

# ABAP/4 Reporting

## User Enhancements

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# ENHANCEMENTS TO SAP OBJECTS

SAP has developed its various modules with standards, which are broadly practiced all over. But yet the requirements of customers differ from place to place. In this scenario it becomes imperative to modify SAP objects to suit the customers needs.

Hence SAP allows you to change the system accordingly and add your own functionality to the SAP system. There are four different ways of changing the SAP system to fit our needs :

1. Customizing : Customizing constitutes changing the system parameters with its own special user interface. These changes are organized and pre-planned. It is an obligatory part of a SAP implementation process.
2. Enhancement Concept : It constitutes changing of SAP Repository objects by the customer without modification
3. Modification : Modifying the SAP repository objects in the form custom changes. This should be avoided because when SAP changes occur in new versions then the customer version and the new SAP version have to be reconciled manually. This means an increased maintenance workload because of the need to adjust all such modifications. Hence, use of this option should be avoided as far as possible.
4. Customer Development : If the customer requirements are not met by SAP then we should go in for customer development. These means that we need to create customer specific objects within the customer range.

Modification and Customer Development involve high maintenance and costs. Hence use these only when customer requirements are not met by customizing or by exits.

SAP creates customer exits for specific programs, screens and menus within standard R/3 applications.

### **Now the question arises why do we need to use Exits?**

There are mainly two reasons to why we have to use exits if we ever have to.

1. You should them because they do not effect the SAP source code but still allow you to change the functionality of SAP to suit your needs. SAP has provided us with some standard exits that we should modify by adding our

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own functionality to them. The code and screens you create are encapsulated as separate objects. When you create Exits, they are encapsulated as separate objects.

2. And since, they do not effect the source code and are named as per the SAP naming conventions, they do effect future software upgrades. Hence you do not have to save them and then reenter add-ons attached to exits.

You can only use exits if they already exist within the SAP R/3 System

In case you do not find an exit available for an area where you would want to make a change, then you should request SAP to develop an exit.

**There are four types of exits:**

- 1. Menu Exits**
- 2. Screen Exits**
- 3. Function module Exits**
- 4. Field Exit**

Let us now see how to create these exits.

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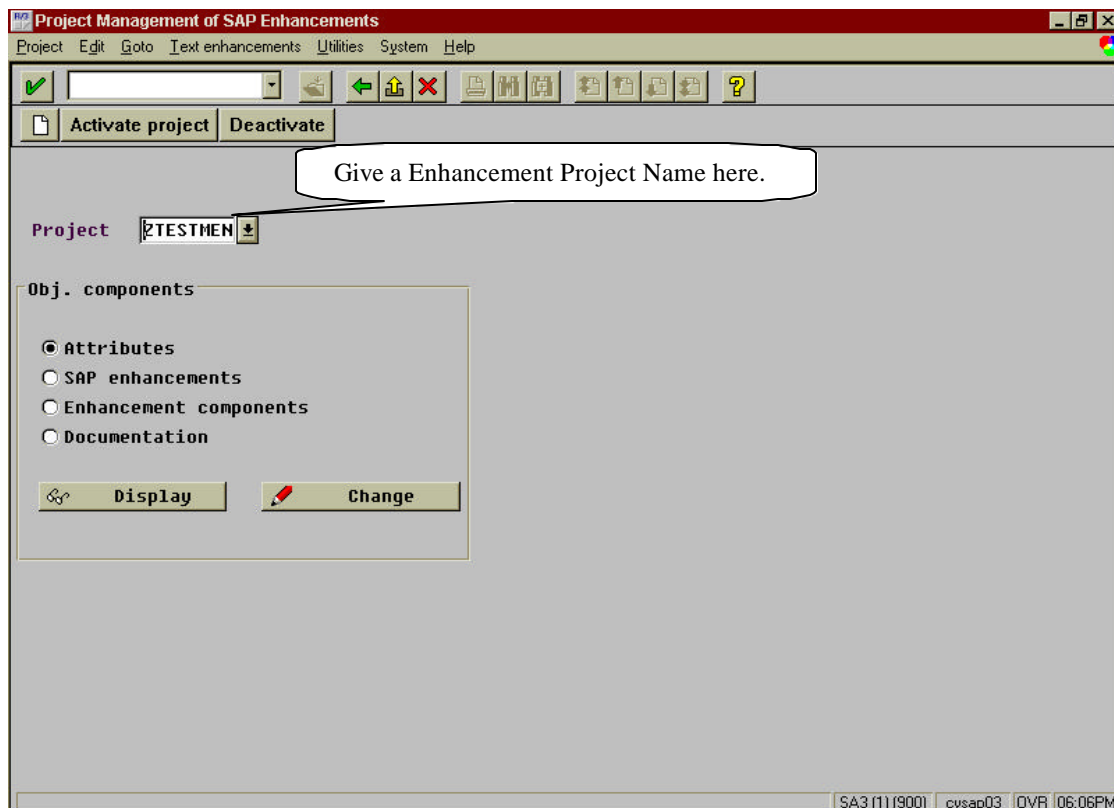
## Menu Exits

Using the Menu Exits you can add menu items to the menus of standard R/3 applications

The Menu Exit entries have function codes that begin with + (plus sign).

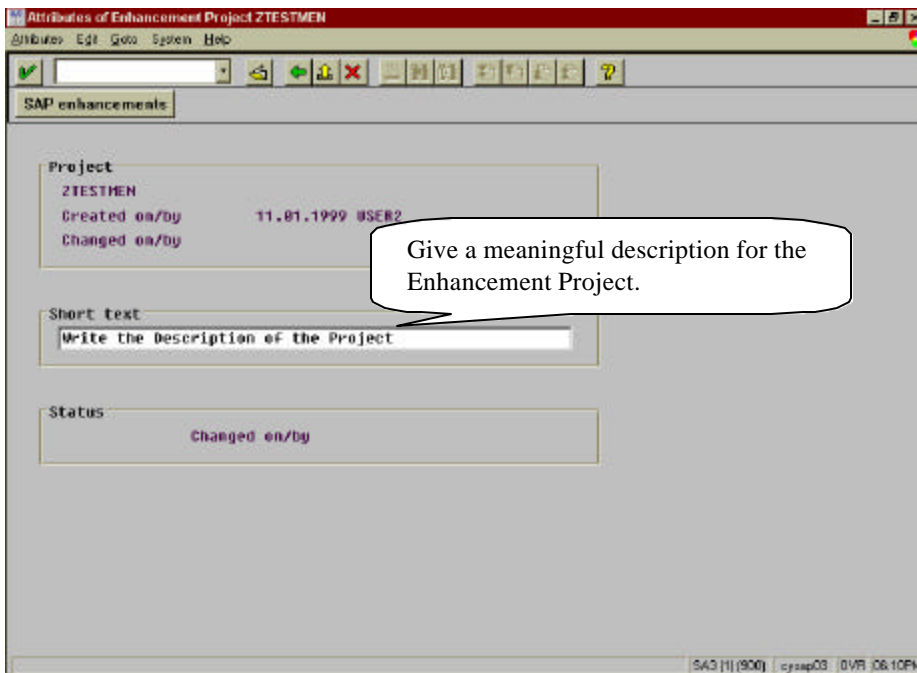
Let's now see how we can create a menu exit step by step :

