

Update Guide

CUSTOMER

Software Update Manager 1.0
Document Version: 1.0 – 2016-06-06

Update of SAP Systems Using Software Update Manager 1.0 SP17

Technology: ABAP

Platform: Windows

Database: MS SQL Server



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Document History

The following table provides an overview of the most important document changes.

Caution

Before you start implementation, make sure that you have the latest version of this document. You can find the latest version at the following location: <http://help.sap.com/slttoolset> ► *Software Logistics Toolset 1.0* ►. Scroll down to *Documentation* and choose ► *System Maintenance* ► *Updating SAP Systems Using the Software Update Manager* ►.

Table 1:

Version	Date	Description
1.0 SP17	June 6, 2016	First version

1 Introduction

1.1 About This Document

Purpose

This document describes how to update SAP systems based on SAP NetWeaver ABAP using the Software Update Manager (SUM) 1.0 SP17.

For a list of all supported processes, products and releases, see the current Software Update Manager Note [2223738](#) .

The Software Update Manager is a multi-purpose tool that supports various processes, such as performing a release upgrade, installing enhancement packages, applying support package stacks, installing add-ons, or updating single components. For clarity and readability, the term “update” is used in this document for all supported processes.

Integration

It is essential that you read the *Master Guide* (or *Upgrade Master Guide*, if such exists as a separate guide) for your product version. The *Master Guide* (*Upgrade Master Guide*) guides you through the complete update and refers you to the required documentation for each step.

If there are preparation and follow-up activities for the update that are specific to your product, they are described in a product-specific document. This document is also referenced in the *Master Guide* (or *Upgrade Master Guide*). It is crucial that you perform the product-specific preparation activities before you start the Software Update Manager and that you perform the follow-up activities after the Software Update Manager has finished successfully.

To find the latest version of these documents, access the SAP Help Portal for your SAP NetWeaver release. See also [Accessing Documentation \[page 14\]](#).

Constraints

- If you want to upgrade from a non-Unicode SAP system to a Unicode SAP system, you have to perform a special procedure named “Combined Upgrade & Unicode Conversion (CU&UC)”. For more information, see SAP Note [928729](#) .

Caution

- An upgrade from a Unicode to a non-Unicode SAP system is not possible.

- Only valid for 'Target Release': SAP NetWeaver 7.5
SAP NetWeaver 7.5 supports Unicode only. A “Combined Upgrade & Unicode Conversion (CU&UC)” with target SAP NetWeaver 7.5 is not possible. Make sure that the SAP NetWeaver source system already supports Unicode.
End of 'Target Release': SAP NetWeaver 7.5
- Only valid for 'Target Release': SAP NetWeaver 7.3 EHP1, SAP NetWeaver 7.4, SAP NetWeaver 7.3, SAP NetWeaver 7.0 EHP3, SAP NetWeaver 7.0 EHP2
If you are performing an enhancement package installation or a support package stack update, the CU&UC procedure is only possible for updates with source release SAP NetWeaver 7.0 or higher and target releases SAP NetWeaver 7.02 SP09 or higher or SAP NetWeaver 7.31 or higher.
End of 'Target Release': SAP NetWeaver 7.3 EHP1, SAP NetWeaver 7.4, SAP NetWeaver 7.3, SAP NetWeaver 7.0 EHP3, SAP NetWeaver 7.0 EHP2

How to Use this Document

Caution

It is essential that you use the [Quick Guide \[page 15\]](#) to guide you through the process. The Quick Guide checklist provides you with an overview of all necessary tasks in chronological order.

If you are experienced in performing updates, the checklist may contain all you need to know to perform the update successfully. If you need more information, follow the links to the detailed descriptions.

Note

If this document contains information for more than one operating system, database or product release, texts that apply to one or more of these aspects are marked with bars. The types of bars are the following:

- With regular thickness when they are only valid for individual paragraphs within the topic
- In bold and placed directly below the title of a topic when they are valid for the entire content of the topic

The document is structured as follows:

- Chapter 1 – Introduction
This chapter contains information about using this document, some naming conventions for the document, and lists the required SAP Notes.
- Chapter 2 – Quick Guide
The *Quick Guide* lists all activities in the right order. For more information about the single steps, follow the links in the [Quick Guide \[page 15\]](#).
- Chapters 3 to 6 – Update Process
These chapters contain detailed information about planning, preparing, and performing the update, and about follow-up activities.
- Chapter 7 – Correction of Installed Software Information
This chapter contains information about correcting and updating the details of the software instances installed in your SAP system.
- Appendix
 - Process Overview Report
Contains information about the process overview reports that are generated by the SUM.

- Troubleshooting
Contains information about known problems and troubleshooting them.
- Administration
Contains supplementary information, for example, about database administration tasks.
- List of Referenced SAP Notes
Lists all SAP Notes with additional information about the update procedure that are referenced in this document besides the [SAP Notes \[page 13\]](#) that are relevant for the update preparation.
- List of Referenced Documentation
Lists the documentation that is referenced in this document and contains information about where to find this documentation.

1.2 New Features

The following table lists significant new features and improvements of the Software Update Manager. The table also indicates the SUM version in which the new or improved features were introduced.

Table 2: New Features for the Individual SUM Versions

Feature	Description	Availability
SUM Observer Monitor	You can now use the special SL Common UI mode, which is called the <i>observer mode</i> , for SUM technology types (SUM ABAP, Java, or dual-stack). Using this mode, you can start the SUM Observer Monitor, for example in a browser on a mobile device or a desktop PC, to monitor the update procedure. For more information, see SUM Observer Monitor [page 42] .	SUM SP17
SL Common UI: Failed Buckets Notification Flag	The SL Common UI has been enhanced with a new flag for the DMO scenario. The flag indicates failed process buckets during the DMO run.	SUM SP17
Improved SL Common UI	SL Common UI has been improved with the following features: <ul style="list-style-type: none"> • Second progress bar for long-running phases • Colored representation of breakpoints during the update 	SUM SP17
Uninstallation of Software Components	The Maintenance Planner indicates during the planning process necessary uninstallations of software components. Before you start the update, you can check these uninstallations with the <i>SAP Add-On Installation Tool</i> (transaction <code>SAINT</code>). For more information, see Checking the Uninstallation of Software Components [page 92] .	SUM SP17

Feature	Description	Availability
Keyword no longer required	Entering the keyword in the <i>Confirm Target</i> roadmap step is no longer required.	SUM SP17
Checks.log Flag	The <i>Checks.log flag</i> to open the current content of the <code><checks.log></code> file has been enhanced and improved. For more information, see SL Common UI Elements and Options [page 37] .	SUM SP16

1.3 Before You Start

1.3.1 Naming Conventions

Update

In this document, the term “update” is used as a collective term for all the software logistics processes that you can perform using the Software Update Manager (such as performing release upgrades, installing enhancement packages, or updating a system with support package stacks).

Software Update Manager, SAPehpi, and SAP Upgrade Tools

The Software Update Manager evolved from the previous SAP Enhancement Package Installer and SAP upgrade tools. The tool has been renamed to reflect its broader use.

However, note that on a technical level, the name of the executable `SAPup` is still in use, for example, in the log files or in commands.

SUM Directory and <Update Directory>

In this document, “SUM directory” and “<update directory>” are used as synonyms when referring to “<path to SUM directory>/SUM”.

SAP System

In this document, the term “SAP system” is used for SAP NetWeaver systems as well as for SAP application systems. “SAP” is also used as a synonym for “SAP NetWeaver” or “SAP application” in terms such as “SAP start profile” or “SAP system language”.

SAP System ID

In this document, the SAP system ID is abbreviated as “SAPSID” or “sapsid”. If “<sapsid>” is used, your SAP system ID has to be in lowercase letters, for example, “prd”. If “<SAPSID>” is used, you have to write in uppercase letters, for example, “PRD”.

ID for the SAP System Release

In this document, “<rel>” stands for the relevant SAP system release, without a decimal point, such as “740”. If an enhancement package has been installed in the system, the last digit indicates the enhancement package version, such as “731” for SAP enhancement package 1 for NetWeaver 7.3.

SAP System Instances

As of SAP NetWeaver 7.1, the concept and naming of SAP system instances has changed. The terms “central instance” and “dialog instance” are no longer used. Instead, the SAP system consists of the following instances:

- Application server instances
Application server instances can be installed as “primary application server instance” or “additional application server instances”.
- Central services instance
- Database instance

Throughout this document, we use the new terms “primary application server instance” and “additional application server instance”. For releases lower than SAP NetWeaver 7.1, the “primary application server instance” corresponds to the “central instance” and the “additional application server instance” corresponds to the “dialog instance”.

Step and Phase

In this document, in some scenarios the term “phase” is used as a synonym of the term “step”. This is done in alignment with the Software Update Manager GUI, which, when regarding Java scenarios, distinguishes these terms on a technical level.

Usage Type, Technical Usage, and Product Instance

As of SUM SP12, the term “product instance” has replaced the terms “usage type” and “technical usage” for SAP systems based on SAP NetWeaver 7.3 including enhancement package 1 and higher. For more information, see SAP Note [1877731](#). Note that there is no terminology change for older releases and all mentioned terms can be used as synonyms. As this is a generic update document, the currently used terms remain but only “product instance” will be used from now on when referring to SAP NetWeaver 7.3 EHP1 and higher.

Microsoft Failover Cluster Service Naming

Microsoft's clustering product "Microsoft Cluster Server" has been renamed to "Microsoft Failover Cluster". As of SUM SP08, the obsolete term is no longer used in the guide.

1.3.2 SAP Notes

Use

To prepare and perform the update of your SAP system, you require some additional information that is not included in this document. This information is in a range of SAP Notes in SAP Support Portal (<http://support.sap.com/notes>), some of which you have to read before you start with the preparations. Besides the central Software Update Manager Note, there are separate SAP Notes for the database-specific sections. When you actually perform the update, you may need information from some additional SAP Notes. These SAP Notes are named at the appropriate places in this document.

SAP Notes for Preparing the Update

You have to request the following SAP Notes from SAP Support Portal before you start the update procedure:

- Central Software Update Manager Note
- SAP Note for your database

Since these SAP Notes are updated regularly, make sure that you always use the newest version.

Table 3: SAP Notes Required to Prepare the Update

SAP Note Number	Description
2223738	Central Software Update Manager Note
2270898	MS SQL-specific

Other SAP Notes

In addition to the SAP Notes that you need to prepare the update, this document also refers you to other SAP Notes that contain **additional** information. These SAP Notes are listed in the [List of Referenced SAP Notes \[page 242\]](#).

1.4 Accessing Documentation

Before, during and after the update, you require the SAP online documentation. The applicable paths to the SAP NetWeaver Library (<http://help.sap.com>) regarding the SAP NetWeaver versions mentioned in this document are as follows:

Table 4: SAP Library Paths

Release	Path
SAP NetWeaver 7.5	http://help.sap.com/nw75
SAP NetWeaver 7.4	http://help.sap.com/nw74
SAP NetWeaver 7.3 including enhancement package 1	http://help.sap.com/nw731
SAP NetWeaver 7.3	http://help.sap.com/nw73
SAP NetWeaver Mobile 7.1 including enhancement package 1	http://help.sap.com/nwmobile711
SAP NetWeaver Mobile 7.1	http://help.sap.com/nwmobile71
SAP NetWeaver 7.0 including enhancement package 3	http://help.sap.com/nw703
SAP NetWeaver 7.0 including enhancement package 2	http://help.sap.com/nw702
SAP NetWeaver 7.0 including enhancement package 1	http://help.sap.com/nw701
SAP NetWeaver 7.0	http://help.sap.com/nw70

For more information about accessing this documentation, see the product-specific document for your target release.

2 Quick Guide

This section contains a checklist with all the actions you need to perform:

- Find SAP Notes
- Plan the update
- Prepare the update
- Update your system
- Perform the follow-up activities

The actions are in chronological order so that you can work through them like a checklist. For more information, follow the links to the descriptions of the actions.

You can also use the checklist to gain a quick overview of the update procedure.

Checklist

SAP Notes

This document is enhanced and updated by SAP Notes from SAP Support Portal (<http://support.sap.com/notes>). These SAP Notes are an important source of information when you plan and prepare your update, and also help you perform the actual update.

- 1. You request the current [SAP Notes \[page 13\]](#). You require at least the following SAP Notes:
 - Central Software Update Manager Note [2223738](#)
 - The relevant database-specific SAP Note [2270898](#)

Additional Documentation

Before, during and after the update, you require additional documentation, such as SAP Library documentation.

- 1. You make sure that you can access the [SAP Library documentation \[page 14\]](#).

Update Planning

Before you start the actual update, you have to plan it carefully so that downtime is reduced to a minimum and the update runs as efficiently as possible.

Caution

Start planning your update at least **two weeks** before you want to begin with the update.

- 1. Release upgrade only: You decide on the sequence of upgrades in your [SAP system group \[page 27\]](#). Enhancement package installation and SPS update: You decide on the sequence of updates in your [SAP system group \[page 28\]](#).
- 2. Release upgrade only: You plan the [upgrade schedule \[page 30\]](#). Start your preparations for the upgrade at the latest two weeks before you upgrade your system. Each language that you import increases the minimum duration of the import by about 30 minutes.

Enhancement package installation and SPS update: You create a [schedule \[page 33\]](#) for the update.

- 3. You familiarize yourself with the features of the [Software Update Manager \[page 36\]](#) and the update procedure.

Enhancement package installation and SPS update: If you require more detailed information, see [Technical Details of the Update Procedure \[page 48\]](#).

Release upgrade only: If you require more detailed information, see [Technical Details of the Upgrade Procedure \[page 50\]](#).

- 4. You decide on a [preconfiguration mode \[page 53\]](#).
- 5. You familiarize yourself with the [update strategy parameters \[page 56\]](#).
- 6. If you want to set the parameters for the Software Update Manager manually, you decide on the options that you want to use for the following parameters:

- [Database Archiving Parameter \[page 61\]](#)

Only valid for 'Target Release': SAP NetWeaver 7.3 EHP1, SAP NetWeaver 7.4, SAP NetWeaver 7.5, SAP NetWeaver 7.0 EHP3, SAP NetWeaver 7.0 EHP2

[near-Zero Downtime Maintenance \(nZDM\) \[page 62\]](#)

End of 'Target Release': SAP NetWeaver 7.3 EHP1, SAP NetWeaver 7.4, SAP NetWeaver 7.5, SAP NetWeaver 7.0 EHP3, SAP NetWeaver 7.0 EHP2

- Only valid for 'Target Release': SAP NetWeaver 7.3 EHP1, SAP NetWeaver 7.4, SAP NetWeaver 7.5, SAP NetWeaver 7.0 EHP3, SAP NetWeaver 7.0 EHP2

[Using the Record & Replay Technique in nZDM \[page 63\]](#)

End of 'Target Release': SAP NetWeaver 7.3 EHP1, SAP NetWeaver 7.4, SAP NetWeaver 7.5, SAP NetWeaver 7.0 EHP3, SAP NetWeaver 7.0 EHP2

- [Process and Tool Parameters \[page 65\]](#)

- Only valid for 'Target Release': SAP NetWeaver 7.3 EHP1, SAP NetWeaver 7.4, SAP NetWeaver 7.5, SAP NetWeaver 7.3, SAP NetWeaver 7.0 EHP3, SAP NetWeaver 7.0 EHP2

[Running the Shadow Instance Remotely \[page 66\]](#)

End of 'Target Release': SAP NetWeaver 7.3 EHP1, SAP NetWeaver 7.4, SAP NetWeaver 7.5, SAP NetWeaver 7.3, SAP NetWeaver 7.0 EHP3, SAP NetWeaver 7.0 EHP2

- [Shadow Instance Parameters \[page 66\]](#)

- Only valid for 'Target Release': SAP NetWeaver 7.3 EHP1, SAP NetWeaver 7.4, SAP NetWeaver 7.5, SAP NetWeaver 7.0 EHP3, SAP NetWeaver 7.0 EHP2

[SGEN Execution Modes \[page 67\]](#)

End of 'Target Release': SAP NetWeaver 7.3 EHP1, SAP NetWeaver 7.4, SAP NetWeaver 7.5, SAP NetWeaver 7.0 EHP3, SAP NetWeaver 7.0 EHP2

- Only valid for 'Target Release': SAP NetWeaver 7.3 EHP1, SAP NetWeaver 7.0 EHP3

[Incremental Table Conversion Parameters \[page 68\]](#)

End of 'Target Release': SAP NetWeaver 7.3 EHP1, SAP NetWeaver 7.0 EHP3

- 7. Release upgrade only: You can upgrade the [front-end software \[page 68\]](#) as soon as you receive the software package.
- 8. Release upgrade only: Before you start the upgrade, you check the [database-specific aspects \[page 70\]](#) and include them in your upgrade schedule, if necessary.
Archive Sizes: 21 GB up to the DOWNCONF_DTTRANS phase and 26 GB to the end of the upgrade. These sizes are estimations based on sample data.
For SAP ERP only: **Archive Sizes:** 35 GB up to the DOWNCONF_DTTRANS phase and 43 GB to the end of the upgrade. These sizes are estimations based on sample data.
- 9. You consider using the [Incremental Table Conversion \[page 71\]](#).
- 10. Release upgrade only: You plan [data management measures \[page 73\]](#) to reduce the amount of data, if necessary.
- 11. You plan the [modification and enhancement adjustment \[page 75\]](#) for ABAP, if necessary.

