

SAP ABAP on HANA

Step by Step Guide to Create BAPI In ABAP



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What is BAPI?

Business Application Programming Interface(BAPI) are standardized programming interfaces (methods) enabling external applications to access business processes and data in the SAP System.

They **provide stable and standardized methods** to achieve seamless integration between the SAP System and external applications, legacy systems and add-ons.

BAPIs are defined in the **BOR(Business object repository)** as methods of SAP business object types that carry out specific business functions. They are implemented as **RFC-enabled function** modules and are created in the Function Builder of the ABAP Workbench.

Some BAPIs and methods provide basic functions and can be used for most SAP Business Objects. These are called **STANDARDIZED BAPI's**.

List of Standardized BAPIs:

- BAPIs for Reading Data – GetList() , GetDetail() , GetStatus() , ExistenceCheck()
- BAPIs for Creating or Changing Data- Create() ,Change(),Delete() and Undelete() ,
- BAPIs for Mass Processing -ChangeMultiple(), CreateMultiple(), DeleteMultiple().

Stage1: Creating a structure in SE11

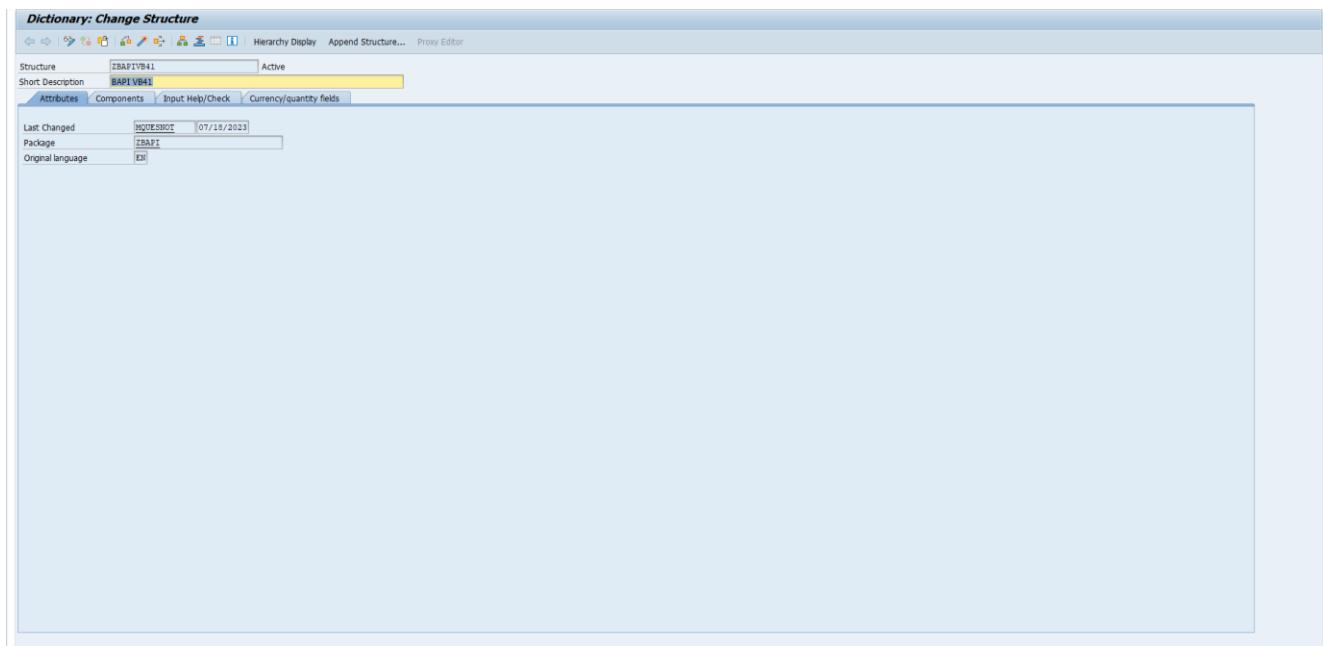
Step 1: Go to transaction SE11 and create a structure as shown or as per your requirement.

ABAP Dictionary: Initial Screen

Database table
 View
 Data type
 Type Group

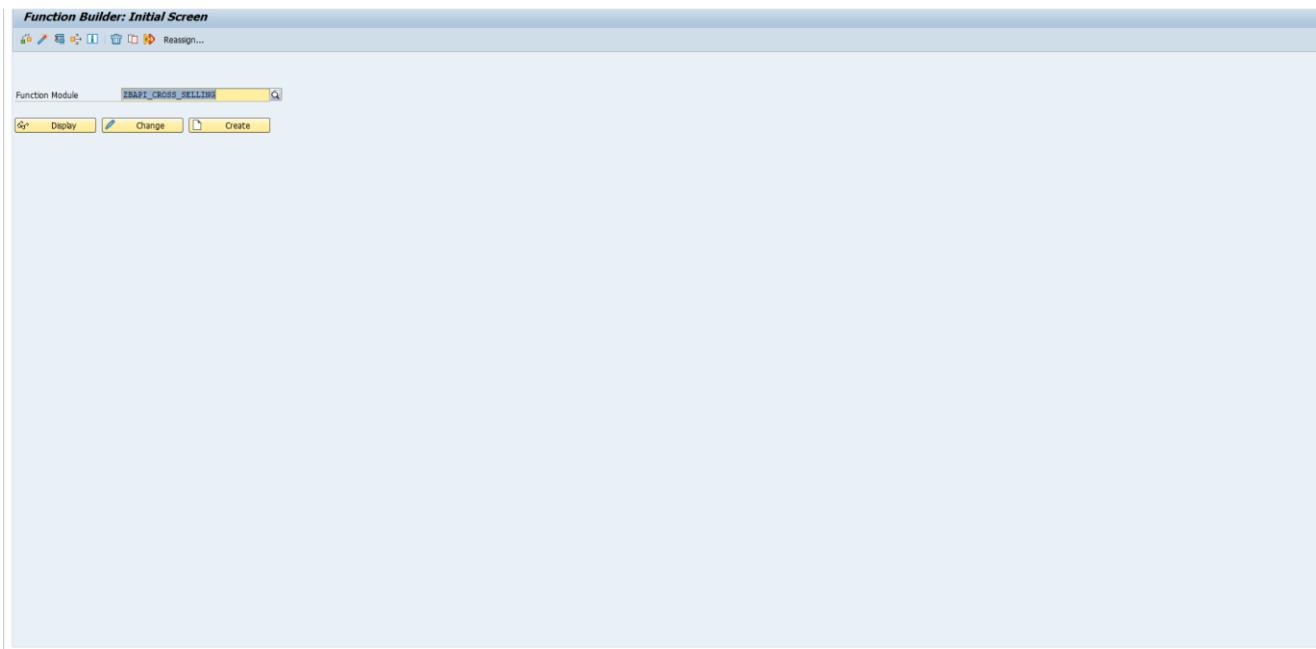
 Domain
 Search help
 Lock object

Do not forget to save it in a **package**. Check the structure (ctrl + F2) and activate (ctrl + F3) the structure.

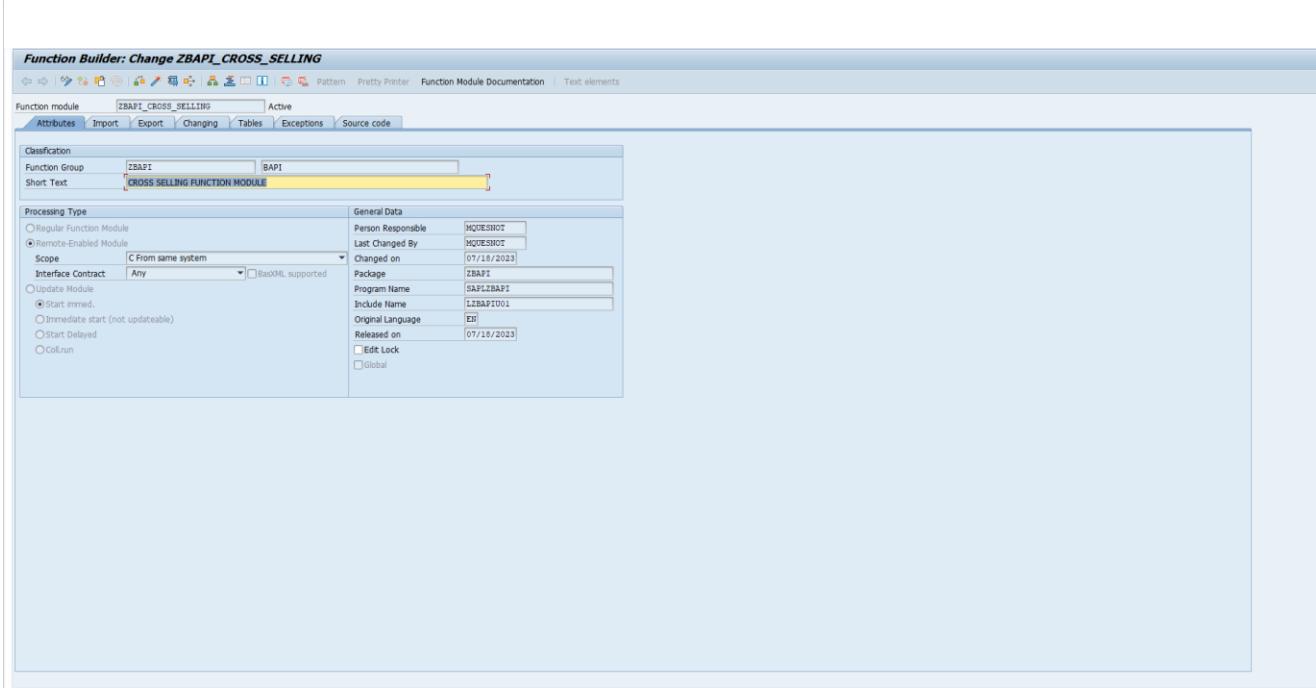


Stage2: Creating the function module in SE37

Step 2: Go to transaction SE37 where you create function modules.



In the attributes tab, make the processing type as 'Remote-Enabled Module'.



Function Builder: Change ZBAPI_CROSS_SELLING					
Function module ZBAPI_CROSS_SELLING Active					
Attributes Import Export Changing Tables Exceptions Source code					
Parameter Name	Type	Associated Type	Default value	On... Pa...	Short text
PV_KSCHL	TYPE ZBAPIVB41-KSCHL 'CS01'			<input checked="" type="checkbox"/>	Condition Type
PV_MATNR	TYPE ZBAPIVB41-MATNR '001'			<input checked="" type="checkbox"/>	Number of the Condition Table
PV_MATWA	TYPE ZBAPIVB41-MATWA ''			<input checked="" type="checkbox"/>	Material Entered
PV_SWATH	TYPE ZBAPIVB41-SWATH ''			<input checked="" type="checkbox"/>	Substitute material
PV_MEINS	TYPE ZBAPIVB41-MEINS ''			<input checked="" type="checkbox"/>	Base Unit of Measure
PV_SGORD	TYPE ZBAPIVB41-SGORD ''			<input checked="" type="checkbox"/>	Reason for material substitution
PV_DATAB	TYPE ZBAPIVB41-DATAB SY-DATUM			<input checked="" type="checkbox"/>	Valid-From Date
PV_DATB1	TYPE ZBAPIVB41-DATB1 '99991231'			<input checked="" type="checkbox"/>	Valid To Date

Function Builder: Change ZBAPI_CROSS_SELLING					
Function module ZBAPI_CROSS_SELLING Active					
Attributes Import Export Changing Tables Exceptions Source code					
Parameter Name	Type	Associated Type	Pass by ...	Short text	Long T...
RETURN	TYPE BAPIRET12		<input checked="" type="checkbox"/>	Return Parameter	Create

Function Builder: Change ZBAPI_CROSS_SELLING

Function module ZBAPI_CROSS_SELLING Active

Attributes Import Export Changing Tables Exceptions Source code

```
1  FUNCTION ZBAPI_CROSS_SELLING .
2  .
3  *Local Interface:
4  IMPORTING
5    VALUE(PV_KSCHL) TYPE ZBAPIVB41-KSCHL DEFAULT 'C001'
6    VALUE(PV_KOTABNR) TYPE ZBAPIVB41-KOTABNR DEFAULT '001'
7    VALUE(PV_MATWA) TYPE ZBAPIVB41-MATWA DEFAULT ''
8    VALUE(PV_SHATN) TYPE ZBAPIVB41-SHATN DEFAULT ''
9    VALUE(PV_MEINS) TYPE ZBAPIVB41-MEINS DEFAULT ''
10   VALUE(PV_SGRD) TYPE ZBAPIVB41-SGRD DEFAULT ''
11   VALUE(PV_DATAB) TYPE ZBAPIVB41-DATAB DEFAULT SY-DATUM
12   VALUE(PV_DATBI) TYPE ZBAPIVB41-DATBI DEFAULT '99991231'
13  EXPORTING
14    VALUE(RETURN) TYPE BAPIRET2
15  TABLES
16    ZBAPIVB41 STRUCTURE ZBAPIVB41
17  .
18  INCLUDE Z_MME_CROSS_SELLING_TOP.
19
20  XNAME-VKEY      = PV_MATWA.
21  XKONDO-SHATN    = PV_SHATN.
22  TIME_VAKR_KEY-KAPFL  = 'VS'.
23  TIME_VAKR_KEY-KVENE  = 'P'.
24  TIME_VAKR_KEY-KOTABNR = PV_KOTABNR.
25  TIME_VAKR_KEY-KSCHL  = 'C001', *PV_ESCHL.
26  TIME_VAKR_KEY-VKEYY = XNAME-VKEY.
27
28  IF PV_DATAB IS INITIAL.
29    LV_DATAB = SY-DATUM.
30  ELSE.
31    LV_DATAB = PV_DATAB.
32  ENDIF.
33
34
35  *Material
36  CLEAR LS_VAKEDB.
37  SELECT SINGLE * INTO CORRESPONDING FIELDS OF LS_VAKEDB
38  FROM KOTD011
39  WHERE KAPFL EQ TIME_VAKR_KEY-KAPFL
40  AND KSCHL EQ TIME_VAKR_KEY-KSCHL
```

```

FUNCTION ZBAPI_CROSS_SELLING .
*-----*
** Local Interface:
**  IMPORTING
**    VALUE(PV_KSCHL) TYPE ZBAPIVB41-KSCHL DEFAULT 'CS01'
**    VALUE(PV_KOTABNR) TYPE ZBAPIVB41-KOTABNR DEFAULT '011'
**    VALUE(PV_MATWA) TYPE ZBAPIVB41-MATWA DEFAULT ' '
**    VALUE(PV_SMATN) TYPE ZBAPIVB41-SMATN DEFAULT ' '
**    VALUE(PV_MEINS) TYPE ZBAPIVB41-MEINS DEFAULT ' '
**    VALUE(PV_SUGRD) TYPE ZBAPIVB41-SUGRD DEFAULT ' '
**    VALUE(PV_DATAB) TYPE ZBAPIVB41-DATAB DEFAULT SY-DATUM
**    VALUE(PV_DATBI) TYPE ZBAPIVB41-DATBI DEFAULT '99991231'
**  EXPORTING
**    VALUE(RETURN) TYPE BAPIRET2
**  TABLES
**    ZBAPIVB41 STRUCTURE ZBAPIVB41
*-----*

INCLUDE Z_MME_CROSS_SELLING_TOP.

XVAKE-VAKEY          = PV_MATWA.
XKONDD-SMATN          = PV_SMATN.
TIME_VAKE_KEY-KAPPL   = 'VS'.
TIME_VAKE_KEY-KVEWE   = 'D'.
TIME_VAKE_KEY-KOTABNR = PV_KOTABNR.
TIME_VAKE_KEY-KSCHL   = 'CS01'. "PV_KSCHL.
TIME_VAKE_KEY-VAKEY   = XVAKE-VAKEY.

IF PV_DATAB IS INITIAL.
  LV_DATAB = SY-DATUM.
ELSE.
  LV_DATAB = PV_DATAB.
ENDIF.

*Material
CLEAR LS_VAKEDB.
SELECT SINGLE * INTO CORRESPONDING FIELDS OF LS_VAKEDB
FROM KOTD011
WHERE KAPPL EQ TIME_VAKE_KEY-KAPPL
AND KSCHL EQ TIME_VAKE_KEY-KSCHL
AND MATNR EQ PV_MATWA
AND DATBI GE LV_DATAB
AND DATAB LE LV_DATAB.

IF SY-SUBRC = 0.

  SELECT SINGLE * FROM KONDD WHERE KNUMH = NV_NEW_NUMBER AND SMATN = PV_SMATN.

  IF SY-SUBRC = 0.
    EXIT.
  ELSE.
    NV_NEW_NUMBER = LS_VAKEDB-KNUMH.
  ENDIF.