- Evoke the Transaction Code **CMOD** or alternatively you can use the path *Tools→ABAP/4 Workbench → Utilities → Enhancements → Project Management*.
- Specify a **Project Name** in the Enhancement Text box.
- Click on the *Create* icon on the application toolbar. If the Project already exists then click on the *Change* button. For example let us create an Enhancement Project say, *ZTESTMEN*

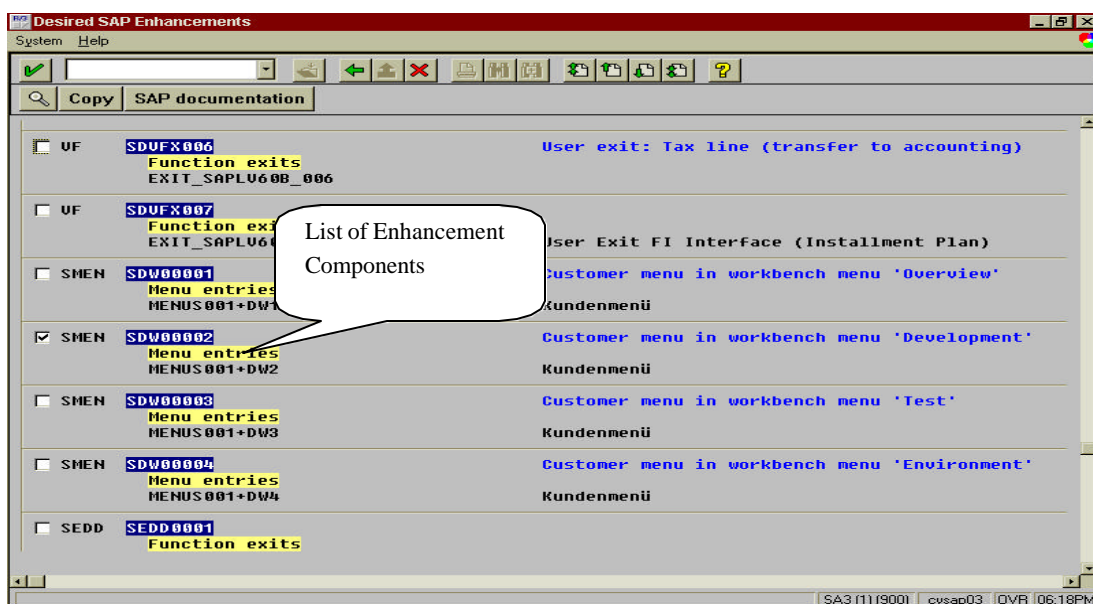


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- In the next screen enter a **Description** of the Project

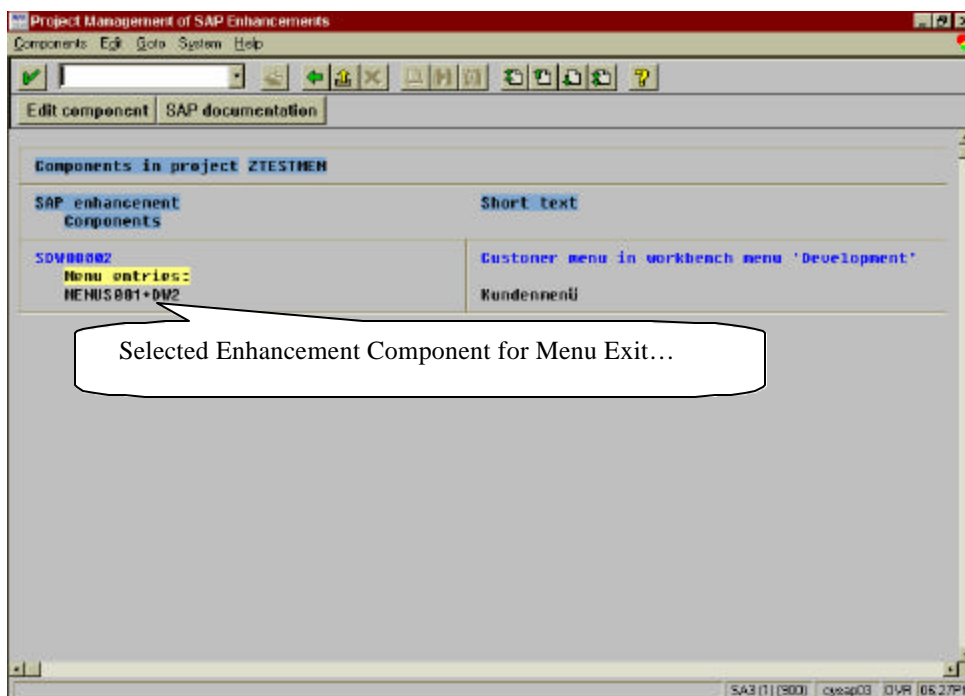


- **Save** the Changes that you made so far in a Development Class.
- Click on SAP Enhancement button on the application toolbar. In the screen that you get press **F4**. You will get a pop up box. On this box click on **Enter** icon. You will get a list of Enhancements provided by SAP



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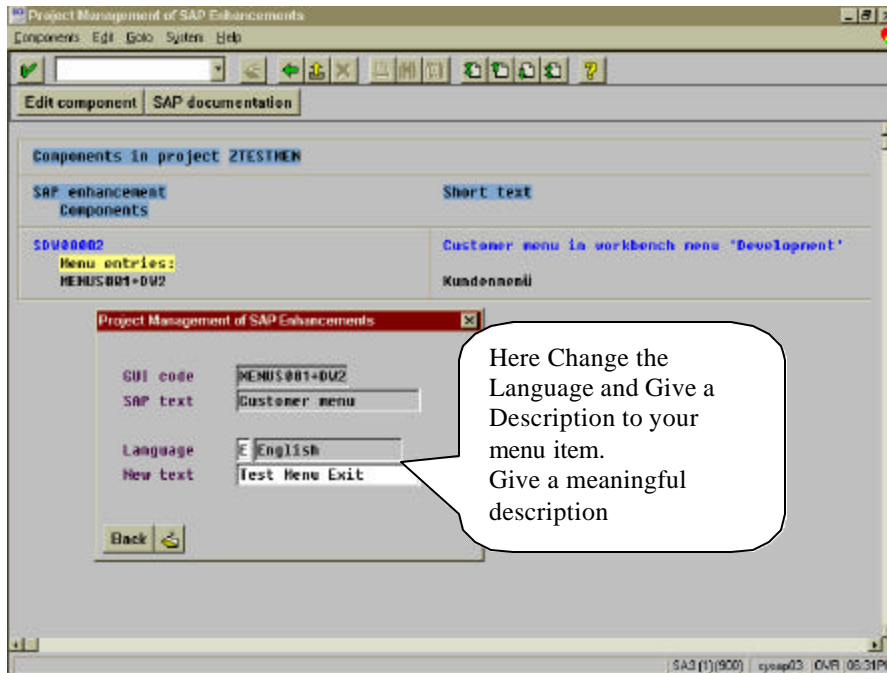
- In our example we have selected the Enhancement component *SDW00002* for adding our own menu option. This menu enhancement component has the transaction code of **+DW2**
- Click on the *Copy* button on the application toolbar.
- You will get back to the Enhancement list screen
- Click on the *SAVE* icon to save the changes
- Click on *Back* icon twice to get back to the initial screen
- Now Select *Enhancement Components* radiobutton click on *Change*.
- In the following screen you will get the list of enhancement components that you had selected for modifications.