- 12. Release upgrade only: You meet the requirements for importing [additional languages \[page 78\]](#) for ABAP, if necessary.
- 13. Release upgrade only: You plan the handling of [customer-specific translations \[page 79\]](#) and Z languages in ABAP during the upgrade.
- 14. Release upgrade only: You check the [support package or patch level \[page 81\]](#) of the components included in the upgrade export.
- 15. You plan the [update of distributed and high-availability systems \[page 82\]](#).
- 16. You check whether your system is an [MCOD system \[page 83\]](#).
- 17. Release upgrade only: If you want to [import a support package before an upgrade \[page 84\]](#), you check that you meet the requirements.
- 18.

Only valid for 'Target Release': SAP NetWeaver 7.3 EHP1, SAP NetWeaver 7.4, SAP NetWeaver 7.5, SAP NetWeaver 7.3, SAP NetWeaver 7.0 EHP2

You inform yourself about the [integration of customer transports \[page 84\]](#) into the update procedure.

End of 'Target Release': SAP NetWeaver 7.3 EHP1, SAP NetWeaver 7.4, SAP NetWeaver 7.5, SAP NetWeaver 7.3, SAP NetWeaver 7.0 EHP2
- 19.

Only valid for 'Target Release': SAP NetWeaver 7.5

You inform yourself about the [ASCS instance split \[page 86\]](#) during the update procedure.

End of 'Target Release': SAP NetWeaver 7.5


Update Preparation

You can perform the preparations while the system is in production operation. The Software Update Manager supports you here by making most of the necessary checks automatically.

Caution

In addition to the general preparations described in this document, you need to perform the preparations that are specific to your product version, which are described in an additional product-specific document. This document is referenced in the *Master Guide* (or *Upgrade Master Guide*, respectively) for your product.

Actions Before Starting and Using the Software Update Manager

- 1. You choose the [host \[page 89\]](#) for the preparations.
- 2. You check the [hardware requirements \[page 89\]](#):
 - CPU, main memory, disk space and page file - see SAP Service Marketplace at <http://service.sap.com/sizing> 
 - For information about how to change the paging file size, see [Changing the Virtual Memory/Paging File Size \[page 237\]](#).
 - Disk space in the file system for the SUM directory, the download directory, and directory DIR_TRANS. The space required depends on the product you are updating. For more information, see the document with additional product-specific information, which is referenced in the *Master Guide* (or *Upgrade Master Guide*, respectively) for your product.
 - Space requirements in the database:
The Software Update Manager calculates the space requirements for the database. The free space required is in the range from 50 to 200 GB.
- 3. You check the software requirements:
 - Release upgrade and enhancement package installation: [Source release \[page 91\]](#) of the SAP system

- Only valid for 'Source Release': SAP NetWeaver 7.0, SAP NetWeaver 7.1, SAP NetWeaver 7.3, SAP NetWeaver 7.0 EHP3, SAP NetWeaver 7.0 EHP2, SAP NetWeaver 7.0 EHP1, SAP NetWeaver 7.3 EHP1, SAP NetWeaver 7.4, SAP NetWeaver 7.5
Release upgrade and enhancement package installation: You check the [uninstallation of software components \[page 92\]](#).
- End of 'Source Release': SAP NetWeaver 7.0, SAP NetWeaver 7.1, SAP NetWeaver 7.3, SAP NetWeaver 7.0 EHP3, SAP NetWeaver 7.0 EHP2, SAP NetWeaver 7.0 EHP1, SAP NetWeaver 7.3 EHP1, SAP NetWeaver 7.4, SAP NetWeaver 7.5
- [Operating system-specific requirements \[page 93\]](#).
- You plan or perform the [upgrade of the operating system and database system \[page 94\]](#), if necessary. For information about which operating system and database versions are currently supported, see the Product Availability Matrix on SAP Service Marketplace at <https://support.sap.com/release-upgrade-maintenance/pam.html>.
- You [install or update the SAP Host Agent \[page 96\]](#).
- 4. You check the [database-specific prerequisites \[page 98\]](#).
- 5. You check the [structural requirements \[page 99\]](#) for ABAP:
You call transaction RZ10 to check the values of the profile parameters `rdisp/mshost` and `rdisp/wp_no_vb`.
- 6. You [configure the OS user authentication \[page 100\]](#).
- 7. You call transaction RZ04 to set the [operation mode \[page 101\]](#) for the update.
- 8. You check the [consistency of the host name \[page 102\]](#)
- 9. You check the [number of background processes \[page 103\]](#).
- 10. You delete the [AUTOSTART parameter \[page 103\]](#).
- 11. Only valid for 'Source Release': SAP Basis 4.6C, SAP Basis 4.6D, SAP Web AS 6.20, SAP Web AS 6.40, SAP NetWeaver 7.0, SAP Web AS 6.10, SAP NetWeaver 7.0 EHP1
You make the preparations in the [monitoring area \[page 104\]](#).
- End of 'Source Release': SAP Basis 4.6C, SAP Basis 4.6D, SAP Web AS 6.20, SAP Web AS 6.40, SAP NetWeaver 7.0, SAP Web AS 6.10, SAP NetWeaver 7.0 EHP1
- 12. You make sure that the requirements for the [modification adjustment \[page 105\]](#) have been met.
- 13. You fill the [download directory \[page 106\]](#).
- 14. You perform the specific preparations for [distributed and high availability systems \[page 108\]](#).

Update Procedure

Actions for Starting and Using the Software Update Manager

- 1. You meet the requirements for the [SUM directory \[page 111\]](#).
- 2. You [download and unpack the Software Update Manager \[page 112\]](#). In addition, you follow the SUM directory [recommendations \[page 111\]](#).
- 3. You [register SUM in SAP Host Agent \[page 114\]](#) on the host with the primary application server instance. Typically, this is the host on which the primary application server instance is running. However, you can also use an additional application server instance.
- 4. You [start the Software Update Manager \[page 115\]](#).
- 5. You can [start the SUM Observer Monitor \[page 116\]](#) in a second browser window or on a mobile device.
- 6. You can [reset \[page 117\]](#) the update if needed.
- 7. You can [use breakpoints during the update \[page 118\]](#).
- 8. Only valid for 'Target Release': SAP NetWeaver 7.3 EHP1, SAP NetWeaver 7.4, SAP NetWeaver 7.5, SAP NetWeaver 7.3, SAP NetWeaver 7.0 EHP2
You can run an update procedure with [integrated customer transports \[page 120\]](#).
- End of 'Target Release': SAP NetWeaver 7.3 EHP1, SAP NetWeaver 7.4, SAP NetWeaver 7.5, SAP NetWeaver 7.3, SAP NetWeaver 7.0 EHP2

- 9. Release upgrade only: If you need extra software after starting the upgrade, you [import or install \[page 122\]](#) it now.

Making Entries for the Specify Authentication Mechanism Roadmap Step

You continue with roadmap step [Specify Authentication Mechanism \[page 123\]](#) and make the corresponding entries.

User Actions During the Select Target Roadmap Step

You continue with roadmap step [Select Target \[page 123\]](#) and make the corresponding entries.

User Actions During the Confirm Target Roadmap Step

You continue with roadmap step [Confirm Target \[page 124\]](#) and make the corresponding entries.

User Actions During the Extraction Roadmap Step

You make the entries for the [Extraction \[page 124\]](#) roadmap step.

For a complete list of all phases, see [Using the ABAP Phase List for the Update \[page 241\]](#).

- 1.

Only valid for 'Source Release': SAP Basis 4.6C

Release upgrade only: You enter the path to the stack configuration file.

End of 'Source Release': SAP Basis 4.6C
- 2. Release upgrade only: You enter the path to the download directory.
- 3. You decide whether you want to install the SAP Host Agent during the update.
- 4. Release upgrade only: You enter the password of user `DDIC`.
- 5. You check the configuration of `sapcppe`.
- 6. Enhancement package installation and SPS update: You implement the SAP Notes that the Software Update Manager displays.

User Actions During the Configuration Roadmap Step

You continue with roadmap step [Configuration \[page 128\]](#).

To perform the roadmap step, the Software Update Manager needs certain information from you. If possible, default values appear that you can confirm or change.

- 1. You enter [paths and parameters \[page 129\]](#). This includes the following:
 - Enhancement package installation and SPS update: You enter the password of user `DDIC`.
 - You choose your preconfiguration mode.
 - You enter the port number for internal communication.
 - You enter the password for the operating system user for installing the shadow instance.
 - Release upgrade only: You check the version of the SAP kernel, `tp`, and `R3trans`.
 - Release upgrade only: You check the SAP Notes for the add-ons.
 - Release upgrade only: If you are running an MCOD system, confirm the question.
 - If you perform a Combined Upgrade & Unicode Conversion (CU&UC), confirm the question.

i Note

- Only valid for 'Target Release': SAP NetWeaver 7.3 EHP1, SAP NetWeaver 7.4, SAP NetWeaver 7.3, SAP NetWeaver 7.0 EHP3, SAP NetWeaver 7.0 EHP2

If you are performing an enhancement package installation or a support package stack update, the CU&UC procedure is only possible for updates with source release SAP NetWeaver 7.0 or higher

and target releases SAP NetWeaver 7.02 SP09 or higher or SAP NetWeaver 7.31 or higher to SAP NetWeaver 7.4.

End of 'Target Release': SAP NetWeaver 7.3 EHP1, SAP NetWeaver 7.4, SAP NetWeaver 7.3, SAP NetWeaver 7.0 EHP3, SAP NetWeaver 7.0 EHP2

- Only valid for 'Target Release': SAP NetWeaver 7.5
SAP NetWeaver 7.5 supports Unicode only. A “Combined Upgrade & Unicode Conversion (CU&UC)” with target SAP NetWeaver 7.5 is not possible. Make sure that the SAP NetWeaver source system already supports Unicode.

End of 'Target Release': SAP NetWeaver 7.5

- 2. You specify the [software that you want to include \[page 132\]](#) in the update.
 - Release upgrade only: You enter mount directories for the languages.
 - You check the SPAM version.
 - Release upgrade only: You upload additional packages.
 - You enter the path to the stack configuration file.
 - You decide about the add-ons.
 - You confirm the support packages, if necessary.
 - You include support packages.
 - You enter the request for the modification adjustment, if necessary.
- 3. You make entries for the [shadow instance installation \[page 141\]](#).
 - Release upgrade only: You decide about reusing the shadow instance profiles.

User Actions During the Checks Roadmap Step

You continue with roadmap step [Checks \[page 142\]](#) and make entries, if necessary.

At the end of the step, perform the requested user actions.

- 1. Microsoft Failover Cluster: You make the entries for the [MSCS configuration \[page 142\]](#).
- 2. Release upgrade only: You start the application-specific upgrade toolbox.
- 3. Release upgrade, and enhancement package installation with a preconfiguration mode other than Single System: You decide about using the `RASUVAR<x>` reports to save variants.
- 4. If prompted, you remove the `CNV_FLAG` field.
- 5. You check the results of the system check.
- 6. If an error message is displayed during the check for database triggers (SLT) on exchange tables, you correct the error.

Actions After Performing the Preparation Roadmap Steps

You have to perform the following checks that are not supported by the Software Update Manager:

- 1. You evaluate the [results of the preparation roadmap steps \[page 145\]](#) in the window that appears after the [Checks](#) roadmap step has completed.

Actions During the Preprocessing Roadmap Step

You continue with roadmap step [Preprocessing \[page 149\]](#).

- 1. You check the Software Update Manager Note, the application-specific SAP Note, and your database-specific SAP Note for new information and changes.
- 2. You confirm any unconfirmed support packages.

- 3. You confirm all obsolete notes, reset all non-adjusted objects with active SAP version to SAP standard versions, carry out the outstanding modification adjustments.
- 4. You check the list of ABAP Dictionary objects with active SAP versions, which have been modified but not yet adjusted, before they will be reset automatically to the SAP standard versions.
- 5. Release upgrade only: You enter the keywords for add-ons, if necessary.
- 6. Release upgrade only: You upgrade your operating system or database to the required version now at the latest, or you import any software you still need.
- 7. Release upgrade only: You remove conflicts between customer tables and new views by deleting the customer tables.
- 8. You release the locked objects and confirm repairs. You have to do this in the `REPACHK2` phase at the latest.
- 9. You clean up outstanding updates. You have to do this in the `JOB_RSVBCHCK_R` or `JOB_RSVBCHCK_D` phase at the latest.
- 10. You make sure that you can recover the old SAP kernel if this becomes necessary.
- 11. You lock the ABAP Workbench.
 Release upgrade only: For preconfiguration mode *Standard* or *Advanced*: You can lock the ABAP Workbench in phase `LOCKEU_PRE` or in phase `REPACHK2`, in which you have to perform the step at the latest.
 Enhancement package installation and SPS update: For preconfiguration mode *Standard* or *Advanced*: You lock the ABAP Workbench in phase `REPACHK_CLONE`. In contrast to the release upgrade, the Software Update Manager requires this action in one phase only.
- 12. You release and confirm all open repairs in phase `REPACHK2` at the latest.
 Release upgrade only: For *downtime-minimized*: You lock the ABAP Workbench in phase `REPACHK2` at the latest.
 Enhancement package installation and SPS update: You already lock the ABAP Workbench in phase `REPACHK_CLONE`. In contrast to the release upgrade, the Software Update Manager requires this action in one phase only.
- 13. You process any incompleting conversion requests and restart logs.
- 14. Modifications: You confirm the request, if necessary.
- 15. Release upgrade only: As of phase `START_SHDI_FIRST`, you can only log on with [front-end software \[page 68\]](#) that is compatible with the target release.
- 16. You clean up now outstanding updates, and RFC calls and open data extraction orders as well at the latest.
- 17. Release upgrade only: Modifications: If you selected preconfiguration mode *standard resource use* or *high resource use* during the *Configuration* roadmap step, you adjust modified SAP objects with the SAP standard versions.
 Enhancement package installation and SPS update: Modifications: You adjust modified SAP objects with the SAP standard versions.
- 18. You check if SUM has generated and exported an safety transport request for objects adjusted with SPDD.
- 19. You start the ICNV, if necessary.
- 20. You check the `RSINDCRE.<SAPSID>` log file for any errors that may have occurred during the creation of secondary database indexes.
- 21. You perform actions to prepare your SAP system for the downtime, among which you are asked to [isolate the primary application server instance \[page 164\]](#) and back up the `<DRIVE>:\usr\sap<SAPSID>` directory including the complete `SUM` directory.
- 22. You [prepare the remote host for the downtime \[page 162\]](#).
- 23. If you are running an update of a high availability system, you [prepare the ASCS instance for the downtime \[page 163\]](#).

Actions During the Execution Roadmap Step

You continue with roadmap step [Execution \[page 165\]](#). While the processes of the *Execution* roadmap step are running, the system is in downtime.

- 1. Enhancement package installation and SPS update: You check the percentage of tables converted in transaction `ICNV`, if necessary.
- 2. You perform the following actions after the shutdown:
 - To adjust the instance profile by using transaction `RZ10`, you reimport the current version of the profile into your SAP system.
 - You check the percentage of tables converted in transaction `ICNV`, if necessary.
- 3. Release upgrade only: Modifications: If you selected preconfiguration mode *low resource use* during the *Configuration* roadmap step, you adjust modified SAP objects with the SAP standard versions.
- 4. If you are running the ASCS instance on a separate host, and the operating system on this host is different from that on the primary application server instance, you will be prompted by the Software Update Manager to install the latest SAP kernel on the separate host with the ASCS instance.
In a high availability environment, you perform additional manual actions for the ASCS instance (phase `REQ_ASCS_SWITCH`).
- 5. The Software Update Manager asks you to perform the following actions:
 - You back up the database.
 - You change the database recovery mode.

Actions During the Postprocessing Roadmap Step

You continue with roadmap step [Postprocessing \[page 168\]](#).

