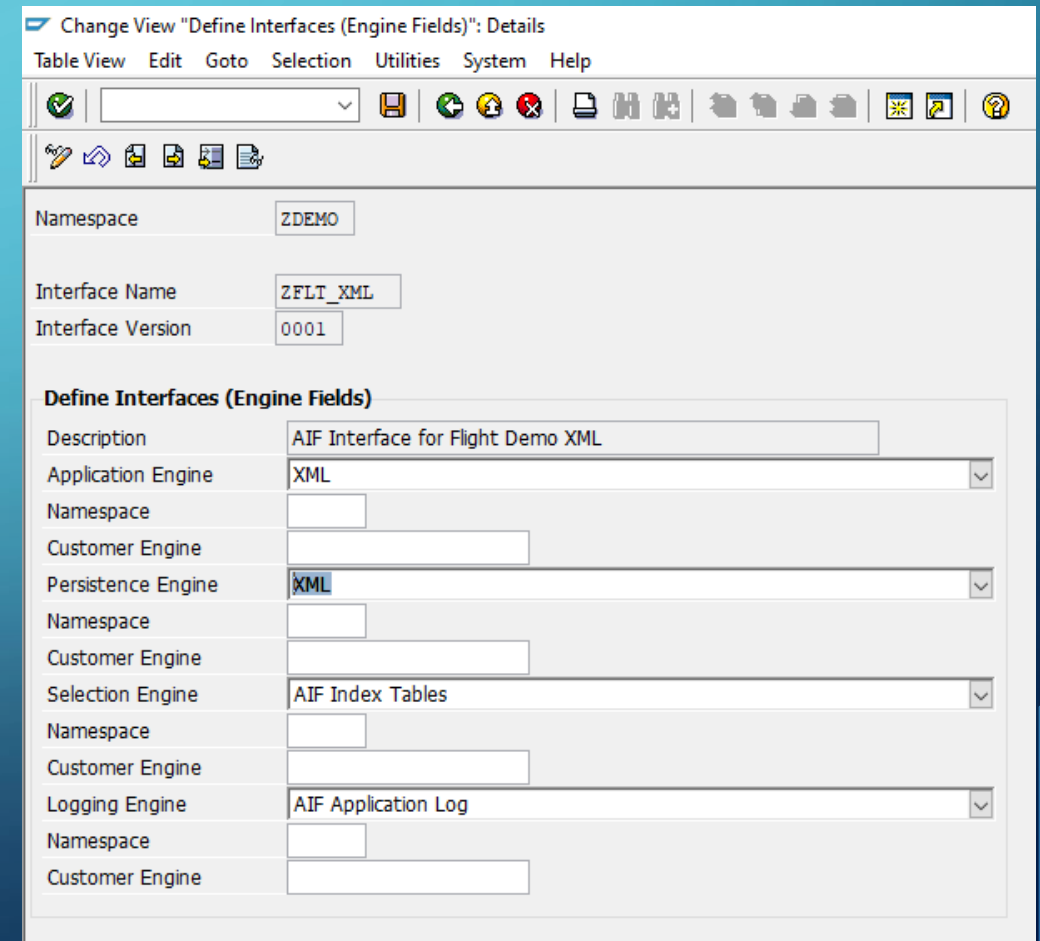
Define Interfaces				
Interface N...	Version	Description	SAP Data Structure	Raw Data Structure
ZFLT_XML	0001	AIF Interface for Flight Demo XML	ZDEMO_S_SPFLI_AIF_RAW	ZDEMO_S_SPFLI_AIF_RAW

Now we have to specify which AIF processing technique to be used like XML or proxy so on. Choose option- Specify Interface Engines.





Choose XML for application engine and persistent engine. This means the received messages in target system AIF will be stored as XML message.



