

Upgrade from ECC 4.6 to ECC 6.



Applies to:

Applies to all ABAP Consultants working on upgrade. For more information, visit the [ABAP homepage](#).

Summary

This article targets the SAP-ABAP developers who are working on SAP upgrade from 4.6 to ECC6. This mainly includes SPDD, SPAU and UCCHECK fixes that needs to be carried out to correct all the conflict standard objects while upgrading to the higher version.

Author Bio

Author: Vishnu Shankar N.

Company: Infosys Technologies Limited.

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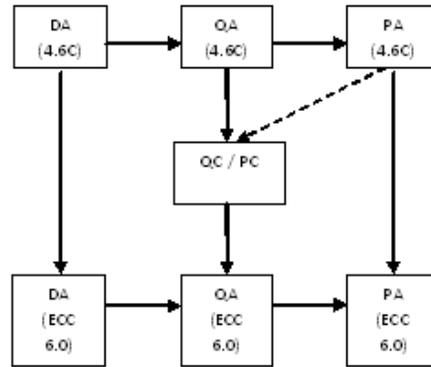
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Upgrade Process

Landscape Strategy:

- Take the back up of the existing system
- Up gradation work will be done only to the copied system.
- We can start doing our work in the old system but keep track of all the work done by us in the old system - Retrofit or Dual Maintenance



This helps us in two ways...

1. No need to refresh the QA System again with PA system in the immediate future...
2. Since QA is copied from PA, we have much more real data existing in QA which helps us to do the testing in a more realistic way.

Unicode

In the previous Versions, SAP used various codes to encode characters of different alphabets like ASCII, EBCDI, double-byte code pages

1. ASCII (American Standard Code for Information Interchange) encodes each character using 1 byte = 8 bit. This makes it possible to represent a maximum of $2^8 = 256$ characters.
2. EBCDI (Extended Binary Coded Decimal Interchange) also uses 1 byte to encode each character, which again makes it possible to represent 256 characters.
3. Double-byte code pages require 1 or 2 bytes for each character. This allows you to form $2^{16} = 65536$ combinations where usually only 10,000 - 15,000 characters are used.
4. Till Version 4.6, we used these character sets to represent each language relevant to the SAP system.
5. One solution to this problem is to use a code comprising all characters used on earth. This code is called **Unicode** (ISO/IEC 10646) and consists of at least 16 bit = 2 bytes, alternatively of 32 bit = 4 bytes per character.
6. From Release 6.10, ABAP supports Unicode.
7. Once a Unicode-enabled program has been changed accordingly, it behaves in the same way in both Unicode and non-Unicode systems. You can develop programs in a Non-Unicode system (NUS) and then import them into a Unicode system (US).
8. **Tcode for Unicode Compliance check : UCHECK**

Steps in UPGRADE

There are three main phases which requires technical involvement in any upgrade.

- a. SPDD
- b. SPAU
- c. UCCHECK

All the customization done and the OSS Note applied for the system may or not may not be carried forward to the upgraded version when the package is applied.

This results in inconsistency of SAP objects in the current system.

SAP provides the provision of adopting the changes or reset to upgraded system based on the customer requirement in two important phases of any upgrade which requires technical involvement i.e.) SPDD and SPAU. After these two phases, the next phase which needs technical fix is UCCHECK.