- 1. If prompted, you can now start to generate loads for your SAP system.
- 2. You remove the P errors.
- 3. You can perform the modification adjustment for repository objects now and use the related transport request during subsequent updates.
- 4. You take into account that the Software Update Manager performs a temporary renaming of SPAU transport request owner and client if you carry out the modification adjustment during the update.
- 5. The Software Update Manager performs cleanup activities in the background. However, you can already use the system again.
- 6. You take into account that the Software Update Manager saves selected log files and control files in different directories, which SAP Support can use for error analysis if there are problems after the update.

Actions During the Summary Roadmap Step

- 1. You [evaluate the update process \[page 171\]](#).
- 2. You make preparations for a [repeated use of the Software Update Manager \[page 172\]](#).
- 3. You [stop the Software Update Manager completely \[page 172\]](#).

Follow-Up Activities

The Software Update Manager stops at the latest in the `MODPROFP_UPG` phase and prompts you to start the follow-up activities. The Software Update Manager then executes the last phases and completes the update. At the same time you can perform the follow-up activities specified by the Software Update Manager.

Caution

In addition to the general follow-up activities described in this document, you need to perform the follow-up activities that are specific to your product version, which are described in an additional product-specific document. This document is referenced in the *Master Guide* (or *Upgrade Master Guide*, respectively) for your product.

Actions Before Restarting Production Operation

- 1. You perform the [database-specific actions \[page 174\]](#): You back up the database and start the SQL Server Agent, if it is not running.
- 2. Release upgrade only: You perform activities for preparing the ASCS instance for the production operation.
- 3. You perform follow-up activities in the [monitoring area \[page 174\]](#).
- 4. You perform follow-up activities for the [SAP Kernel \[page 176\]](#).
- 5. You reimport [additional programs \[page 176\]](#) such as RFC-SDK or CPIC-SDK from the *SAP NetWeaver Presentation DVD*, if necessary.
- 6. You call transaction `SPAU` and - if applicable - transaction `SPAU_ENH` to adjust modifications to [Repository objects \[page 177\]](#), if necessary.
- 7. You update the [where-used list \[page 180\]](#) in the ABAP Workbench, if necessary.
- 8. Release upgrade only: You adjust the [Customizing settings \[page 180\]](#).
- 9. Release upgrade only: You adjust your [own developments \[page 181\]](#), if necessary.
- 10. You perform [follow-up activities \[page 182\]](#) for SAP Solution Manager.
- 11. Release upgrade only: Configure [Single Sign-On with the Microsoft LAN Manager SSP \[page 184\]](#), if necessary.
- 12. You adjust the [user and role administration \[page 188\]](#).

Actions After Restarting Limited Production Operation

You can perform the following follow-up activities during limited production operation of the system.

- 1. You reschedule [background jobs \[page 189\]](#) that were locked when you isolated the primary application server instance.
- 2. You [generate loads \[page 190\]](#) using transaction `SGEN` and report `RSGENINVLAS`.
- 3. You perform follow-up activities for [Application Link Enabling \(ALE\) \[page 191\]](#).
- 4.

<small>Only valid for 'Source Release': SAP Web AS 6.40</small> Release upgrade only: You install additional application server instances [page 192] . <small>End of 'Source Release': SAP Web AS 6.40</small>
--
- 5. Enhancement package installation and SPS update: You check if [indexes that are unknown to the SAP system \[page 193\]](#) exist in your database.

Actions After Restarting Production Operation

You can perform the following follow-up activities during normal production operation of the system.

- 1. You import [support packages \[page 194\]](#), if necessary.
If you want to install additional languages in your ABAP system, you import them **before** you import the support packages as described in the language transport documentation.
- 2. [Transport Management System \(TMS\) \[page 194\]](#): You distribute the configuration to all systems in the transport domain.

-
- 3. [Language transport \[page 195\]](#): You copy glossary and terminology data from container tables to database tables.
 - 4. You [save files \[page 196\]](#) for subsequent updates and you make a backup of the subdirectory that contains the shadow instance profiles, if necessary.

3 Planning

This part of the document contains information about planning your SAP system update. Before you begin the actual update, you have to first plan it carefully. This includes requesting all the SAP Notes you need. Careful planning is a prerequisite for a successful update. The following information helps you plan your update so that downtime is reduced to a minimum, and the update runs as efficiently as possible.

When you plan your update, note the following information in addition to the information in the [Quick Guide \[page 15\]](#):

- All the times specified in this document are based on hardware with medium performance levels.
- Do not perform any additional actions during the Software Update Manager run that could cause it to run less smoothly.
- Start planning your update at least **two weeks** before you start with the update preparations.
- To make sure that all requirements are met, run the preparation roadmap steps of the Software Update Manager, *Welcome*, *Select Target*, *Confirm Target*, *Execute Process*, *Initialization*, *Extraction*, *Configuration*, and *Checks* as soon as possible. You can reset and repeat the preparation roadmap steps as often as you need by choosing *Back* before you start the actual update in roadmap step *Preprocessing*. The successful execution of the preparation roadmap steps is a prerequisite for starting the update in roadmap step *Preprocessing*.
- If you are updating a modified system where changes have been made to the standard ABAP system, you have to start by updating a development or quality assurance system that has the same SAP system release (including Support Package level) and contains the same modifications. The adjustments you perform manually for the new standard in this system can be automatically exported to the global transport directory and are integrated into the update of the production system from there. This procedure eliminates the need for time-consuming adjustments to the production system.

Actions

The following sections are important for planning the update:

- Release upgrade only: [Upgrade in an SAP System Group \[page 27\]](#)
- Enhancement package installation and SPS update: [Updates in an SAP System Group \[page 28\]](#)
- Release upgrade only: [Upgrade Schedule Planning \[page 30\]](#)
- Enhancement package installation and SPS update: [Update Schedule Planning \[page 33\]](#)
- **Tool Information: Software Update Manager [page 36]**
 - [SL Common User Interface \(SL Common UI\) \[page 36\]](#)
 - [SL Common UI Elements and Options \[page 37\]](#)
 - [SUM Observer Monitor \[page 42\]](#)
 - [Communication Between Back-End Processes and the SL Common UI \[page 45\]](#)
 - [SUM Directory \[page 46\]](#)
 - [Storage of Passwords \[page 47\]](#)
- Enhancement package installation and SPS update: [Technical Details of the Update Procedure \[page 48\]](#)
- Release upgrade only: [Technical Details of the Upgrade Procedure \[page 50\]](#)
- [Preconfiguration Mode Planning \[page 53\]](#)
- [Update Strategy Parameter \[page 56\]](#)
- [Adaption of Parameters \[page 60\]](#)

- [Database Archiving Parameter \[page 61\]](#)
- | |
|---|
| Only valid for 'Target Release': SAP NetWeaver 7.3 EHP1, SAP NetWeaver 7.4, SAP NetWeaver 7.5, SAP NetWeaver 7.0 EHP3, SAP NetWeaver 7.0 EHP2 |
| near-Zero Downtime Maintenance (nZDM) [page 62] |
| End of 'Target Release': SAP NetWeaver 7.3 EHP1, SAP NetWeaver 7.4, SAP NetWeaver 7.5, SAP NetWeaver 7.0 EHP3, SAP NetWeaver 7.0 EHP2 |
- | |
|---|
| Only valid for 'Target Release': SAP NetWeaver 7.3 EHP1, SAP NetWeaver 7.4, SAP NetWeaver 7.5, SAP NetWeaver 7.0 EHP3, SAP NetWeaver 7.0 EHP2 |
| Using the Record & Replay Technique in nZDM [page 63] |
| End of 'Target Release': SAP NetWeaver 7.3 EHP1, SAP NetWeaver 7.4, SAP NetWeaver 7.5, SAP NetWeaver 7.0 EHP3, SAP NetWeaver 7.0 EHP2 |
- [Process and Tool Parameters \[page 65\]](#)
- | |
|---|
| Only valid for 'Target Release': SAP NetWeaver 7.3 EHP1, SAP NetWeaver 7.4, SAP NetWeaver 7.3, SAP NetWeaver 7.0 EHP3, SAP NetWeaver 7.0 EHP2 |
| Running the Shadow Instance Remotely [page 66] |
| End of 'Target Release': SAP NetWeaver 7.3 EHP1, SAP NetWeaver 7.4, SAP NetWeaver 7.3, SAP NetWeaver 7.0 EHP3, SAP NetWeaver 7.0 EHP2 |
- [Shadow Instance Parameters \[page 66\]](#)
- | |
|---|
| Only valid for 'Target Release': SAP NetWeaver 7.3 EHP1, SAP NetWeaver 7.4, SAP NetWeaver 7.5, SAP NetWeaver 7.0 EHP3, SAP NetWeaver 7.0 EHP2 |
| SGEN Execution Modes [page 67] |
| End of 'Target Release': SAP NetWeaver 7.3 EHP1, SAP NetWeaver 7.4, SAP NetWeaver 7.5, SAP NetWeaver 7.0 EHP3, SAP NetWeaver 7.0 EHP2 |
- | |
|---|
| Only valid for 'Target Release': SAP NetWeaver 7.3 EHP1, SAP NetWeaver 7.0 EHP3 |
| Incremental Table Conversion Parameters [page 68] |
| End of 'Target Release': SAP NetWeaver 7.3 EHP1, SAP NetWeaver 7.0 EHP3 |
- Release upgrade only: [Time Frame for Upgrading the Front-End Software \[page 68\]](#)
- Release upgrade only: [Database-Specific Aspects \[page 70\]](#)
- [Incremental Table Conversion \[page 71\]](#)
- Release upgrade only: [Data Management Planning \[page 73\]](#)
- [Modification and Enhancement Adjustment Planning \[page 75\]](#)
- Release upgrade only: [Importing Additional Languages \[page 78\]](#)
- Release upgrade only: [Handling of Customer-Specific Translations and Z Languages in the Upgrade \[page 79\]](#)
- Release upgrade only: [Component Levels Contained in the Upgrade Export \[page 81\]](#)
- [Update of Distributed and High Availability Systems \[page 82\]](#)
- [Updates in an MCO System Landscape \[page 83\]](#)
- Release upgrade only: [Importing Support Packages Before an Upgrade \[page 84\]](#)
- | |
|--|
| Only valid for 'Target Release': SAP NetWeaver 7.3 EHP1, SAP NetWeaver 7.4, SAP NetWeaver 7.5, SAP NetWeaver 7.3, SAP NetWeaver 7.0 EHP2 |
| Integration of Customer Transports [page 84] |
| End of 'Target Release': SAP NetWeaver 7.3 EHP1, SAP NetWeaver 7.4, SAP NetWeaver 7.5, SAP NetWeaver 7.3, SAP NetWeaver 7.0 EHP2 |
- | |
|--|
| Only valid for 'Target Release': SAP NetWeaver 7.5 |
| ASCS Instance Split [page 86] |
| End of 'Target Release': SAP NetWeaver 7.5 |

3.1 Upgrade in an SAP System Group

Note

This section is only relevant if you perform a release upgrade.

If you have more than one SAP system, for example, a production system, a quality assurance system, and a development system, you have to consider the entire system group.

Upgrade your systems in the same sequence in which you transport your modifications.

In addition, the upgrade influences the development activities, for example, dual maintenance might be temporarily necessary to ensure that your production system is supported with emergency corrections.

Sequence of Upgrades

If your system group consists of three SAP systems and includes a quality assurance system that has been set up between the development and production system, work in the following order:

1. Development system
2. Quality assurance system
3. Production system

If you have made modifications to SAP objects that you want to retain, you have to proceed in the above sequence. The version management functions of the SAP system record all the changes you make only in the system in which you made the modifications (the development system). Only this SAP system offers you optimal support when you adjust modifications.

Changes made in the development system after the upgrade can be transported automatically to your other SAP systems. If you use this procedure, you no longer need to perform time-consuming adjustments in the production system.

Caution

If you have modified SAP objects, make sure that you keep your development system. Do **not** copy your production system to your development system for test purposes.

Impact on Development

At a certain point in time during the upgrade, the development environment of the system that is upgraded is locked. Consider this development freeze in your project plan and inform your developers about it.

To avoid the development system being unavailable during the upgrade, we recommend that you add a temporary copy of your development system to your system landscape. This temporary development system can supply your production system with emergency corrections or support a phased development go-live after you have upgraded the original development system. You then have to make any corrections in the original development

system as well as in the temporary development system. Make sure that your developers are notified about the dual maintenance.

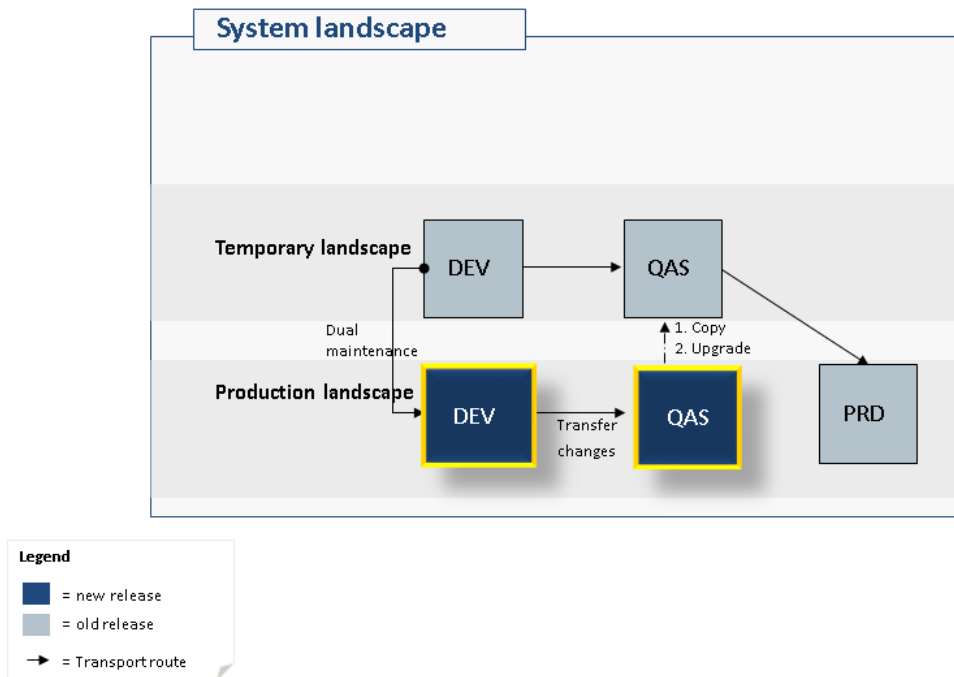


Figure 1: Dual Maintenance

3.2 Updates in an SAP System Group

i Note

This section is relevant if you perform an enhancement package installation or SPS update.

If you have an SAP system group consisting, for example, of a production system, a quality assurance system, and a development system, you have to consider the entire system group regarding the sequence of updates.

In addition, the update procedure influences the development activities, for example, dual maintenance might be temporarily necessary to ensure that your production system is supported with emergency corrections.

Sequence of Updates

Update your systems in the same sequence in which you transport your modifications. Update each system with the same software packages.

If your system group consists of three SAP systems and includes a quality assurance system that has been set up between the development and production system, work in the following order:

1. Development system
2. Quality assurance system
3. Production system

➔ Recommendation

We strongly recommend that you perform transports only between systems of the same release or enhancement package level, and where the same business functions are activated. If you do not follow this recommendation, you do so at your own risk regarding potential problems.

If you have made modifications to SAP objects that you want to retain, you have to proceed in the above sequence. The version management functions of the SAP system record all the changes you make only in the system in which you made the modifications (the development system). Only this SAP system offers you optimal support when you adjust modifications.

Changes made in the development system after the update can be transported automatically to your other SAP systems. If you use this procedure, you no longer need to perform time-consuming adjustments in the production system.

⚠ Caution

If you have modified SAP objects, make sure that you keep your development system. Do **not** copy your production system to your development system for test purposes.

Impact on Development

At a certain point in time during the update procedure, the development environment of the system that is updated is locked. Consider this development freeze in your project plan and inform your developers about it.

To avoid the development system being unavailable during the update, we recommend that you add a temporary copy of your development system to your system landscape. This temporary development system can supply your production system with emergency corrections or support a phased development go-live after you have updated the original development system. You then have to make any corrections in the original development system as well as in the temporary development system. Make sure that your developers are notified about the dual maintenance.