Namespace

ZDEMO



Documentation

No display authorizatio

Interface Name

ZFLT XML

Interface Version

0001

Define Interfaces

Description

AIF Interface for Flight Demo XML

SAP Data Structure

ZDEMO S SPFLI AIF RAW

Raw Data Structure

ZDEMO S SPFLI AIF RAW

Record Type in Raw Structure

☒ Move Corresponding Structures

Check Function Module

Init Function Before Mapping

Init Function Before Processing

Separate Commit

No Separate Commit

Lifetime of Application Log

☐ Test Mode

Proxy Class Inbound

Proxy Class Outbound

Proxy Method

Field for the Sending System

Status Handling

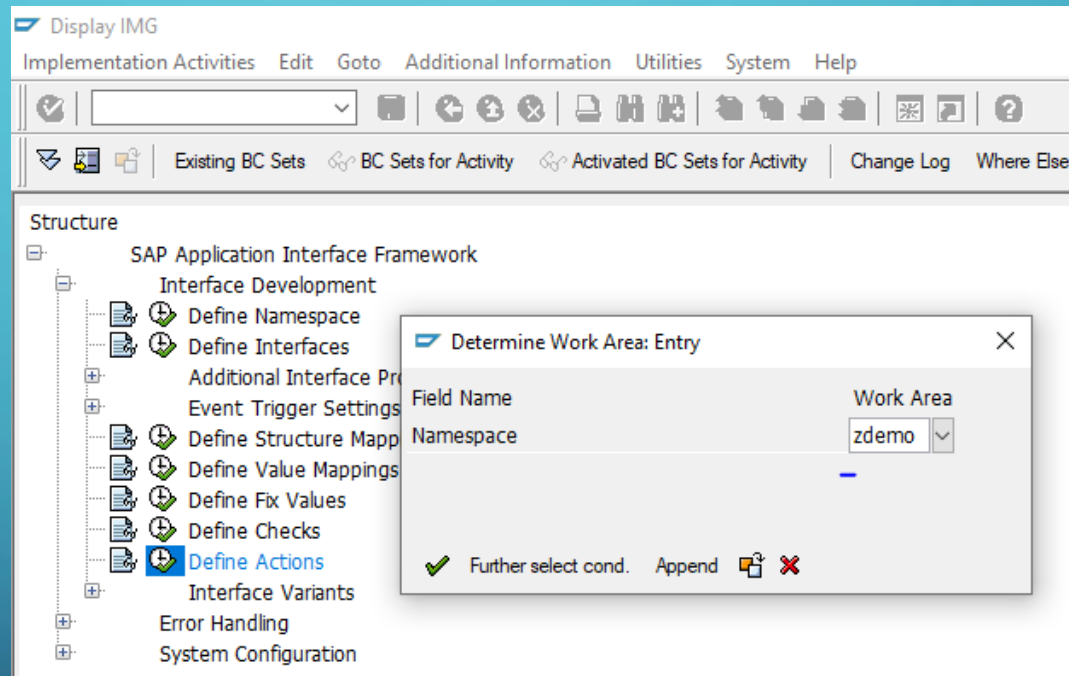
☐ Pre-Processing☐ Proxy XML Transformation

Interface Direction

Both

ONCE THE MESSAGE IS RECEIVED BY THE AIF, THEN IT IS FURTHER PROCESSED. THE ACTIONS DEFINE THE PROCESSING STEPS. EACH ACTION – HAS MULTIPLE STEPS AND IN EACH STEP A FUNCTION MODULE CAN BE SPECIFIED.

Choose Define Actions option.



New Entries: Details of Added Entries

Table View Edit Goto Selection Utilities System Help

✓ [Dropdown] [Icons]

[Icons]

Dialog Structure

- Define Actions
- Define Functions
- Assign Checks
- Define Fields to Re

Namespace: ZDEMO [Icons] Documentation No display authorizatio

Action: ZCREATE_FLIGHT

Define Actions

Action Description: Create flight

Init Function Before Processing: [Text Box]

Commit Mode: No COMMIT WORK [Dropdown]