```

```

ELSE.

CALL FUNCTION 'NUMBER_GET_NEXT'
  EXPORTING
    NR_RANGE_NR = '01'
    OBJECT      = NUMMERVORG
  IMPORTING
    NUMBER      = NV_NEW_NUMBER.

ENDIF.

```

**Variable Key for Condition Maintenance: Internal Structure*

```

XVAKE-KVEWE   = TIME_VAKE_KEY-KVEWE.
XVAKE-KOTABNR = TIME_VAKE_KEY-KOTABNR .
XVAKE-KAPPL   = TIME_VAKE_KEY-KAPPL.
XVAKE-KSCHL   = TIME_VAKE_KEY-KSCHL.
XVAKE-DATBI   = PV_DATBI.
XVAKE-DATAB    = PV_DATAB.
XVAKE-KNUMH   = NV_NEW_NUMBER.
XVAKE-UPDKZ   = 'I'.
APPEND XVAKE.

```

**Condition Tables: Update Structure*

```

MOVE-CORRESPONDING XVAKE TO TIME_VAKE_DB.
TIME_VAKE_DB-XXSTATE = 'I'.
TIME_VAKE_DB-XXPROCINFO = 'U'.
TIME_VAKE_DB-XXDBACTION = 'I'.
APPEND TIME_VAKE_DB.

```

**Change Document Structure; Generated by RSSCD000*

**Condition Record: Old and New Validity Periods*

```

XKONDAT-KNUMH   = NV_NEW_NUMBER.
XKONDAT-DATAN   = SY-DATUM.
XKONDAT-DATAB    = PV_DATAB.
XKONDAT-DATBI   = PV_DATBI.
XKONDAT-KZ      = 'U'.
APPEND XKONDAT.

```

**Change Document Structure; Generated by RSSCD000*

**Condition Record: Old and New Validity Periods*

```

YKONDAT-KNUMH   = NV_NEW_NUMBER.
YKONDAT-DATAN   = PV_DATBI.
YKONDAT-KZ      = 'U'.
APPEND YKONDAT.

```

**Material Substitution - Posting Structure*

```

XKONDD-MANDT = SYST-MANDT.
XKONDD-KNUMH = NV_NEW_NUMBER.
IF LS_VAKEDB-KNUMH IS INITIAL.
  XKONDD-UPDKZ = 'I'.
ELSE.
  XKONDD-UPDKZ = ' '.
ENDIF.
APPEND XKONDD.

```

**Conditions: Additional Mat. for Mat. Determination - Posting*

```

XKONDDP-MANDT = SYST-MANDT.

```

```

XKONDDP-KPOSN = 1.
XKONDDP-KNUMH = NV_NEW_NUMBER.
XKONDDP-SMATN = XKONDD-SMATN.
IF LS_VAKEDB-KNUMH IS INITIAL.
  XKONDDP-UPDKZ = ' '.
  XKONDDP-KPOSN = 1.
ELSE.
  CLEAR LV_COUNT.
  SELECT COUNT(*) INTO LV_COUNT FROM KONDD WHERE KNUMH = NV_NEW_NUMBER.
  XKONDDP-UPDKZ = 'I'.
  XKONDDP-KPOSN = LV_COUNT + 1.
  CLEAR : TIME_VAKE_DB, XKONDAT, YKONDAT.
ENDIF.
APPEND XKONDDP.

IF LS_VAKEDB-KNUMH IS INITIAL.
* Condition Maintenance - General
  CALL FUNCTION 'RV_KONDITION_SICHERN' IN UPDATE TASK
    TABLES
      VAKEDB_TAB = TIME_VAKE_DB.
ENDIF.

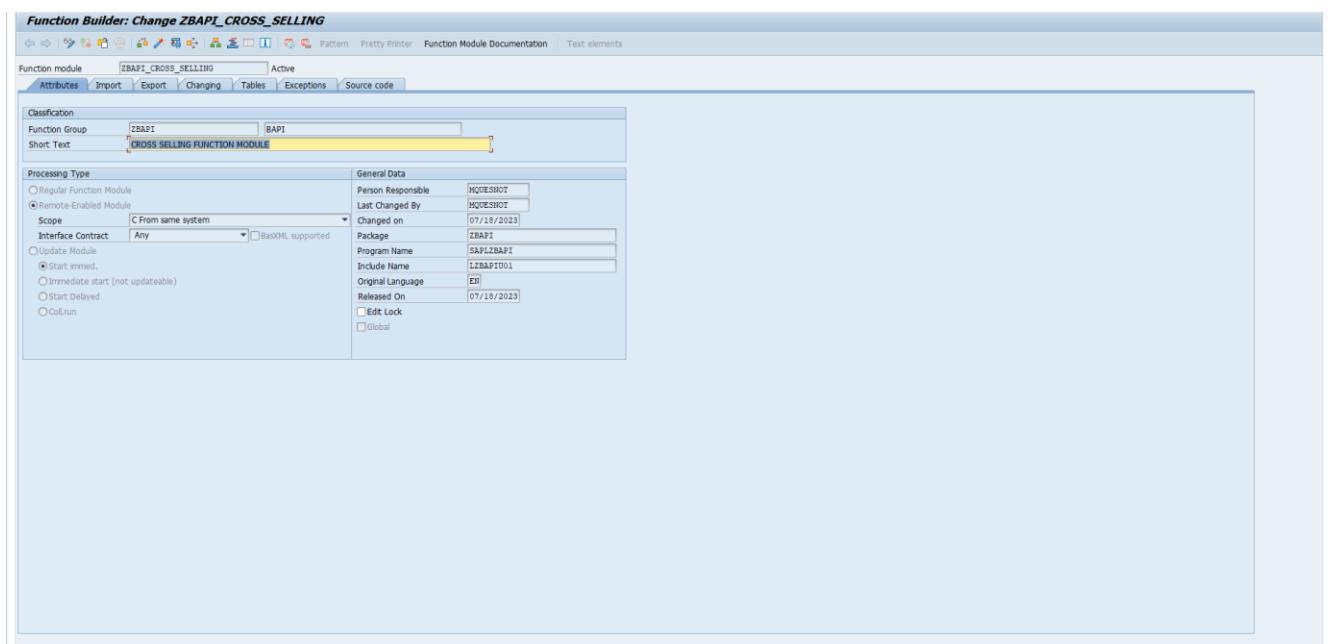
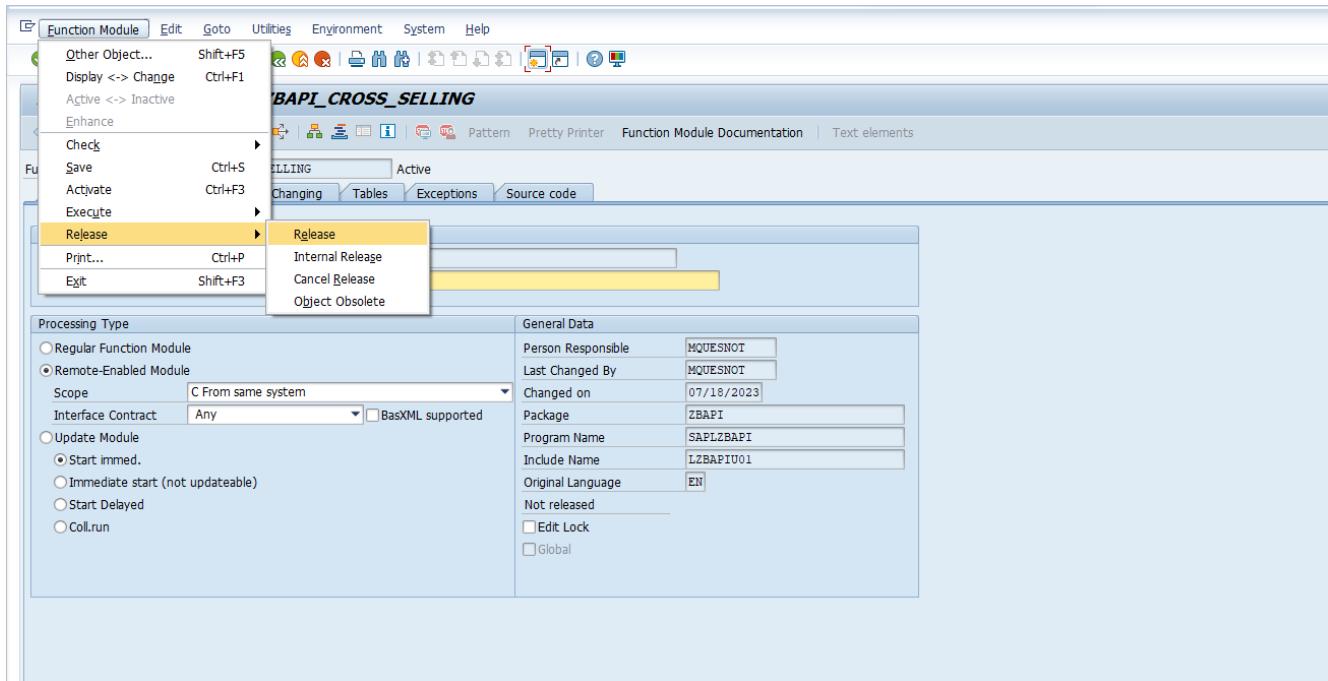
BOOLE_T = 'X'.

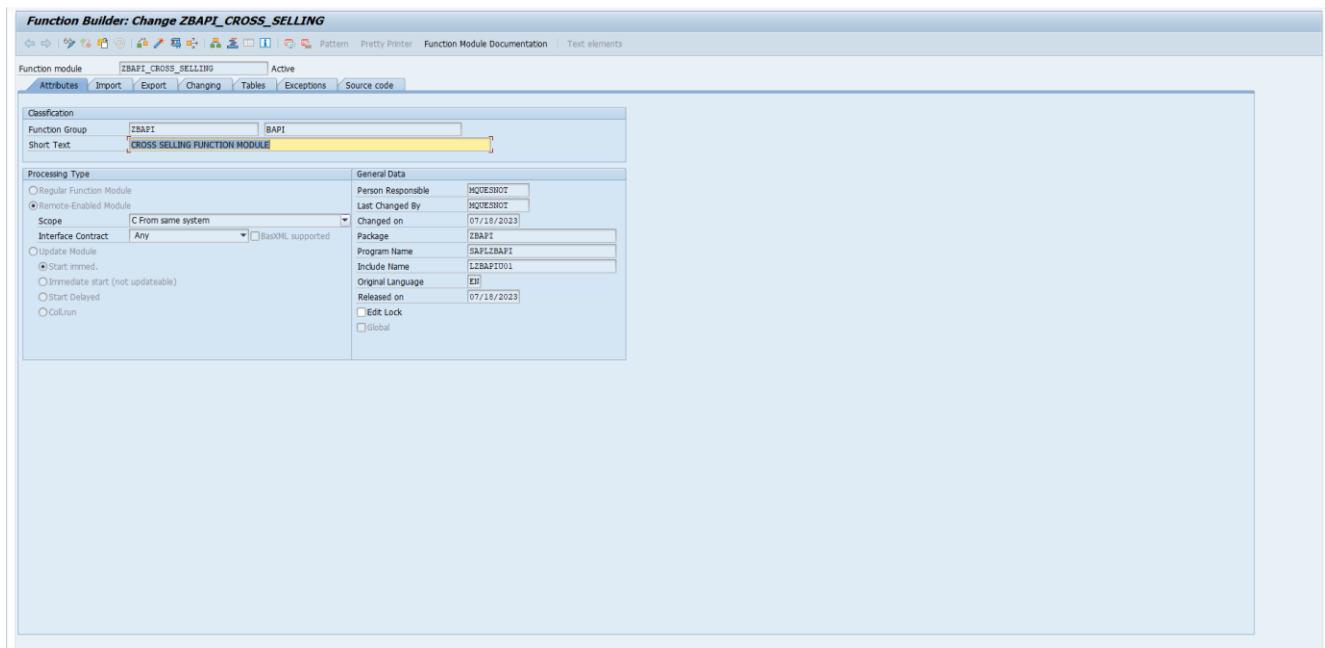
*Material substitution - update function
CALL FUNCTION 'RV_MAT_SUB_SAVE' IN UPDATE TASK
  IMPORTING
    USE_OUTBOUND_CALL = BOOLE_T
    CD_KVEWE          = TIME_VAKE_KEY-KVEWE
    CD_KOTABNR         = TIME_VAKE_KEY-KOTABNR
    CD_KAPPL          = TIME_VAKE_KEY-KAPPL
    CD_KSCHL          = TIME_VAKE_KEY-KSCHL
  TABLES
    X_KONDDVB          = XKONDD
    Y_KONDDVB          = YKONDD
    X_KONDDPVB         = XKONDDP
    Y_KONDDPVB         = YKONDDP
    X_KONDATVB        = XKONDAT
    Y_KONDATVB        = YKONDAT
    DB_TIME            = TIME_VAKE_DB
    DB_XVAKE           = XVAKE.

  CALL FUNCTION 'BAPI_TRANSACTION_COMMIT'
* EXPORTING
*   WAIT             =
* IMPORTING
*   RETURN           =
*   .
*Material Substitution - Data Division
SELECT SINGLE * FROM KONDD WHERE KNUMH = NV_NEW_NUMBER AND SMATN = PV_SMATN.

ENDFUNCTION.

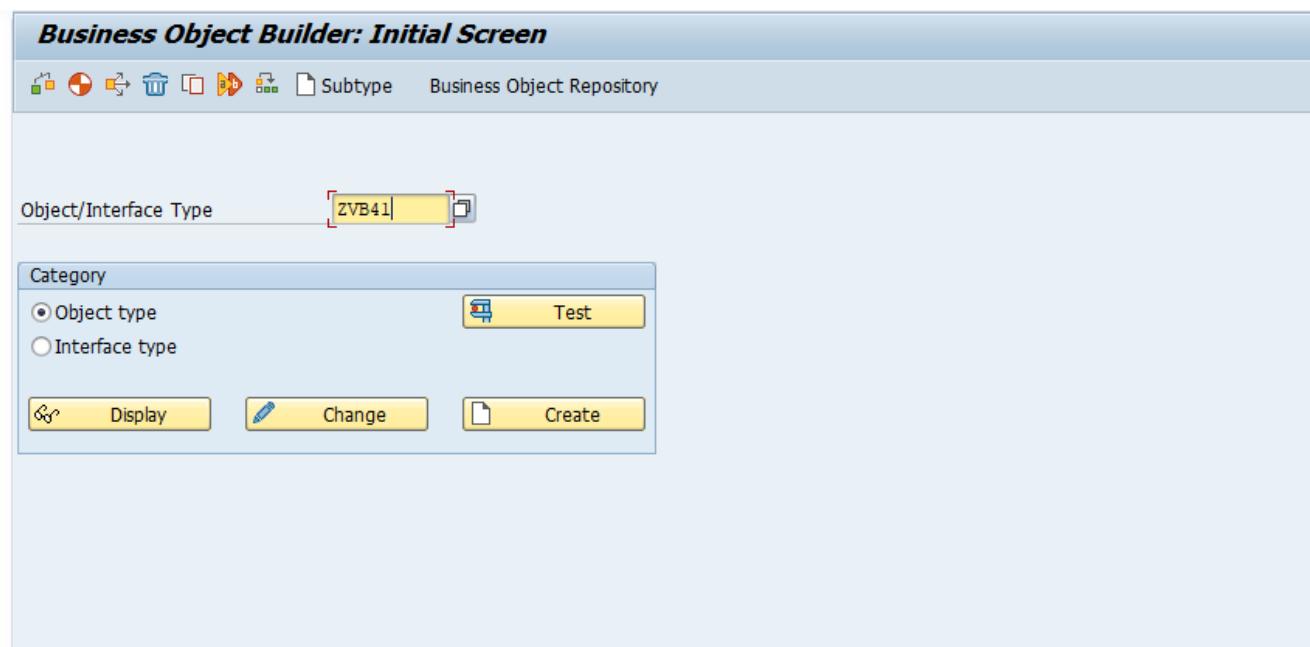
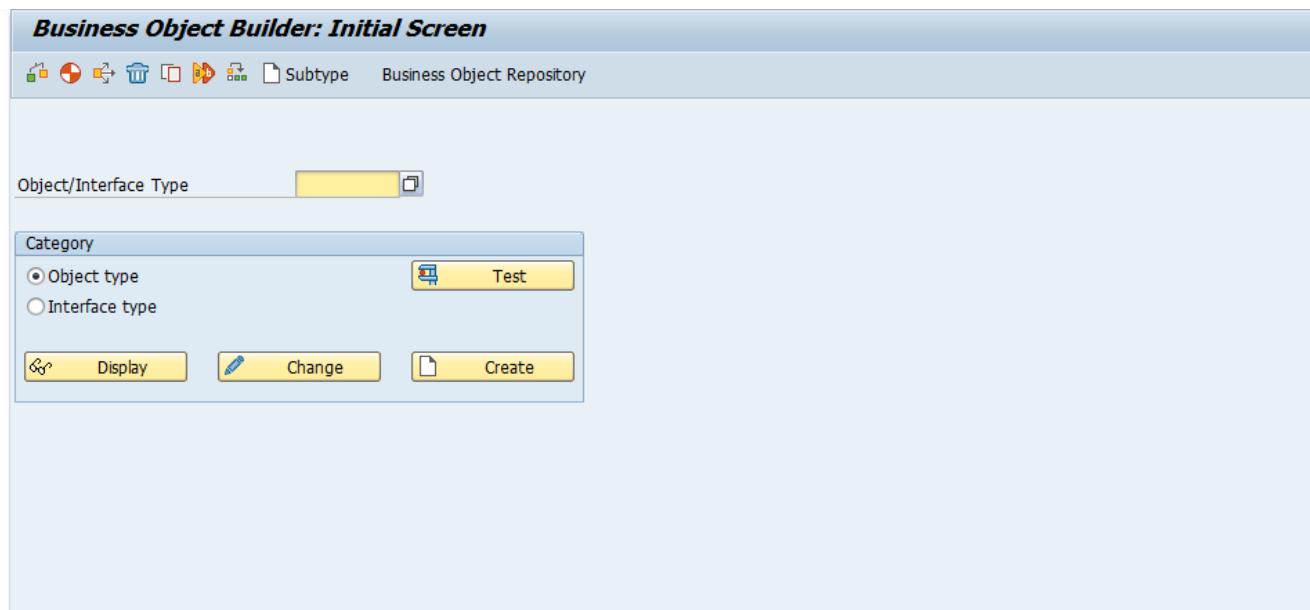
```

