SPDD & SPAU Adjustments Handbook

Applies to:

SAP Upgrades. For more information, visit the ABAP homepage.

Summary

Through this document the reader will be able to get a detailed idea about the working of the SPDD & SPAU Adjustments whenever the adjustment action required.

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An Introduction

This document was created with a basic premise of providing a user manual for the ABAP developers involved with the SAP Upgrade projects, and help them out in executing the SPDD and SPAU transactions more smoothly and efficiently.

During an upgrade or the import of a Support Package, existing objects of the SAP standard are overwritten with the objects redelivered. To help the customer retain the objects modified in a previous release, SAP provides all modified objects which are redelivered (in an upgrade or Support Package) in the upgrade adjustment of transactions SPDD and SPAU. These transactions allow customers to enter their modifications into the corresponding new objects being delivered at the time of upgrade. The Modification Assistant supports this process of adopting customer modifications.

This document gives the directional steps to ABAP Developers for carrying out the SPDD and SPAU transactions, to help the customers in retaining the modifications they have performed to the SAP standard objects.

Icon	Meaning
	Automatic Adjustment possible. There were no overlaps between the new release SAP objects and customer modified SAP object. If you click on the green traffic light, the customer's modifications are adopted. If you do not wish to adopt the customer's modifications, choose the function "Reset to Original" under left click.
	Semi-Automatic Adjustment possible. There were overlaps between the new release SAP Objects and customer modified SAP objects. If the object is in the category 'With Modification Assistant', click on the yellow button and then appropriate dialog boxes will appear which will help us in adjusting the object. If this comes under the heading 'Without Modification Assistant' and if the system offers no support in adjusting the object, we have to decide whether we need to keep the modification or reset to original
	If you have a red traffic light in front of an object, you can edit the object manually only, in the appropriate maintenance transaction of the ABAP Dictionary or using the Version Management function. We could ignore the deleted objects category mostly, unless it creates some issue in any other objects during the activation. For ex: if there is a data element which comes under the deleted object category and we are using that data element in any of our custom objects, activation errors will occur. In such cases, we need to create this data element again and have to activate our custom objects again
	This icon only appears in the Note Corrections category. If the dark/gray traffic light is displayed for note corrections, the associated correction instructions are obsolete. The correction is contained in the upgrade or in the imported Support Package.
	Unknown adjustment mode. The adjustment mode for this object could not be determined for modification adjustment with Modification Assistant
	Modification adjustment has not yet been completed by the first developer who edited the object. If required, a second developer must post edit the object

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	Adjustment problem. You must solve these problems manually.
	Object adjusted successfully. After the adjustment taken place, the traffic light symbols are replaced with either green tick mark or stop sign

SPDD Adjustments for Data Dictionary

SPDD activities will be carried out during the upgrade phase when it prompts for, otherwise whatever customizations that we have done will be lost. Using SPDD, we can adjust Domains, Data elements, Tables, Structures, Transparent tables, indexes of transparent tables, pooled and customer tables including their technical settings. After the SPDD adjustment, system may display the Dictionary objects in transaction SPAU in the sub tree 'Without Modification Assistant'. The objects themselves are not modified during this process. The system only deletes the log entry.

Go to transaction SPDD and execute it after checking the relevant checkboxes. You will get the screen more or less similar to the below one depending upon the objects that are available in your system for adjustment. As you could see from the below screen shot, you will get objects with traffic light icon on its side.
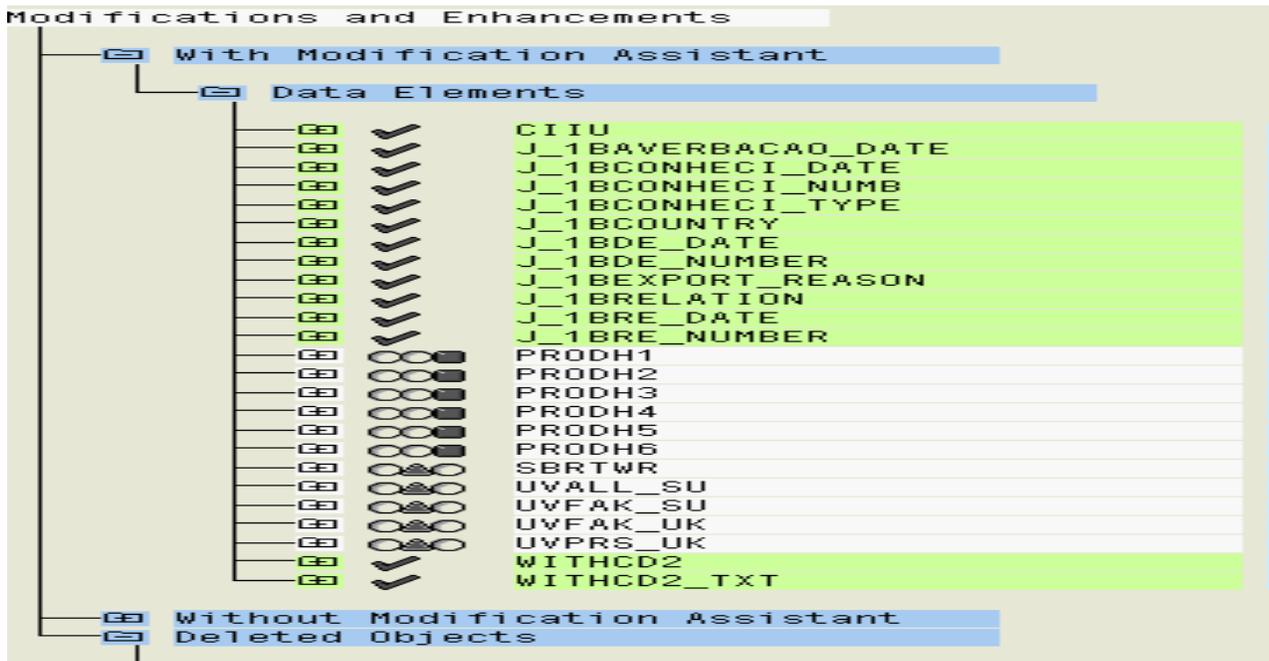
The highlighted color of the traffic light indicates the status of the object.