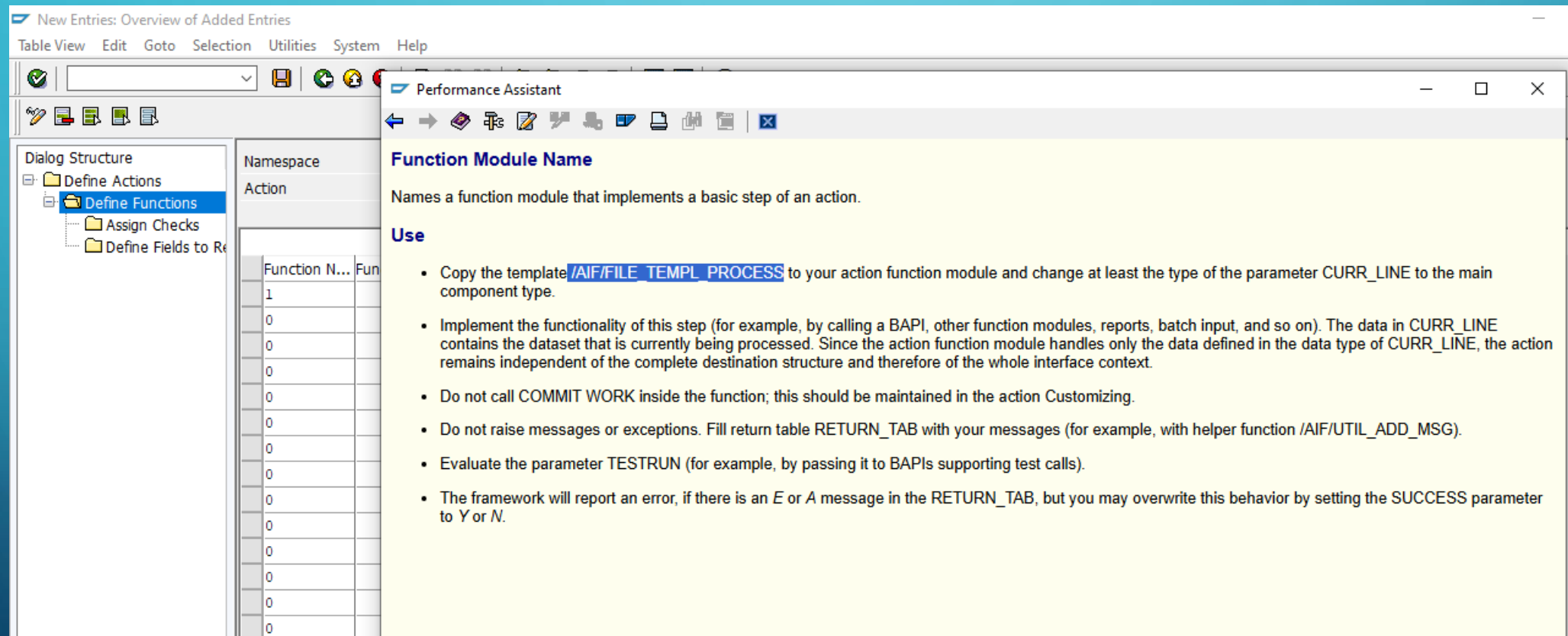
Commit Level: No Commit (But Maybe After All Actions) [Dropdown]

☐ Read Old Messages

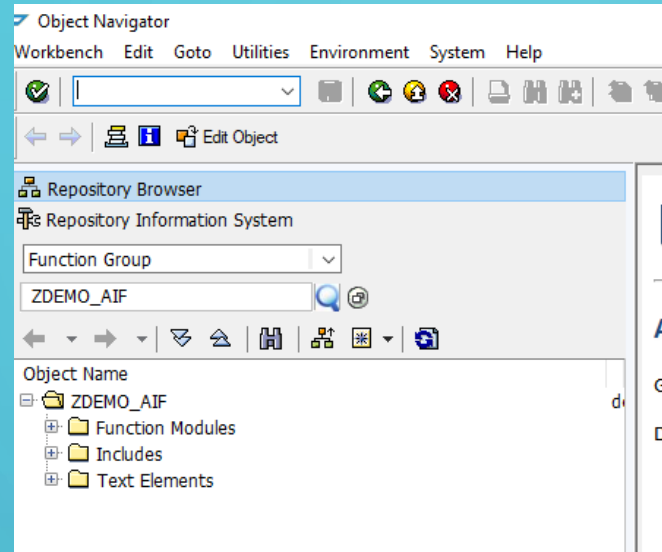
Main Component Type: [Text Box]

Provide action name and action description and then choose Define Functions from left side panel.