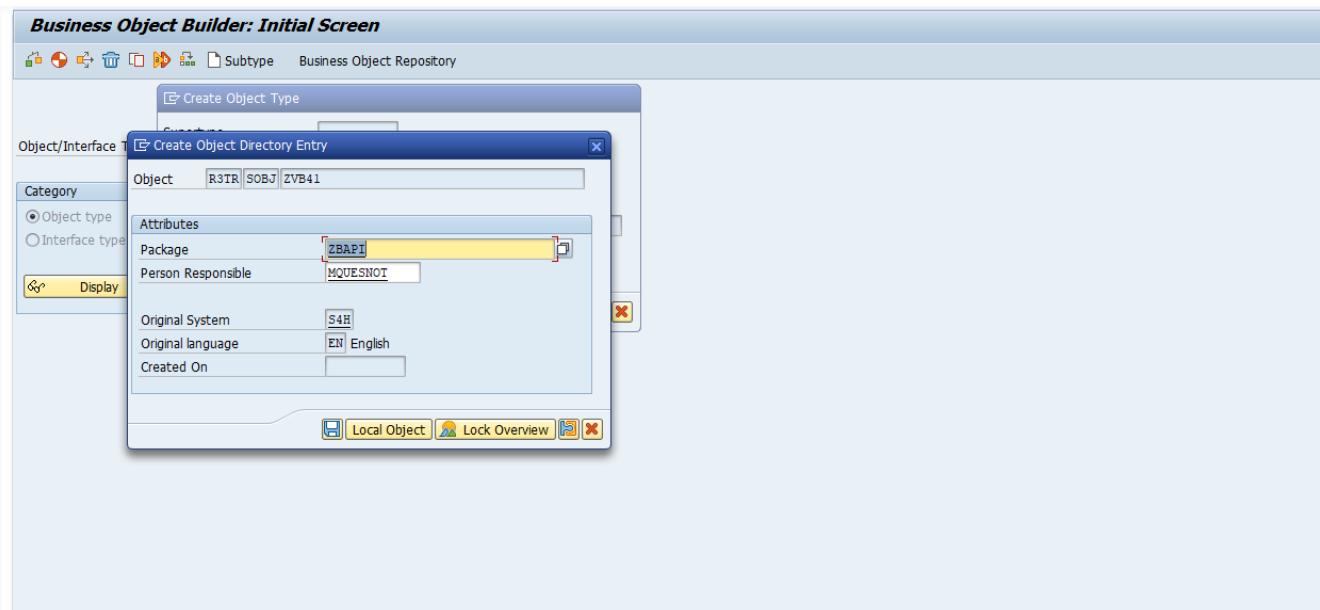
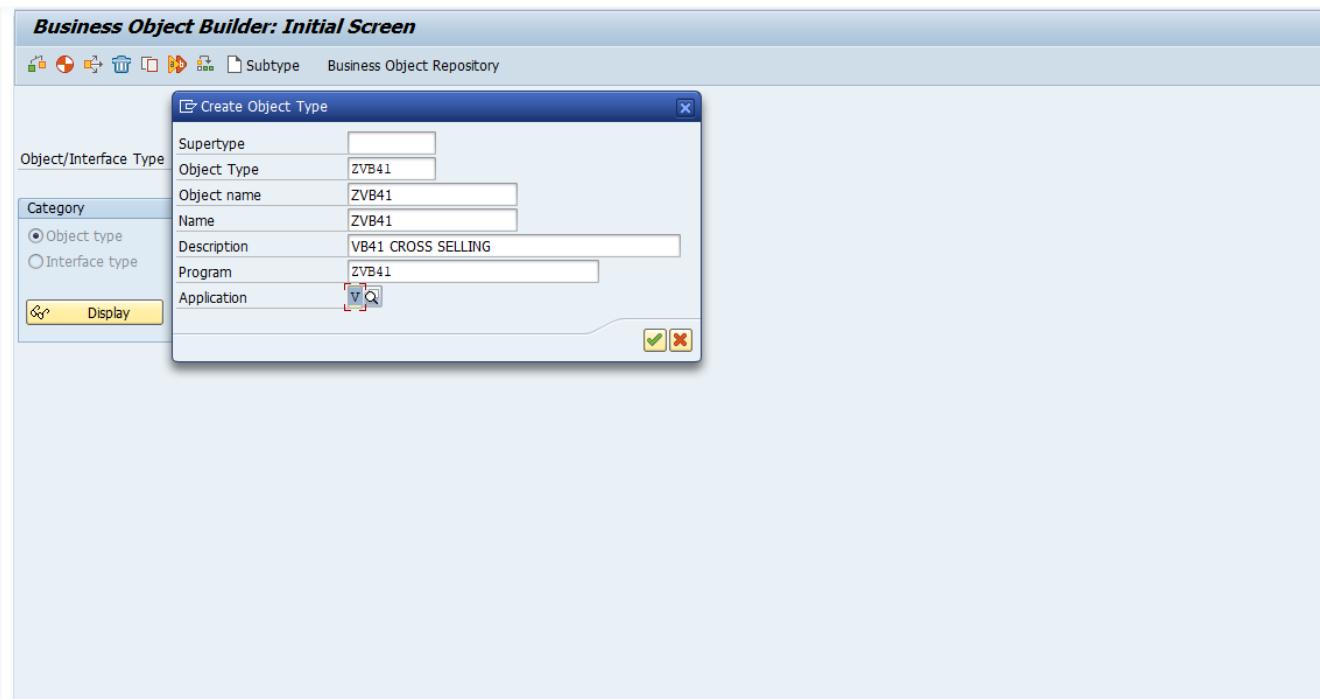


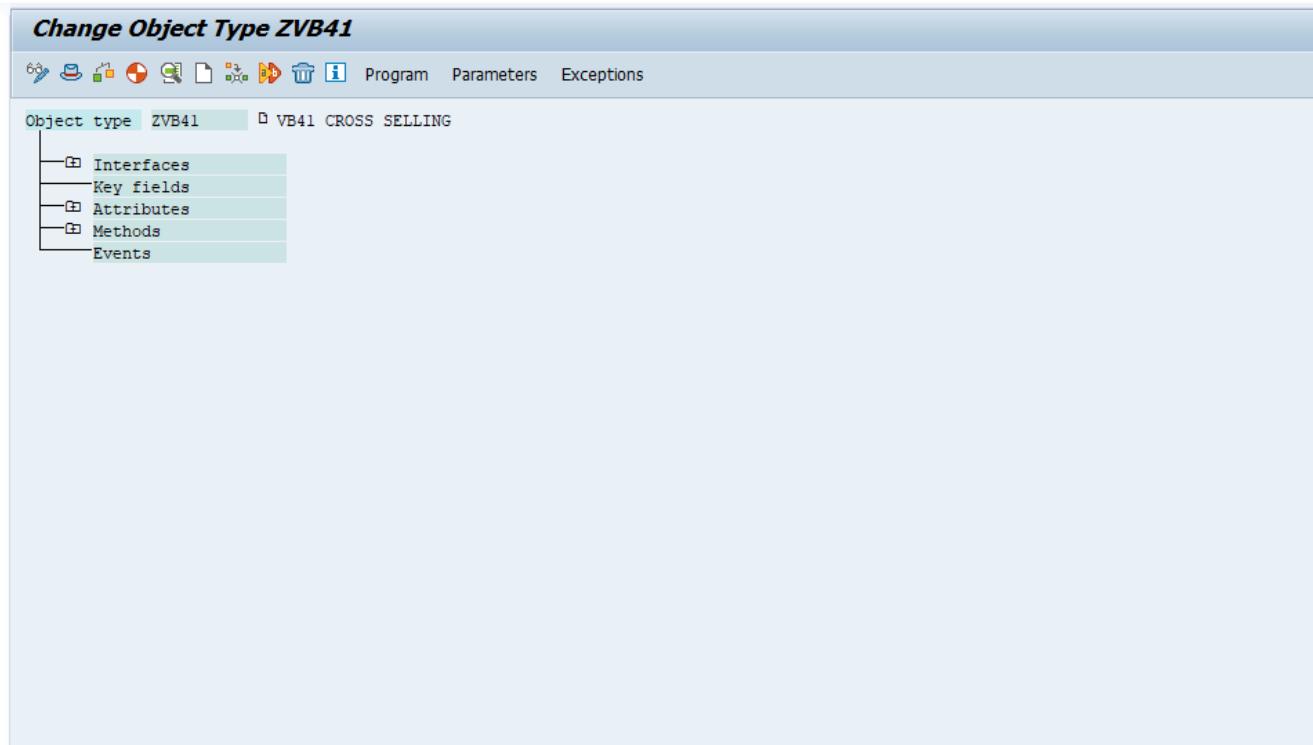
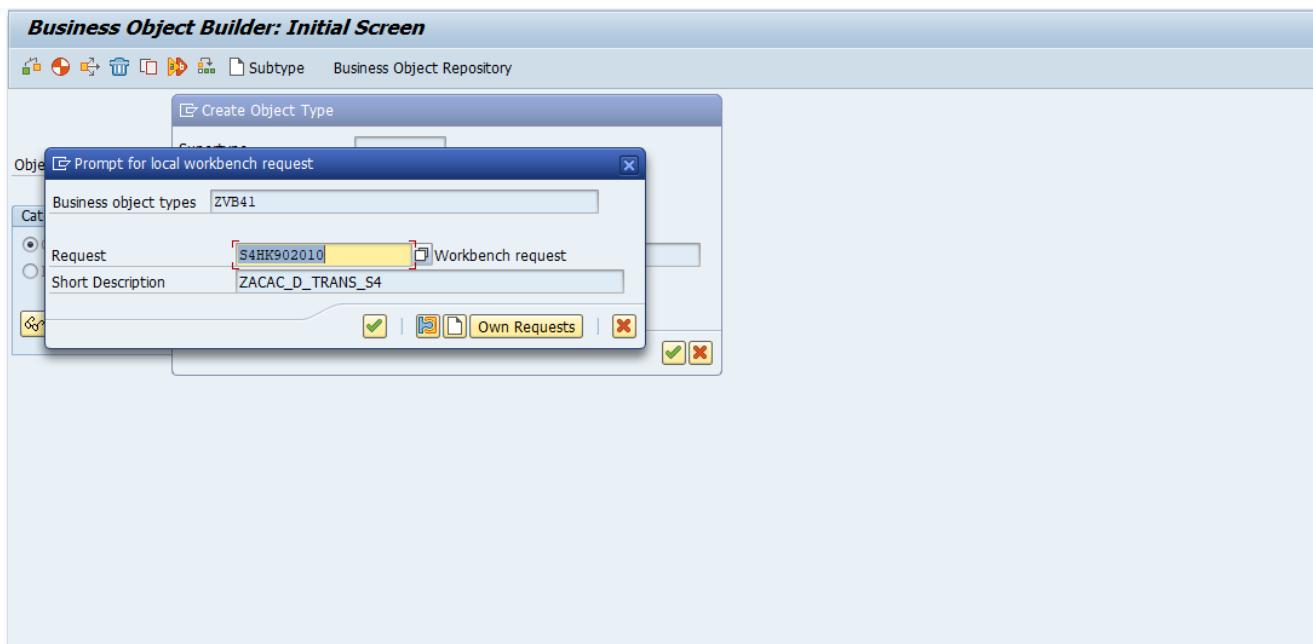