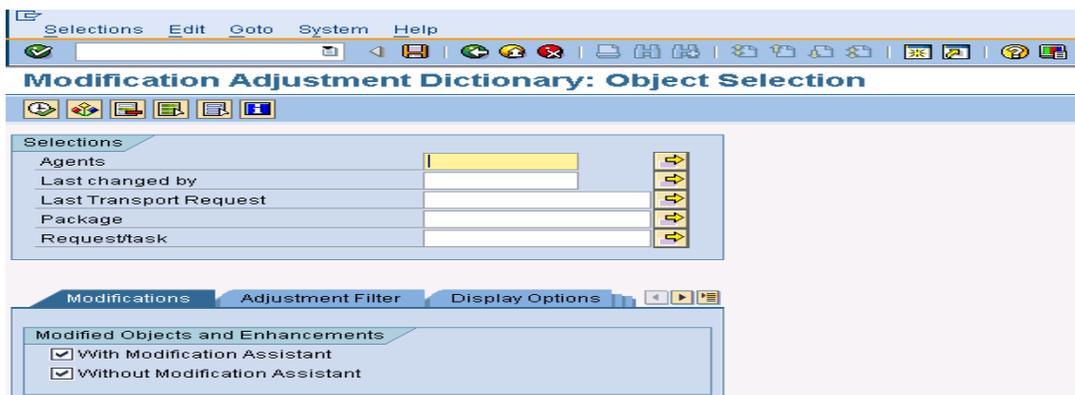
MDMP (Multi Display Multi Processing) or single code pages (non-MDMP) used in the lower version will not be supported from SAP ERP 6.0 onwards. Unicode provides global character encoding and is required before up gradation.

Major part of ABAP coding is ready for Unicode without any changes while minor part (custom program or the enhancements done) needs to be syntactically checked or run-time enabled before upgrading the system. This is done in UCCHECK transaction which lists the affected objects.

SPDD

User name of the version just before the current (upgraded) version is SAPUSER which means that there were no custom changes made to that object. In such cases we can keep the ECC 6.0 version ie, we do a Reset to Original

There is a different user under the upgrade version → Find out all the custom changes from version 1 till the current version. You can both ignore the custom change and keep the new ECC 6.0 version (Reset to Original) or you can modify the object accommodating the custom changes and ECC 6.0 changes. The later is called Adopt Modification



Transaction SPDD

Modification Adjustment Dictionary

Processor/Status Versions Find requests Select for t

Reset to Original

Modifications and enhancements

- With Modification Assistant
- Without Modification Assistant
- Database Tables
- Structures
- Domains
- Deleted objects
 - Database Tables
 - BKPF Accounting Document Header
 - Table Indexes U363797 16.07.2008 DEVK9A1NUM
 - 7 U363797 16.07.2008 DEVK9A1NUM
 - 7 U363797 12.07.2008 <unknown>
 - E070 Change & Transport System: Header of Requests/Tasks
 - ZBATC_JOB Batch Job Manager - Header table containing job details

| | | | | |
|-------|----------|------------|------------|-----------------------|
| CHARG | SCHLE6FR | 23.07.2003 | DEVK990883 | Batch Number |
| DELKZ | T268100 | 18.06.2007 | DEVK9A19RE | MRP element indicator |

Types Of adjustments

| Icon: | Meaning: |
|-------|--|
| | <p>There were no overlaps between the delivered SAP objects and the customer modifications. If you click on the green traffic light, the customer's modifications are adopted. A green tick in front of the object confirms this.</p> <p>If you do not wish to adopt the customer's modifications, choose the function Reset to Original.</p> |
| | <p>There were overlaps between the version delivered by SAP and the modified version of the customer. If the object was modified using the Modification Assistant, dialog boxes with appropriate queries will appear to support the semi-automatic compare.</p> <p>If you have an object that was not modified using the Modification Assistant, reports for supporting the compare are called. These are reports that were already used when there was no way of executing the modification comparison with the help of the Modification Assistant.</p> |
| | <p>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.</p> |

Points to remember

- ▶ Save your work in the Dictionary maintenance transaction (SE11) but **do not activate any objects**. Activation is carried out automatically after the adjustment.
- ▶ After an object has been reset to original, it is treated as an unmodified object during the next Support Package or upgrade although it is contained in a request. The object is overwritten without a backup of the old version and no longer appears in transaction SPDD for adjustment.

SPAU

It is mandatory to set the system change options to all the objects to make it follow the below one

1. Start transaction SE03 as “DDIC” and choose Tools – Administration – Set system change option
2. Select Modifiable in the Global Setting box.
3. Choose Continue
4. Choose Edit – Select All
5. Save all entries.
6. Log off as DDIC and login with your user.

Work with your user and do not use “DDIC” for running SPAU.