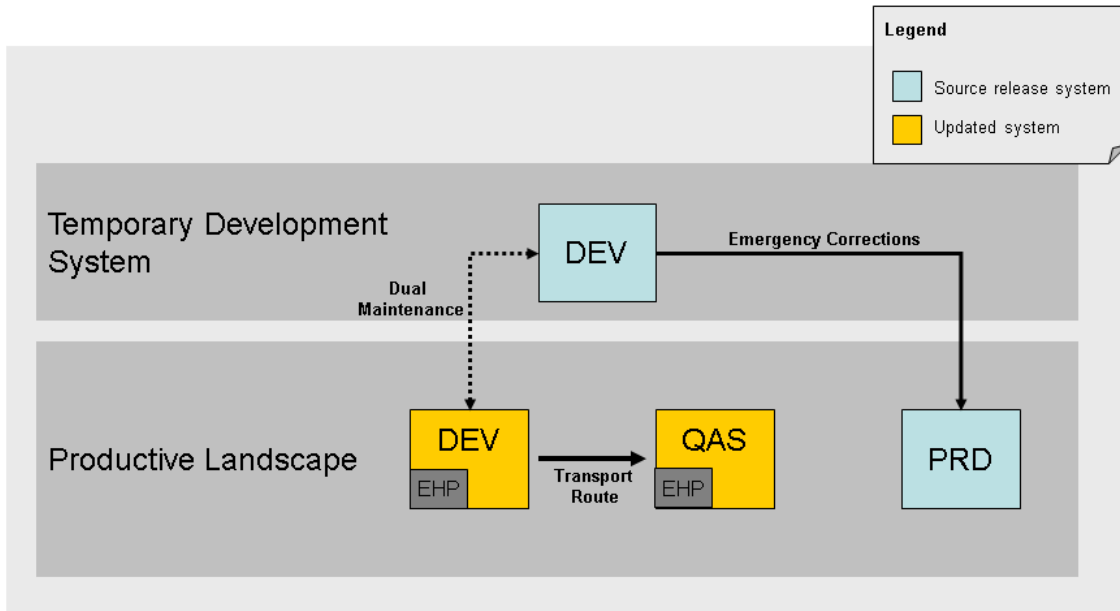


Figure 2: Dual Maintenance

3.3 Upgrade Schedule Planning

Use

i Note

This section is only relevant if you perform a release upgrade.

You need to create an exact schedule for your SAP system upgrade.

Prerequisites

You have decided on a [preconfiguration mode \[page 53\]](#).

Process

1. You decide when to begin preparing for the upgrade.

When you start the upgrade preparations depends not only on the length of the preparations but also on the length of the upgrade itself. To determine the expected total length of the upgrade of your production system, perform a test upgrade of an SAP system with a similar set of data (a system copy of your production system is ideal).

2. You decide when to start the upgrade.

If you have special requirements regarding the availability of your SAP system, adjust the procedure and the length of the upgrade to fit the expected amount of downtime.

During the upgrade, various actions are performed by and in the shadow system. The runtime of these actions depends on various factors and is therefore specific to each SAP system:

- Creating the shadow repository
- Importing the additional software packages such as languages, Support Packages, and add-ons
The minimum runtime of the import phase increases with every Support Package, add-on, and language that is included.
- Adjusting modifications to the ABAP Dictionary objects (transaction SPDD)
- Mass activation and distribution
- Incremental conversion of ABAP tables (transaction ICNV)

The duration of these actions depends on the preconfiguration mode that you choose.

If you have chosen mode *single system*, these actions take place during downtime in the *Downtime* roadmap step of the Software Update Manager.

If you have chosen mode *standard* or *advanced*, you can continue to use your SAP system in production operation during these actions, as they run in the *Preprocessing* roadmap step of the Software Update Manager. If you finish the preparation before the scheduled start of downtime, the upgrade procedure will wait with the start of the downtime until you trigger it. You can trigger the start of the downtime by choosing *Next* when the *Preprocessing* roadmap step has completed.

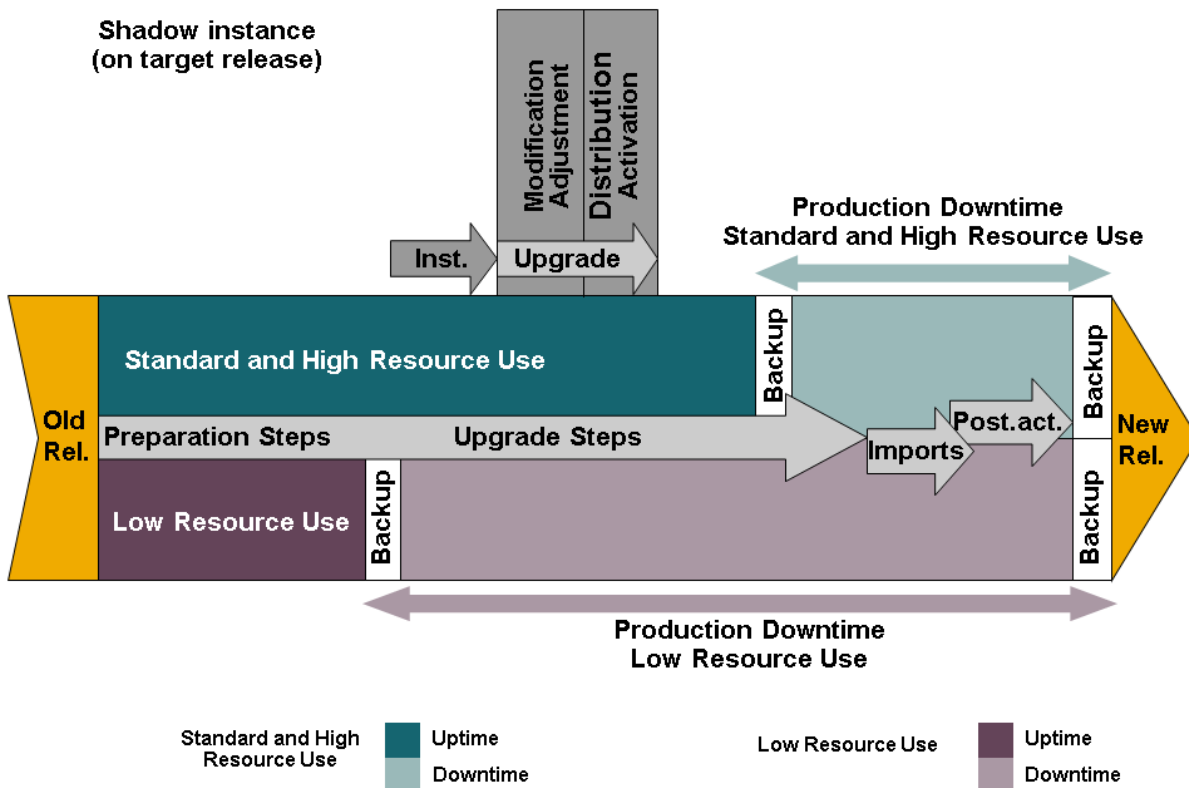


Figure 3: Upgrade Up- and Downtime

3. You take the necessary measures to extend the time in which the upgrade can run unmonitored.
 - Specify all mount directories at the start of the upgrade.
The Software Update Manager asks you to specify mount directories when you start upgrading. This significantly increases the amount of time the upgrade can run without user input.
 - Early locking of the ABAP Workbench
If you are sure that you can do without the ABAP Workbench, confirm the lock when you are asked for the first time.
4. You decide when a full backup is performed after the upgrade.
The full database backup is a prerequisite for resuming production operation of your system when archiving is deactivated.
It has to be carried out after you have performed all necessary follow-up activities. This has the advantage that all database changes resulting from follow-up activities are included in the full backup.
5. You decide when production operation resumes.
If possible, resume production operation only after you have performed all required follow-up activities.

3.4 Update Schedule Planning

i Note

This section is relevant if you perform an enhancement package installation or SPS update.

The following section provides you with important facts and milestones of the technical update procedure. This enables you to set up the schedule for updating your SAP system.

The update procedure is a sequence of roadmap steps (*Welcome, Specify Authentication Mechanism, Select Target, Confirm Target, Execute Process, Initialization, Extraction, Configuration, Checks, Preprocessing, Execution, Postprocessing, Finalization, and Summary*). User interaction is required at the beginning and at the end of the update procedure, whereas in between the procedure can run unattended. For the user interactions at the beginning – roadmap steps *Welcome, Specify Authentication Mechanism, Select Target, Confirm Target, Execute Process, Initialization, Extraction, Configuration, Checks* and the first phases of *Preprocessing* – you can calculate approximately one day.

The following figure shows the chronological sequence of the update procedure:

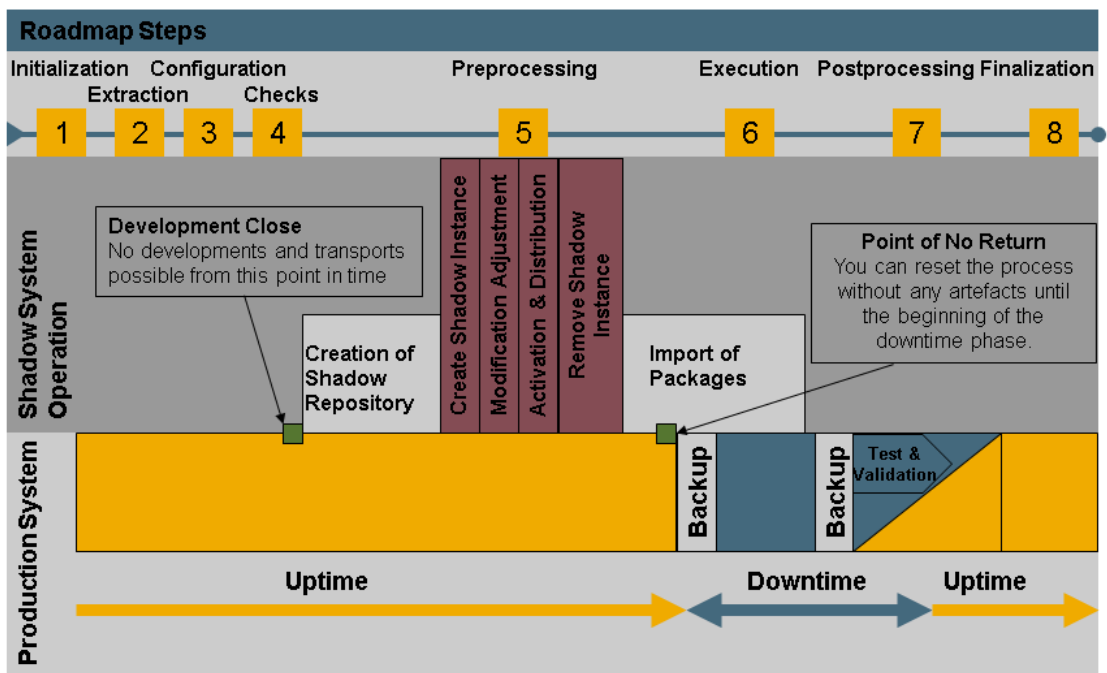


Figure 4: Overview of the Update Procedure

The update procedure requires a system downtime of several hours starting with the *Execution* roadmap step. If you have a defined maintenance window for the downtime, start the Software Update Manager in good time. You

can easily stop the program when the update procedure is ready to start the downtime and then resume the update procedure when it fits your maintenance window. For example, when you plan the downtime for the weekend, start the Software Update Manager at the beginning of the week.

During the *Preprocessing* roadmap step, the Software Update Manager builds up a second system (the shadow system) by cloning the original system. Therefore, consider to run the *Preprocessing* roadmap step during a phase with low database load (for example, at a predecessor weekend).

Be aware that at the beginning of the *Preprocessing* roadmap step, the ABAP Workbench has to be locked. This has an impact on the development system as you can no longer provide corrections. The production system is also affected as no emergency corrections can be implemented in the system.

Right before the downtime starts, you have to back up your database and important directories.

Finally, you have to take into account the time needed for follow-up activities, for example, manual clean-up steps, load generation, adjustment transports, tests, validation and backups.

Database-Specific Aspects

In the following, the most important database-specific aspects are described that might have an impact on your overall planning.

MS SQL Server

- Database Recovery
You have to be able to recover the database to the state it had before the update, regardless of the chosen preconfiguration mode. Always make at least an online backup of the database before the update.

➔ Recommendation

Make an offline backup (Windows file backup) before the update.

- Release upgrade only: Backup of Transaction Log During *standard* or *advanced* Preconfiguration Mode
Enhancement package installation and SPS update: Backup of Transaction Log
You can use your SAP system in production operation until you isolate the primary application server instance at the end of step *Preprocessing*.
When you are using the system in production operation at the same time as the Software Update Manager, large amounts of data may accumulate in the transaction log.
Make a regular backup of the transaction log. You can back up the transaction log to disk, over the network, or directly to tape. Backing up the transaction log means that it is available for you to analyze after a server crash, when you need to reset the database to its last consistent state.
Proceed as follows:
 1. Start of the update until the end of step *Preprocessing*
To back up the accumulated log data permanently, schedule a job in the SQL Server Management Studio for the time between the start of the update and the start of downtime. This job has to back up the transaction log at least every 10 minutes.
 2. At the end of step *Preprocessing*
When you isolate the primary application server instance in the this phase, you are prompted to stop all work with the system. You have to be able to recover the state of your database to this point in time.
Proceed as follows:
 - Manually back up the transaction log and make sure that there are no more user actions on the database at the time of the backup.

- Back up the directory tree `\usr\sap\<sapsid>\upg`.
 - Deschedule the job for the automatic backup of the transaction log in the SQL Server Management Studio.
3. At the beginning of step *Execution*
You are prompted to deactivate logging of database transactions. To do this, you have to set the recovery model to *Simple* for MS SQL Server.
For more information, see [Changing the MS SQL Server Database Recovery Mode \[page 240\]](#).
 4. After the update
Make an online backup after the update.
- Release upgrade only: Back up of Transaction Log During *single system* Preconfiguration Mode
With the preconfiguration mode *single system*, you can use your SAP system in production operation until you isolate the primary application server instance at the end of step *Preprocessing*.
 1. At the end of step *Preprocessing*
When you isolate the primary application server instance at the end of step *Preprocessing*, you are prompted to stop all work with the system. You have to be able to recover the state of your database to this point in time. Proceed as follows:
 - Manually back up the transaction log and make sure that there are no more user actions on the database at the time of the backup.
 - Back up the directory tree `\usr\sap\<sapsid>\upg`.
 2. At the beginning of step *Execution*
You are prompted to deactivate logging of database transactions. To do this, you have to set the recovery model to *Simple* for MS SQL Server 2005 or higher. You can make these changes with the SQL Server Management Studio.
For more information, see [Changing the MS SQL Server Database Recovery Mode \[page 240\]](#).
 3. After the upgrade
Make an online backup after the upgrade.

Support Package Handling During the Enhancement Package Installation

An enhancement package requires a specific Support Package stack level in the system that you want to update. If the system is on a lower Support Package stack level, all required Support Package stacks are applied to the system in a single step, together with the enhancement package installation. When you download the enhancement package using the Maintenance Optimizer of SAP Solution Manager or the Maintenance Planner, the required Support Package stacks are automatically calculated and downloaded. The Software Update Manager installs these Support Package stacks as part of the enhancement package installation procedure.

i Note

According to the Support Package stacks that you have to apply, further test effort might be required due to changes contained in these Support Packages.

More Information

For more information about the technical details of the procedure, see [Technical Details of the Update Procedure \[page 48\]](#).

3.5 Tool Information: Software Update Manager

The following sections provide you with important information about the update program Software Update Manager (SUM):

- [SL Common User Interface \(SL Common UI\) \[page 36\]](#)
- [SL Common UI Elements and Options \[page 37\]](#)
- [SUM Observer Monitor \[page 42\]](#)
- [Communication Between Back-End Processes and the SL Common UI \[page 45\]](#)
- [SUM Directory \[page 46\]](#)
- [Storage of Passwords \[page 47\]](#)

3.5.1 SL Common User Interface (SL Common UI)

The SL Common User Interface (SL Common UI) is used when you perform an update with SUM. The UI provides all functions for monitoring and navigating through the roadmap steps of the update procedure. The complete procedure consists of several roadmap steps that contain modules, which in turn consist of the individual steps.

As it is based on the SAP UI Development Toolkit for HTML5 (SAPUI5), which is a client-side rendering library, the SL Common UI does not require any Java components. It provides a rich set of standard and extension controls, a lightweight programming language, and a high level of customization.

The benefits of SAPUI5, and thus of the SL Common UI, are the following:

- Zero foot print (no installation requirements)
- Only a browser is required.
- You can view logs in the browser window.
- You can open the current phase list from the UI.
- You can maintain breakpoints in the browser window.
- You can change processing parameters during the runtime of the Software Update Manager using the web browser.