How to create a BAPI

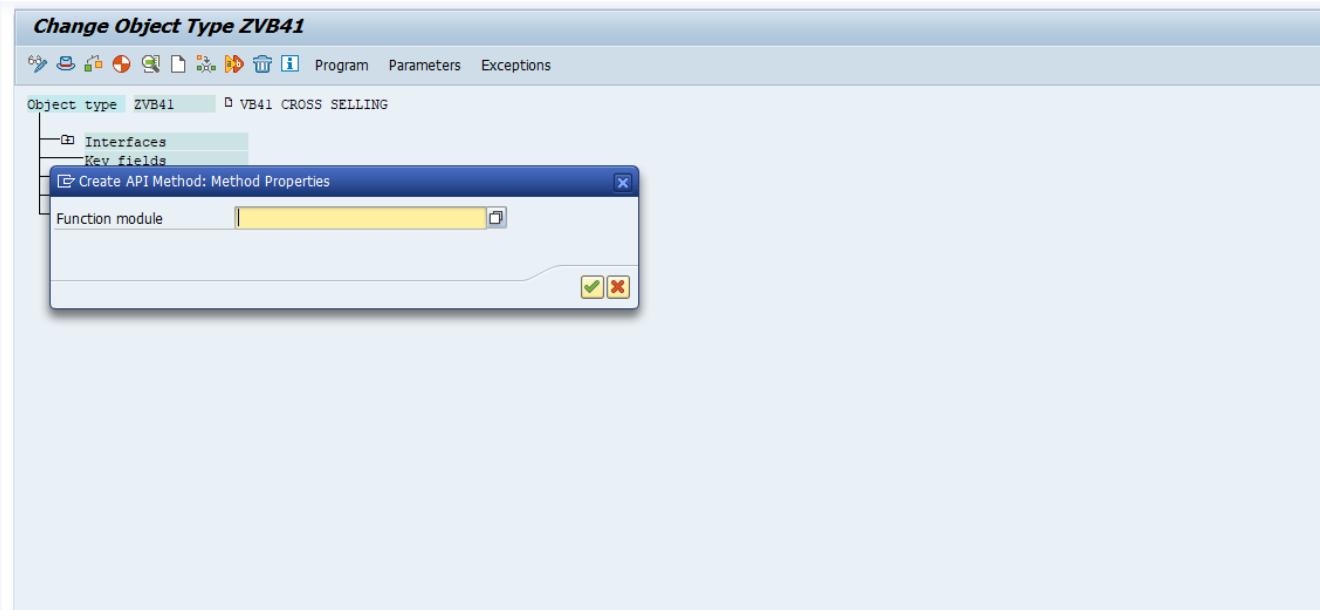
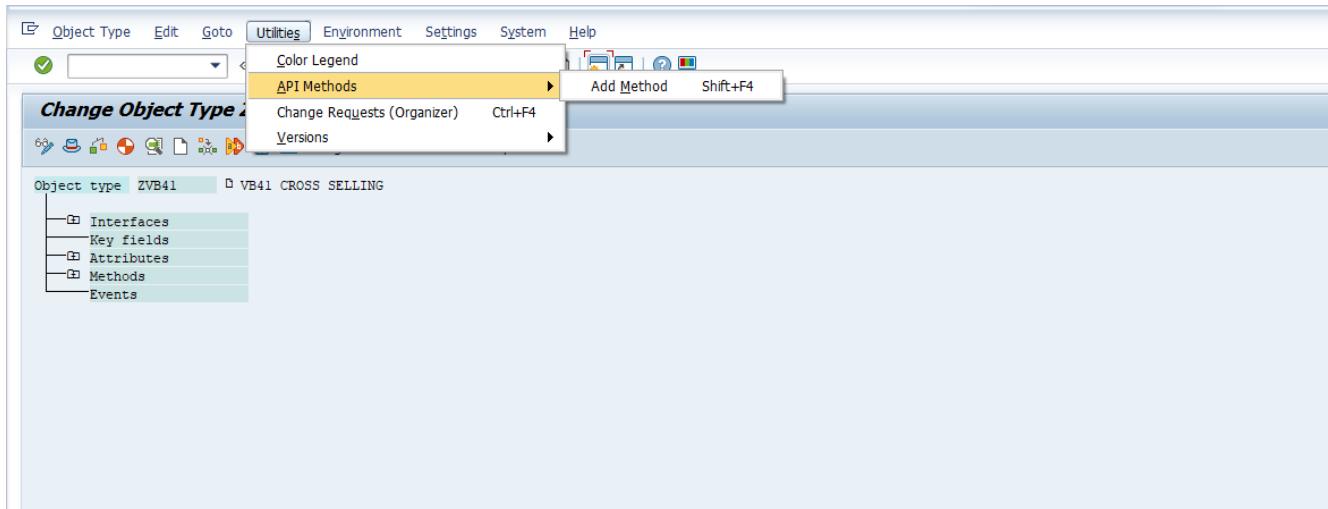
Step 1. Go to transaction swo1 (Tools->Business Framework -> BAPI Development ->Business Object builder) .Select the business object, according to the functional requirement for which the BAPI is being created.

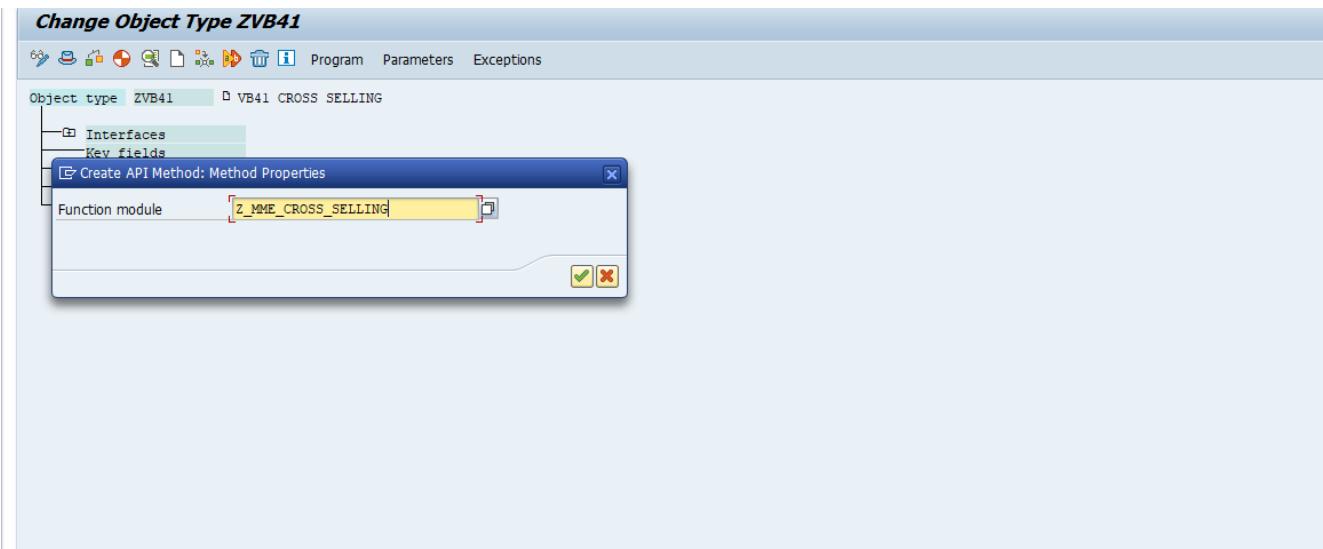






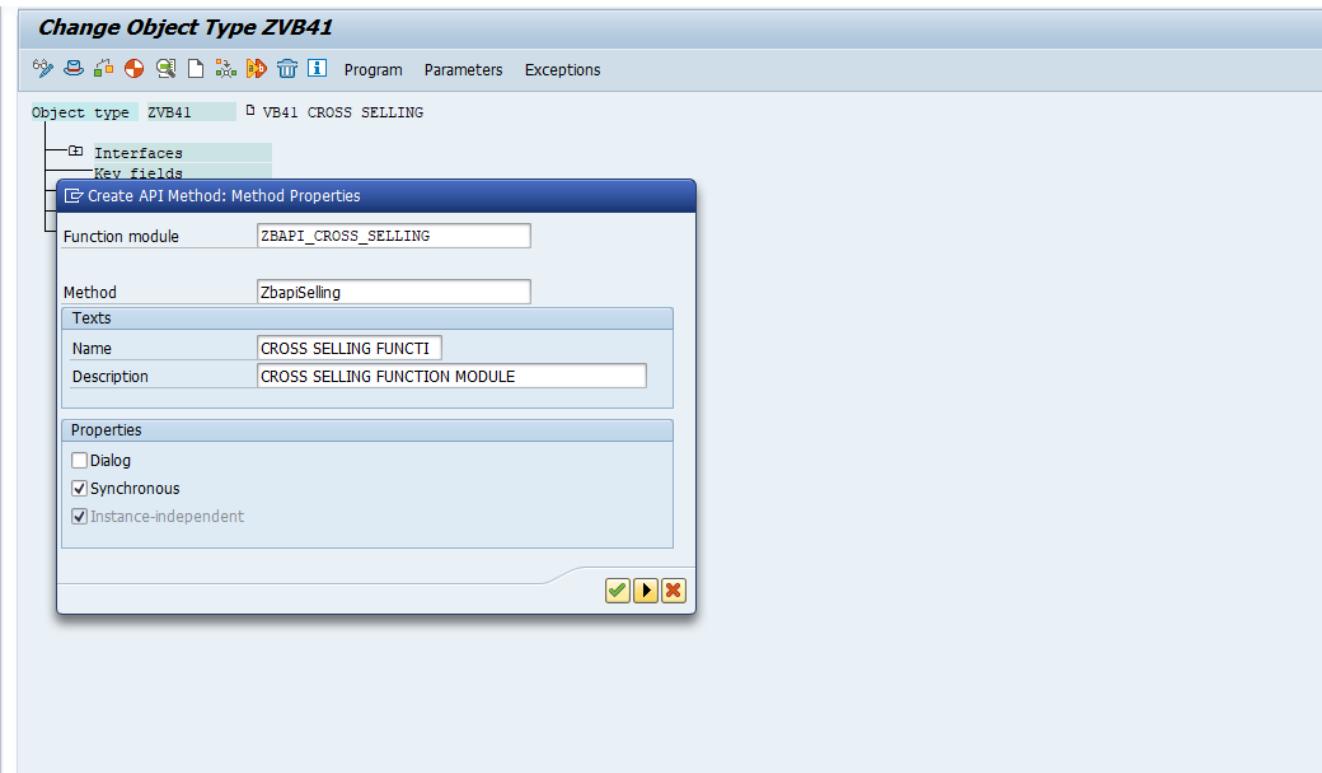
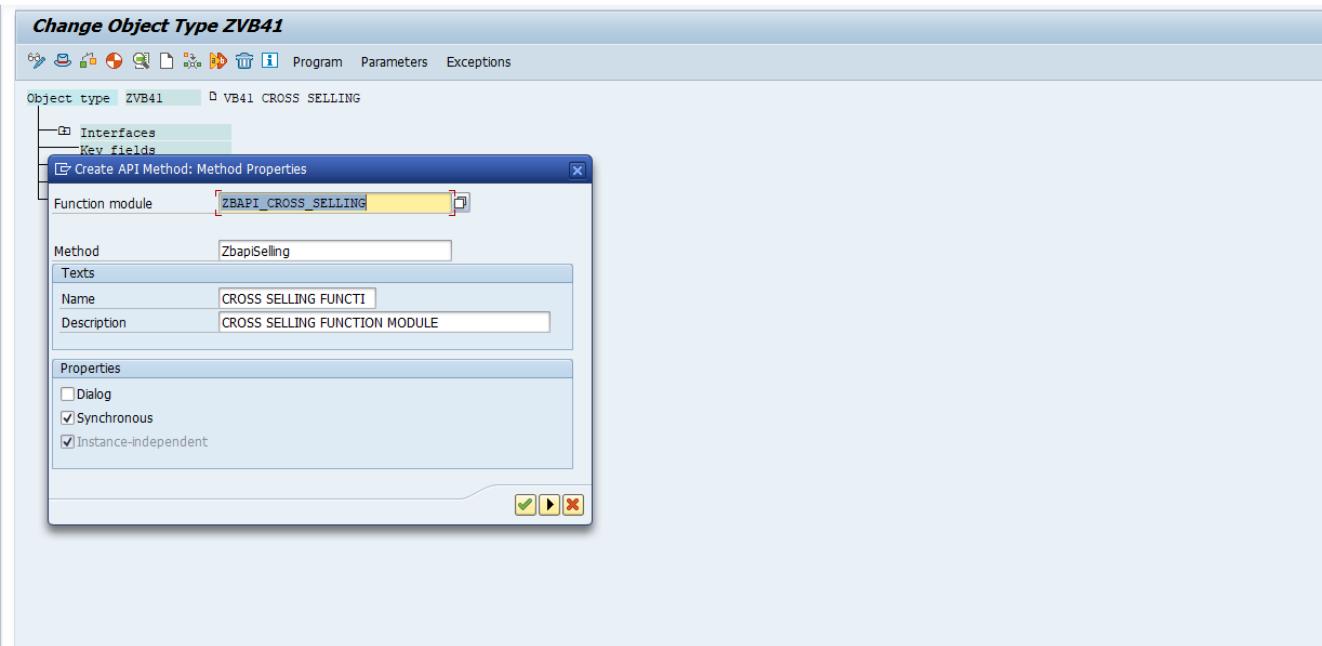
Step2. Open the business object in change mode. Then Select Utilities ->API Methods ->Add method. Then enter the name of the function module and select Continue.

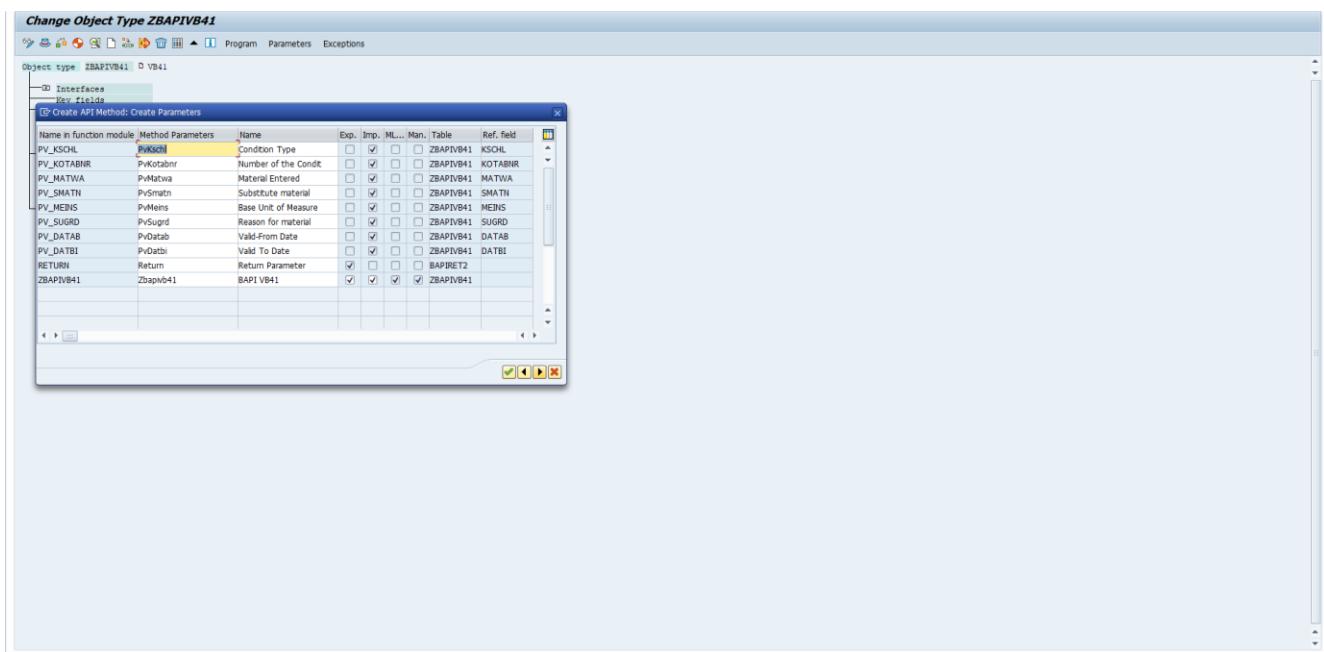
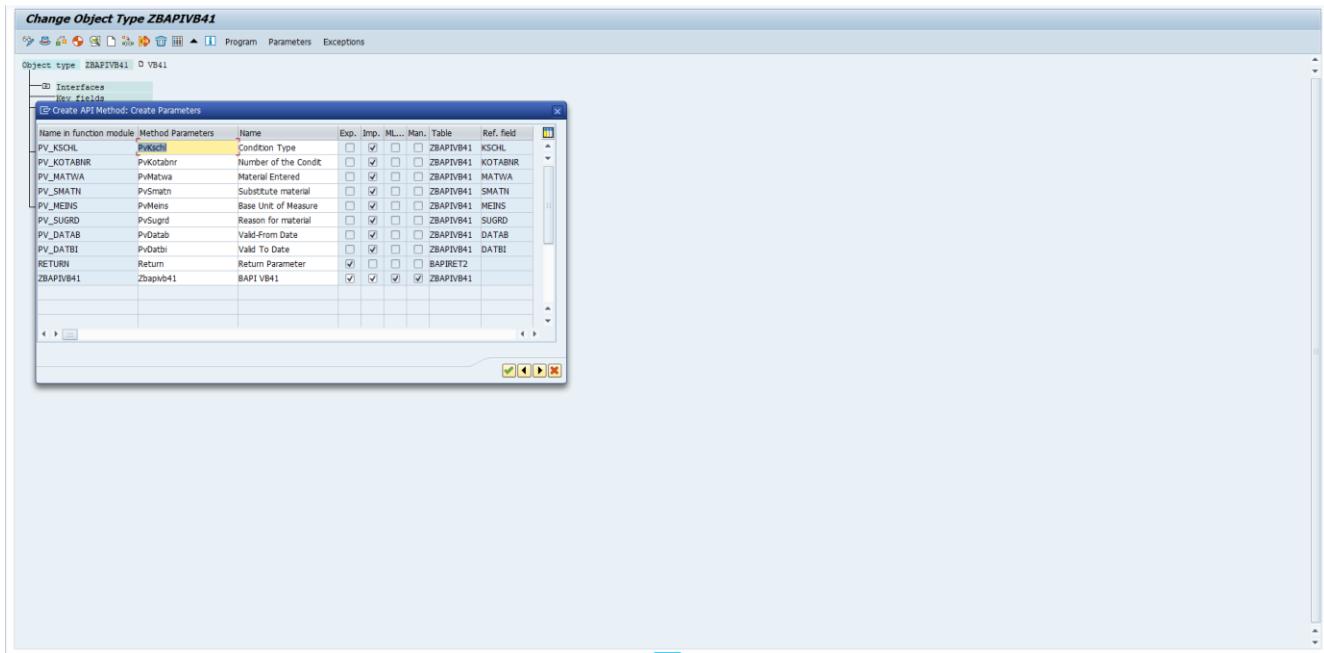