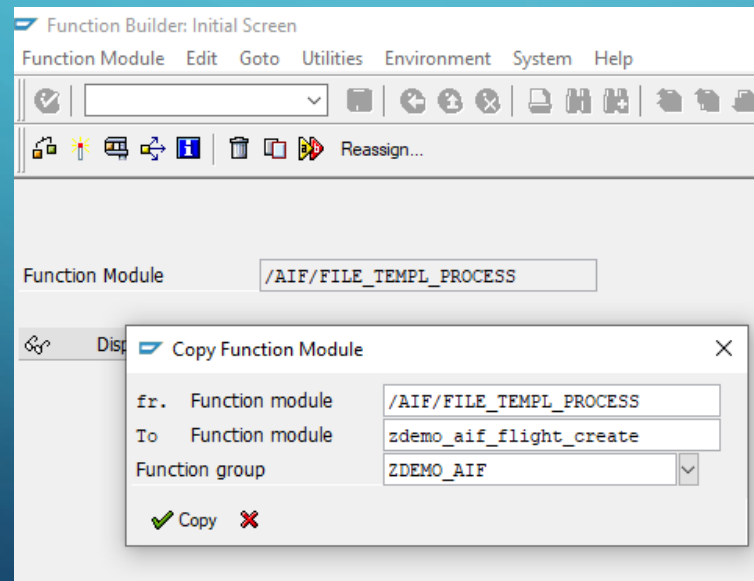
Provide Function number as 1 and then press F1 to get the help. Here we have to provide a Function module which will be called by the run time execution of AIF. The FM has a specific format. The F1 help provide a template FM which can be copied and code adopted according to business process.



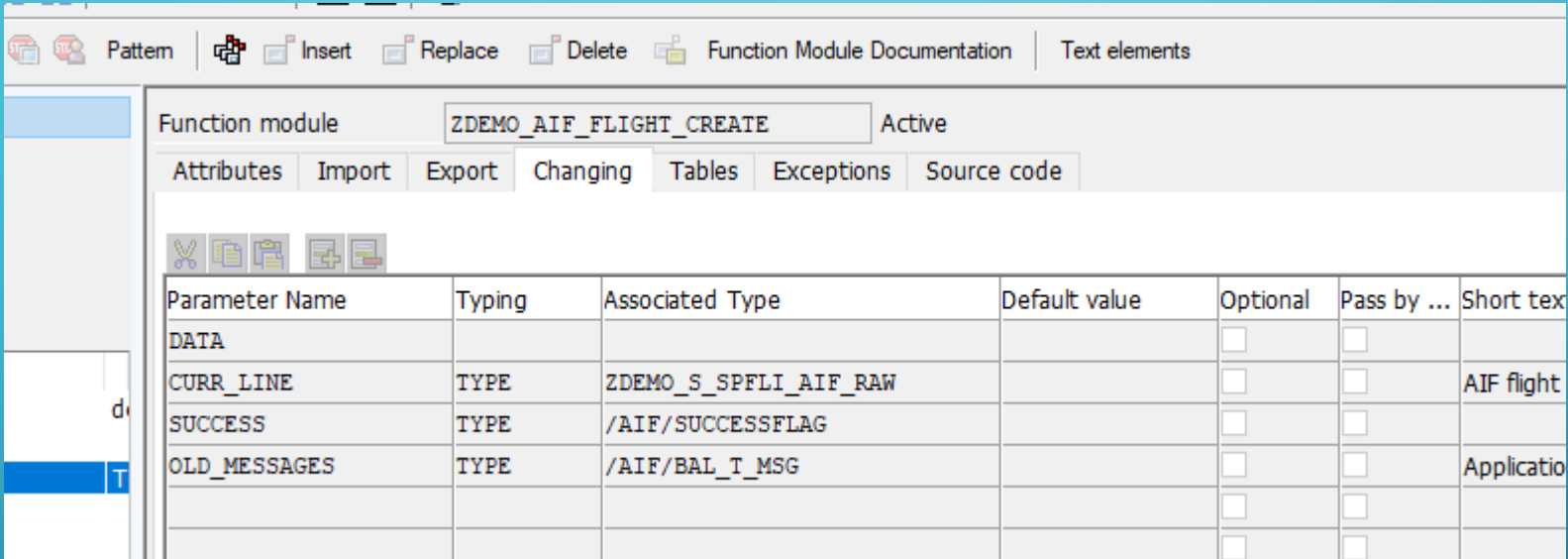
BEFORE CREATING A FM CREATE A FUNCTION GROUP.



Go to Tx- SE37 and Copy the FM- and create a new FM.



IN CHANGING SECTION – FOR THE PARAMETER- CURR_LIEN PROVIDE THE ASSOCIATED TYPE AS OUR SAP STRUCTURE TYPE.