Prerequisites for Using the SL Common UI

- You configured secure socket layer (SSL) for SAP Host Agent as described in <http://help.sap.com>
▶ [Technology Platform](#) ▶ [SAP NetWeaver](#) ▶ [<SAP NetWeaver release>](#) ▶ [Application Help](#) ▶ [Function-Oriented View](#) ▶ [Solution Lifecycle Management](#) ▶ [SAP Host Agent](#) ▶ [SAP Host Agent Configuration](#) ▶ [SSL Configuration for the SAP Host Agent](#) ▶

- Your browser has the following minimum supported version:
 - Microsoft Internet Explorer 9 and higher (not using compatibility view)
 - Google Chrome 28 and higher
 - Mozilla Firefox 21 and higher

➔ Recommendation

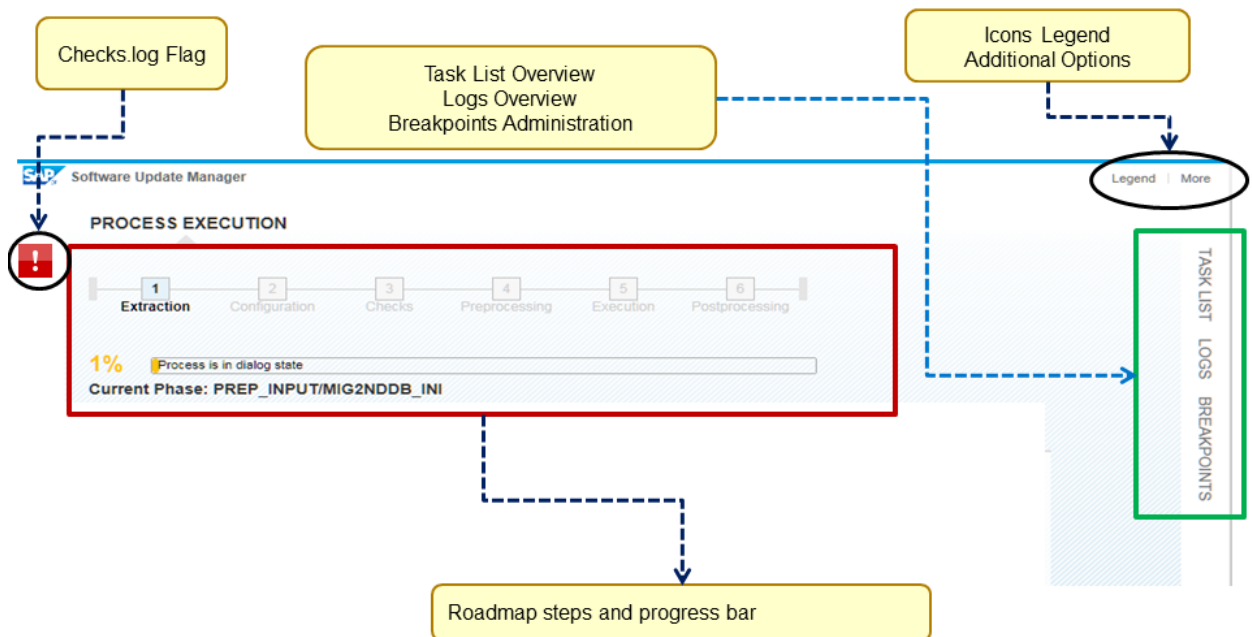
We recommend that you always use the latest available browser version.

If you encounter issues with the SL Common UI during the SUM process, check the topics related to the SL Common UI in [Troubleshooting \[page 199\]](#).

3.5.2 SL Common UI Elements and Options

This section describes the different elements and options of the SL Common UI that you can use during an update or a migration.

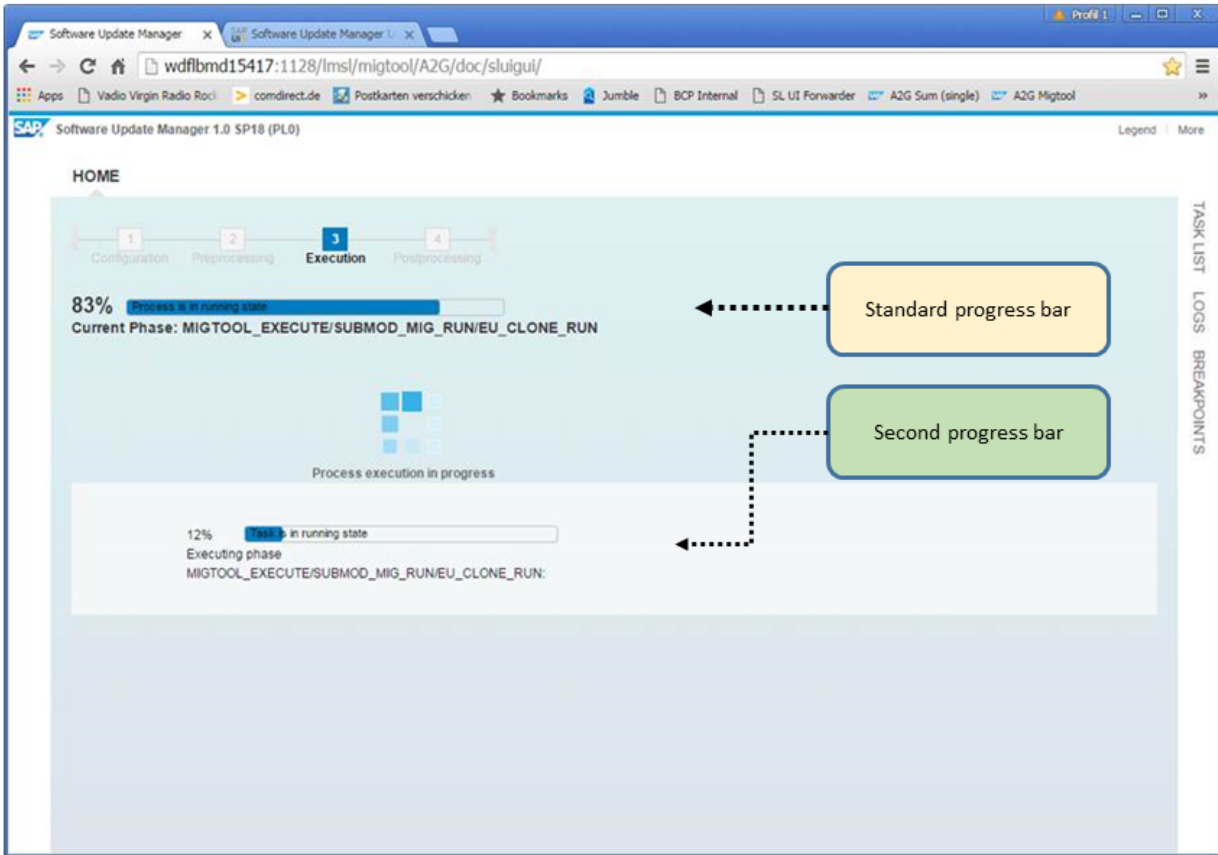
On the user interface, you see the different roadmap steps and a progress bar indicating how much of the current roadmap step has already been processed (in percent). In addition, the UI offers several options, menus and buttons that are helpful for your update.



Second Progress Bar

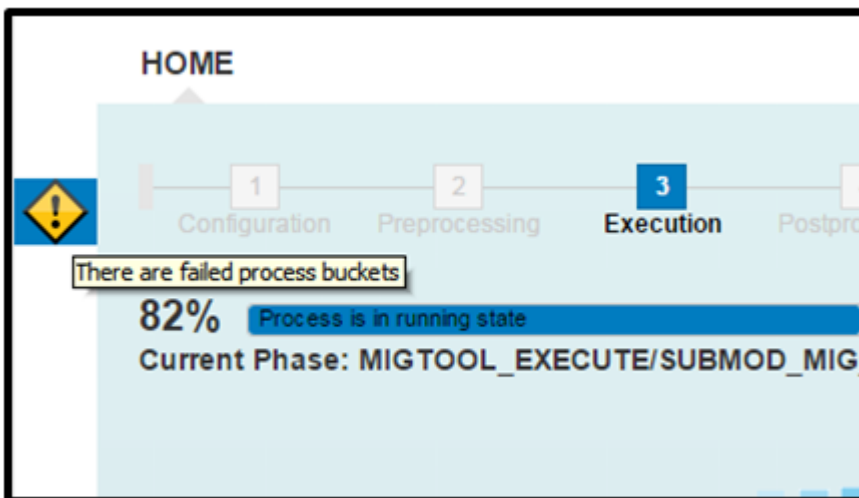
The duration of the different phases within a roadmap step can vary significantly. If long-running phases start within the roadmap step, the SL Common UI displays in addition a second progress bar that is only valid for this current phase. This supports you in estimating the progress of this long-running phase.

In the following you see an example of a second progress:



Failed Buckets Notification Flag

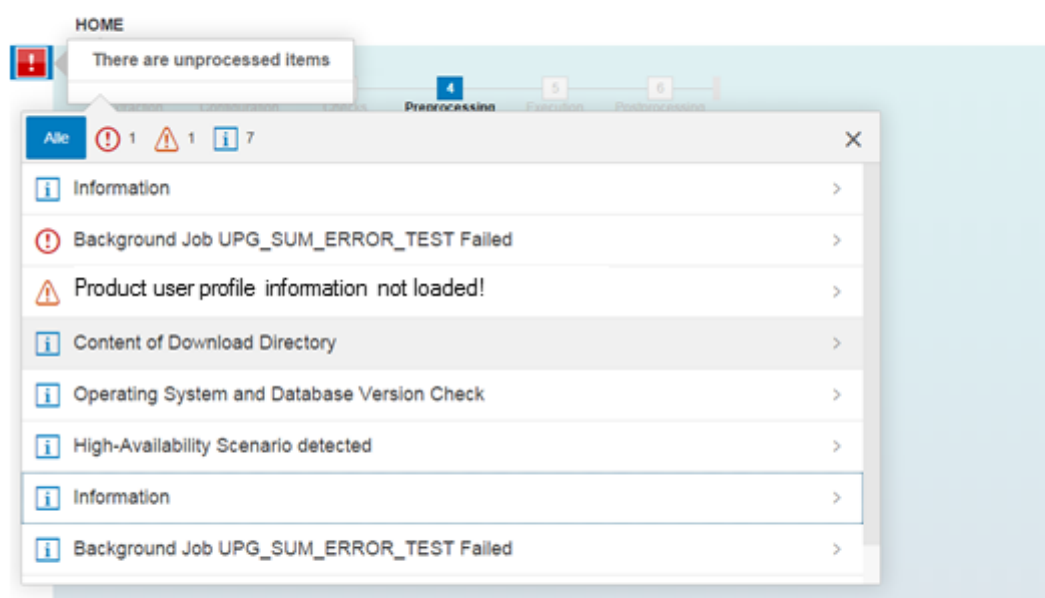
If you are executing the database migration option (DMO) of the Software Update Manager, and failed buckets occur during the DMO, warning icon appears on the SL Common UI with a tooltip "There are failed process buckets", as you can see in the following example:



If you click that icon, and a new window with the *Utilities* opens. The *DMO Migration Control Center* is displayed directly and allows you to monitor and maintain the buckets. For more information, see the *DMO Guide* that is listed in the [List of Referenced Documentation \[page 248\]](#).

Checks.log Flag

As soon as the log file `checks.log` contains an entry, which can be of type information, warning, or error message, an icon appears at the upper left side of the SL Common UI. You can click the icon to open a dialog box with a list of the current log file entries such as in the following example: (Note that the messages in the figure below are not real messages but only examples for demonstration purposes.)



In the list, you can select an entry and click the right arrow to get detailed information on the entry.

Options: Task List, Logs, and Breakpoints

The right-hand side of the UI offers you the options *Task List*, *Logs*, and *Breakpoints*.

- [Task List](#)

By using the task list, you can view the status of the current, preceding and subsequent steps or phases of the procedure. The icons used in the [Task Type](#) and the [Status](#) rows are described in the legend.

- [Logs](#)

You can open an overview of the available log files for the current step or phase. By choosing [Description](#), you can sort the list and use the filtering functionality to search for specific log files. The icons for the log file format are described in the legend.

i Note

Alternatively, you can access the log files on file system level:

- `<SUM directory>/abap/log`

Some phases or steps generate log files in the subdirectories of the log directory, so you might still need file system access to analyze them.

- [Breakpoints](#)

SUM offers the possibility to use breakpoints, which allow you to pause the update procedure at a specified point. A list of the breakpoints is displayed. By choosing [Description](#), you can sort the list and use the filtering functionality to search for breakpoints. The icons for the breakpoint status are described in the legend. For more information, see [Using Breakpoints During the Update \[page 118\]](#).

Menus: Legend, More (including Utilities)

In the upper-right corner of the UI, you find the menus [Legend](#) and [More](#).

[Legend](#)

The legend explains the meaning of the icons used for the different types and status of the tasks in the task list, the status of the breakpoints, and the format of the log files (for example, text or HTML).

[More](#)

With this menu, you can get support or more information, or log out from the browser session.

- [Logout](#)

Logs you out from the current browser session. Note that the update procedure itself continues running in the background. To log in again, proceed as described in [Starting the SL Common UI \[page 115\]](#).

- [Toggle Color Schema](#)

Switches the high-contrast color schema on or off.

- [SUM Guide](#)

Opens the main Web page for the current Software Update Manager guides.

- [SUM Note](#)

Opens the central SAP Note for the current Software Update Manager version.

- [SAP Help Portal](#)

Opens the SAP Help Portal, which contains SAP product documentation and other related information such as SAP Notes, product availability information, and community content.

- [Log Tail](#)

Opens the log tail viewer for several log files.

- [Utilities](#)

Opens a new window with an extended user interface. This user interface offers you the following options:

- *SUM Parameters*

This option enables you to adapt the configuration of your SAP system by processing the following parameters:

- Standard parameters (such as host name and instance number, or system passwords)
- Process parameters (such as the number of parallel processes)
- Shadow system parameters
- Migration parameters
- Password for DDIC user
- Password for shadow DDIC user
- Migration passwords
- Mount points
- Migration key
- *SUM Phaselist*

This option displays the phase list of the Software Update Manager with the phase descriptions based on the `phaselist.xml` file.
- *SUM Analysis*

This option visualizes the `UPGANA.XML` file, which contains detailed information about the update procedure and the runtime of the different phases.
- *DMO Migration Preparation*

This option is relevant if you are executing the database migration option (DMO) of the Software Update Manager.
- *DMO Migration Control Center*

This option is relevant if you are executing the database migration option (DMO) of the Software Update Manager.
- *DMO Migration Post Analysis*

This option is relevant if you are executing the database migration option (DMO) of the Software Update Manager.

i Note

Regarding the utilities

- DMO Migration Preparation
- DMO Migration Control Center
- DMO Migration Post Analysis

see the *DMO guide* for more information. This guide is mentioned in the [List of Referenced Documentation \[page 248\]](#).

Be aware that some options of the *Utilities* can only be used during the update procedure if the corresponding data is available in the system.

- *Get Support File*

Creates an XML file for SAP Support if you have problems with the user interface. For more information, see [SL Common UI: Getting Support Using the Support File \[page 202\]](#).

- *Debug* - this option is used for debugging by SAP Support

- *About*

Displays information about the current versions of the Software Update Manager, the Software Logistics Protocol, and the Software Logistics UI Client.

Buttons

During the update, the buttons *Back*, *Next*, *Cancel*, and *Exit* are displayed depending on the current step or phase and dialog.

If you encounter an issue during the update procedure such as aborts or errors, the Software Update Manager displays in some cases the buttons *Repeat* or *Init* or both. *Init* means basically that the current phase will be initialized again and restarted. However, this varies depending on the phase. Due to several restrictions or limitations it can also happen that only certain processes of a phase will be repeated again and not the whole phase. If you choose *Repeat*, the current process within a phase will be repeated from the point where update procedure stopped.

In addition, the button *Cleanup* is offered at the end of a successful update procedure or after you have chosen the *Reset* button. At the end of a successful update procedure, a cleanup will prevent to execute a reset afterwards. On the other hand, after choosing the *Reset* button and after the reset was finished, the cleanup is obligatory.

3.5.3 SUM Observer Monitor

The Software Update Manager offers an additional SL Common UI mode that is called the *observer mode*, and it is displayed as the *SUM Observer Monitor*.

The SUM Observer Monitor is a kind of non-admin mode or guest mode of the SL Common UI that allows you to monitor a current update procedure and provides you with information about its status. You cannot enter data or change the update procedure.

You can use the SUM Observer Monitor in browsers on different devices, such as on a desktop PC or on a mobile device, and with every Software Update Manager technology, that is, SUM ABAP, SUM Java, or the SUM dual-stack version. The SL Common UI automatically determines the type of the Software Update Manager, indicates it in the title bar, and displays the appropriate status information.