Whenever an object is modified, a request query dialog box appears asking you to specify a Change Request where modifications should be recorded. Create a new change request for the first change you do. Use the same request for all further changes using SPAU.

System Change Option

Client Setting

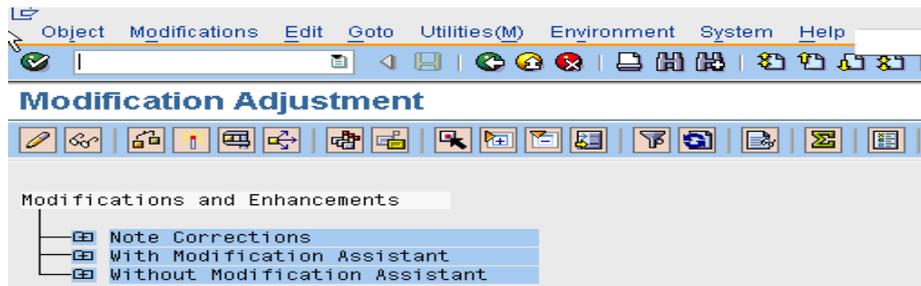
Global Setting: **Modifiable**

| Software Component | Technical Name | Modifiable |
|--|----------------|------------|
| SAP R/3 Enterprise Add-On PLM, SCM, Finan | EA-APPL | Modifiable |
| SAP R/3 Enterprise Defense Forces & Public | EA-DFPS | Modifiable |
| SAP R/3 Enterprise Financial Services | EA-FINSERV | Modifiable |
| SAP Enterprise Extension Global Trade | EA-GLTRADE | Modifiable |
| SAP R/3 Enterprise Add-On HR | EA-HR | Modifiable |
| SAP IPPE | EA-IPPE | Modifiable |
| SAP R/3 Enterprise Public Services | EA-PS | Modifiable |

| Namespace/Name Range | Prefix | Modifiable |
|--|--------|----------------|
| Customer Name Range | | Modifiable |
| General SAP Name Range | | Modifiable |
| | | Not modifiable |
| | | Modifiable |
| | | Not modifiable |
| Development Financials, Generated Objects e-Accounting | /1ACC/ | Modifiable |
| Test Generation Namespace for BW | /1APO/ | Modifiable |
| Bank Analyzer: Generated Objects | /1BA/ | Modifiable |

General Functions:

Usually 3 types of objects need adjustments which are Notes, Objects modified With Modification Adjustment, and Objects modified Without Modification Adjustment.



Objects are adjusted automatically or in the individual ABAP Workbench tools using either corresponding dialog boxes or the split screen editor.

Automatic Adjustment – green traffic light

A green traffic light icon next to a Repository object in the adjustment list means that this object's modifications can be adopted automatically. Clicking on the icon causes the system to automatically adjust the object.

Semi-automatic Adjustment

The yellow stoplight stands for semi-automatic adjustment. When you click on a yellow traffic light (if a change request has already been entered), you either branch to the split screen editor or, in other ABAP Workbench tools, a dialog box appears asking you to correct any collisions that have occurred. In rare cases, direct maintenance of adjustment objects may be necessary.

Types Of adjustments

| 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 |
| | 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 |

Note Correction

- It displays all the OSS Notes that were added to the Old Version (the existing Version before upgrade)
- Check whether it is still applicable for ECC 6 and apply it

Version Management

SPDD and SPAU need three versions for an adjustment:

- ▶ Version of the new release (active version)
- ▶ Version that existed before the object was modified by the customer
- ▶ Version that existed after the object was modified by the customer

Comparing Versions of the program

The screenshot shows the 'Versions of Object CHARG of Type Domain Definition' dialog box. The 'Version Comparison' tab is active. The table below displays the version information.