If it is in green color, it means an automatic adjustment is possible. This means that, there are no overlaps between the delivered SAP objects and the customer modifications. In this case; clicking on the icon causes the system to automatically adjust the object and the customer modifications are adopted. A green tick in front of the object confirms this.

A yellow traffic light next to the object means a semi automatic adjustment is possible which means there are overlaps between the version delivered by SAP and the customer modifications. If this is in the category 'With Modification Assistant', click on the yellow button and then appropriate dialog boxes will appear which will help us in adjusting the object. If this comes under the heading 'Without Modification Assistant' and if the system offers no support in adjusting the object, we have to decide whether we need to keep the modification or reset to original. If we want to keep the modification, use the version management to retrieve the needed version.

If it is in red color, the system cannot adjust it automatically and we need to do edit the object manually in the appropriate maintenance transaction of the ABAP dictionary or using the Version Management function.

We could ignore the deleted objects category mostly, unless it creates some issue in any other objects during the activation. For ex: if there is a data element which comes under the deleted object category and we are using that data element in any of our custom objects, activation errors will occur. In such cases, we need to create this data element again and have to activate our custom objects again.
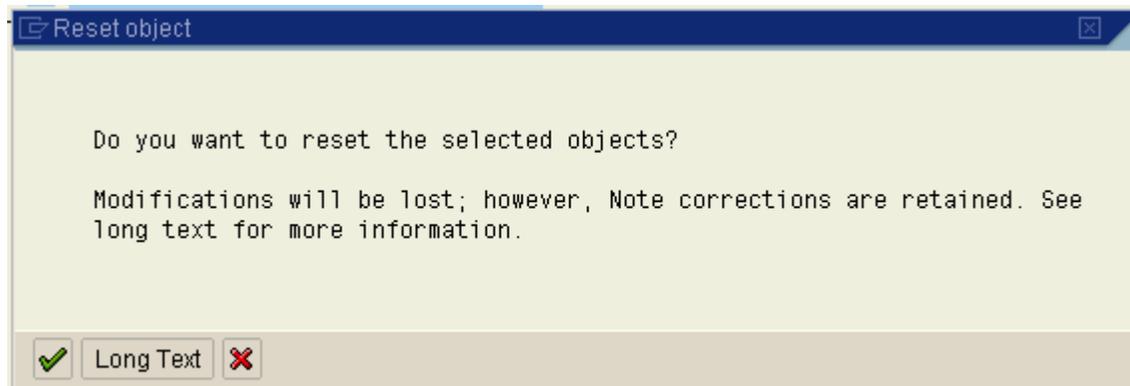
Figure 1

For all the objects that have been presented for the adjustment we need to perform some action on it. i.e either we have to retain the modification or reset it to original.

By retaining the modification, we mean that, we want to keep the changes that we have made to the standard object and do not want to set it back to SAP standard. The other option is to set it to SAP standard. If we do not carry out any of these actions, the new SAP standard becomes active in our SAP System and our modifications are therefore overwritten. In a later upgrade, we will be prompted once again to adjust these modifications. It is therefore important that we perform one of the two actions to minimize the work involved in future upgrades.

We could safely reset the objects to system standard, if the system comparison shows, there is no change. Please refer to the following screen shots for such a scenario. We could check the checkbox shown in Figure-3 once we have completed all the action and later confirm it in the subsequent step.
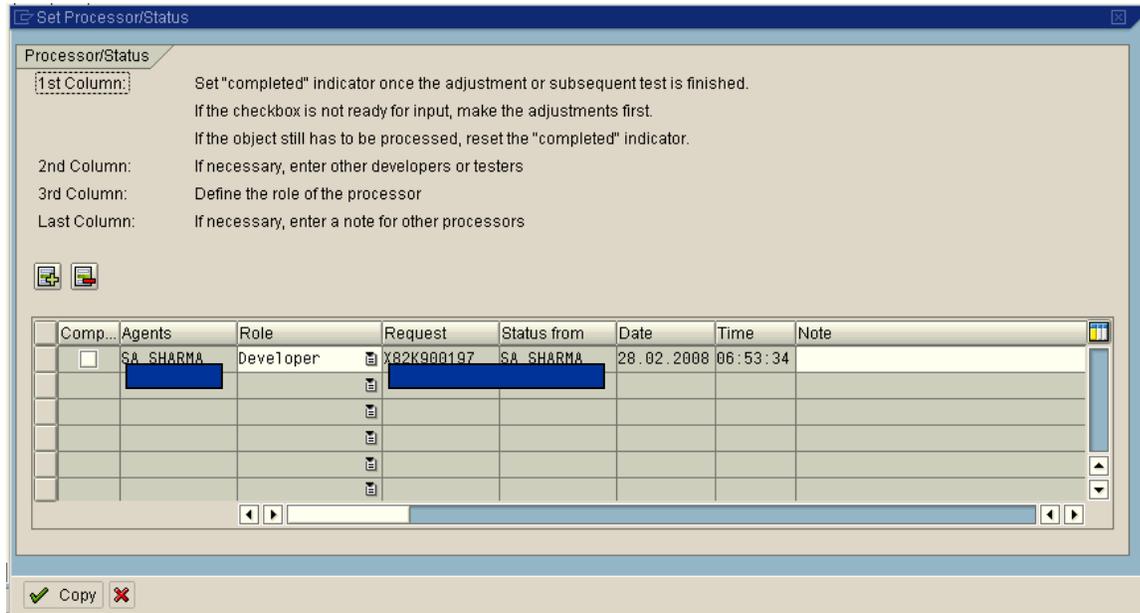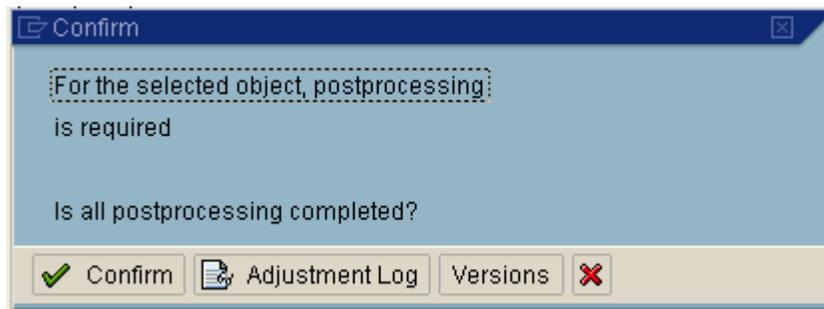

