ABAP/4 Reporting User Enhancements

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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 preplanned. 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







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.

Menu Exits

Using the Menu Exits you can add menu items to the menus of standard $\ensuremath{\mathbb{R}}/3$ applications

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

Let's now is 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*

Project Management of SAP Enhancements	_ B ×
<u>Project Edit Goto I</u> extenhancements <u>U</u> tilities System <u>H</u> elp	
✓ ✓ ▲ ▲ × △ M A A A A A A A A A A A A A A A A A A	
Activate project Deactivate	
Give a Enhancement Project Name here.	
Project PTESTMEN 🛃	
Obj. components	
Attributes	
○ SAP enhancements	
C Enhancement components	
C Documentation	
दिल Display 🥜 Change	
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> In the next screen enter a Description of the Project

P enhancements					
Project					
2TESTHEN					
Created on/by	11.01.1999 USE	R2			_
Changed on/by		Give a mear	ningful descri	ption for the	
		Enhanceme	nt Project.		
Short text	(5		
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- > 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

📸 Desired SAP Enhand	cements	
System <u>H</u> elp		
~		
🔍 Copy SAP d	ocumentation	
		N 1997
VF SDUFX Func EXII	<mark>996</mark> <mark>Stion exits</mark> F_SAPLV60B_006	User exit: Tax line (transfer to accounting)
UF SDUFX Func EXII	List of Enhancement	Jser Exit FI Interface (Installment Plan)
SMEN SDW000 Menu Menu	Components sentries JS 001+DW1	ustomer menu in workbench menu 'Overview' Kundenmenü
SMEN SDW000	902 J entries	Customer menu in workbench menu 'Development'
MENU	JS 001+DW2	Kundenmenü
		Customer menu in workbench menu 'Test'
MENU	JS001+DW3	Kundenmenü
	194	Customer menu in workbench menu 'Environment'
MENU	JS 001+DW4	Kundenmenü
SEDD SEDD SEDD SEDD SEDD SEDD SEDD SEDD	901 ction exits	
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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.

nents Egît <u>G</u> oto System <u>H</u> elp	
component SAP documentation	
mponents in project ZTESTMEM	
P enhancenent Conponents	Short text
Hong ontries: Newssant	Customer menu in workbench menu 'Development'

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

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

Edit component SAP doct	nentation	
Components in project	ZTESTNEN	
SAP enhancement Components		Short test
SDW00002 Henu entries: HEHUSOR1+DV2		Customer menu in workbench menu "Development" Kundennenü
Project Manageme GUI code SAP text Language Hew text Back 👟	nt of SAP Enhancements MENUS001+0V2 Gustoner menu E English Test Henu Exit	Here Change the Language and Give a Description to your menu item. Give a meaningful description

- 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 $Tools \rightarrow ABAP/4$ Workbench $\rightarrow Development$.



You should see your menu entry now.

ABAP/4 Development Workbench		8 ×
Dreview Development Lest Utilities S	yden Heb	. 63
ABAP/4 Dictionary F6 Digits Modeler	-ax ema trat 9	
Object Screen Painter F9 Menu Painter Shitef	ABAP/4 Editor Function Library Screen Painter Menu Painter	
	,	
Business obj. types Walkflow	Here it is !!!	
Lither tools Text Menu Exit		
	543 (2] (900) eysap03 (DVR (6.40PM

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.

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 is 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 the application toolbar.

- > In our example lets 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 box and press F4

SAP Enhancements in Enhancement Project 2TESTMEN	_ # ×
SAP enthuncaments Egit gots System Help	
	88 2
前 SAP documentation Display components	
Enhancement Short txt	
SDW000002 Custoner nenu in workbench nenu 'Developn	ent'
Desired SAP Enhancements	
Extension	
Development class SAB5	
	To get the list of SAP
	Enhancement
<u>× ×</u>	Commencement
	Components either click
	on Enter icon or specify
	a Dev. Class
	543 [1] (900] cycap03 DVR 04:00PM

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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.

Pasired SAP Enhand	cements		
System <u>H</u> elp			
~			2
SAP d	ocumentation		
SAPP Func EXII SAB5 SGR11E Func EXII Scre Score	ATG11+EXT ction exits r_SAPMTG11_002 03 ction exits _SAPMTG11_003 cen areas traines	Buchungen	List of SAP Enhancement Components from Development Class SAB5
SAB5 SGR12E Func EXII	01 ction exits [_SAPMTG12_001		
SAB5 SGR12E Menu SAPP Func EXI1	02 J <mark>entries</mark> MTG12+EXT C <mark>tion exits</mark> [_SAPMTG12_002	SAP Enhancement Component selected for our Screen Exit	
SAB5 SGR12 Func EXIT Scre SAP	03 ction exits [_SAPMTG12_003 en areas HTG120200_SUB_SA	aPLXG120500	
SAB5 SGR13	01		
			SA3 (1) (900) cysap03 OVR 04:33PM

- > 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.



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

SAP Enhancements in Enhancement Project ZTESTMEN		_ # ×
SAP enhancements Edit Gioto System Help		
00 SAP documentation Display components		
Enhancement Short txt Ductomer menu in workbench menu 'Development' SGR12E09 List of SAP Enhancement Components in a Enhancement Project		
Components of ZTESTMEN served	SA3 (1) (900) qwap00	OVR 04:35PM

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



- > 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.

Proposit Nonogeneal of Sur Emandaments incoverts Edit Esta Suren Help Edit component SAP documentation	
Gomponents in project ZTESTMEN	
SAP enhancement Components	Short text
SDW0002 Henu entries: HENUS001+0V2 SGR12E03 Function exits: EXIT_SAPHT012_D03 Screen areas: SAPHT0120200_SUB_SAPLX0120500	Custoner menu in verkbench nene 'Development' Kundenmenü
Select your en and double cli functionality t	hancement component ick on it to add your to the component

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.