- Select the Component that you want to edit and click on *Edit Component* button on the application toolbar

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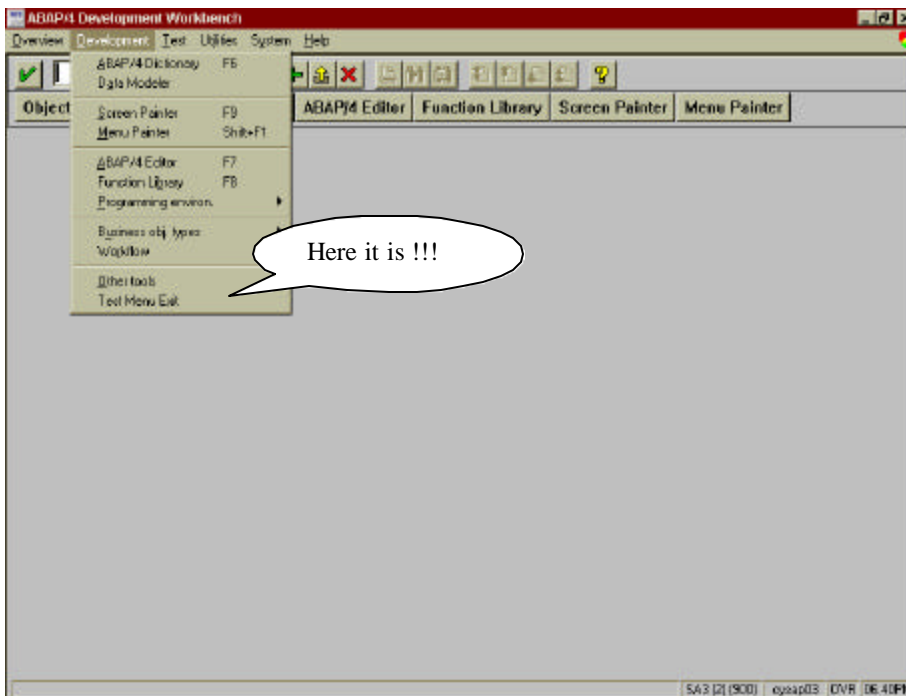
- You will get a popup screen in which you can enter a new text for our Menu option. Let's enter 'Test Menu Exit'.



- Click on the **Save** icon.
- And then Click on the **BACK** button on the same box.
- Click on **Back** icon to get back to the initial screen
- Click on **Activate Project** to activate the changes.
- To check whether the component has been activated or not, choose **Tools→ABAP/4 Workbench→Development**.

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You should see your menu entry now.



To make this menu option functional, you need to create a transaction with a transaction code of **+DW2**.

When where this menu option selected the transaction code **+DW2** will be executed.

You associate this transaction code with the report / Dynpro that you would like to execute at this menu option selection.



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## Screen Exits

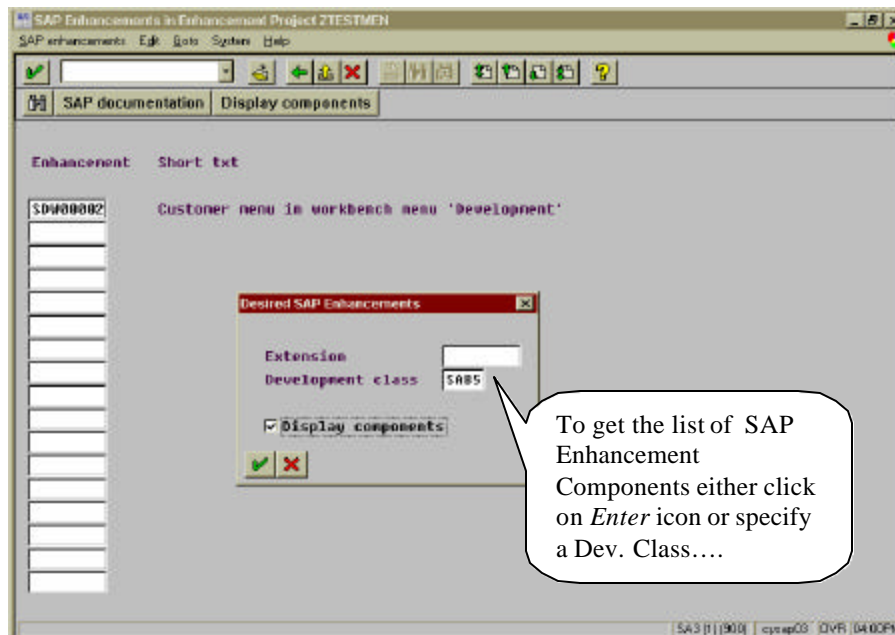
Screen Exits defines special areas called Subscreens within a screen. Using Screen Exits you can add subscreens to the screens within R/3 applications.

Let's now see how we can create a Screen Exit step by step :

- Create an Enhancement Project as shown in the Menu Exits section
- **Save** the Enhancement Project
- Click on the **SAP Enhancement radiobutton** on the initial screen.

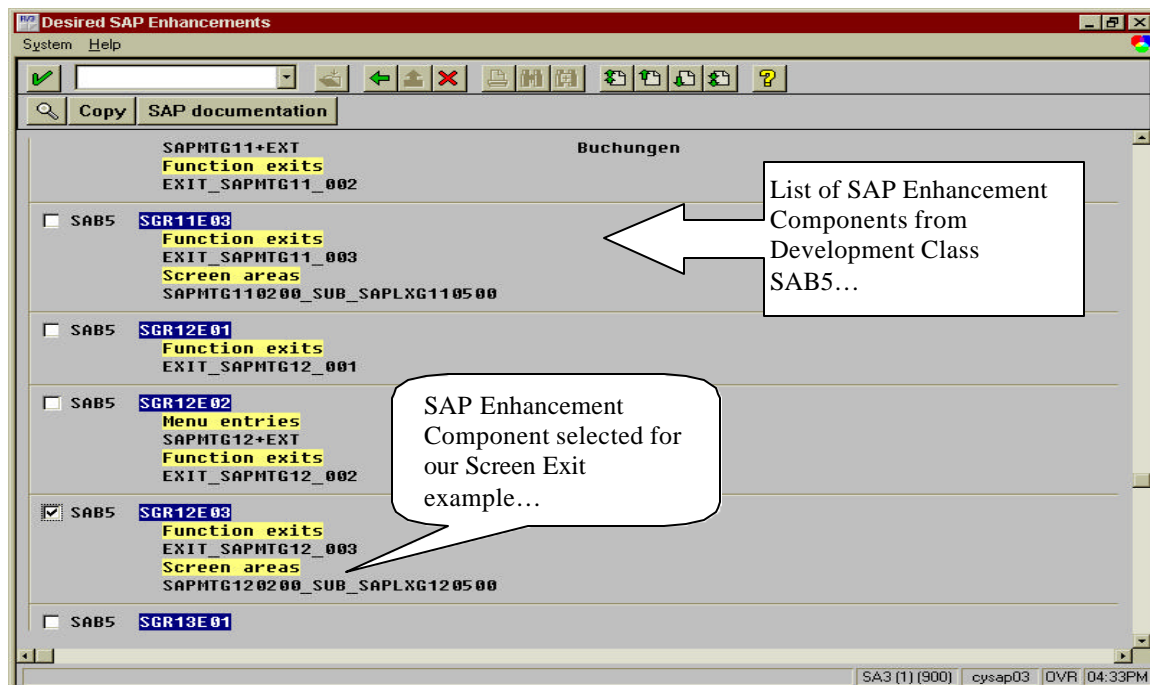
*Note: If you are adding this Screen Exit component to an existing Enhancement project, then Deactivate it first by clicking on the Deactivate button on the application toolbar.*