Figure- 2

Figure-3

Figure-4

For detailed information on adjusting these objects, please refer to the following SAP link.

http://help.sap.com/saphelp_nw04/helpdata/en/c6/068d380be34e6ce10000009b38f842/content.htm

http://help.sap.com/saphelp_46c/helpdata/EN/60/d6ba7bceda11d1953a0000e82de14a/content.htm
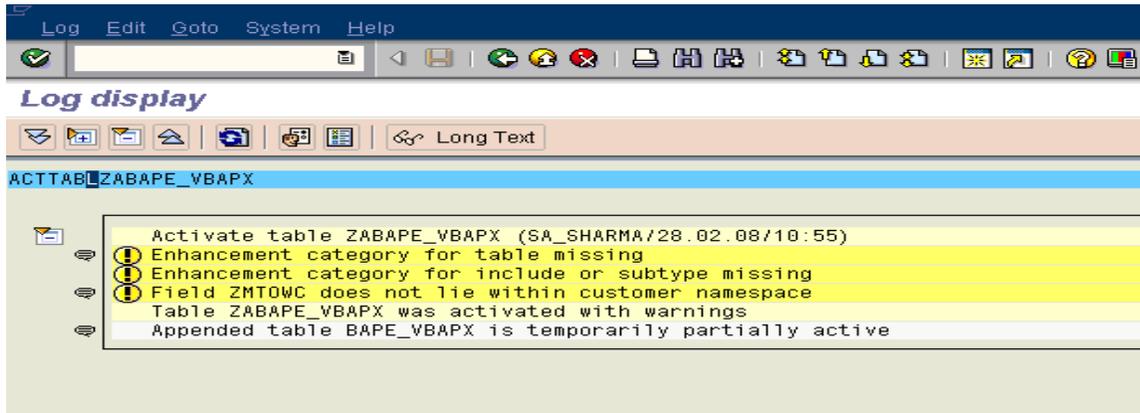
Note: It is advisable to store all the adjustments you are doing in one transport request. By this way, you could eliminate the problems arising out of dependencies of the various adjusted objects.

After adjusting the SPDD objects, there are chances that you would get activation errors. In these cases, you need to solve those activation errors before proceeding further with the upgrade. Some of the common reasons for such activation errors are:

- Deleted objects being used in custom objects. Ex: You are using a domain 'X" in your custom table and this 'X' no longer exists in the system data dictionary. In this case, you need to create the domain again and activate it.

- Double fields because of append structure. During the adjustment phase, there would be occasions in which, the system would recommend an append structure to the already existing structure/table. When we accept such a proposal, there would be cases in which, the customer has already added a field to the table/structure which SAP is adding as a standard because of upgrade. Due to this, the table/structure contains the same field twice and hence activation errors occur. In these cases, we need to delete the duplicate field and activate the object again.

- Search Helps could not be activated. In these cases, check the table that you are using in the search helps. There are high chances that those tables are inactive/partially active. Sort those issues and then try to activate the search help.
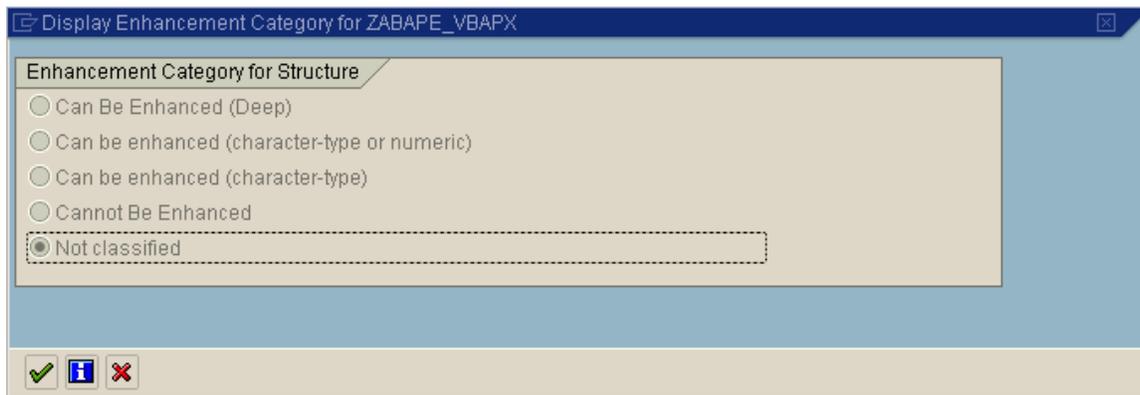
Apart from these errors, you will encounter several warnings as well. Among this, the most common one is about the Enhancement Category missing. Please refer the below screen shot (Figure- 5)

Figure- 5

Though you could proceed with the warning, it is a good practice to correct these as well since these can create problems for both Unicode check enabled programs as well as for programs where there is no active Unicode check. In programs where there is no active Unicode check, enhancements to tables and structures can cause syntax and runtime errors during type checks and particularly in combination with deep structures. In programs where there is an active Unicode check, statements, operand checks, and accesses with an offset and length are problematic - for example, if numeric or deep components are inserted into a purely character-type structure and the structure thus loses its character- type nature.

For any table/structure, you could assign an enhancement category using SE11. Go to Extras and then define the enhancement category. Depending on the structure definition, the radio buttons allowed in the dialog box are ready for input and choose the appropriate one.