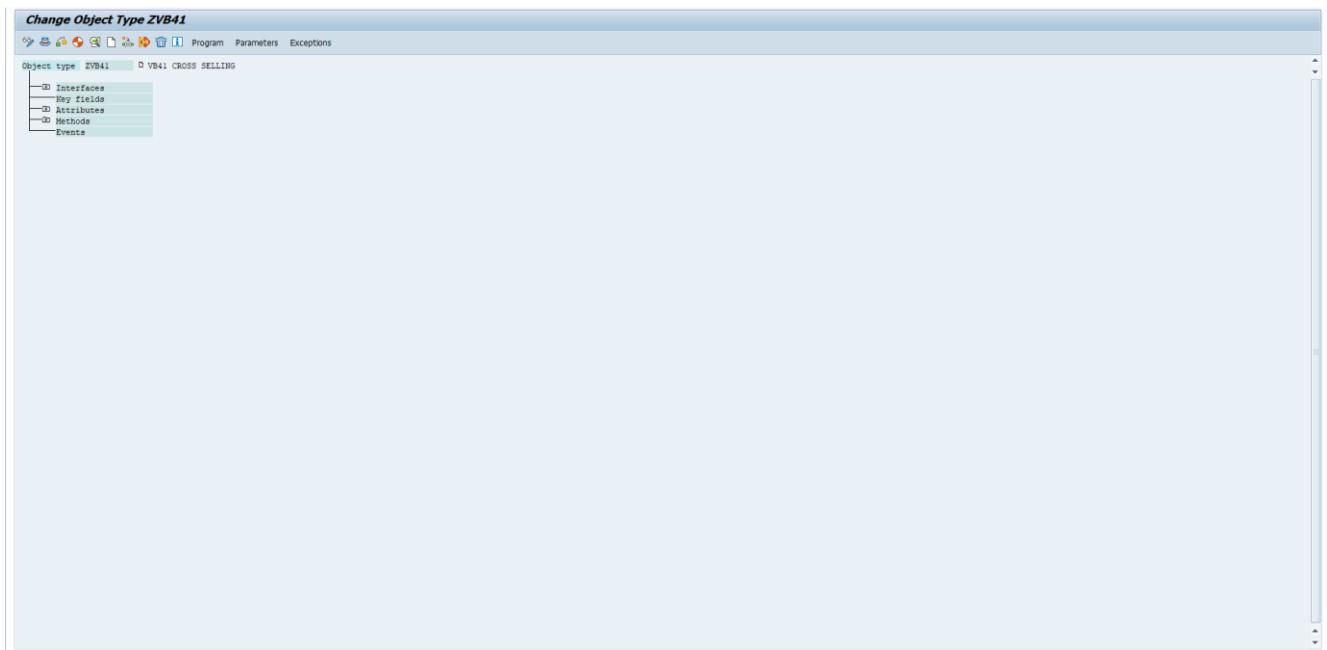
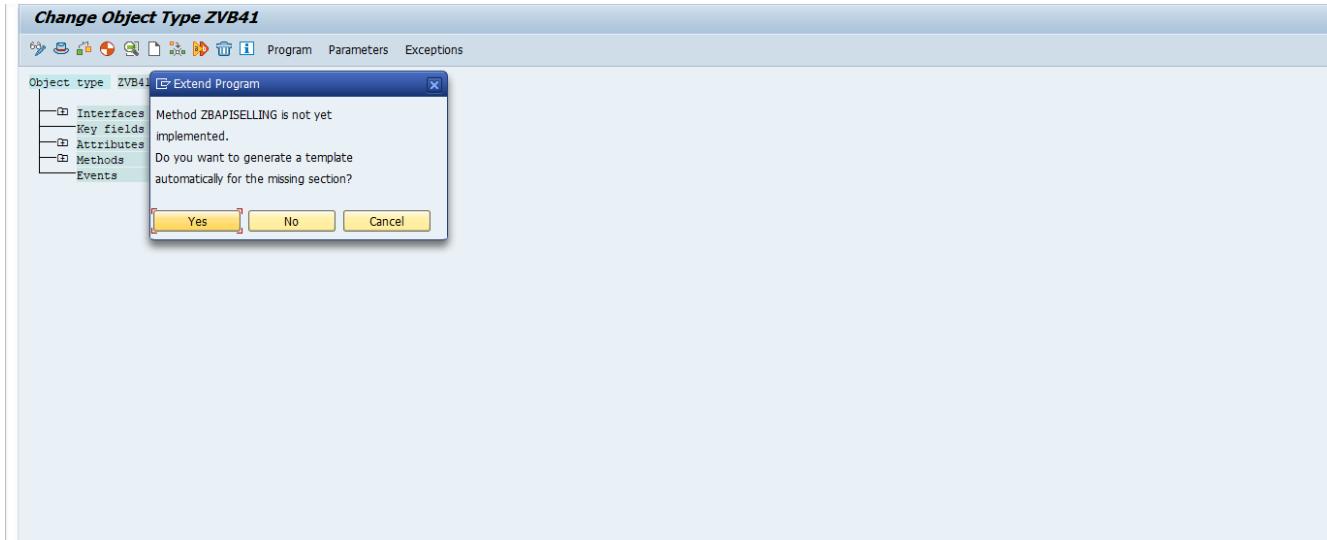
Step 3.In the next dialog box, following information needs to be specified :

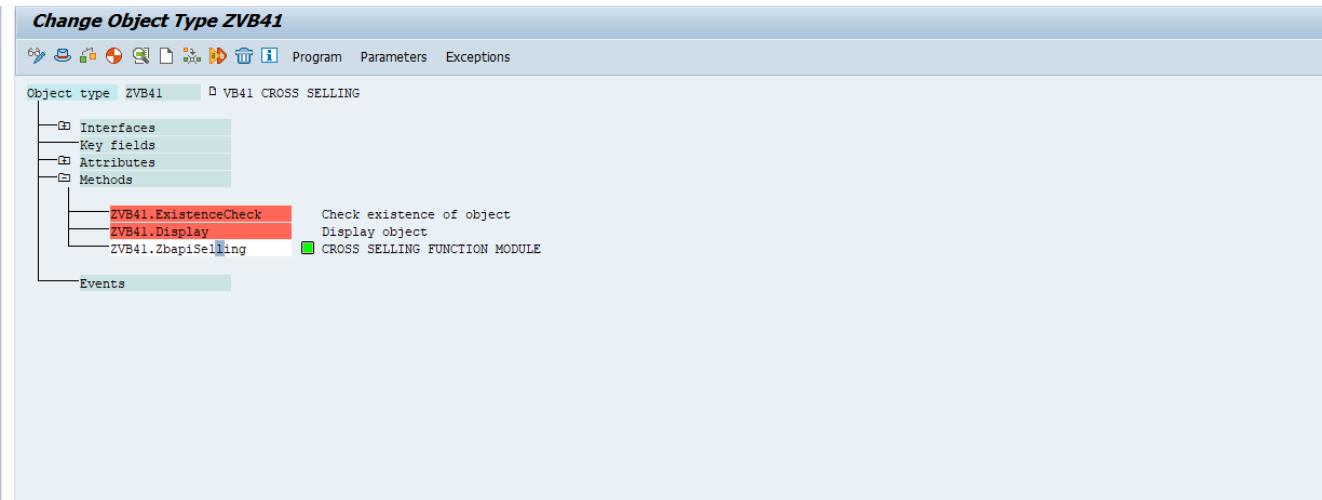
- Method : Suggest an appropriate name for the method,
- Texts : Enter description for the BAPI,
- Radio buttons : Dialog, Synchronous, Instance-independent . BAPI 's are usually implemented synchronously.





Step4.To create the method select Yes in the next dialog box.



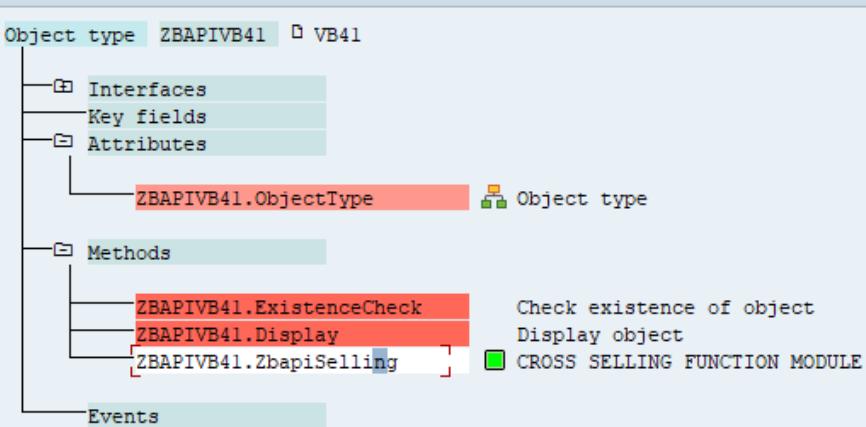


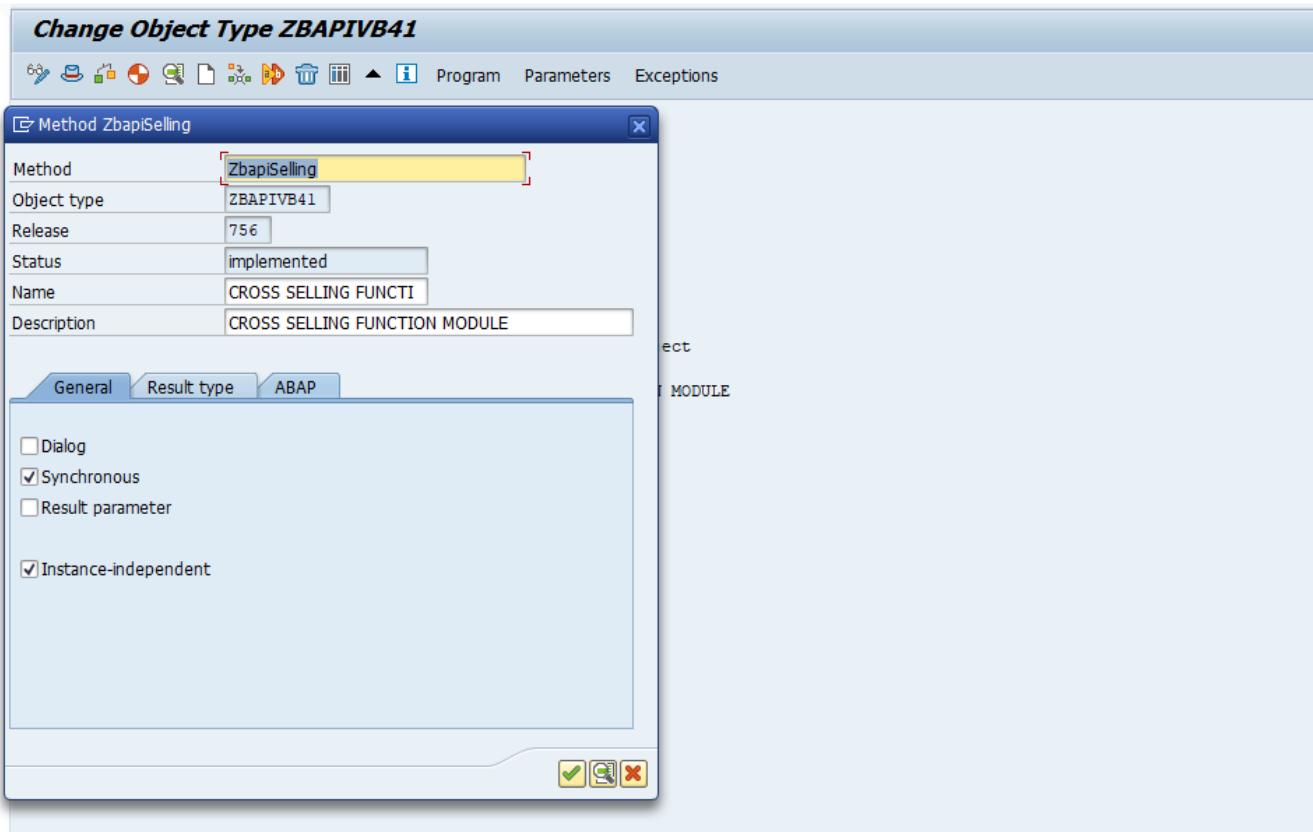


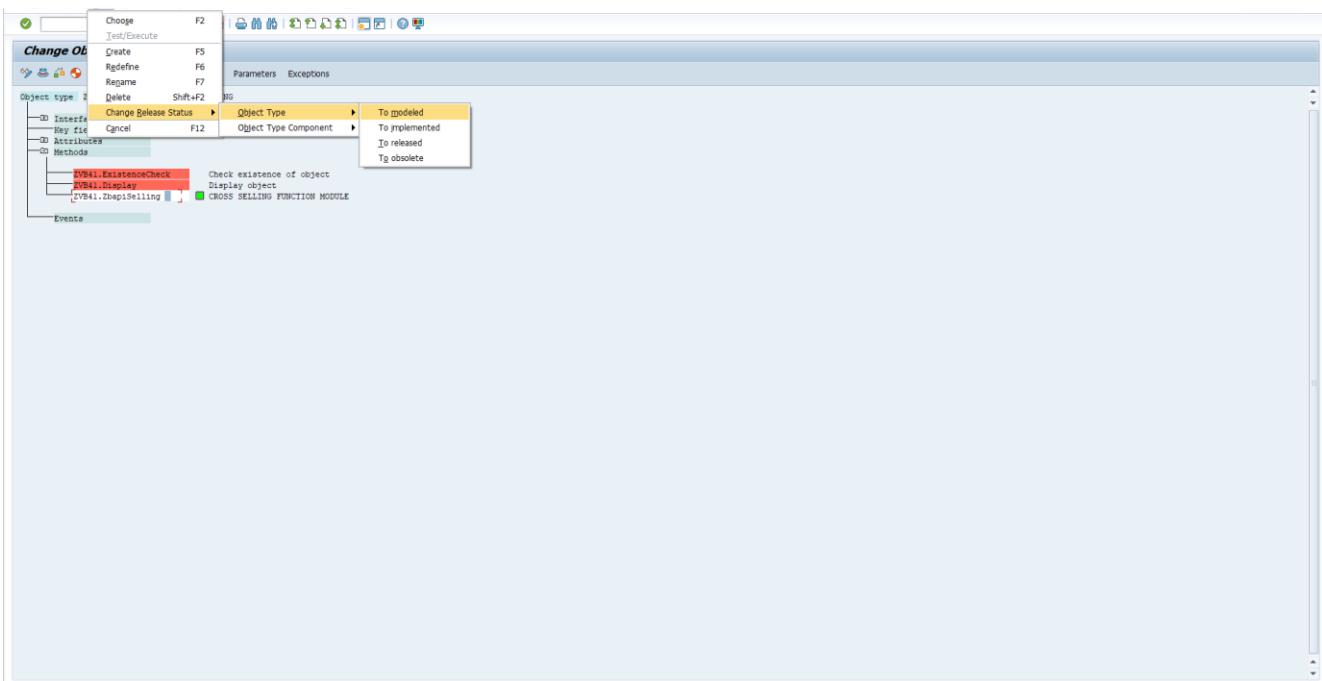
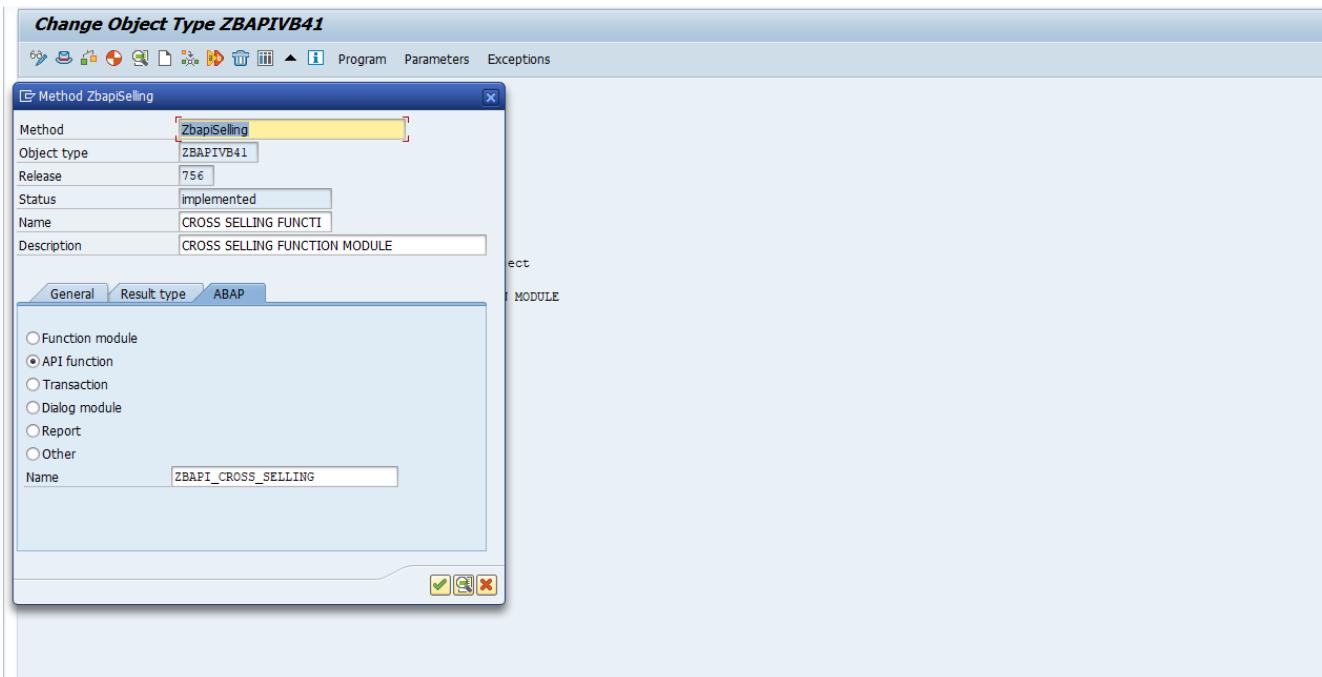
Step5. After the program has been generated and executed, check the program in the method just created. Thus , a BAPI is created.