Overview of the SUM Observer Monitor in a Browser Window on a Desktop PC:

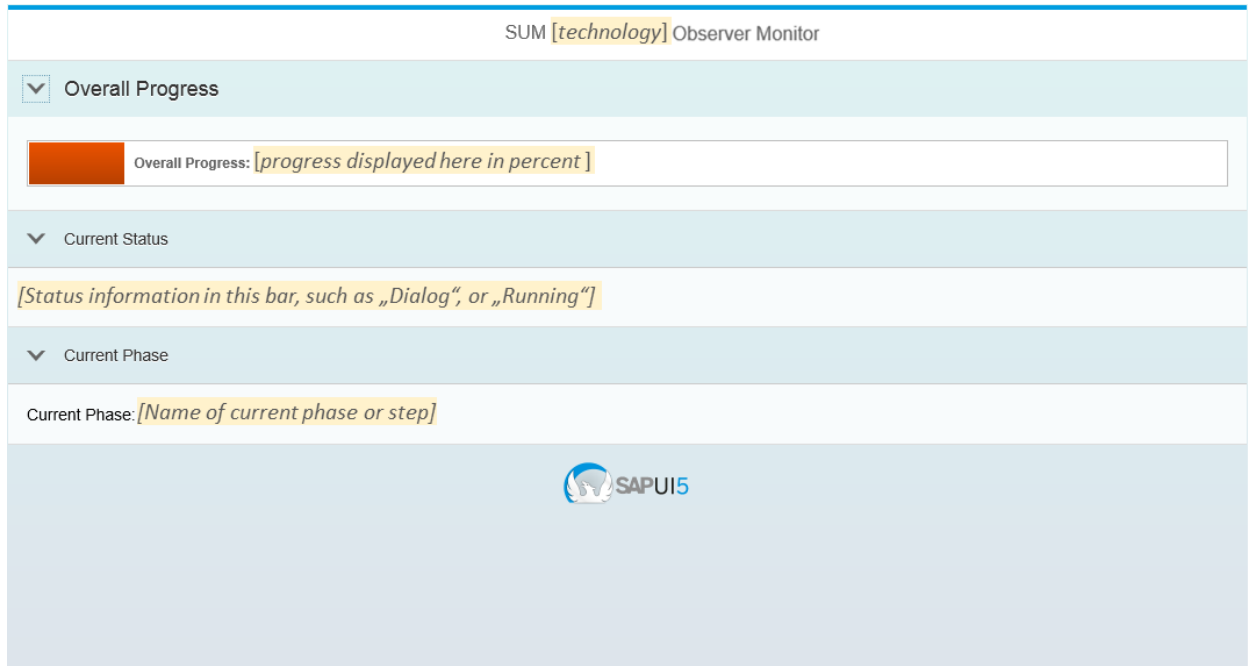
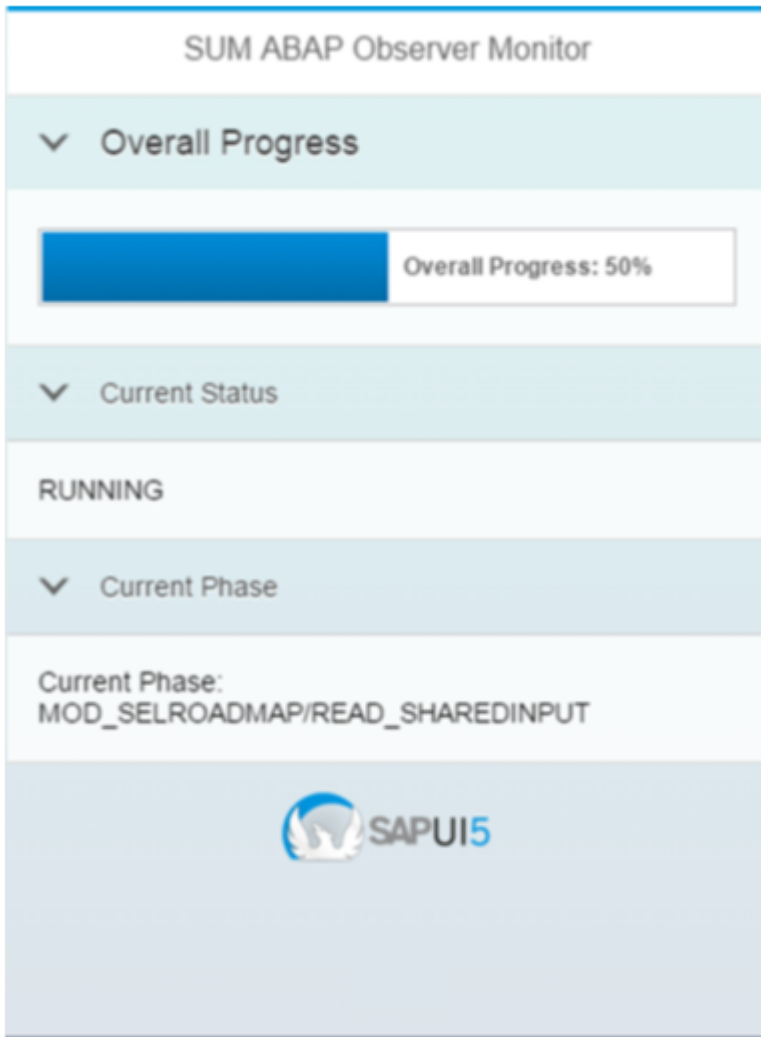


Figure 5: SUM Observer Monitor in a Browser Window on a Desktop PC

In the following, you see an example of the SUM ABAP Observer Monitor on a mobile device.



Preparing the Observer Mode

Using the observer mode of the SL Common UI requires the following preparatory actions:

- Make sure that you have installed a current version of the SAP Host Agent version. We recommend always using the latest version. See also [Installing or Updating SAP Host Agent \[page 96\]](#).
- Make sure that the corresponding observer progress files (such as `SUMOBSERVER.XML` or `SUMJAVAOBSERVER.XML`) exist in the subdirectory `/abap/htdocs` of the [SUM Directory \[page 46\]](#).
- Manually create a user `<sid>obs` and set a password for this user.

⚠ Caution

For security reasons, do not use the user `<sid>adm` for the observer mode.

- Execute the `STARTUP confighostagent` script. (See also [Registering SUM in SAP Host Agent \[page 114\]](#).) The observer mode will be configured automatically once you execute the script.

- To use the observer mode, the Software Update Manager must be started at least one time with the SL Common UI as user <sid>adm.

For more information about starting the monitor, see [Starting the SUM Observer Monitor \[page 116\]](#).

3.5.4 Communication Between Back-End Processes and the SL Common UI

If you have configured the Software Update Manager for the use with the SAP Host Agent, you start the SL Common UI by entering its URL in the address bar of the Web browser. By means of the SAP Host Agent, it connects the Web browser on a client with the Software Update Manager that runs on the primary application server instance. By default, the SL Common UI uses the standard protocol HTTPS (for a secure connection) and the port 1129 of the SAP Host Agent. The Software Update Manager on the primary application server instance internally calls the corresponding executables to carry out the update steps as described in the following figure:

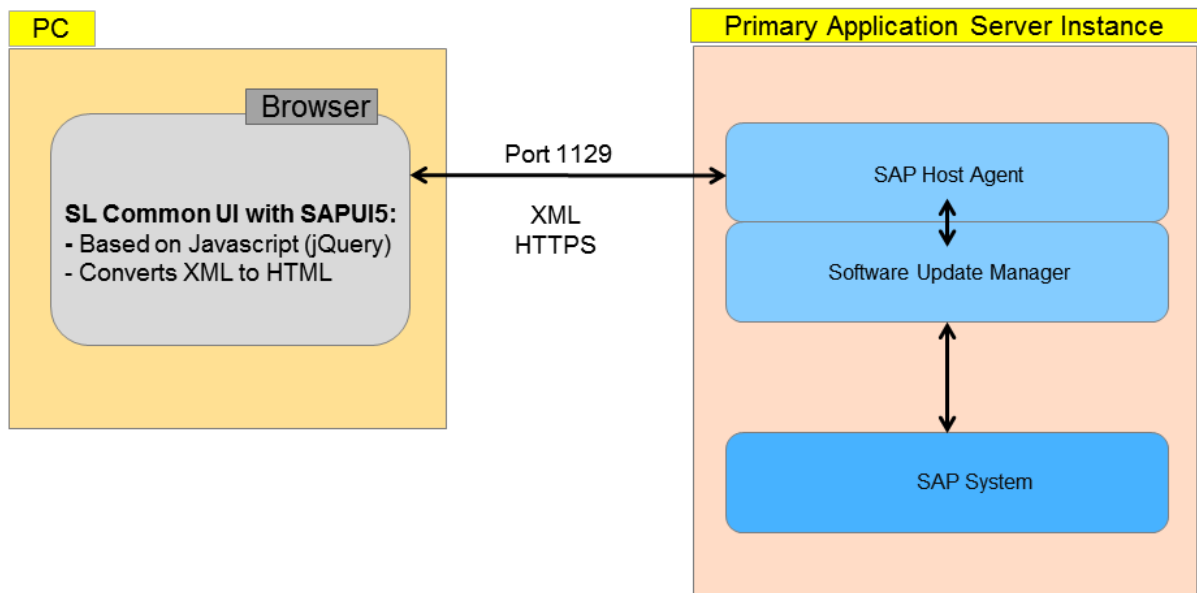


Figure 6: Communication Between Browser and Primary Application Server Instance

i Note

The Software Update Manager internally calls the `SAPup` executable. Technically, `SAPup` will be started twice, which is visible in the process list. One entry with `gt=httpchannel` represents the `SAPup` handling the requests coming from the SAP Host Agent. The second `SAPup` with parameter `guiconnect` triggers tools such as `R3trans`, `tp`, or `R3load`.

3.5.5 SUM Directory

The Software Update Manager creates the `SUM` directory on the host with the primary application server instance and copies data and programs into this directory.

The recommended standard path of the `SUM` directory is:

```
<DRIVE>:\usr\sap\<SAPSID>\SUM
```

The `SUM` directory has the following subdirectories:

- `sdt`
- `jvm`
- `abap`

Each subdirectory might contain files and further subdirectories:

- `sdt`
Contains the SL controller.
- `jvm`
Depending on your operating system, this directory contains the Java Virtual Machine delivered by SAP.

i Note

The Java Virtual Machine, which is contained in this subfolder, is delivered by SAP especially for the use by the Software Update Manager for the update procedure. This Java Virtual Machine is not to be confused with the SAP JVM that is used by SAP systems based on SAP NetWeaver Java or SAP NetWeaver ABAP +Java (dual stack).

- `abap`
 - `bin`
Contains the Software Update Manager, its libraries, and control files. The control files of the Software Update Manager are always updated automatically. The data they contain is critical for the smooth operation of the update tools. It is maintained exclusively by the Software Update Manager.
 - `buffer`
Contains control information for the transport control program `tp`.
 - `data` and `cofiles`
The `data` and `cofiles` directories contain files that are imported by `R3trans` during the update. They also contain the files for the language import as well as the data files of Support Packages and add-ons included in the update procedure.
 - `<SAPSID>`
Contains the file system structure of the shadow instance and is created dynamically by the Software Update Manager.
 - `exe`
Contain versions of the SAP kernel. They can originate from an archive that you downloaded from SAP Support Portal to the download directory, or it can be a copy of the kernel used in the start configuration of the system.
 - `htdocs`
Contains the ABAP phase documentation and the `UPGANA.XML` file, which contains information about the update after it has finished. It also contains the `phaseslist.xml` file with the phase descriptions. Moreover, the `htdocs` directory contains all `SL common UI` related files as well as the observer progress files for the SUM Observer Monitor.

- `isstrat`
Contains configuration files for the update strategy of certain add-ons.
- `log`
The central `log` directory contains most of the information about the update. All log files generated during the update and related to it are collected here.
- `mem`
Contains important information used for the restart of the `SAPup` program, such as current parameter allocations.
- `mig`
Serves the communication with the tool that is relevant for the update of the Java part of dual-stack systems.
- `prods`
Contains product-specific information.
- `sapnames`
Contains a backup of the profiles.
- `save`
Contains files saved during the update by the Software Update Manager that can be used for subsequent updates, for example, the shadow system profile.
- `script` and `scriptuc`
Contains SQL scripts for Unicode and non-Unicode.
- `system`
Contains the working directory for shadow system.
- `tmp`
The `tmp` directory is used for temporary storage. `R3trans` also stores its log files there before they are handled by `tp`. Some jobs that run directly in the SAP system also generate output files in the `tmp` directory. The most important of these output files include the distribution program, the activation program, and the conversion program, which are started by the Software Update Manager several times during the update. At the end of each phase, the directory only contains the `*.ECO` and `*.EC<0-9>` files or the `dev_evt` and `dev_rfc` trace files.
- `tools`
This directory is only relevant for release upgrade case and only for SAP NetWeaver systems with a source release lower than 6.10.
- `trc`
Contains trace files created by the Software Update Manager.
- `summanifest.mf`
Contains important and useful information for the support, such as the Software Update Manager version, the assembly and compilation version, and the machine type.

3.5.6 Storage of Passwords

During the update, you have to enter passwords for the `<sapsid>adm` and `ddic` users. These passwords are stored in the memory file `MEMSAPup.dat` in subdirectory `mem` of the `abap` subdirectory of the update directory.

Although the passwords are encrypted, you have to deny the access to the `mem` subdirectory for other operating system users. Only the `<sapsid>adm` user needs access to this subdirectory. In addition, you should not share this subdirectory in the network.

If you save the update directory for later analysis after the update has finished, delete the file `MEMSAPUP.dat` from the `mem` subdirectory.

3.6 Technical Details of the Update Procedure

i Note

This section is relevant if you perform an enhancement package installation, SPS update, or installing an add-on.

The Software Update Manager updates your system using a system cloning and switch procedure. This procedure installs a copy of the system, the shadow system, in parallel with the original system. The shadow system is used to update the affected software components and to install the additional components, while the original system is still in production operation.

Operating two instances in parallel places increased demands on free space in the file system, in the database, and on the system resources. No precise guidelines can be given for the duration of the update procedure. The duration of the system cloning depends to a great extent on the amount of data, the database system, and the hardware and can take several hours. Although the system can still be used in production operation, you have to take into account a possible performance decrease during this cloning process. If necessary, some parameters in the production system might need to be adjusted to enable you to operate the production and the shadow systems in parallel.

The following figure shows the process flow of the update procedure with the major steps of the procedure.

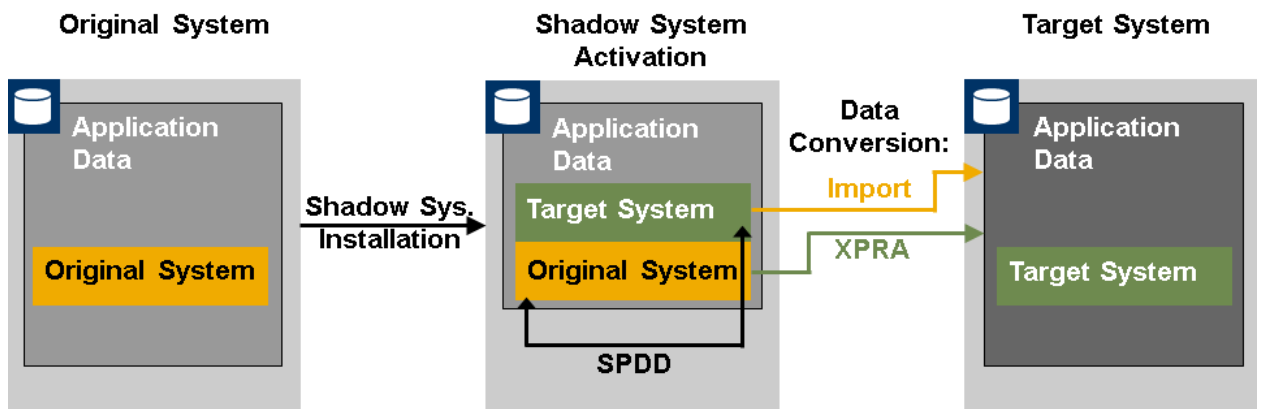


Figure 7: Process Flow of an Update Procedure Using the System Switch Procedure

When you install **add-ons**, use the procedure relevant for their delivery method:

- Add-ons delivered through a `stack.xml` configuration file are installed by the procedure described in [Running the Software Update Manager \[page 110\]](#).