Figure- 6

The rules for defining the enhancement category result implicitly from the structure setup and the classification of the types used. These rules are as follows:

- If the object contains at least one numeric type or a substructure or component (field has a structure/table/view as its type) that can be enhanced numerically, the object can no longer be enhanced character-type, but is itself, at most, enhanceable character-type or numeric.

- If the object contains a deep component (string, reference, or table type), or it contains a substructure or component that is marked as enhanceable in any way, then the object itself is enhanceable.

- If the object does not contain any substructure or component that is marked as enhanceable, you can select cannot be enhanced.

- If the structure has not yet been enhanced, we can choose the category cannot be enhanced in any case.

If we are creating new tables and structures in the ABAP Dictionary, the system proposes the category can be enhanced in any way as standard value for the classification of the enhancement options. If the developer chooses a more restrictive classification than can be enhanced in any way for a particular structure, then only the classification levels that adhere to the rules above are allowed. It is not possible to choose an enhancement option of a structure that is more restrictive than the classification resulting implicitly from the structure setup and from the classification of the types used. Therefore, only the allowed categories are proposed for selection in the maintenance user interface.

If a structure depends on one or several other structures, the smallest category is chosen as implicit classification (in the order cannot be enhanced < can be enhanced and character-type < can be enhanced and character-type or numeric < can be enhanced in any way). This classification is greater than or less than the category in the other structures and also greater than or the same as the category that results from the actual setup in the original structure itself.
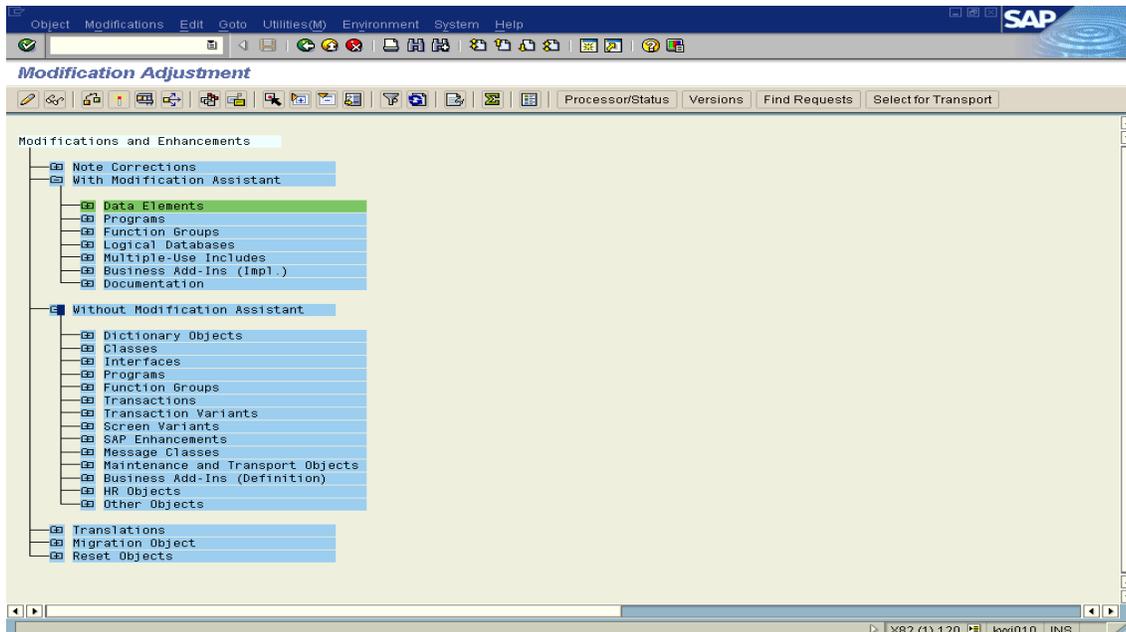
SPAU Adjustments for Repository Objects

SPAU transaction will identify any objects (repository objects), where the hot package is overwriting changes that we have made through OSS notes. We must check all objects identified in SPAU and decide whether we need to reapply the OSS note or reset the code to the original SAP Code. If, for instance, we are applying hot package 'XX' SPAU identifies an object where you have applied an OSS note. We must check the OSS notes and see if SAP has fixed that note in this hot package. If the OSS note has been fixed in hot package 'XX', then we should reset the object to its original source code. This means that there is no repair flag set against this object again and it is now SAP standard code.

SPAU transaction can be executed with in 14 days on completion of the upgrade. This means that if you are carrying out the SPAU activities during this period, system will not prompt you for the access key for the modification and hence we can edit the Repository objects without going for an SSCR Registration.

Note: If somehow, we missed this 14 days period, the workaround is to raise a call with SAP and provide them access to our system and they will change the settings and will raise the time frame to do the SPAU activities.

Go to transaction SPAU and execute it after checking the relevant checkboxes. You will get the screen more or less similar to the below screenshot (Figure-7) depending upon the objects that are available in your system for adjustment.

Figure- 7

Note the Data Elements section colored in green color. This indicates that the adjustment activities for the Data Elements are completed.

Note Corrections

As explained before, SPAU transaction will list out a series of SAP notes under the heading Note corrections. From the list display, we could identify the OSS notes that the customer has implemented previously but has become obsolete now since it has been part of the upgrade pack. Please refer to the below screenshot (Figure- 8).