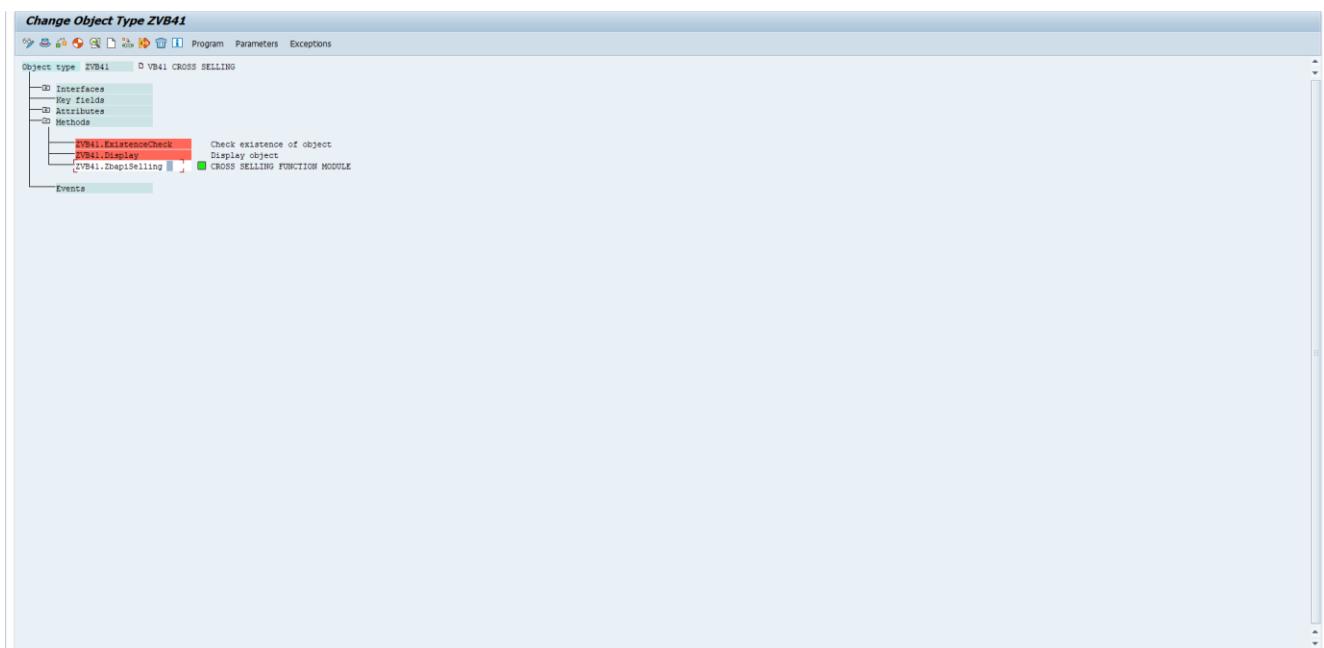
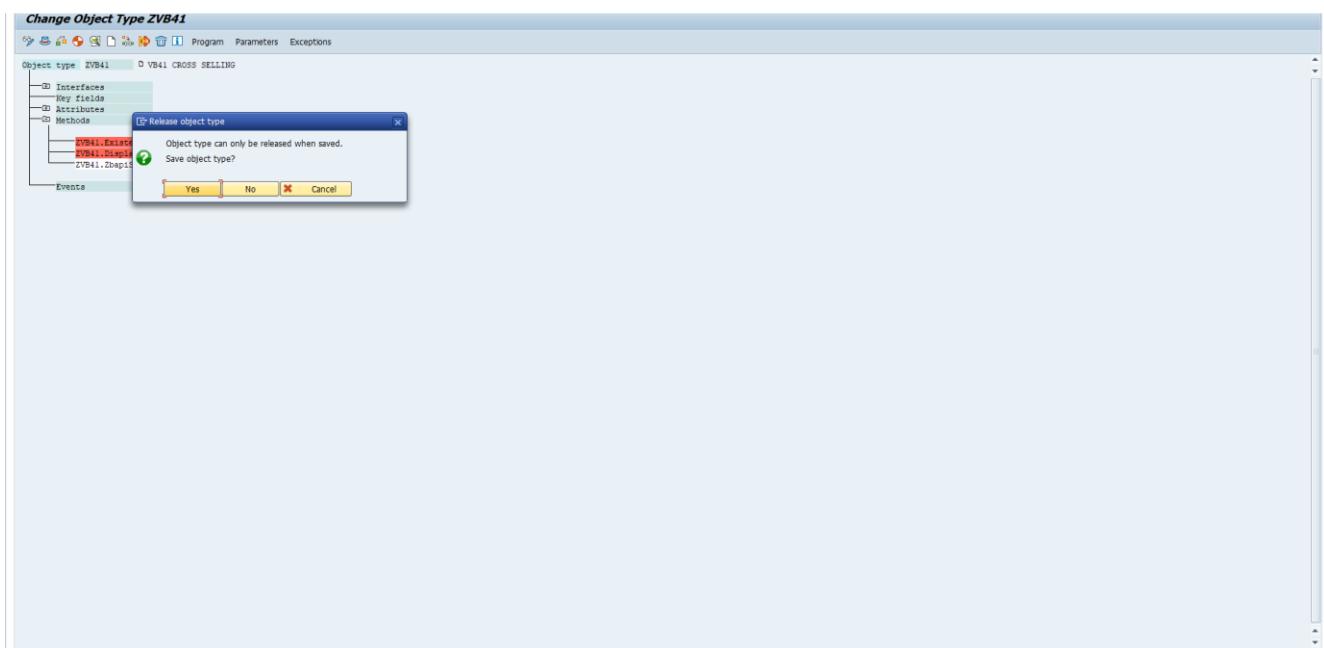
Change Object Type ZBAPIVB41

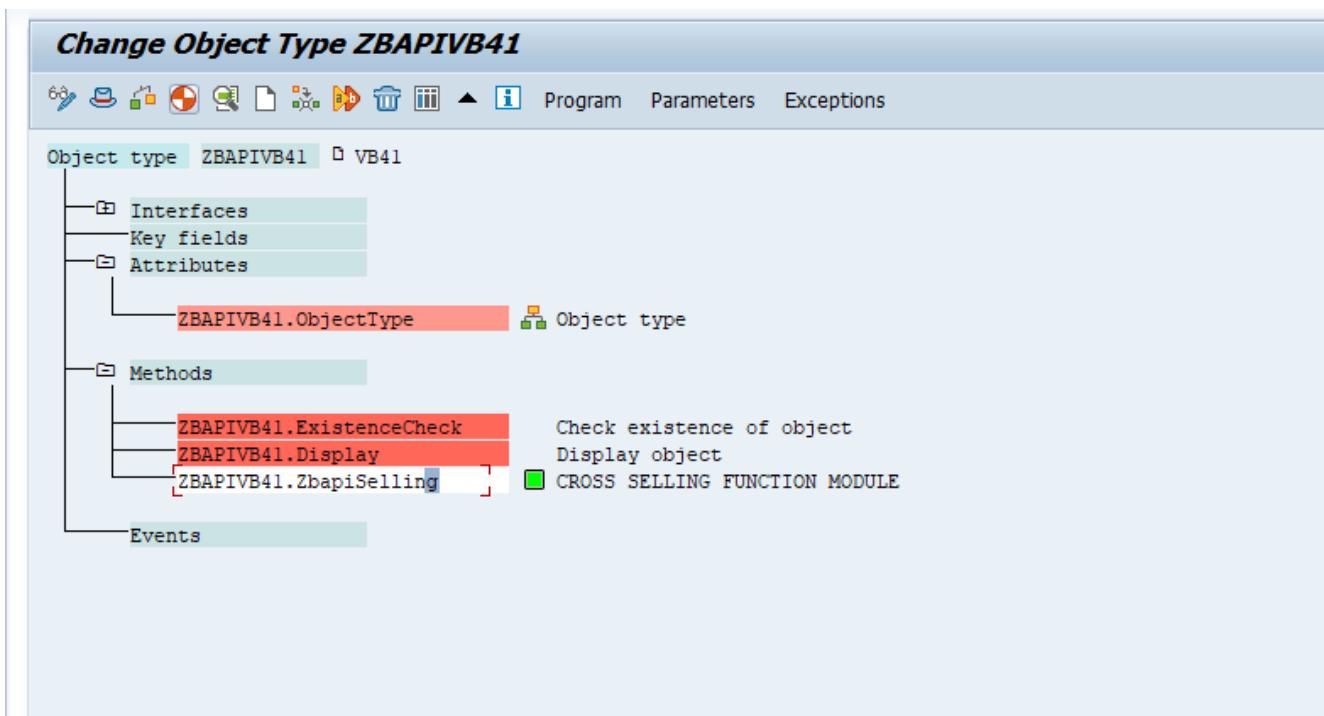
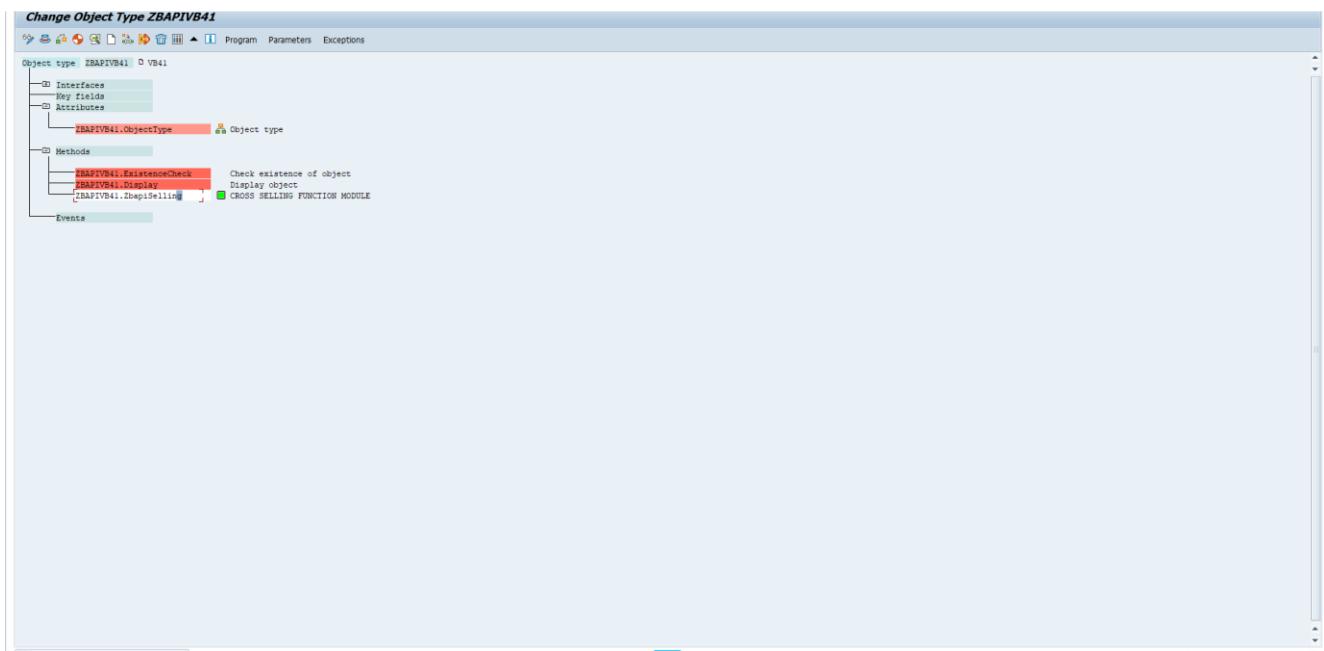
Object type ZBAPIVB41 □ VB41