Function module: ZDEMO_AIF_FLIGHT_CREATE Active

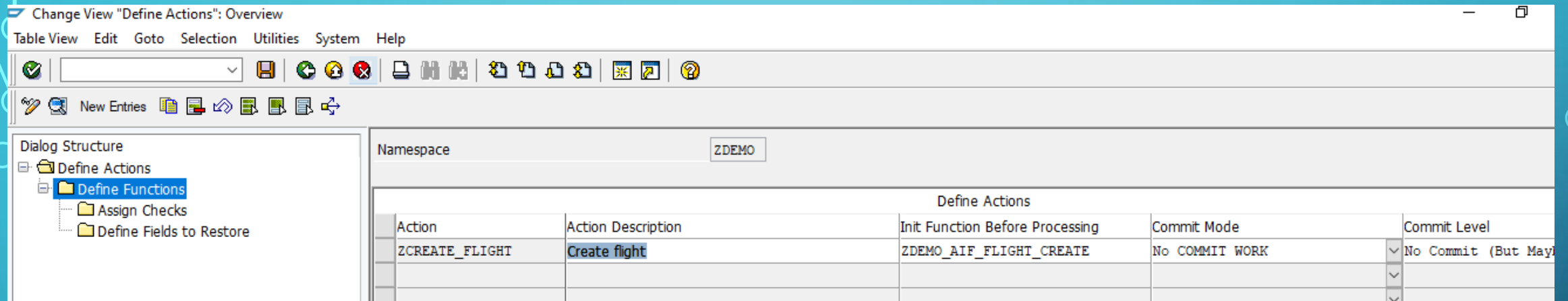
Attributes Import Export **Changing** Tables Exceptions Source code

Parameter Name	Typing	Associated Type	Default value	Optional	Pass by ...	Short text
DATA				<input type="checkbox"/>	<input type="checkbox"/>	
CURR_LINE	TYPE	ZDEMO_S_SPFLI_AIF_RAW		<input type="checkbox"/>	<input type="checkbox"/>	AIF flight
SUCCESS	TYPE	/AIF/SUCCESSFLAG		<input type="checkbox"/>	<input type="checkbox"/>	
OLD_MESSAGES	TYPE	/AIF/BAL_T_MSG		<input type="checkbox"/>	<input type="checkbox"/>	Application
				<input type="checkbox"/>	<input type="checkbox"/>	
				<input type="checkbox"/>	<input type="checkbox"/>	

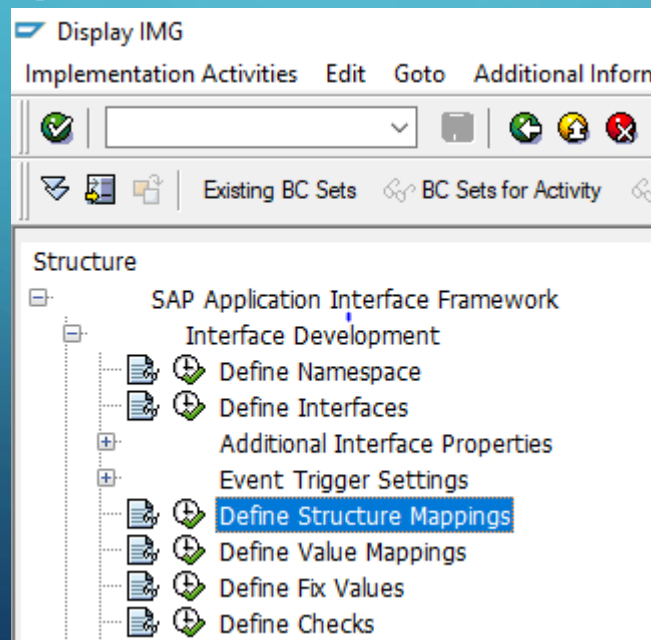
For FLIGHT demo, the below demo code is provided. The FM has a parameter called TESTRUN which is set when you test message in AIF for trouble shooting. This is like some simulation mode and make sure that if TESTRUN is set no data base update happens.

```
IF CURR_LINE IS NOT INITIAL.
  SELECT SINGLE * FROM SPFLI INTO @DATA(LS_SPFLI)
    WHERE CARRID = @CURR_LINE-CARRID AND CONNID = @CURR_LINE-CONNID.
  IF SY-SUBRC IS NOT INITIAL.
    IF TESTRUN NE ABAP_TRUE .
      INSERT INTO SPFLI VALUES CURR_LINE.
    ENDIF.
  APPEND INITIAL LINE TO RETURN_TAB ASSIGNING FIELD-SYMBOL(<FS_RET>).
  <FS_RET>-ID = 'SAPABAPDEMOS'.
  <FS_RET>-NUMBER = '888'.
  <FS_RET>-TYPE = 'S'.
  <FS_RET>-MESSAGE_V1 = 'Record inserted successfully'.
ELSE.
  APPEND INITIAL LINE TO RETURN_TAB ASSIGNING <FS_RET>.
  <FS_RET>-ID = 'SAPABAPDEMOS'.
  <FS_RET>-NUMBER = '888'.
  <FS_RET>-TYPE = 'E'.
  <FS_RET>-MESSAGE_V1 = 'Record already present'.
ENDIF.
ELSE.
  APPEND INITIAL LINE TO RETURN_TAB ASSIGNING <FS_RET>.
  <FS_RET>-ID = 'SAPABAPDEMOS'.
  <FS_RET>-NUMBER = '888'.
  <FS_RET>-TYPE = 'E'.
  <FS_RET>-MESSAGE_V1 = 'Empty information'.
ENDIF.
```