All those that have been shown in grey traffic icon are the obsolete notes and you could click on it and reset it. After resetting it, the note would go away from the display. All those notes that have been displayed with the yellow traffic light are the ones for which, you need to do some action on it. Most of these notes needs to be implemented again or has to do some manual actions with respect to it. The system will guide you when you click on the yellow icon for the completion of this activity. Once the note has been successfully implemented, you could see a green check mark next to it.
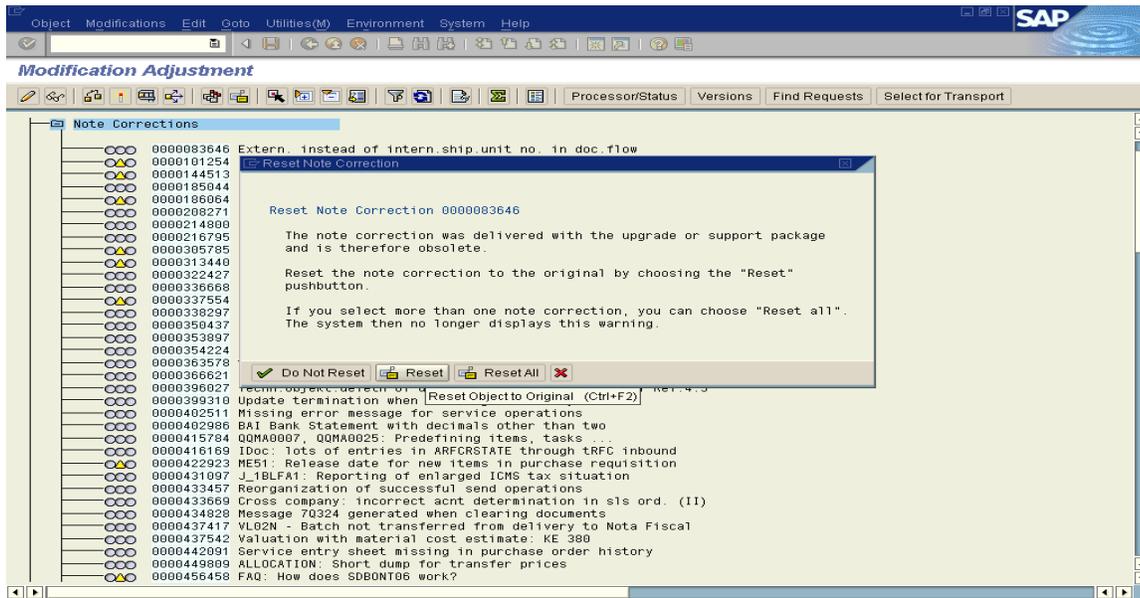
Figure- 8

In some cases, you could see a question mark beside the OSS note instead of a traffic light icon. This means that the system is not able to determine the adjustment mode for that object. In this case, clicking on the '?' would allow you to run a background process to calculate the status. Then proceed as per the outcome of it. Please refer Figure-9.
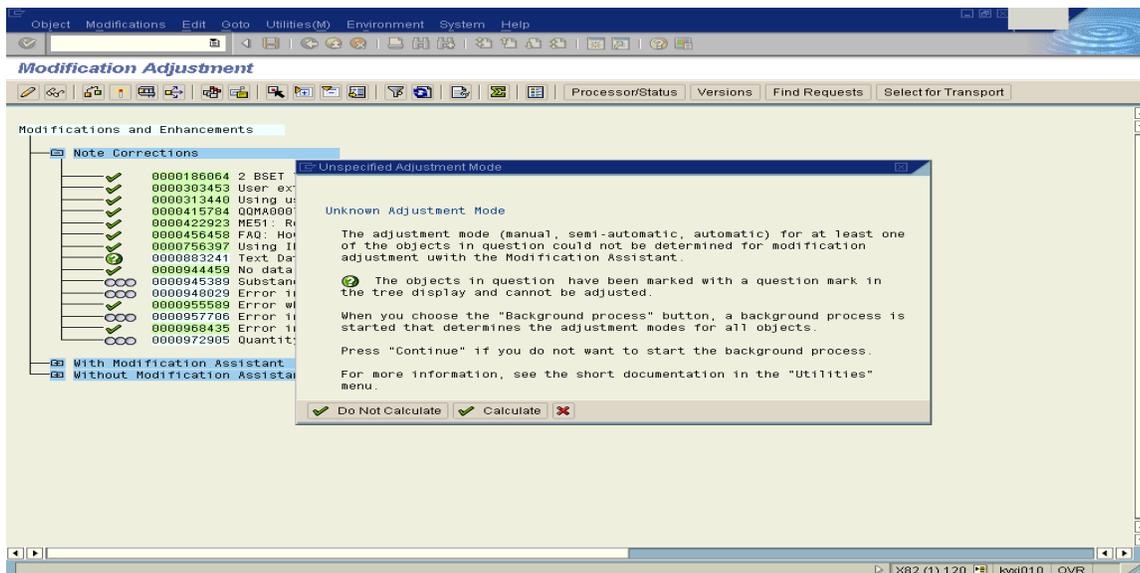

Figure- 9

Adjustment Category: With Modification Assistant.

All the objects shown under this section have to be adjusted. This can be adjusted either automatically or in the individual ABAP workbench tools using either the relevant dialog boxes or the split editor. Just as mentioned in the SPDD section, a green traffic light near the object stands for automatic adjustment. Clicking on the icon causes the system to automatically adjust the object. Refer the below screen shot (Figure-10)
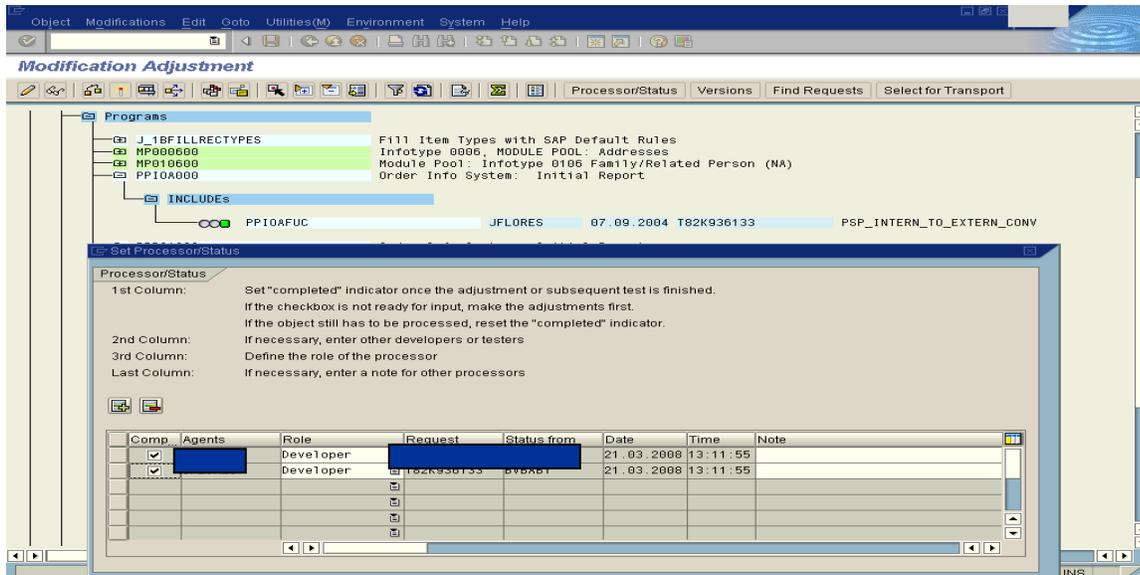