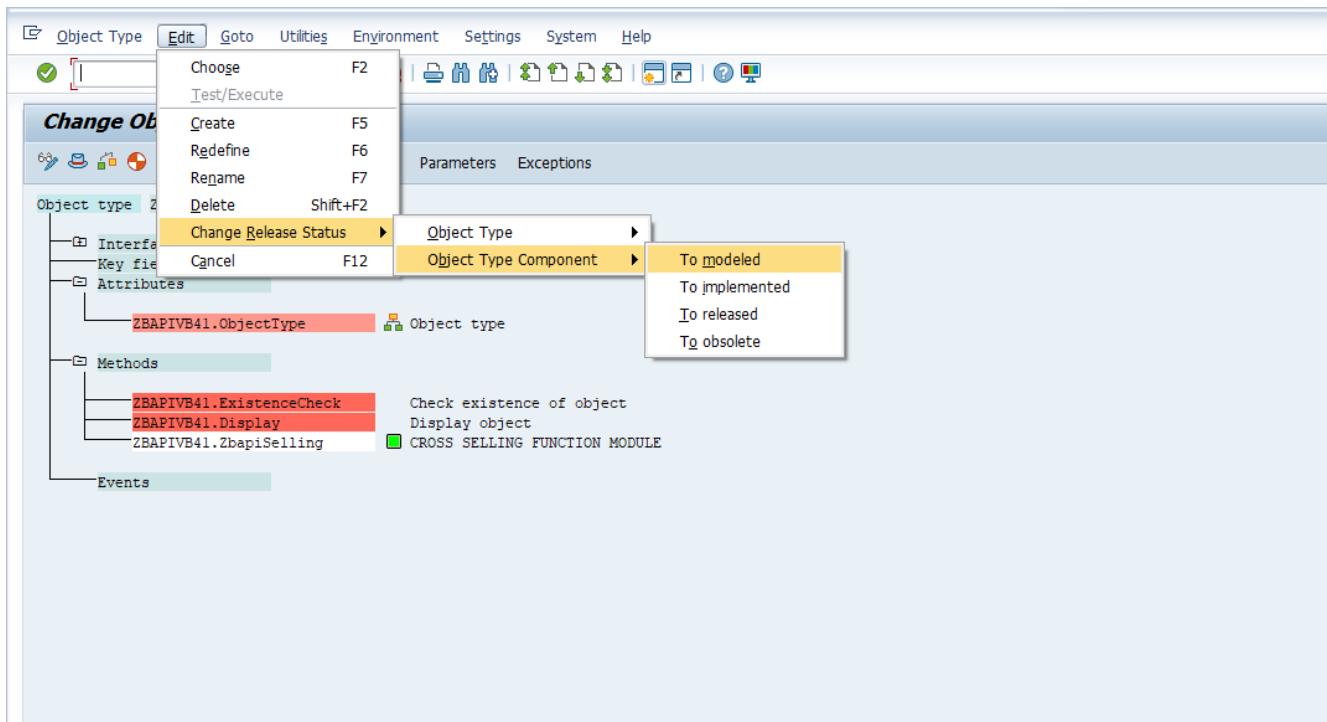
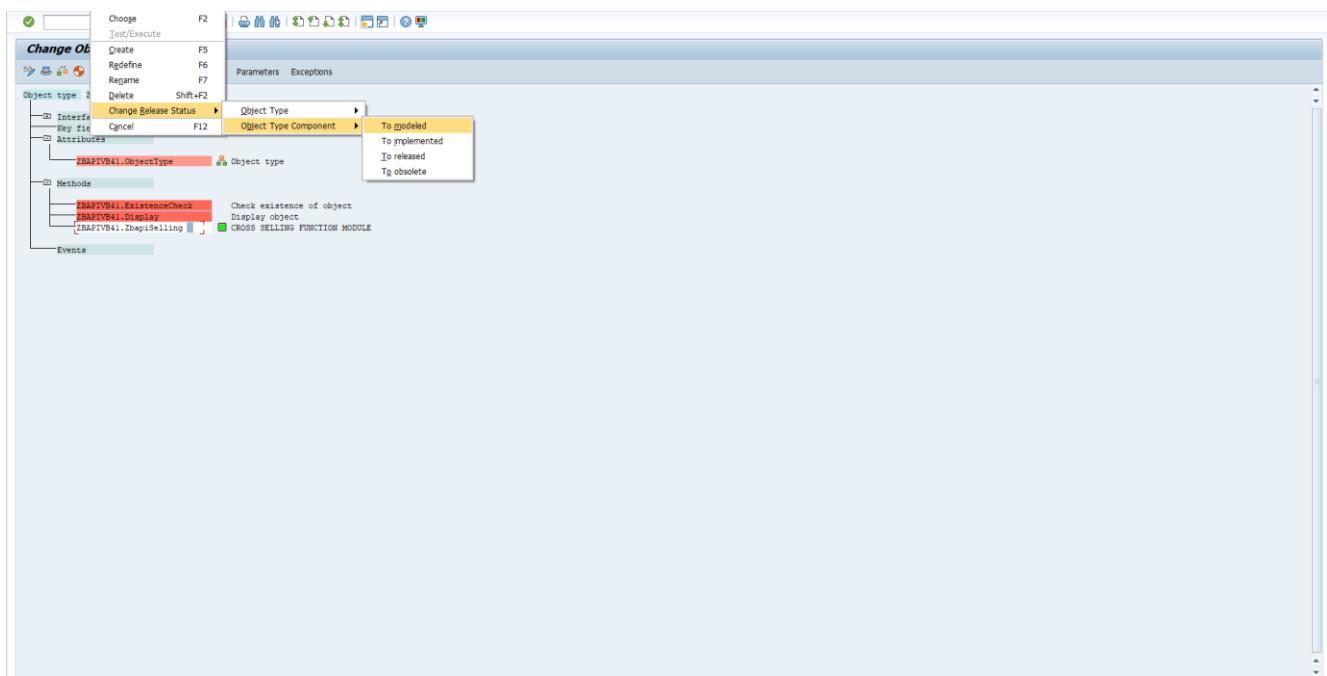


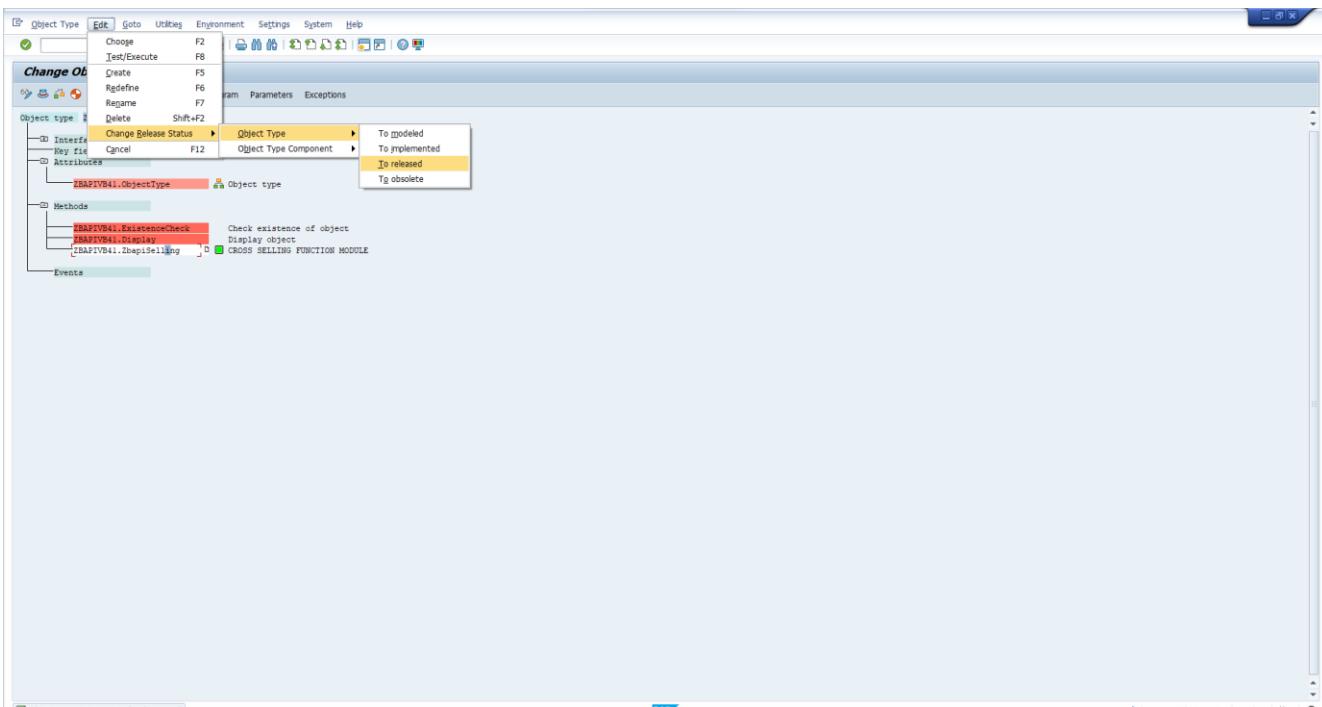
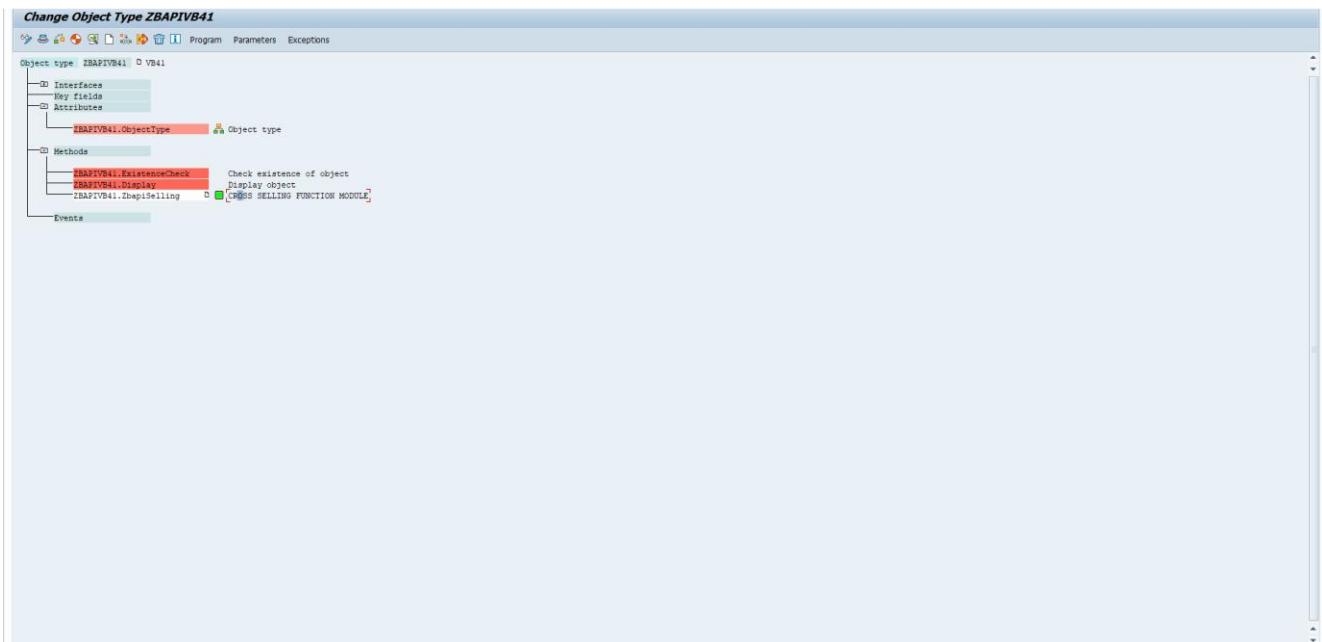


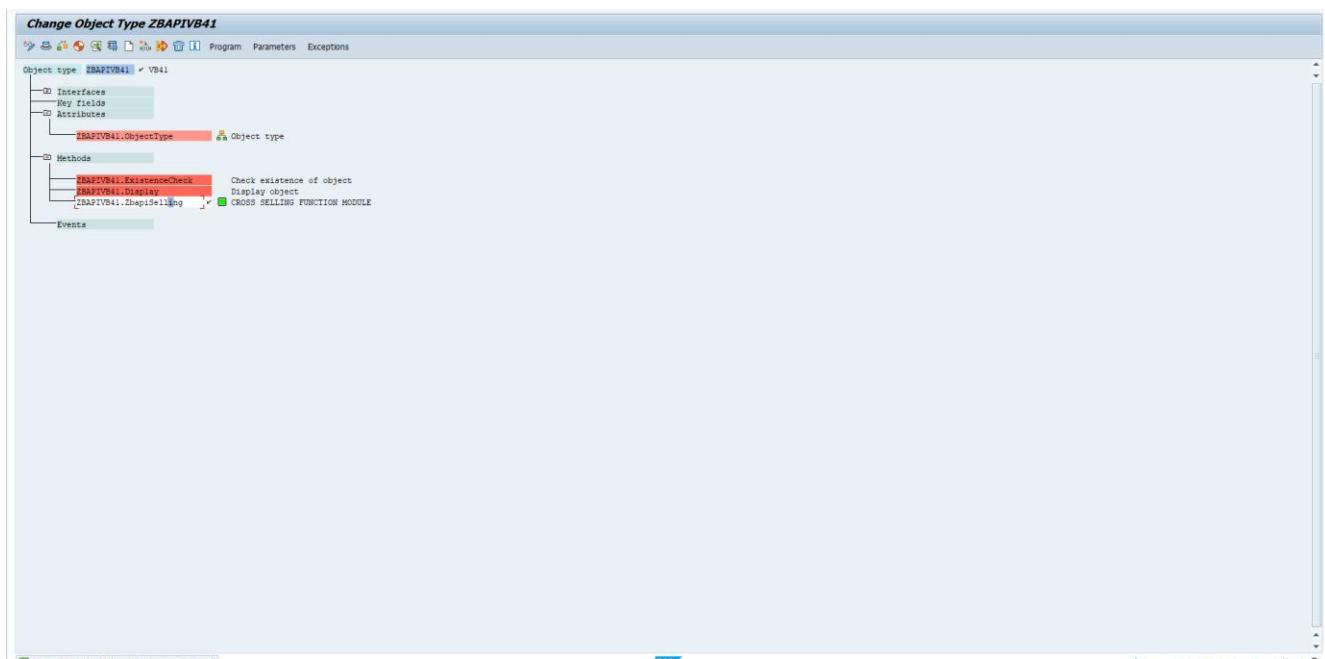
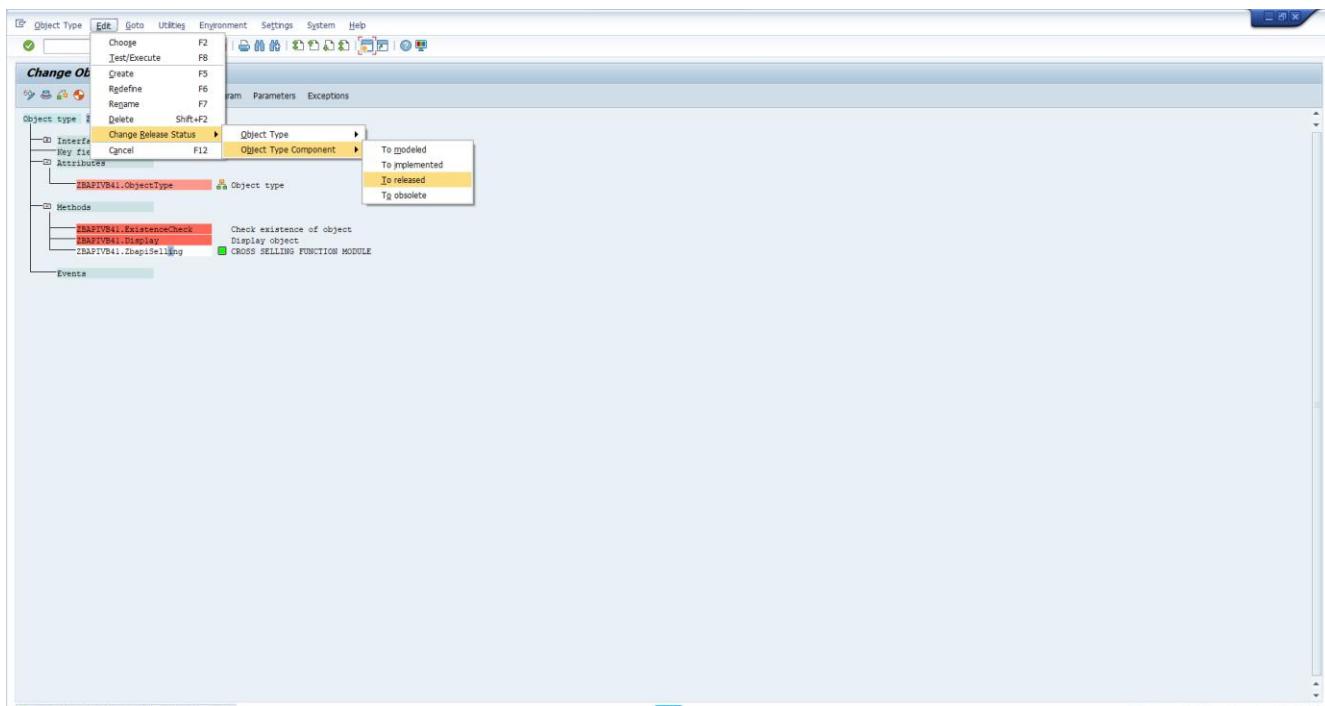
Change Object Type ZBAPIVB41