- In our example let's us now add a Screen Exit to our Enhancement Project.
- So, first give the **Enhancement Project name** as *ZTESTMEN* and deactivate it by clicking on the Deactivate button
- After selecting the *SAP Enhancement* radiobutton click on **Change** button on the initial screen
- You will get into **SAP Enhancement screen**
- Place the cursor in one of the boxes and press **F4**



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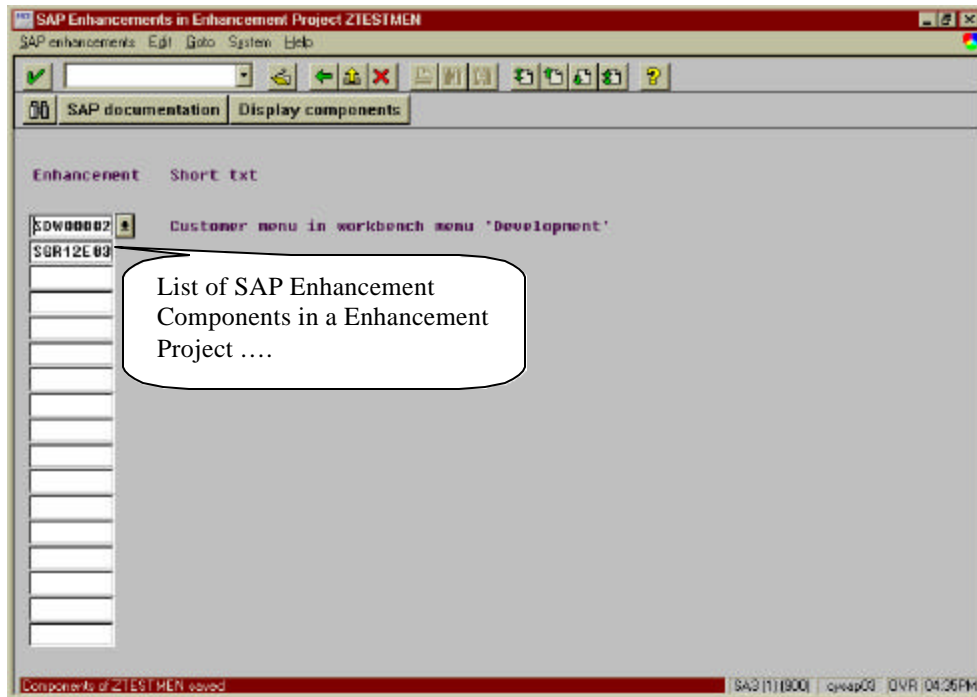
- You will get the following box. For our example let us take the Development Class as *SAB5*. You can also click *Enter* to display all the available Enhancement Components.
- We are going to change a screen belonging to a Report from this development class.
- After you will click on the *Enter* key you will get a list of Exits available for this Development Class.



- Select the Screen Exit that you would like to add
- We have selected Enhancement Component *SGR12E03*, which is associated with the program *SAPMTG12* and Screen *0200* of this program.

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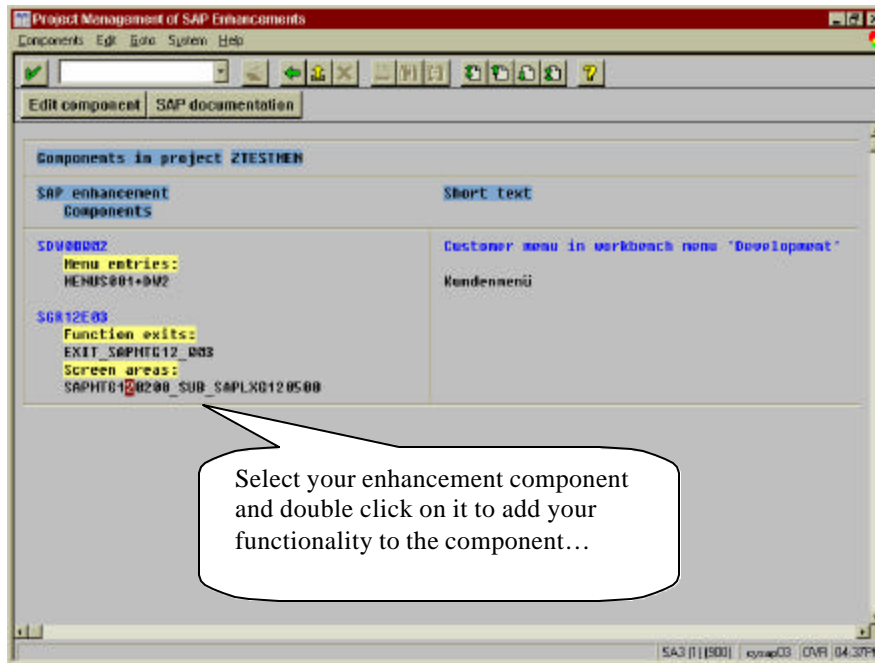
- Click on the *Copy* button.
- You will now see the Screen Enhancement component in the list of components of the Enhancement project.



- Click on the *Save* icon and then click on the *Back* icon to get back to the initial screen.