The complete update procedure is divided into roadmap steps. In these roadmap steps, the following actions take place:

- *Welcome*
The Software Update Manager analyzes whether your SAP system is a dual-stack system or an ABAP or Java standalone system. According to the result, the GUI is assembled. You always see the *Monitor* tab page, and either the *ABAP* or *Java* tab page or both.
- *Specify Authentication Mechanism*
In the *Specify Authentication Mechanism* roadmap step, you enter the password for the `<sapsid>adm` user.
- *Select Target*
In the *Select Target* roadmap step, you enter the location of the download directory and the stack configuration file.
- *Confirm Target*
In the *Confirm Target* roadmap step, you verify that the target version for your update is correct.
- *Execute Process...*

The *Execute Process...* roadmap step automatically triggers the next stage of the update process. This roadmap step is broken down into the following roadmap steps:

- *Initialization*
The update GUI is assembled. You always see the *Monitor* tab page. According to the result of the previous roadmap steps, you also see either the *ABAP* or *Java* tab page or both.
- *Extraction*
The Software Update Manager extracts the required software.
- *Configuration*
In the *Configuration* roadmap step, you enter all the information required for the update procedure. This includes the passwords, the preconfiguration mode, information about components, about add-ons and Support Packages that you want to include as well as information about the shadow system.
- *Checks*
The Software Update Manager checks if your system fulfills the requirements for the update procedure (for example, whether the required free space is available).
- *Preprocessing*
In this roadmap step, the Software Update Manager creates the shadow system. This shadow system is then used for various update activities while you can still use the original system in production operation. The Software Update Manager builds up the shadow system by cloning parts of the original system. All tables of the SAP NetWeaver Application Server are needed as shadow tables to operate the shadow system. The shadow system is used to perform the modification adjustment of the ABAP Dictionary objects and the activation of new ABAP Dictionary objects that are part of the update. Finally, the Software Update Manager performs the shadow import and writes directly into the shadow tables. Modifications to the contents of the original tables are indicated by triggers. These tables are copied and imported during downtime.
- *Execution*
In this roadmap step, the switch to the target system takes place. The Software Update Manager completes the copy import action during downtime for all tables with triggers set. The `EU_SWITCH` phase completes the switch to the new system. All tables prepared in the shadow system are copied to the target system. The `KX_SWITCH_1` phase switches the SAP kernel. The `PARCONV_UPG` phase converts the application table, and the phase `TABIM_UPG` imports the remaining data. Finally, the `XPRAS_UPG` phase starts the XPRAs required by the system.
- *Postprocessing*
The Software Update Manager saves the log files and prompts you to start certain follow-up activities.
- *Finalization*
The Software Update Manager removes files and directories that are no longer required and completes the update.
- *Summary*
The Software Update Manager displays a simple feedback form directly in the GUI and prompts you to send your feedback to SAP for technical analysis.

3.7 Technical Details of the Upgrade Procedure

i Note

This section is only relevant if you perform a release upgrade.

SAP systems are upgraded with the System Switch Upgrade procedure. This procedure installs an instance of the target release, the shadow system, in parallel with the current source release system in the same database. The parallel system contains all the software of the target release and is used to perform actions on the target release while the source release is still in production operation.

Operating two instances in parallel places increased demands on free space in the file system, in the database, and on the system resources. No precise guidelines can be given for the duration of an upgrade. The duration of the shadow system installation depends to a great extent on the amount of data, the database system, and the hardware and can take several hours. Although the system can still be used in production operation, you have to take into account a possible performance decrease during this shadow system installation process. If necessary, some parameters in the production system might need to be adjusted to enable you to operate the production and the shadow systems in parallel.

The following figure shows the process flow of the upgrade with the major steps of the process.

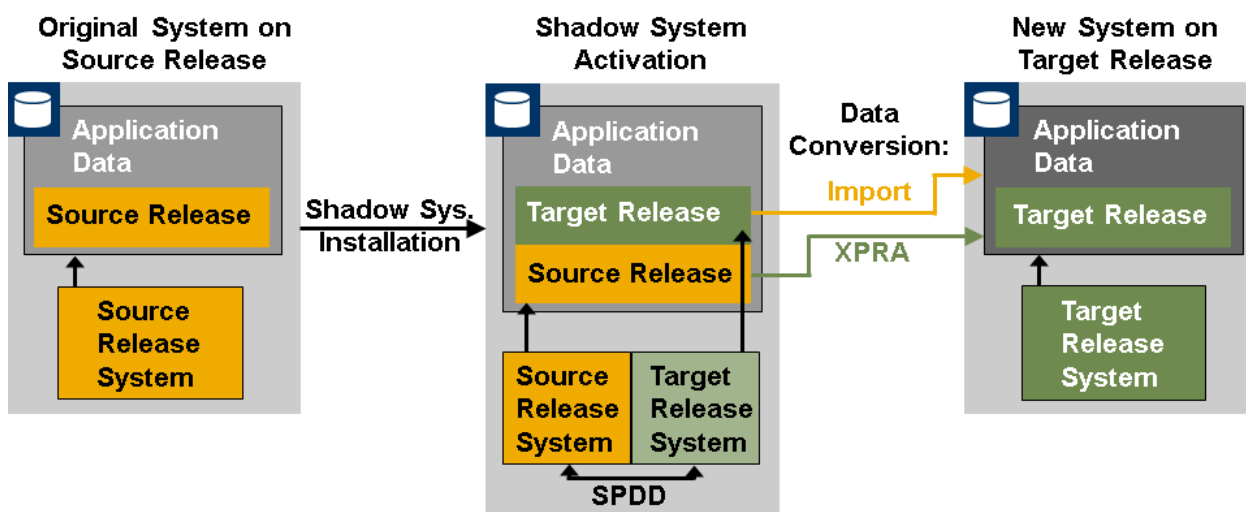


Figure 8: Process Flow of a System Switch Upgrade

The complete upgrade procedure is divided into roadmap steps. In these roadmap steps, the following actions take place:

- [Welcome](#)
The Software Update Manager analyzes whether your SAP system is a dual-stack system or an ABAP or Java standalone system. According to the result, the GUI is assembled. You always see the [Monitor](#) tab page, and either the [ABAP](#) or [Java](#) tab page or both.
- [Specify Authentication Mechanism](#)

In the *Specify Authentication Mechanism* roadmap step, you enter the password for the <sapsid>adm user.

- **Select Target**

In the *Select Target* roadmap step, you enter the location of the download directory and the stack configuration file.

- **Confirm Target**

In the *Confirm Target* roadmap step, you verify that the target version for your update is correct.

- **Execute Process...**

The *Execute Process...* roadmap step automatically triggers the next stage of the upgrade process. This roadmap step is broken down into the following roadmap steps:

- **Initialization**

The upgrade GUI is assembled. You always see the *Monitor* tab page. According to the result of the previous roadmap steps, you also see either the *ABAP* or *Java* tab page or both.

- **Extraction**

The Software Update Manager extracts the required software.

- **Configuration**

In the *Configuration* roadmap step, you enter all the information required for the upgrade procedure. This includes the passwords, the preconfiguration mode, information about software components, add-ons, and Support Packages that you want to include as well as information about the shadow system.

- **Checks**

The Software Update Manager checks if the operating system and database version of your source release match the requirements of the target release. It also checks some application-specific requirements.

- **Preprocessing**

In the *Preprocessing* roadmap step, the Software Update Manager creates the shadow system. This roadmap step requires only few user entries. The runtime of this roadmap step depends on the preconfiguration mode you have chosen. With preconfiguration mode *single system*, the *Preprocessing* roadmap step is rather short, since the import of the substitution tables and the shadow system operation both happen during the downtime. With preconfiguration modes *standard* and *advanced*, both the substitution table import and the shadow system operation start during the *Preprocessing* roadmap step.

When the *Preprocessing* roadmap step is finished and you choose *Next*, the downtime starts.

- **Execution**

The *Execution* roadmap step runs without any user interaction. While the processes of the *Execution* roadmap step are running, the system is in downtime. The switch to the new system takes place in this roadmap step. The Software Update Manager converts application tables and data to match the target release layout. In addition, it switches the SAP kernel.

- **Postprocessing**

The Software Update Manager saves the log files and prompts you to start with certain follow-up activities.

- **Finalization**

The Software Update Manager removes files and directories that are no longer required and completes the upgrade.

- **Summary**

The Software Update Manager displays a simple feedback form directly in the GUI and prompts you to send your feedback to SAP for technical analysis.

3.8 Preconfiguration Mode Planning

The downtime and the consumption of system resources depend on the interaction of several parameters that you can set for the update. To optimize the duration of the downtime and the consumption of your system resources, we have grouped several parameter settings into preconfiguration modes. To provide predefined values for all parameters, you can choose the preconfiguration mode that suits your system resource situation.

For more information about minimizing downtime, see [Reducing Downtime \[page 231\]](#).

Preconfiguration Modes

The following preconfiguration modes are available:

Table 5: Available Preconfiguration Modes

Preconfiguration Mode	Features	Scenario
<i>Single System</i>	<ul style="list-style-type: none"> • Early start of downtime • Longer downtime • Release upgrade only: Shadow instance stops original instance and runs exclusively • Enhancement package installation and SPS update: No shadow instance • Enhancement package installation and SPS update: No workbench locking • ICNV (transaction for incremental conversion of tables) not possible • Default: Low system resource assignment 	<ul style="list-style-type: none"> • Low system resources • Newly installed system • Systems with limited production usage after ABAP Workbench locking (For more information about ABAP Workbench locking, see also Making Entries for the Preprocessing Roadmap Step [page 149].) • Updates with a focus on the overall update processing time instead of the downtime only
<i>Standard</i>	<ul style="list-style-type: none"> • Standard downtime optimization • Late start of downtime – import and shadow system operation while the SAP system is still in production operation (update strategy parameter <i>downtime-minimized</i>) • Manual start of SGEN (transaction for generating ABAP loads) required in the <i>Postprocessing</i> roadmap step • Default: Moderate resource assignment 	Standard system resources available

Preconfiguration Mode	Features	Scenario
<i>Advanced</i>	<ul style="list-style-type: none"> Extensive downtime optimization Higher complexity Default: High resource assignment Only valid for 'Target Release': SAP NetWeaver 7.3 EHP1, SAP NetWeaver 7.4, SAP NetWeaver 7.5, SAP NetWeaver 7.0 EHP3, SAP NetWeaver 7.0 EHP2 near-Zero Downtime Maintenance (nZDM) possible End of 'Target Release': SAP NetWeaver 7.3 EHP1, SAP NetWeaver 7.4, SAP NetWeaver 7.5, SAP NetWeaver 7.0 EHP3, SAP NetWeaver 7.0 EHP2 	<p>High system resources available</p> <p>i Note You can use this mode to get the maximum possible downtime optimization depending on the target release and SUM version. For more information, see <i>Current Capabilities</i> below.</p>

Current Capabilities

Standard Mode

- Only valid for 'Target Release': SAP NetWeaver 7.3 EHP1, SAP NetWeaver 7.4, SAP NetWeaver 7.5
Move of parts of the downtime to the uptime, such as most of the `TABIM_POST` phase
End of 'Target Release': SAP NetWeaver 7.3 EHP1, SAP NetWeaver 7.4, SAP NetWeaver 7.5

Advanced Mode

- Only valid for 'Target Release': SAP NetWeaver 7.3 EHP1, SAP NetWeaver 7.4, SAP NetWeaver 7.5
ABAP load generation during uptime
End of 'Target Release': SAP NetWeaver 7.3 EHP1, SAP NetWeaver 7.4, SAP NetWeaver 7.5
- Only valid for 'Target Release': SAP NetWeaver 7.3 EHP1, SAP NetWeaver 7.4, SAP NetWeaver 7.5, SAP NetWeaver 7.0 EHP3, SAP NetWeaver 7.0 EHP2
nZDM: Capabilities for extended downtime optimization
End of 'Target Release': SAP NetWeaver 7.3 EHP1, SAP NetWeaver 7.4, SAP NetWeaver 7.5, SAP NetWeaver 7.0 EHP3, SAP NetWeaver 7.0 EHP2
- Only valid for 'Target Release': SAP NetWeaver 7.3 EHP1, SAP NetWeaver 7.4, SAP NetWeaver 7.5, SAP NetWeaver 7.0 EHP3, SAP NetWeaver 7.0 EHP2
nZDM: Record & Replay technique for business transactions
End of 'Target Release': SAP NetWeaver 7.3 EHP1, SAP NetWeaver 7.4, SAP NetWeaver 7.5, SAP NetWeaver 7.0 EHP3, SAP NetWeaver 7.0 EHP2

Option “Keep database archiving on during the whole procedure”

If you choose the option *Keep database archiving on during the whole procedure*, archiving is activated permanently during the update.

Database archiving cannot be deactivated automatically. When you choose a preconfiguration mode for which archiving needs to be deactivated during the downtime, the Software Update Manager asks you at the beginning of roadmap step *Execution* to deactivate archiving.

Caution

Once you have deactivated archiving, you can no longer use the SAP system in production operation.

Caution

MCOD systems: If you specified during the preparation roadmap steps that you are performing the update in a Multiple Components in One Database System (MCOD), which means that multiple SAP systems are installed in your database, you are not prompted about archiving. Archiving is automatically activated during the entire update.

Option “Switch expert mode on”

If you choose the option *Switch expert mode on*, you can adapt additional tool configuration options during the update:

- If the option is chosen, the Software Update Manager always displays a Support Package overview in phase `BIND_PATCH` (for information about this phase, see [Including Software \[page 132\]](#)), even if manual adjustment is not necessary. You can overrule the Support Package level, which is derived from the stack configuration file (`stack.xml`).
- You can change the automatically generated instance number for the shadow instance.
- You can use a remote shadow instance.
- You can remove installed languages or their components, for which the Software Update Manager does not find an appropriate archive.
- The Software Update Manager asks you if you want to use saved profiles from a previous update for the shadow system.

Recommendations for Choosing the Preconfiguration Mode

Depending on your situation, you can choose the preconfiguration mode that best meets your requirements. Here are some recommendations:

- If you want to perform an update without a shadow system, you can choose the preconfiguration mode *single system*. This might be the case when you want to install an enhancement package or when you want to import the latest Support Packages after the installation of a new system.
- If you update a sandbox system, the system downtime might not be important. You can then choose the preconfiguration mode *single system*. Using this preconfiguration mode, the prompt to start the downtime appears early compared to the *standard* and *advanced* preconfiguration modes. Since this is the last user interaction for a longer time, this allows you to let the update procedure run unattended (for example, during the weekend).
- If you update a production system, you have to consider the impact on production operation. If you choose the *standard* or *advanced* preconfiguration mode, the shadow system is operated during uptime. This means that the source release system and the shadow system compete for the system resources. If the resource usage is of concern for the system, it makes sense to choose the preconfiguration mode *standard* since this mode uses only a limited amount of system resources.

- If you update a production system with a high demand for minimal downtime, the impact of the running shadow system on the source release system might not be important. In this case, it could make sense to choose *advanced* to shorten the overall runtime as much as possible.

i Note

Applying enhancement package queues or large Support Package queues using preconfiguration mode Single System

This is relevant if you perform an enhancement package installation or SPS update.

During the installation of enhancement package queues or large Support Package queues with preconfiguration mode *Single System*, the system might need more memory than available, especially during the `ACT_UPG` phase. In this case, the system terminates with the runtime error `SYSTEM_NO_TASK_STORAGE`, `TSV_TNEW_PAGE_ALLOC_FAILED`, or `SYSTEM_NO_ROLL`.

To avoid such interruptions, either reconfigure the system or use the option *Memory Optimized Activation*.

- For more information about the memory shortage issue mentioned above, see SAP Note [1275873](#).
- For more information about option *Memory Optimized Activation*, see also [Adaption of Parameters \[page 60\]](#).
- For more information about the usage of the *Memory Optimized Activation*, see SAP Note [1630256](#).
- For typical values needed during the activation of enhancement package queues, see SAP Note [1387739](#).

3.9 Update Strategy Parameter

The update strategy parameter is one of the main factors in determining how much downtime is involved. The SAP update technology offers two update strategy parameters: *downtime-minimized* and *resource-minimized*.

The parameter is determined by the preconfiguration mode: The *standard* and *advanced* preconfiguration modes use strategy *downtime-minimized*.

The benefits of the parameters for your SAP system depend on the following factors concerning system availability:

- Maximum permitted downtime
- System resources

For update strategy parameter *resource-minimized*, modification adjustment, activation, and delta import is performed during downtime. Additional resource consumption is low.

For update strategy parameter *downtime-minimized*, the operation of the shadow system and the shadow import are performed during production operation.

Using function `ICNV`, you can further reduce downtime by moving the conversion of large tables to the uptime.

Characteristics of Parameter Downtime-Minimized

- Parallel operation of production system and shadow system
- Higher demand on system resources
- Shorter downtime
- Import of the substitution set into the shadow tables during production operation
- Modification adjustment of the ABAP Dictionary objects during production operation
- Activation and distribution during production operation
- Production operation stops in phase `DOWNCONF_DTTRANS` (at the end of the *Preprocessing* roadmap step).