Figure- 10

In the case of semiautomatic adjustment; that is in cases where you could see the yellow traffic light icon near the repository object, clicking on the object will lead to the pop up of dialog boxes asking you to correct any collisions that have occurred or it will lead to a split screen editor. Refer the below screen shot (Figure - 11)
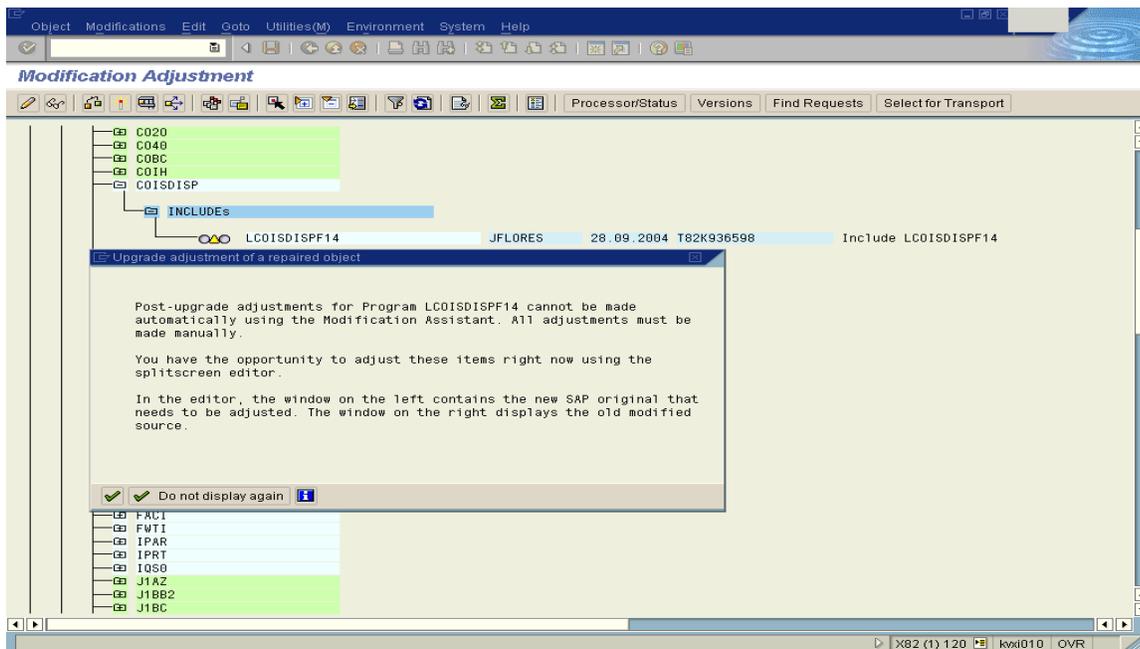

Figure -11

In the split screen editor, the window on the left displays the new SAP original and the window on the right displays the source code modified by the customer. Now, you need to decide whether you want to transfer your modifications to the new one or if the original should remain unchanged. To make changes to the original, copy the code from the right side (modified source) and paste this on the left side on the appropriate passage. To copy the code, place your cursor on the code and select it and then choose Copy or just (Ctrl + C) and to paste it on the new original code, place your cursor on the appropriate place or select the block of code that you want to replace and choose either Insert or Replace. This inserts the copied code to the new SAP original.

If there are further differences to be copied to the original, follow the same procedure as above. Once you made all the changes, save your changes. Now, a dialog box appears asking you to confirm that you have completed all your modifications. The following statistics are also displayed.

- Units to be modified.

- Units automatically adjusted.

- Units manually adjusted.