| Version | Cat | Fla | SAP | Rel. | Arch | Request | Project | Date | Time | Author |
|---|-------|-----|-----|------|------|---------|------------|------------|----------|----------|
| Version(s) in the development database: | | | | | | | | | | |
| <input type="checkbox"/> | activ | | X | | | 620 | | 16.08.2006 | 13:12:03 | SCHLEGFR |
| Version(s) in the version database: | | | | | | | | | | |
| <input checked="" type="checkbox"/> | 00004 | | | | | 620 | DEVK990883 | 17.04.2004 | 16:41:37 | SCHLEGFR |
| <input checked="" type="checkbox"/> | 00003 | I | | | | 620 | UPGRADE620 | 23.07.2003 | 15:59:54 | SAPUSER |
| <input type="checkbox"/> | 00002 | | | | | 30F | ISDK901606 | 17.10.1997 | 09:50:59 | VIDIL |
| <input type="checkbox"/> | 00001 | S | X | | | 30F | ISDK901607 | 00.00.0000 | 00:00:00 | |

UCCHECK

UCCHECK utility identifies the objects that require Unicode Migration and lists down the exact Unicode adjustment that needs to be made for those objects.

▶ **Displaying Points that Cannot Be Analyzed Staticly**

- ▶ If you choose this option, you get an overview of the program points, where a static check for Unicode syntax errors is not possible. This can be the case if, for example, parameters or field symbols are not typed or you are accessing a field or structure with variable length/offset. At these points the system only tests at runtime whether the code is sufficient for the stricter Unicode tests. If possible, you should assign types to the variables used; otherwise you must check runtime behavior after the Unicode attribute has been set.
- ▶ To be able to differentiate between your own and foreign code (for example when using standard includes or generated includes), there is a selection option for the includes to be displayed. By default, the system excludes the standard includes of the view maintenance LSVIM* from the display, because they cause a large number of messages that are not relevant for the Unicode conversion. It is recommended that you also exclude the generated function group-specific includes of the view maintenance (usually L<function group name>F00 and L<function group name>I00) from the display.
- ▶ Similarly to the process in the extended syntax check, you can hide the warning using the pseudo comment ("#EC *).
- ▶ **Only Examine Programs with Non-Activated Unicode Flag**
By default, the system only displays program objects that have not yet set the Unicode attribute. If you want to use UCCHECK to process program objects that have already set the attribute, you can deactivate this option.
- ▶ **Only Objects with TADIR Entry**
By default, the system only displays program objects with a TADIR entry. If you want to examine programs that don't have a TADIR entry, for example locally generated programs without a package, you can deactivate this option.
- ▶ **Exclude Packages \$***
By default, the system does not display program objects that are in a local, non-transportable package. If you want to examine programs that are in such a package, you can deactivate this option.
- ▶ **Also Examine Modified SAP Programs**
By default, SAP programs are not checked in customer systems. If you want to check SAP programs that were modified in customer systems (see transaction SE95), you can activate this option.
- ▶ **View Maintenance**
- ▶ Parts of the view maintenance generated in older releases are not Unicode-compatible. The relevant parts can be regenerated with a service report.
- ▶ **UPLOAD/DOWNLOAD**
- ▶ The function modules UPLOAD, DOWNLOAD or WS_UPLOAD and WS_DOWNLOAD are obsolete and cannot run under Unicode. Refer to the documentation for these modules to find out which routines serve as replacements.

Unicode Errors in UCCHECK Transaction & color coding

In the output of the UCCHECK, object with Unicode errors are shown as red lights. The outputs shall also display the line number at which the syntax error is present and the error description. An example is shown below.