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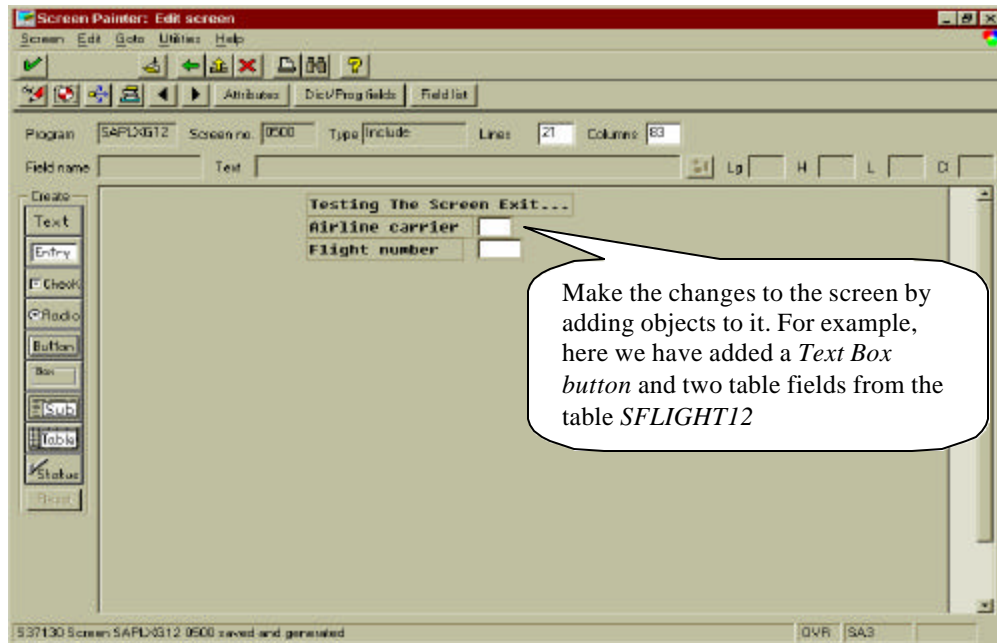
- Now on the initial Screen select the *Enhancement Components* radiobutton and click on *Change*.
- You will get a list of Enhancement components along with their Exits.



- **Select the Exit and Double Click on it.** In our example, double click on *SAPMTG120200\_SUB\_SAPLXG120500*. It will take you into the *Screen Painter* and ask you create a *SubScreen 500*. Specify the screen as *Subscreen* in the *Screen attributes* area.

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- In the screen painter screen **make the changes by adding your own objects**. In our example we are adding a *Text Box*, and two fields (*CARRID* and *CONNID*) from the table *SFLIGHT12*.



- For the Field objects, check the **SET and GET** parameter check boxes in their attribute screen. In our example we have put a Text Box and two fields from the SFLIGHT12 table.
- Now **save and generate** the screen.
- Click on the **Back** icon to get back to the initial screen.
- Click on **Activate Project** button to activate the project.
- Next **execute** the program SAPMTG12.

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- You should be able to see the enhancements made by you.

The screenshot shows the SAP 'Display flight data' screen. It features a menu bar with 'Flight data', 'Goto', 'System', and 'Help'. Below the menu is a toolbar with various icons. The main content area is divided into two sections: 'Flight data key' and 'Flight information'. The 'Flight data key' section contains fields for 'Airline carrier' (LH), 'Flight number' (400), and 'Flgt date' (01.02.1995). The 'Flight information' section contains fields for 'FlgtPrice' (8,000.00), 'Local currency' (USD), 'Plane type' (A319), 'Max. capacity' (500), and 'Occupancy' (200). Below these fields, there is a text box containing the message 'Testing The Screen Exit...' and two fields for 'Airline carrier' (LH) and 'Flight number' (400). A callout box points to the text box and the two fields below it, containing the text: 'These are the additions that we made...The Text Box displays a message 'Testing The.....' and the two fields from the SFLIGHT12...'. The status bar at the bottom right shows 'SA3 (2) (900) cysap03 INS 04:55PM'.

Flight data key	
Airline carrier	LH
Flight number	400
Flgt date	01.02.1995

Flight information	
FlgtPrice	8,000.00
Local currency	USD
Plane type	A319
Max. capacity	500
Occupancy	200

Testing The Screen Exit...

Airline carrier	LH
Flight number	400

SA3 (2) (900) cysap03 INS 04:55PM

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## FIELD EXITS

Let us now see how to create field exits.

- First and foremost, ask your system administrator to include the parameter **abap/fieldexit = Y** in your Instance Profile
- For the Field Exits we do not need an Enhancement project.
- To create a Field Exit, you need to first determine which Data Element you would want to change, The program that you would like to have the effect on, The screen number.

In our example we will consider the transaction MM02, which is for changing the material master.

We will select the Basic Data view and then make fields exit for restricting the Basic Unit Of Measurement. For example, we will not allow the user to enter 'BOX' as basic unit of measurement. For this field, we need to have details such the Data Element, Program name and Screen Number.

This information can be gathered by as follows :

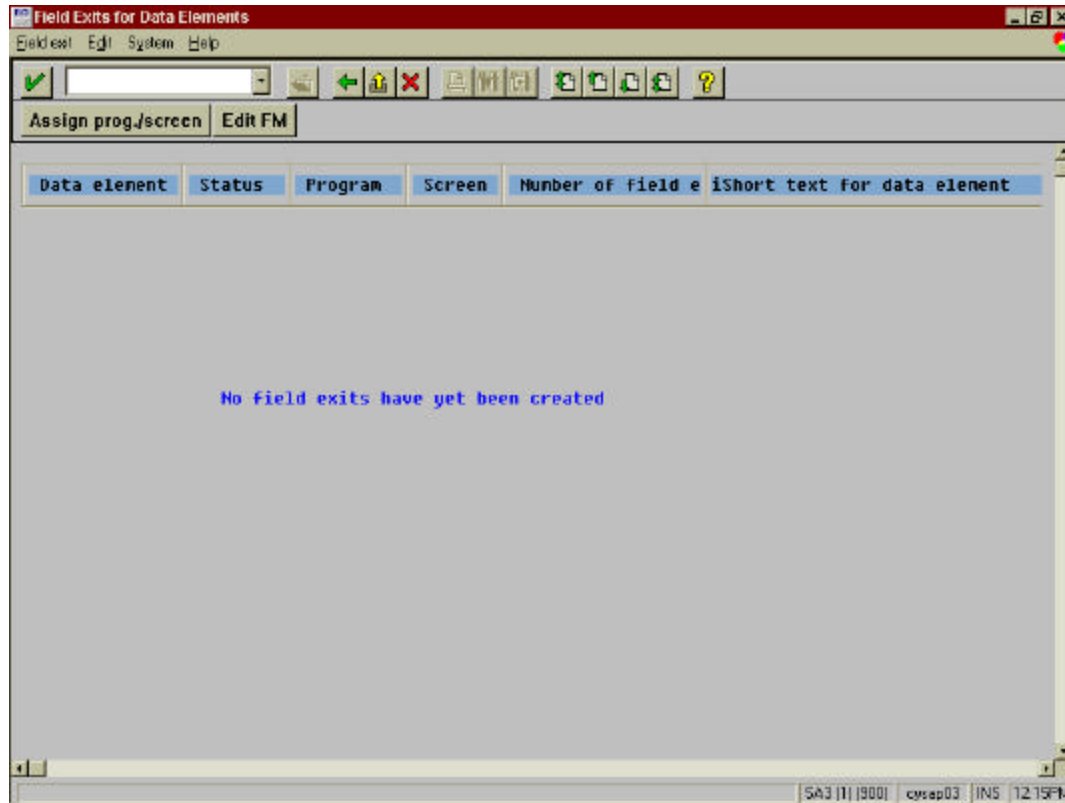
- i. Start the Transaction **MM02**.
- ii. Select a material and click enter
- iii. From the pop up that you get, select the Basic Data view
- iv. Locate the label Base Unit of Measure in the General Data section.
- v. Place your cursor in the field and press F1
- vi. In the Help screen of this field, press on Technical Info button and note down the above information  
For our example : Data Element is MEINS, Program Name is SAPLMGD1 and Screen Number is 2001.