➤ 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.

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

🔛 Display flight data	_ 8 ×
Flight data Goto System Help	- 5
✓ ▲ ▲ ▲ ▲ ▲ ▲ ▲ ▲ ▲ ▲ ▲ ▲ ▲ ▲ ▲ ▲ ▲ ▲ ▲	
Flight data key Airline carrier LH Flight number 400 Flgt date 01.02.1995	
Flight information FligtPrice 8,000.00 Local currency USD Plane type A319 Max. capacity 500 Occupancy 200 Testing The Screen Exit Airline carrier IH ± Flight number 400	
SA3 (2) (900) cysap03 INS	04:55PM

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



> You will the get the screen as shown below :



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

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).

📅 ABAP/4 Function Library: Initial Screen	
<u>Function module Edit G</u> oto Se <u>t</u> tings <u>U</u> tilities E <u>n</u> vironment System <u>H</u> elp	5
A O 🔶 🗍 🗋 🕅 Reassign 🖞	
Function module FIELD_EXIT_MEINS	
Object components Administration	een
○ Import/export parameters interface	
○ Table parameters/exceptions interface	
○ Documentation	
○ Source code	
🔿 Global data	
🔿 Main program	
& Display Change	
	SA3 (1) (900) cysap03 INS 12:21PM

- > 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 creation of the Function Group. 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.

> 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_M	INS						
Lunction module Edit Loto Utilities Environment System H		·					
 ♥ ● ●							
Classification Enter the Application. In our case 'M'							
Function group [250L test							
Short toxt							
Field Exit For Data Element MEINS							
for the field Exit							
		EXIL					
Processing type	General data						
• Normal	Person responsible	USER4					
○ Remote Function Call supported	Last changed by	USER4					
○ May be updated	Changed on	14.01.1999					
● Immediate start	Development class	ZSHA					
🔿 Immediate start, no restart	Program	SAPLZSDL					
○Delayed start	Include	LZSDLU01					
O Collective run	Original language	E					
	Upper/ lower case						
	Editor lock						
	Status	Inactive					
	Not released						
Saved		? SA3 (1) (900) cysap03 INS 12:36PM					

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

Fun	ction Module: Edit FIELD_EXIT_MEINS / LZSDLU01
<u>F</u> unctio	n module Edit Goto Utilities Block/buffer Settings System Help 🌕 🥵
V	· · · · · · · · · · · · · · · · · · ·
68	☆ 長 学 ※ № 市 常 × ∞ 1 Markers Pattern Concatenate Duplicate line Move line
1	function field_exit_meins.
2	*"
3	*"*"Local interface:
4	*" IMPORTING
5	*" VALUE(INPUT)
6	*" EXPORTING Code for the Field
7	*'' VALUE(OUTPUT) Exit function
8	*" module
9	
10	if input = 'BOX'.
11	message e048(at). " Reconsider this combination
12	endif.
13	
14	
15	
16	end+unction.
	line 1 - 16 of 16
-	
Progra	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 :



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



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

📅 Field Exits for Data Elements	_ @ ×
<u>F</u> ield exit E <u>d</u> it System <u>H</u> elp	
Assign prog./screen Edit FM	
	E
Data element Status Program Screen Number of field e iShort d	text for data element 🚽
Field exit for Data element	
Data alarant	
No. 62	
Continue X Cancel	
Canad F12	
al I	-
	SA3 (1) (900) cysap03 INS 12:50PM

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

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📅 Field Exits for Data I	Elements				l	. ₽ ×
<u>Field exit</u> E <u>d</u> it System	<u>H</u> elp					
V		📹 🗲 🟦 🗄	× BM		2	
Assign prog./scre	en Edit FM					
Assig	gn prog./screen F8					
Data element	Status	Program	Screen	Number of field e	iShort text for data element	
	INACTIVE	GLOBAL			Base unit of measure	
	Selected the	Data Elem	ent			
.						۲ ۲
					SA3 (1) (900) cvsap03 INS	12:54PM

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

🎇 Field Exits for Data B	Elements						_ 8 ×
<u>Field exit</u> E <u>d</u> it System	<u>H</u> elp						
~		🖆 🔶 🟦 🕽	< <u>B</u> M		8		
Assign prog./scre	en Edit FM						
					-		_
Data element	Status	Program	Screen	Number of field	e iShort text	: for data ele	ment
MEINS	INACTIVE	GLOBAL			Base unit	of measure	
	Field	Exits for Data E	lements	×			
		Data elemen	nt MEI	NS			
		ria ruda d					
	ſ		SAPLMGD1	2001			
	1						
						<u> </u>	
				Specify the pr	ogram name		
			1.015	and the screen	number		
	*	🔄 Save	×	where the fiel	d exit should		
	-	Save	F11				
 I 							<u>ب</u> اع
					SA	3 (1) (900) cysap03	INS 12:59PM

- > 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* \rightarrow *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 📃 🗖	X
Material Edit Goto(1) Goto(2) Extras Environment System Help	•
🔁 🗗 Descriptions Units of measure OrganizationalLevels	
Material KR117181 axle	-
rGeneral 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	
entententente ententente ententente entente entente entente entente entente entente entente entente entente ente	
Other data	
Basic material Ind. std descr.	
CAD indicator You should get the result (a error message here)or as the case	
may be as per code written in the function module	
Reconsider this combination SA3 (2) (900) cysap03 OVR (01:08	PM

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.