SAP

Result of Unicode Syntax Check

| Exception | UC | Org. | Program | Include | Row | Error Code | Message | Created By | Package | Pers |
|-----------|----|------|----------|----------|-----|------------|--|------------|---------|------|
| | | IDS | Z0000002 | Z0000002 | 170 | OPEN 004 | In "TEXT MODE" the "ENCODING" addition must be specified. | STEINHORST | \$TMP | SAP |
| | | IDS | Z0000002 | Z0000002 | 275 | MESSAGE0@1 | "DDERR" cannot be converted to a character-type field. | STEINHORST | \$TMP | SAP |
| | | IDS | Z0000002 | Z0000002 | 296 | MESSAGE0@1 | "DDERR" cannot be converted to a character-type field. | STEINHORST | \$TMP | SAP |
| | | IDS | Z0000002 | Z0000002 | 307 | MESSAGE0@1 | "DDERR" cannot be converted to a character-type field. | STEINHORST | \$TMP | SAP |
| | | IDS | Z0000002 | Z0000002 | 557 | MESSAGE0@1 | "DDERR" cannot be converted to a character-type field. | STEINHORST | \$TMP | SAP |
| | | IDS | Z0000002 | Z0000002 | 833 | ASSIGN 019 | You cannot use ASSIGN f+offset. Always use an explicit length (or **). | STEINHORST | \$TMP | SAP |
| | | IDS | Z0000002 | Z0000002 | 865 | ASSIGN 019 | You cannot use ASSIGN f+offset. Always use an explicit length (or **). | STEINHORST | \$TMP | SAP |
| | | IDS | Z0000002 | Z0000002 | 911 | UPL0 | UploadWis_Upload and DownloadWis_Download are obsolete, since they are not | STEINHORST | \$TMP | SAP |
| | | IDS | Z0000002 | Z0000002 | 911 | UPL0 | Unicode-enabled; use the class cl_gui_frontend_services | STEINHORST | \$TMP | SAP |

These red symbols represent unicode error

SAP

Result of Unicode Syntax Check

| Exception | UC | Org. | Program | Include | Row | Code | Message | Created By | Package | Pers.resp | Appl.comp. |
|-----------|----|------|------------|------------|-----|------|---|------------|---------|-----------|------------|
| | | DEV | ZTEST_AMIT | ZTEST_AMIT | 184 | SERR | Normal syntax error. Unicode syntax check will not be performed | DEVBLR | \$TMP | SAP | |

This yellow symbol represents that this program has got syntax errors.

Result of Unicode Syntax Check

| Exception | UC | Org. | Program | Include | Row | Error Code | Message |
|-----------|----|------|----------|----------|-----|------------|---|
| | | E1B | ZFSZIS10 | ZFSZIS10 | 0 | OK | The system found no Unicode syntax errors |

Setting the Unicode Attribute

- ▶ Setting the Unicode attribute for all the ABAP programs is a MUST before the Unicode Migration of the database takes place. In case the attribute is not set, the program will not get activated/executed in Unicode environment even though all the syntaxes in the program may comply with Unicode standards.
- ▶ The Unicode attribute for all standard ABAP is automatically set once the Unicode migration takes place. The development team would need to set this attribute for all the custom ABAP.
- ▶ Advantages
 - Multiple objects can be flagged in one go. Manual effort of flagging individual object is considerably reduced.
 - The entire activity is captured in a single request.

The screenshot shows the 'ABAP: Program Attributes ZTESTPRG2 Change' dialog box. The 'Attributes' section is expanded, showing various settings. The 'Unicode checks active' checkbox is checked and highlighted with a red circle. Other checked options include 'Editor lock' and 'Fixed point arithmetic'. The 'Start using variant' checkbox is unchecked.

| Field | Value |
|------------------------|--|
| Title | test prog |
| Original language | EN English |
| Created | 18.05.2004 DEVMNG |
| Last changed by | 14.07.2004 DEVMNG |
| Status | Active |
| Type | Executable program |
| Status | Test program |
| Application | Cross-Application |
| Authorization Group | |
| Package | \$TMP Temporary Objects (never transported!) |
| Logical database | |
| Selection screen | |
| Unicode checks active | <input checked="" type="checkbox"/> |
| Editor lock | <input checked="" type="checkbox"/> |
| Fixed point arithmetic | <input checked="" type="checkbox"/> |
| Start using variant | <input type="checkbox"/> |

- Whenever we make some changes to any object, a modlog is a must which explains who did that (the user id), why that change was done (for upgrade / Unicode Compliant), when it was done (the date), etc.,
- Transport request - At the end of upgrade we should be having only 3 transport request created in the system, one each for SPDD, SPAU and UCCHECK objects.

Related Content

For more information, visit the [ABAP homepage](#).

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