After collecting this information we are now ready to create the field exit.

- Start Transaction **CMOD**
- Choose *Text Enhancements* → *Field Exits*

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- You will get the screen as shown below :

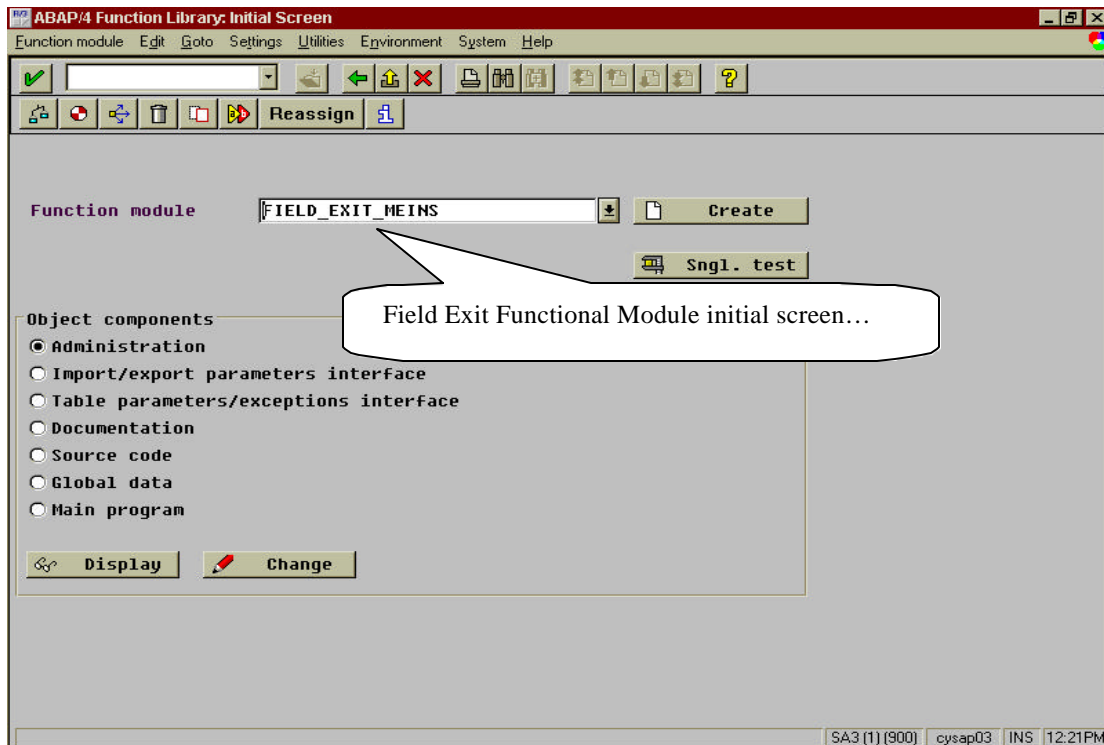


- To create a new field exit use the menu path *Field Exit → Create*
- In the pop up enter the *data element name* (MEINS) and click on *Continue*.



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- Next you will be taken to the ABAP/4 Function Library initial screen, where you will find a default function module name for the selected data element is displayed (e.g. FIELD\_EXIT\_MEINS).



- Click on the **create** button to create the function module for the field exit.
- You will be prompted for a **function group**. If you have already created a function group, you can specify its name else a function group can be created by entering a new function group name in the pop up screen. It will prompt you for entering a new function group name in the pop up screen. Click **'Yes'** to create one. Next it will ask you to enter a short text for the Function Group and click on save button on the popup screen. Now you will be prompted to assign a Development Class. Assign a **development Class** and click on **Save** icon.
- Now you will be taken to Function Module administration screen.

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- Here you enter the **Application** (in our example : M) and a **short text** for the field exit function module and save it.