Once the action FM is ready then mention the FM name in the AIF action. Save and go back.

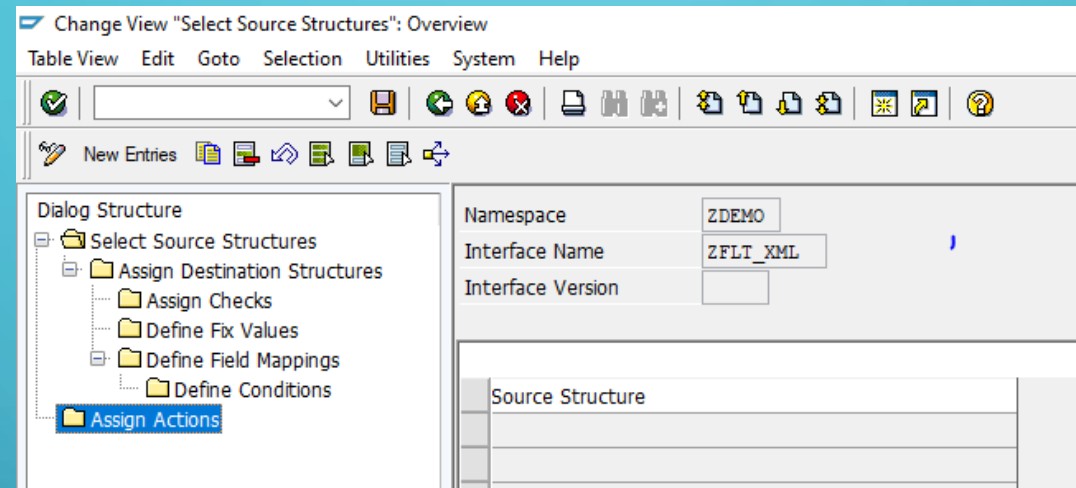


The actions are defined on the Namespace level and now it has to be assigned to the AIF Interface. Choose the option Define Structure Mapping.



Provide the namespace, interface and version and continue.

In interface Structure Mapping – here a lot of things can be done like mappings etc. But for this case we don't need any thing. Now choose Assign Actions option from left side panel.



Choose New Entries option.

Provide the action number and choose namespace and the action name. Save and go back.

New Entries: Details of Added Entries

Table View Edit Goto Selection Utilities System Help

Dialog Structure

- Select Source Structures
- Assign Destination Structures
 - Assign Checks
 - Define Fix Values
 - Define Field Mappings
 - Define Conditions
- Assign Actions**

Namespace: ZDEMO

Interface Name: ZFLT_XML

Interface Version: 0001

Action Number: 1

Assign Actions

Namespace: ZDEMO

Action: ZCREATE_FLIGHT

Record Type:

☐ Stop Processing on Error

Now an action is assigned to the interface.

Change View "Assign Actions": Overview

Table View Edit Goto Selection Utilities System Help

Dialog Structure

- Select Source Structures
- Assign Destination Structures
 - Assign Checks
 - Define Fix Values
 - Define Field Mappings
 - Define Conditions
- Assign Actions**

Namespace: ZDEMO

Interface Name: ZFLT_XML

Interface Version: 0001

Assign Actions

Action Nu...	Namespace	Action	Record Type
1	ZDEMO	ZCREATE_FLIGHT	