Please refer the following screenshots (Figure 12 & 13) for a better understanding of the above description.
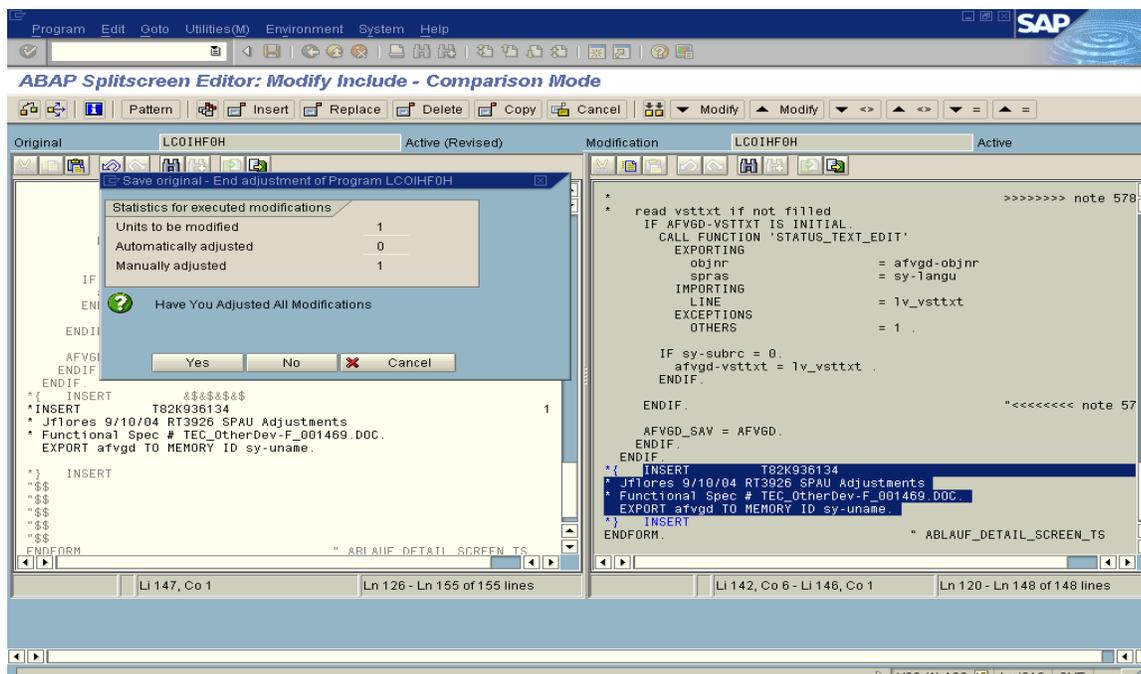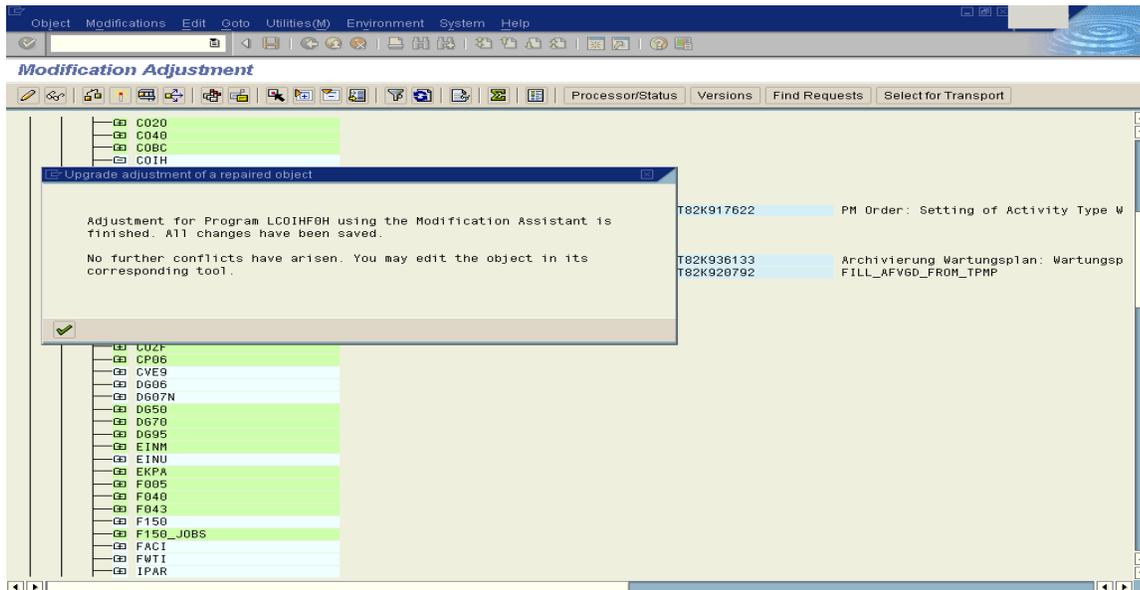