Function Module Change: Administration FIELD\_EXIT\_MEINS

Function module Edit Goto Utilities Environment System Help

Classification

Function group ZSDL test

Application M Materials management

Short text  
Field Exit For Data Element MEINS

Processing type

Normal

Remote Function Call supported

May be updated

Immediate start

Immediate start, no restart

Delayed start

Collective run

General data

Person responsible USER4

Last changed by USER4

Changed on 14.01.1999

Development class ZSHA

Program SAPLZSDL

Include LZSDLU01

Original language E

Upper/lower case

Editor lock

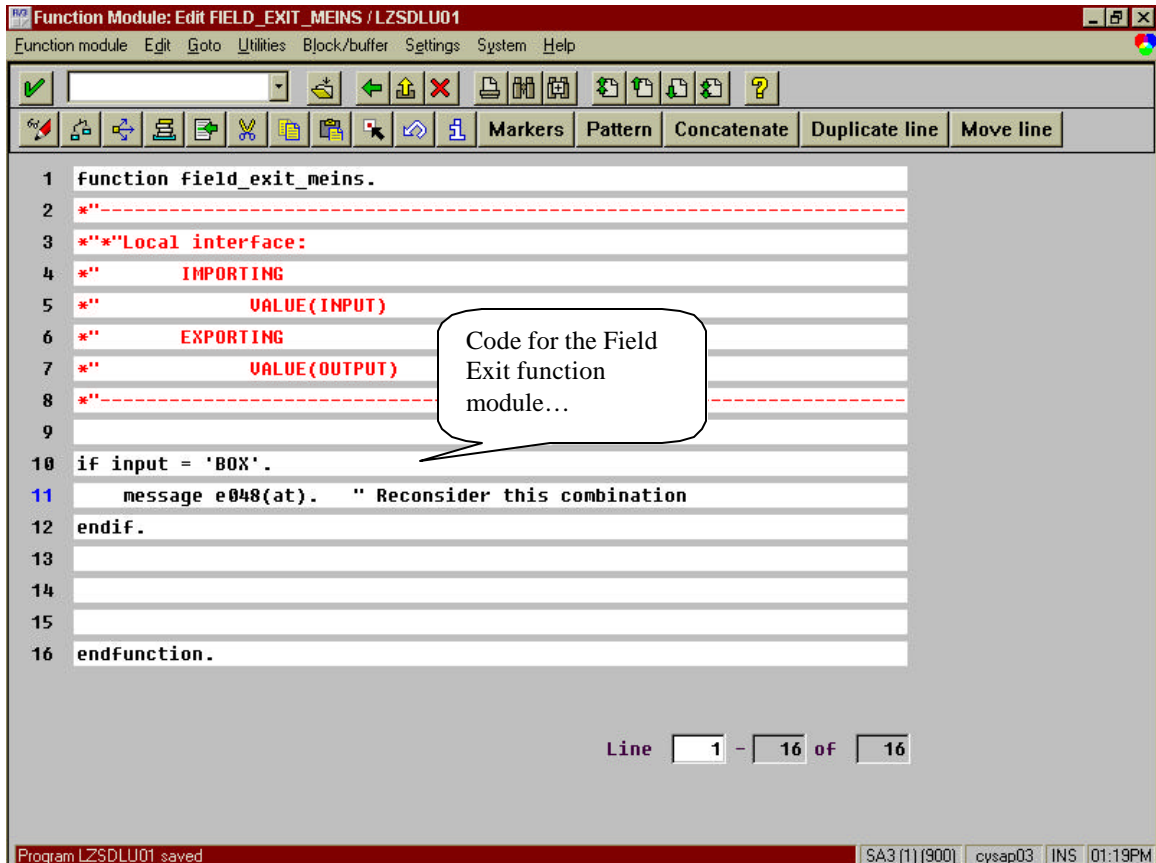
Status Inactive

Not released

SA3 (1) (900) cysap03 INS 12:36PM

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- Now click on **Source code button** on the application toolbar to write the functionality of the field Exit.



```
1 function field_exit_meins.
2 *-----
3 ***Local interface:
4 **      IMPORTING
5 **      VALUE(INPUT)
6 **      EXPORTING
7 **      VALUE(OUTPUT)
8 *-----
9
10 if input = 'BOX'.
11     message e048(at). " Reconsider this combination
12 endif.
13
14
15
16 endfunction.
```

Line 1 - 16 of 16

Program LZSDLU01 saved | SA3 (1) (900) | cysap03 | INS | 01:19PM

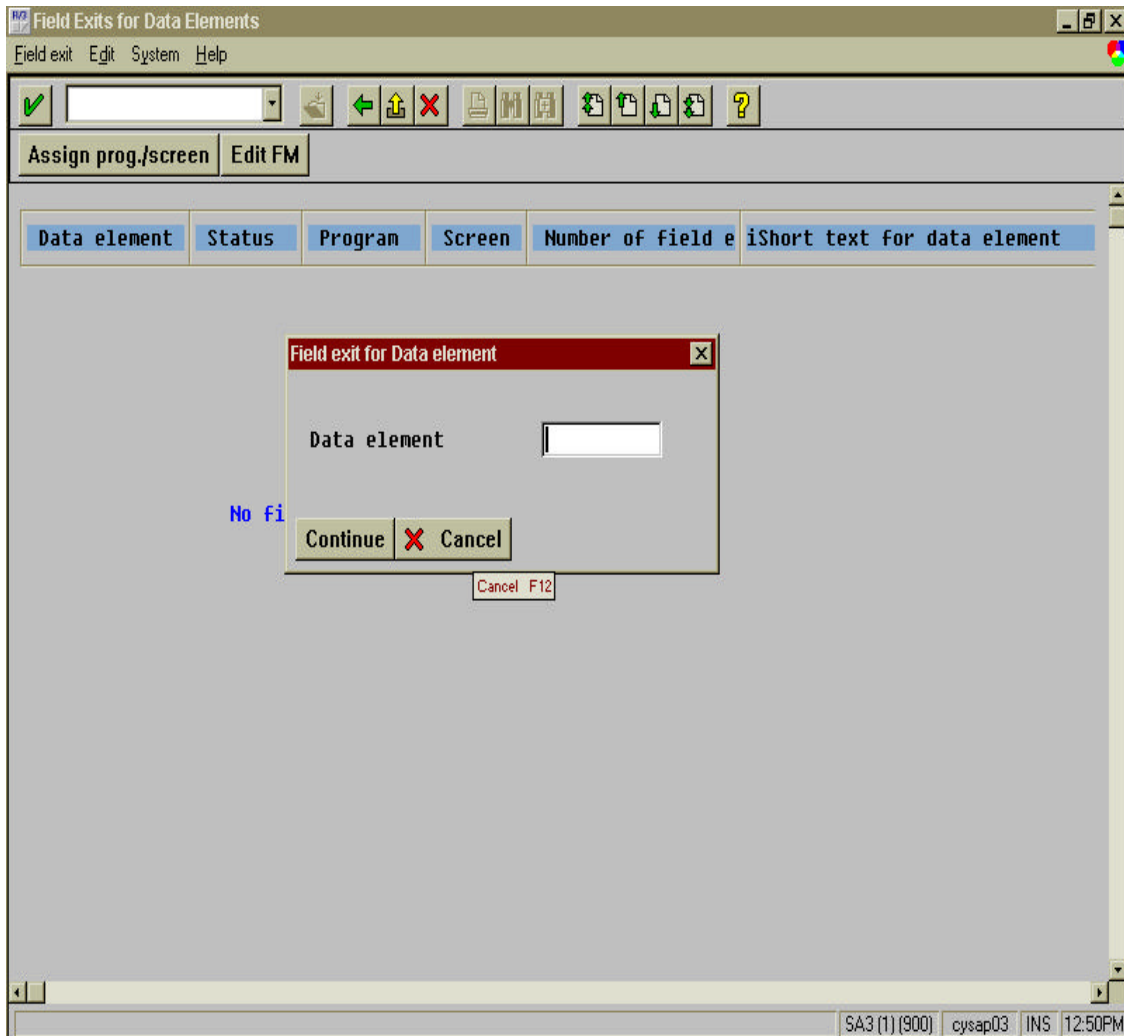
- After you enter into the **Function Module Editor** enter the code for field exit. For our example, we write the following :

```
IF INPUT = 'BOX'.
  MESSAGE E048(AT).
ENDIF.
```

- **Save** the Code and **activate** the function module.
- Now click on **Back** icon **twice**.