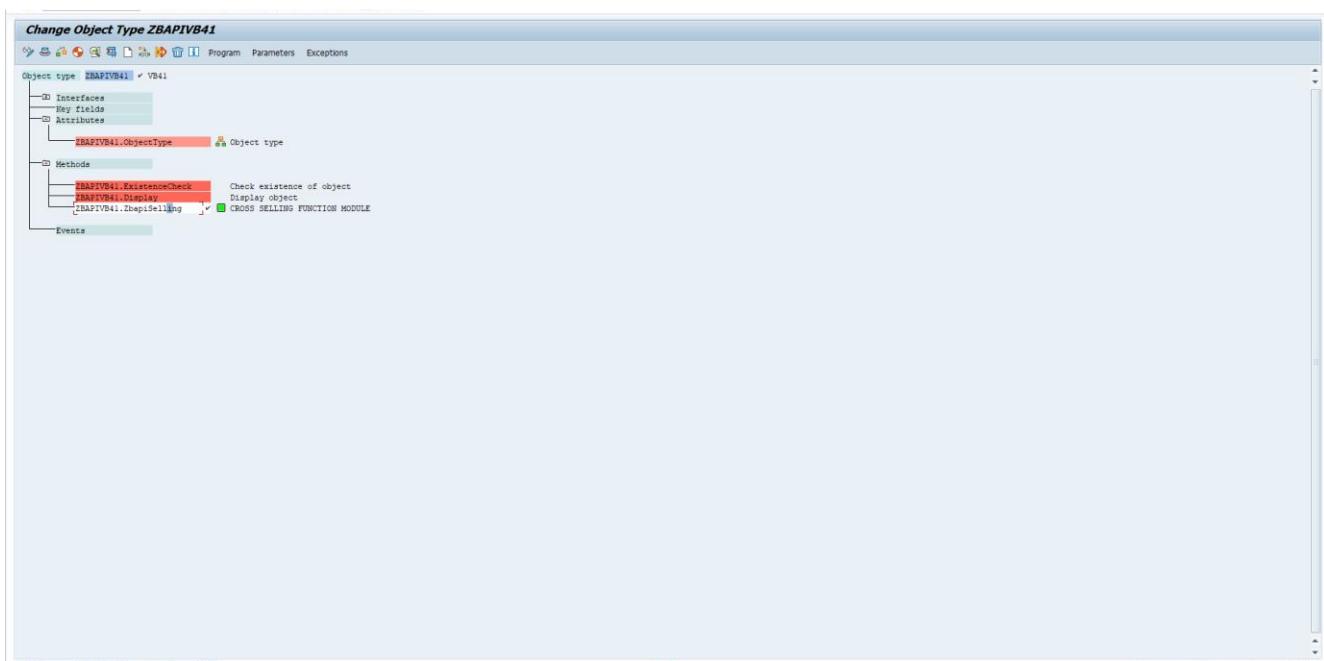
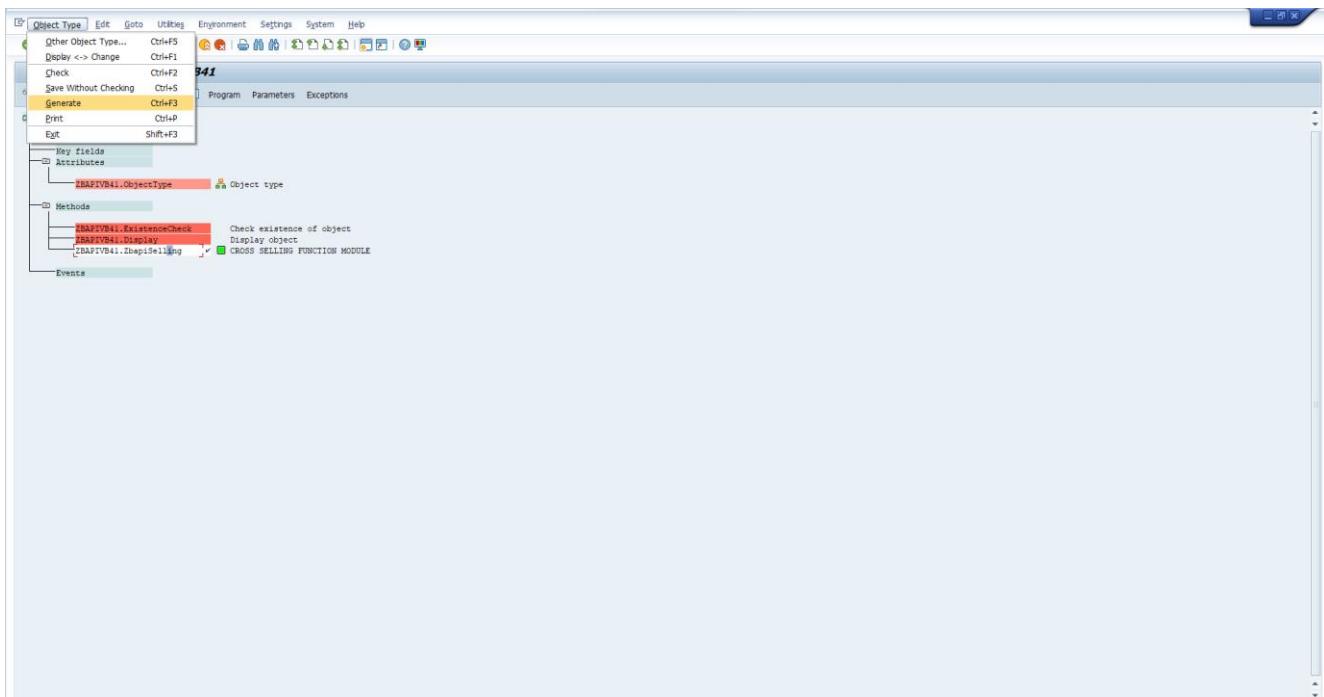
Object type ZBAPIVB41 □ VB41

- ─ Interfaces
- ─ Key fields
- ─ Attributes
 - ─ ZBAPIVB41.ObjectType  Object type
- ─ Methods
 - ─ ZBAPIVB41.ExistenceCheck Check existence of object
 - ─ ZBAPIVB41.Display Display object
 - ─ ZBAPIVB41.ZbapiSelling  CROSS SELLING FUNCTION MODULE
- ─ Events



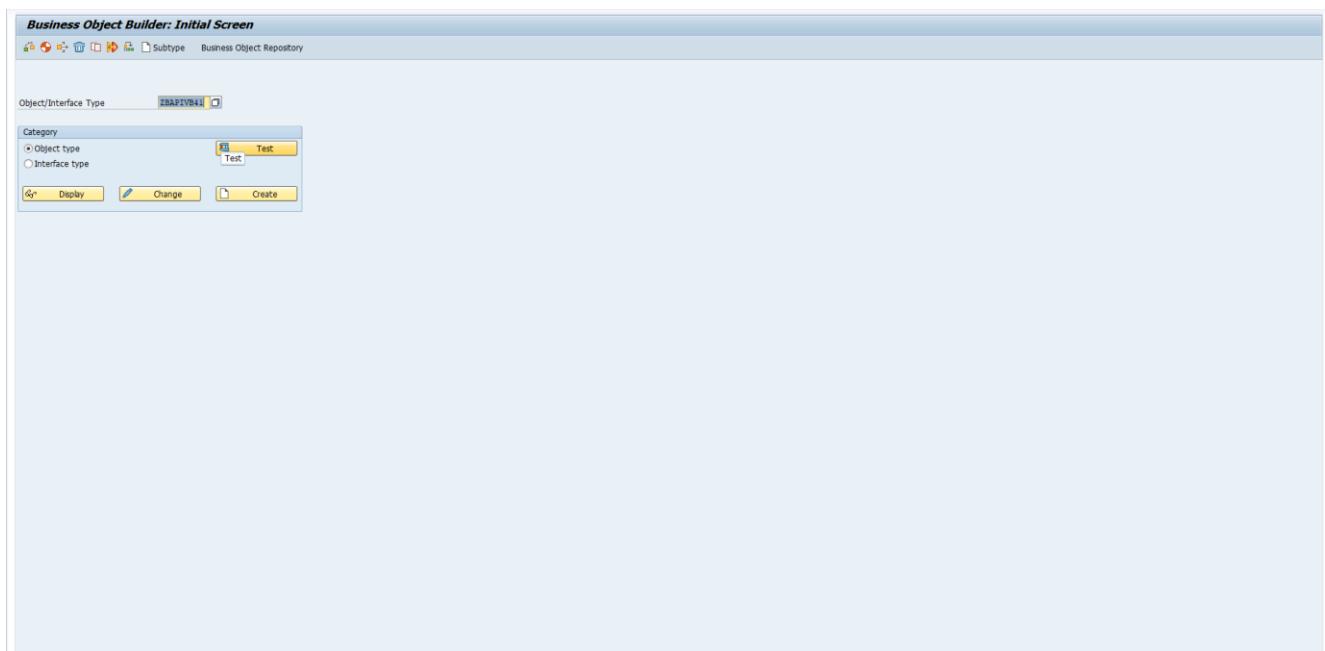






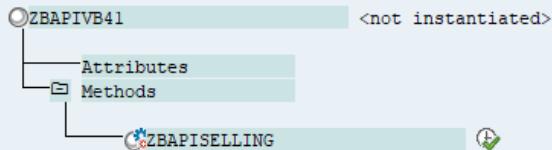
Testing the BAPI

You can test the BAPI by [Testing](#) the individual method of the Business Object in the Business Object Builder. .



Test Object Type ZBAPIVB41: No Instance

Instance

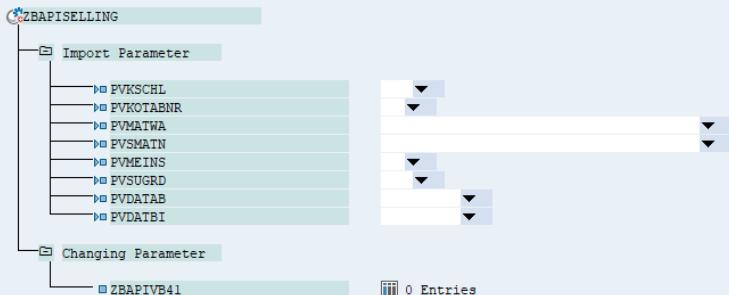


Test Method ZBAPISELLING: Maintain Input Parameters

Debugging

TestObject->ZBAPISELLING()

Case-Sensitive



Test Method ZBAPISELLING: Maintain Input Parameters

TestObject->ZBAPISELLING()

Case-Sensitive

ZBAPISELLING

- Import Parameter**
 - PVKSCHL: CS01
 - FVKOTABNR: 011
 - FVMATWA: 2
 - FVSMATN: 3
 - FVMEINS: []
 - FVSUGRD: []
 - FVDATAB: []
 - FVDATBI: []
- Changing Parameter**
 - ZBAPIVB41: 0 Entries

Test Method ZBAPISELLING: Display Results

TestObject->ZBAPISELLING()

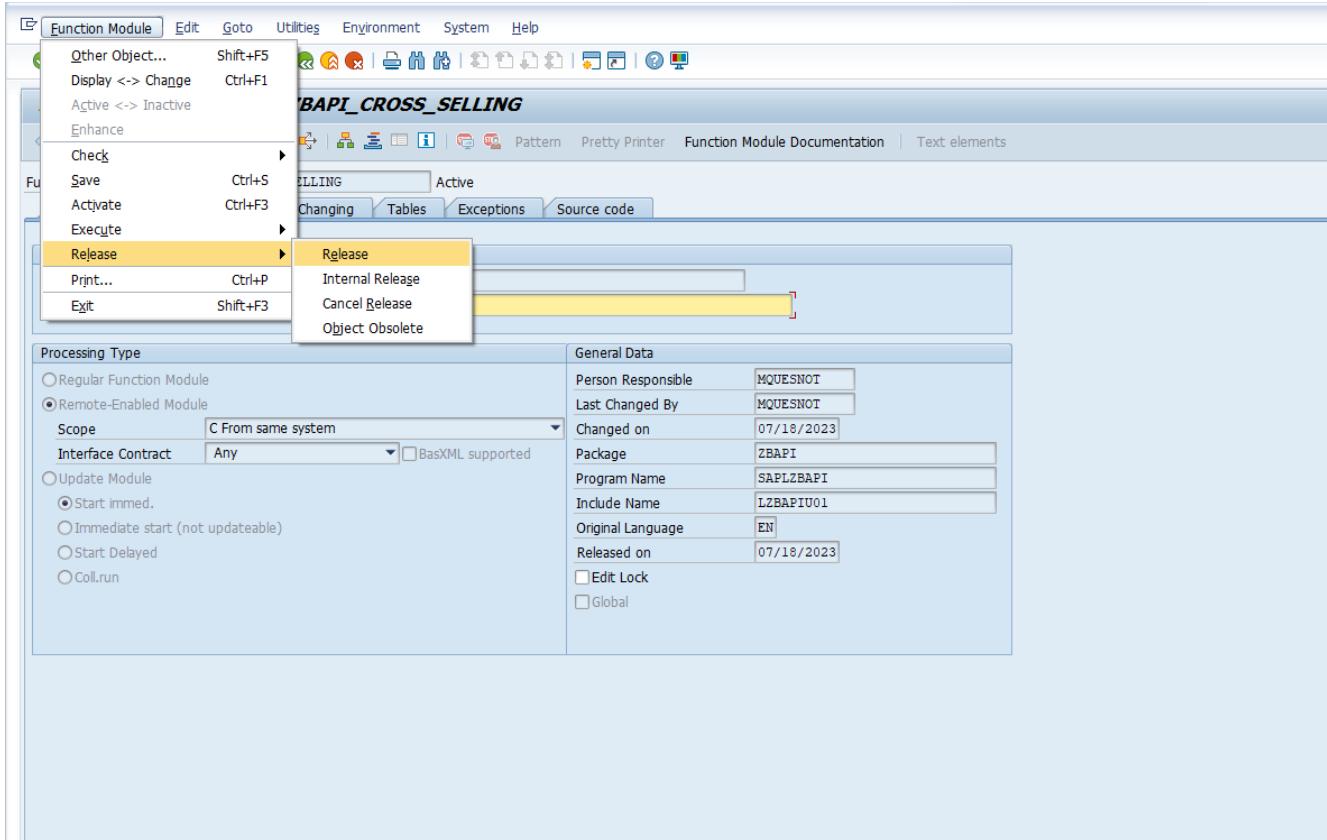
Runtime: 28,209,707 Microseconds

ZBAPISELLING

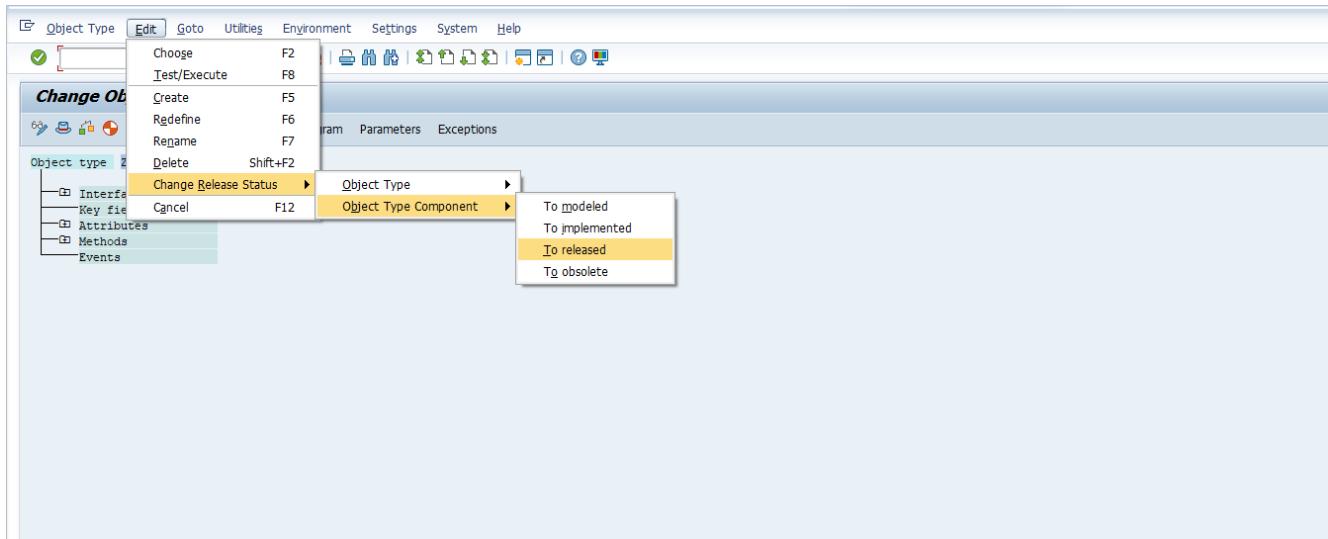
- Import Parameter**
 - PVKSCHL: 2
 - FVKOTABNR: 11
 - FVMATWA: []
 - FVSMATN: []
 - FVMEINS: []
 - FVSUGRD: []
 - FVDATAB: []
 - FVDATBI: []
- Export Parameter**
 - RETURN: S 023Condition record 0000000074 has been created
- Changing Parameter**
 - ZBAPIVB41: 0 Entries

Releasing and freezing the BAPI

- To release the BAPI , first release the function module (using transaction se37) .



- Set the status of the method to 'released' in the Business Object Builder (using transaction SWo1 – Edit-> change status-> released.)



You can also use the BAPI Explorer (Transaction code BAPI) for 360° view on BAPI