Figure- 12

Figure- 13

Another example; this time, it contains both automatic and semiautomatic adjustment. Please refer the below screen shot.
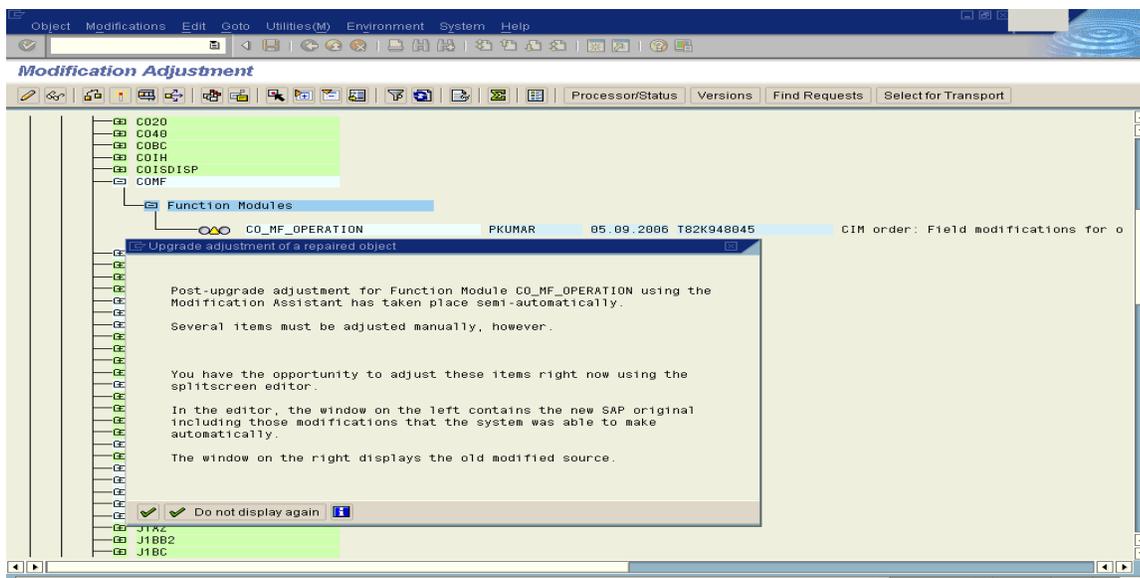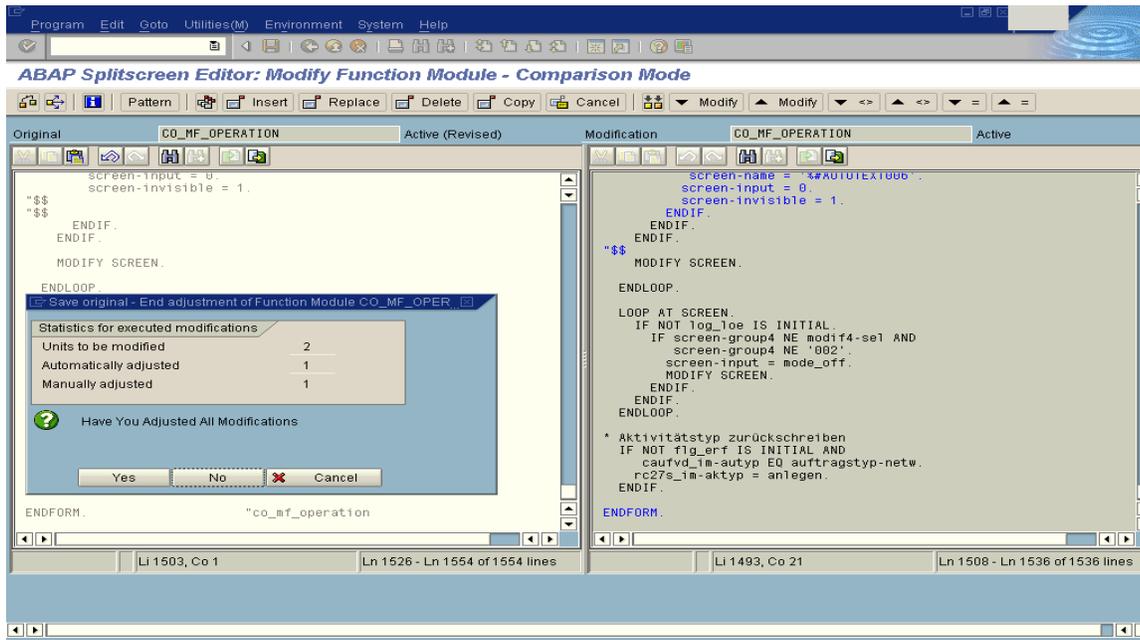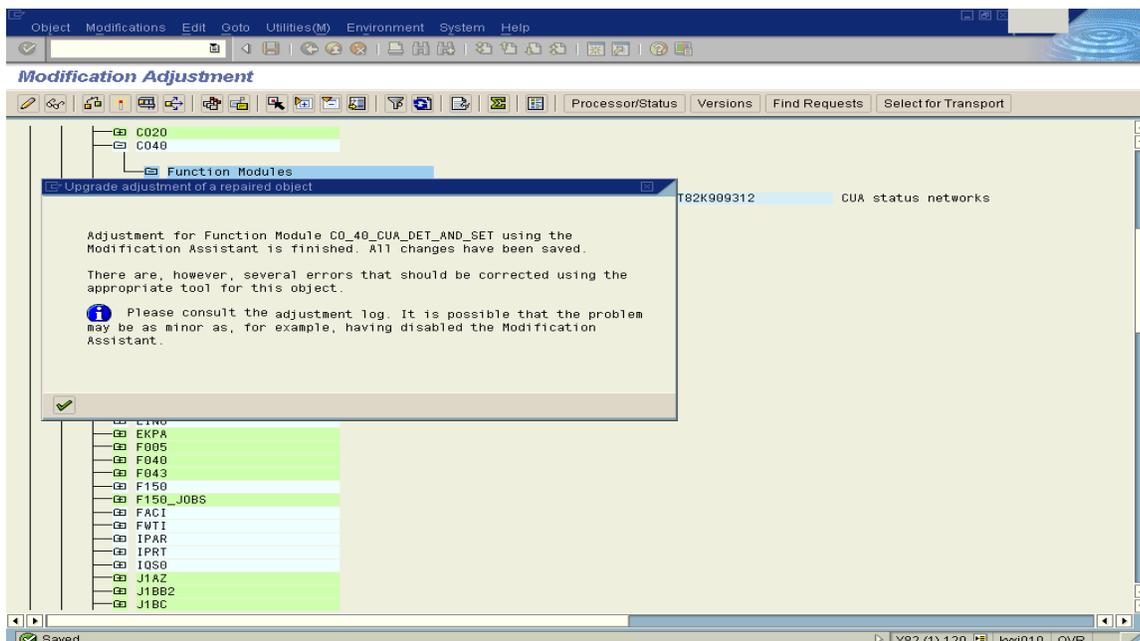

Figure- 14

Figure -15

In exceptional cases, the red traffic light may also appear in the 'With Modification Assistant' category. In these cases, you should check the adjustment log and sort out the issues accordingly. If there are any issues in adjusting all the objects, you could see a stop sign which indicates adjustment problems. This means that there are unresolved problems and in most of these cases, we need to resolve the issue manually. In such occasions, display the log by clicking on the stop sign. This function informs you what problems occurred at the upgrade and what actions are necessary to correct them. Pay special attention to the Open (unresolved) problems category.

Please refer the below screenshot for a particular error description.

The above mentioned error was due to syntax error in the program and has gone away when we removed the syntax error, activated the program and completed.

Adjustment Category: Without Modification Assistant

Objects in the 'Without Modification Assistant' sub tree can only be post-processed manually after the adjustment process. Manual adjustment means that you must make modifications without any special efforts from the system. In these cases, you could use the version management and retrieve the old versions, if you want to keep the customer modification. When modifying objects where version management cannot be used, it would be really helpful if you could document all the changes that you are doing.

If the objects marked with a red traffic light are added to a transportable change request, the red traffic light would be replaced with a green check mark.

For detailed information on adjusting these objects, please refer to the following SAP link.

http://help.sap.com/saphelp_nw70/helpdata/en/c8/1978b543b111d1896f0000e8322d00/frameset.htm

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