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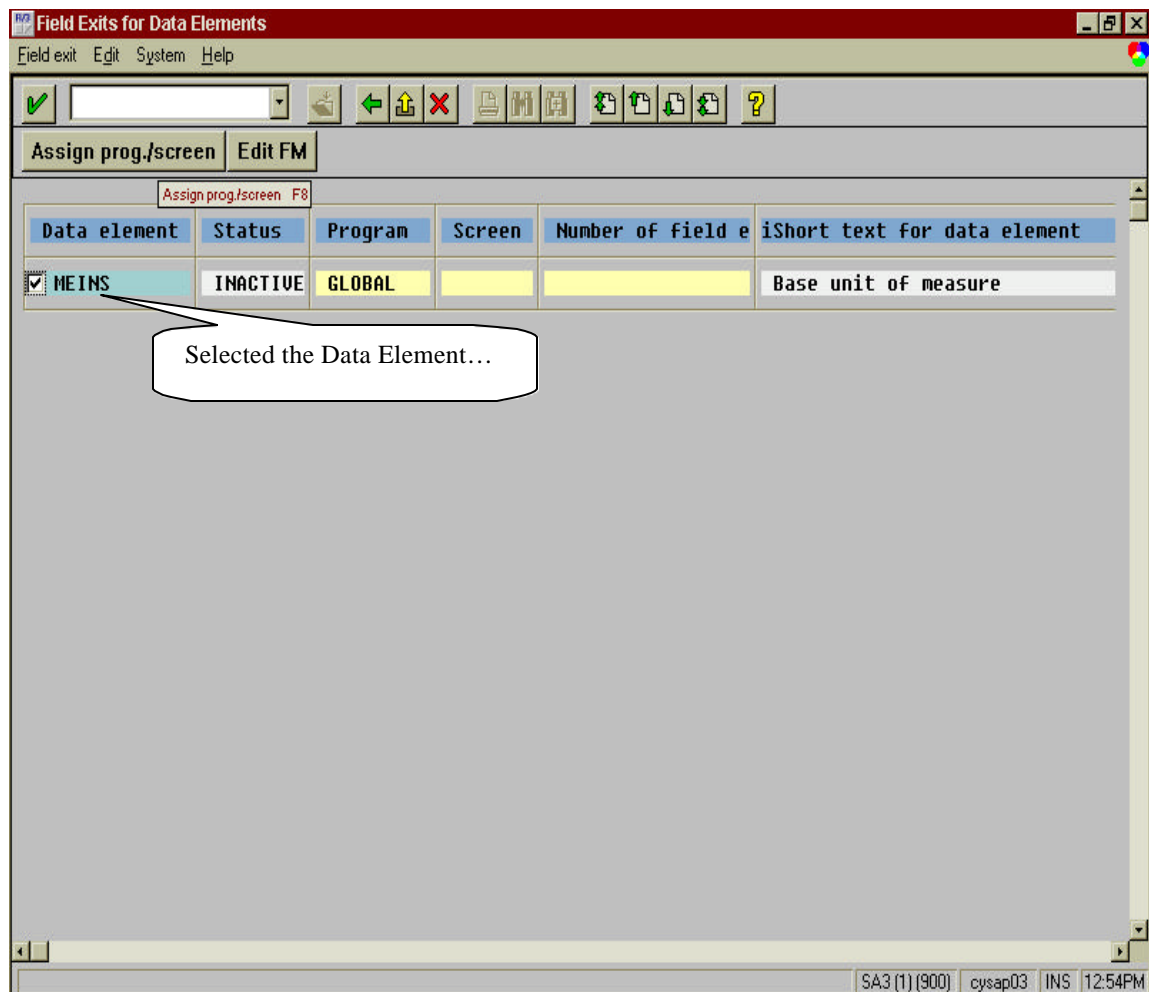
- In the Data Element pop up screen that you get press **cancel**



- You will now come to the *Fields Exits For Data Elements* screen.

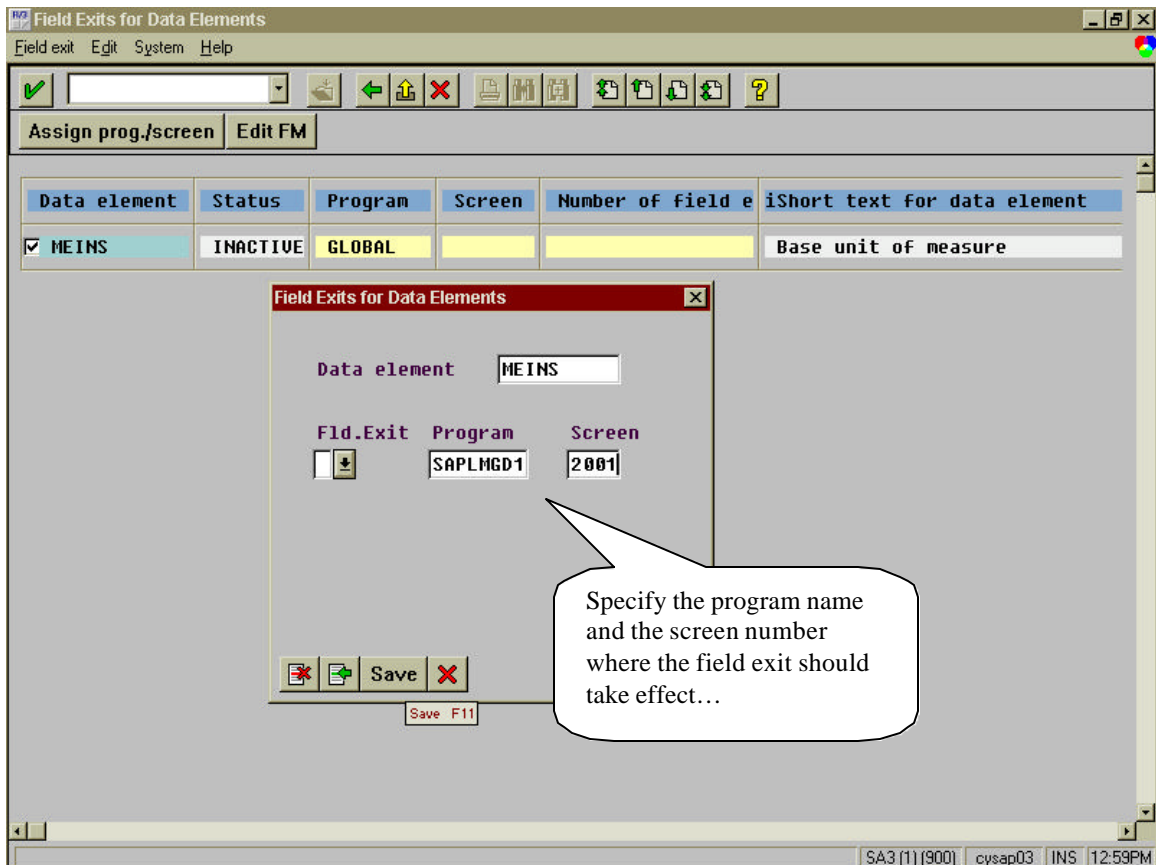
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- Select the **Data Element** and click on **Assign Prog./screen**.



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- In the pop up screen that you get enter the **program name** and the **screen number** and then click on the **save** icon.



- You will be displayed to **Edit the Change Request number**.
- Click on **Edit**.
- Now activate the field exit by selecting the data element and then the menu path **Field Exit → Activate**.
- Click on the **Back** icon to come to the initial screen.
- Now open another session and execute the Transaction **MM02**.
- Enter a **Material** and press the **enter** key.
- Select the **Basic Data View**

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- Enter 'BOX' in the Base Unit of Measure and **save** it.
- You should get an Error message 'Reconsider this combination'.

Change Material: Basic Data M ROH

Material Edit Goto(1) Goto(2) Extras Environment System Help

Material KR117181 axle

Rev

General data

Base unit of measure **BOX** piece(s) Material group 001

Old material number Lab./office

Division

Product allocation

Descriptions

Language	Material description
E	axle
D	Achse
F	Essieu

Entry 1 of 5

Other data

Basic material Ind. std descr.

CAD indicator

Reconsider this combination SA3 (2) (900) cysap03 OVR 01:08PM

You should get the result ( a error message here)...or as the case may be as per code written in the function module...

## *FUNCTION MODULE EXITS*

This includes creating function modules with the administrative part, the interface and the documentation but usually without any additional code.

Function module exits play a role in both in menu and screen exits

When you add a new menu item to a standard pull-down menu, for example, you can use a function module exit to define the actions that should take place once your menu is activated.