Characteristics of Parameter Resource-Minimized

- If a shadow system is used, the operation of a production and a shadow system is only possible independently of each other.
- Increased downtime
- No ICNV
- Release upgrade only: Production operation stops before the import of the substitution set into shadow tables (phase `MAIN_DTTRANSEUI` at the end of the *Preprocessing* roadmap step) or, at the latest, before the shadow instance is started for the first time (phase `MAIN_DTTRANSSTD` at the end of the *Preprocessing* roadmap step).
Enhancement package installation and SPS update: Production operation stops before the first delta import.

Benefits of the System Switch Procedure

If the *downtime-minimized* update strategy is used, the System Switch procedure offers you the following benefits:

- ABAP object modification adjustment during production operation
The modification adjustment of the ABAP Dictionary objects is performed before downtime. This is possible since the complete version management is available in the shadow system.
- ABAP object activation and distribution during production operation
You need to activate and distribute all ABAP Dictionary objects (including their dependent objects) that Support Packages modify in the delivered release, as well as objects that are modified or created by the customer. If a large number of included Support Packages or add-ons are concerned or if systems have been modified greatly, this procedure may take several hours.
- Specific use of the incremental ABAP table conversion function (transaction ICNV)
You can also increase the number of candidates for transaction ICNV, since the amount and target structure of the tables can be calculated at the customer site. Transaction ICNV can therefore be used for tables modified by customers, add-ons, and Support Packages. This is particularly noticeable in the shorter downtime for updates that include one or more add-ons.

Since these processes occur during production operation, downtime is reduced considerably, and some phases during downtime are much shorter. This mainly affects the phases `PARCONV_UPG` and `TABIM_UPG`.

Other benefits of the System Switch update for both update strategy parameters include:

- Extended shadow import
The shadow system is used to calculate the target release state of a table before downtime starts. Since the shadow tables are created in their final structure during production operation, the amount of tables into which data can be imported in advance can be increased. Until now, this was only possible for new tables and substituted tables.

Course of the Update

The update is divided into roadmap steps and phases. The downtime of the SAP system starts in the *Downtime* roadmap step. The start of downtime depends on the chosen update strategy.

The course of the update is identical in all strategies up to the `EU_IMPORT1` phase. For the *resource-minimized* strategy, the *Downtime* roadmap step either begins in the `EU_IMPORT1` phase or the `START_SHDI_FIRST` phase. For the *downtime-minimized* strategy, the *Downtime* roadmap step begins in the `MODPROF_TRANS` phase.

Enhancement package installation and SPS update: The `DBCLONE` phases are executed instead of the `EU_IMPORT` phases. For the *resource-minimized* strategy, the *Downtime* roadmap step begins before the first delta import.

The following graphic shows the course of the update for the various strategies. It does **not** show the differences in the duration of the update.

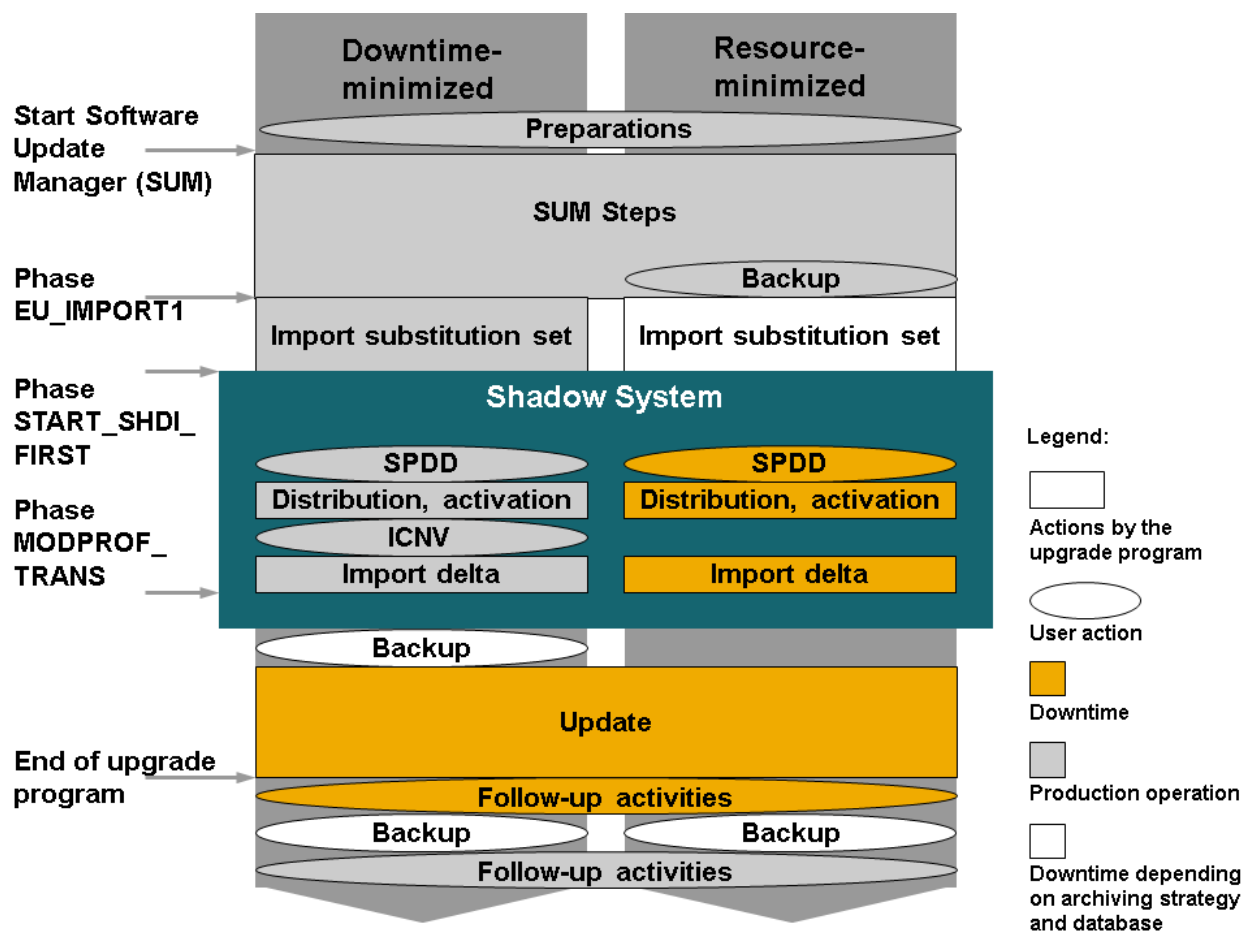


Figure 9: Course of the Update

Update Runtime

The following factors influence the total runtime of the Software Update Manager:

- Import runtime for the substitution set
- Languages installed
- Number of clients
- Add-on software
- Hardware used
- Extensive customer developments
- Modifications to standard SAP tables and components
- Integration of Support Packages

The update runtime and the downtime depend on the update strategy parameter you choose, the hardware, and the amount of time required to create the database archives. With strategy *downtime-minimized*, the shadow system runs in parallel with the production system, which increases the overall runtime but shortens the downtime. The size of your database only has a secondary role in determining the runtime of the update. Your source release can influence the runtime and downtime of the update by up to approximately 25%.

3.10 Adaption of Parameters

Depending on your chosen preconfiguration mode, you can adapt further parameters to tailor the update to your specific needs.

There are several parameters with which you can influence the use of SAP system resources for the update procedure during uptime and downtime, such as the number of background processes used by `tp` during uptime and downtime.

Only valid for 'Target Release': SAP NetWeaver 7.3 EHP1, SAP NetWeaver 7.4, SAP NetWeaver 7.5, SAP NetWeaver 7.0 EHP3, SAP NetWeaver 7.0 EHP2

near-Zero Downtime Maintenance (nZDM) Technology

The Software Update Manager is equipped with downtime minimizing features, the *near-Zero Downtime Maintenance* (nZDM) technology. This technology allows under certain conditions a significant reduction of Business Downtime compared to current standard update and upgrade tools because more of the downtime-relevant deployment phases will be executed while the system is still available for business users.

End of 'Target Release': SAP NetWeaver 7.3 EHP1, SAP NetWeaver 7.4, SAP NetWeaver 7.5, SAP NetWeaver 7.0 EHP3, SAP NetWeaver 7.0 EHP2

Background Process and Tool Parameters

- Release upgrade only: The preconfiguration modes make sure that these numbers fit to the upgrade strategy and database archiving strategy used.
- Enhancement package installation and SPS update: The background processes are used for the system cloning and thus, their number influences the speed of the system cloning process. The preconfiguration modes make sure that these numbers fit to the database archiving strategy used.

Shadow Instance Parameters

There are several parameters used for running the shadow instance. Most of these parameters are set automatically, for example, an instance number not yet used in your system landscape.

Only valid for 'Target Release': SAP NetWeaver 7.3 EHP1, SAP NetWeaver 7.4, SAP NetWeaver 7.5, SAP NetWeaver 7.0 EHP3, SAP NetWeaver 7.0 EHP2

SGEN Execution Mode

With transaction SGEN, you can generate ABAP loads in your SAP system. Depending on the preconfiguration mode, you can choose an execution strategy for the ABAP load generation: The system starts SGEN either during the uptime only, or during the uptime and after the downtime.

End of 'Target Release': SAP NetWeaver 7.3 EHP1, SAP NetWeaver 7.4, SAP NetWeaver 7.5, SAP NetWeaver 7.0 EHP3, SAP NetWeaver 7.0 EHP2

Memory-Optimized Activation

On 32 bit systems, the activation of ABAP Dictionary objects runs in a memory-optimized mode regardless of the chosen preconfiguration mode. Compared to the activation on 64 bit systems, the activation consumes less memory, but the runtime lasts longer.

In the following, you can find a description of the parameters and their influence on the runtime of the update:

- [Database Archiving Parameter \[page 61\]](#)

- Only valid for 'Target Release': SAP NetWeaver 7.3 EHP1, SAP NetWeaver 7.4, SAP NetWeaver 7.5, SAP NetWeaver 7.0 EHP3, SAP NetWeaver 7.0 EHP2

[near-Zero Downtime Maintenance \(nZDM\) \[page 62\]](#)

End of 'Target Release': SAP NetWeaver 7.3 EHP1, SAP NetWeaver 7.4, SAP NetWeaver 7.5, SAP NetWeaver 7.0 EHP3, SAP NetWeaver 7.0 EHP2

- Only valid for 'Target Release': SAP NetWeaver 7.3 EHP1, SAP NetWeaver 7.4, SAP NetWeaver 7.5, SAP NetWeaver 7.0 EHP3, SAP NetWeaver 7.0 EHP2

[Using the Record & Replay Technique in nZDM \[page 63\]](#)

End of 'Target Release': SAP NetWeaver 7.3 EHP1, SAP NetWeaver 7.4, SAP NetWeaver 7.5, SAP NetWeaver 7.0 EHP3, SAP NetWeaver 7.0 EHP2
- [Background Process and Tool Parameters \[page 65\]](#)
- Only valid for 'Target Release': SAP NetWeaver 7.3 EHP1, SAP NetWeaver 7.4, SAP NetWeaver 7.5, SAP NetWeaver 7.3, SAP NetWeaver 7.0 EHP3, SAP NetWeaver 7.0 EHP2

[Running the Shadow Instance Remotely \[page 66\]](#)

End of 'Target Release': SAP NetWeaver 7.3 EHP1, SAP NetWeaver 7.4, SAP NetWeaver 7.5, SAP NetWeaver 7.3, SAP NetWeaver 7.0 EHP3, SAP NetWeaver 7.0 EHP2
- [Shadow Instance Parameters \[page 66\]](#)
- Only valid for 'Target Release': SAP NetWeaver 7.3 EHP1, SAP NetWeaver 7.4, SAP NetWeaver 7.5, SAP NetWeaver 7.0 EHP3, SAP NetWeaver 7.0 EHP2

[SGEN Execution Modes \[page 67\]](#)

End of 'Target Release': SAP NetWeaver 7.3 EHP1, SAP NetWeaver 7.4, SAP NetWeaver 7.5, SAP NetWeaver 7.0 EHP3, SAP NetWeaver 7.0 EHP2
- Only valid for 'Target Release': SAP NetWeaver 7.3 EHP1, SAP NetWeaver 7.0 EHP3

[Incremental Table Conversion Parameters \[page 68\]](#)

End of 'Target Release': SAP NetWeaver 7.3 EHP1, SAP NetWeaver 7.0 EHP3

3.10.1 Database Archiving Parameter

The archiving strategy determines the time intervals in which database mechanisms save actions to the database. This determines whether the database system can recover lost data.

There are two options: Either the archiving mode is on during the update, or archiving is deactivated at the beginning of the *Downtime* roadmap step.

If the archiving mode is on, you receive the message `Database runs with recovery mode Full`.

Caution

Once you have deactivated archiving, you can no longer use the SAP system in production operation.

At the beginning of the downtime, you are prompted to deactivate archiving. You are prompted again at the end of the downtime to activate archiving.

Caution

Multiple Components in One Database (MCOD) systems: If you have an MCOD system, you are prompted if you want to disable archiving. However, if multiple SAP systems are installed in your database, we strongly recommend that you do not disable the archive mode. If you disable archiving, you must stop the production operation of all systems.

3.10.2 near-Zero Downtime Maintenance (nZDM)

This topic is only valid for 'Target Release': SAP NetWeaver 7.3 EHP1, SAP NetWeaver 7.4, SAP NetWeaver 7.5, SAP NetWeaver 7.0 EHP3, SAP NetWeaver 7.0 EHP2

Prerequisites

You have chosen the *Advanced* preconfiguration mode in SUM.

For more information about the prerequisites, terms and conditions of nZDM, see SAP Note [1678565](#).

Only valid for 'Target Release': SAP NetWeaver 7.0 EHP2

i Note

Target Release SAP NetWeaver 7.0 including enhancement package 2 requires Support Package 08 or higher.

End of 'Target Release': SAP NetWeaver 7.0 EHP2

Context

The Software Update Manager (SUM) is equipped with the near-Zero Downtime Maintenance (nZDM) technology. This technology includes features in the *Advanced* preconfiguration mode settings to minimize the Business Downtime while performing the following:

- Support Package installation
- Enhancement package installation
- Update of ABAP-based SAP Business Suite or SAP NetWeaver systems

The main benefit of nZDM is the significant reduction of the Business Downtime compared to previous update tools because more of the downtime-relevant update phases are executed while the system is still up and available for business users. The following deployment phases are executed in nZDM during uptime:

- Table structure adjustment including conversions, based on Record & Replay technique
- Main import, based on Record & Replay technique

Procedure

If you have chosen the *Advanced* preconfiguration mode, choose if you want to use the nZDM feature or not.

End of 'Target Release': SAP NetWeaver 7.3 EHP1, SAP NetWeaver 7.4, SAP NetWeaver 7.5, SAP NetWeaver 7.0 EHP3, SAP NetWeaver 7.0 EHP2

3.10.3 Using the Record & Replay Technique in nZDM

This topic is only valid for 'Target Release': SAP NetWeaver 7.3 EHP1, SAP NetWeaver 7.4, SAP NetWeaver 7.5, SAP NetWeaver 7.0 EHP3, SAP NetWeaver 7.0 EHP2

Use

With the introduction of the Record & Replay technique in nZDM that uses the Change Recording and Replication (CRR) framework, you can now capture database changes in tables on the production instance during uptime. This trigger-based change recording technique allows importing new content into the shadow instance and adjusting table structures to the new release while all users are still able to work in the production system. The recording of data changes is started automatically by the SUM and is transferred to the shadow instance iteratively after the table structure adjustment.

Prerequisites

You have chosen the *Advanced* preconfiguration mode in SUM.

For more information about the preconfiguration modes, see [Preconfiguration Mode Planning \[page 53\]](#).

Only valid for 'Target Release': SAP NetWeaver 7.0 EHP2

i Note

Target Release SAP NetWeaver 7.0 including enhancement package 2 requires Support Package 08 or higher.

End of 'Target Release': SAP NetWeaver 7.0 EHP2

Procedure

To control the change recording, you can perform the following actions:

Monitoring the Data Transfer

To monitor the current state of the data transfer, proceed as follows:

1. Log on to the shadow system when prompted by SUM.

2. Call transaction CRR_CONTROL.

On the *CRR ISU Transfer Control* screen, the *Transfer Overview* section indicates whether you can start downtime or not.

Stopping the Data Transfer

If you need to stop the data transfer, proceed as follows:

1. Log on to the shadow system.
2. Call transaction CRR_CONTROL.
3. To stop the data transfer, choose ► *Control* ► *Stop Transfer* ►.

Restarting the Data Transfer

If you need to restart the data transfer, proceed as follows:

1. Log on to the shadow system.
2. Call transaction CRR_CONTROL.
3. If a list of tables is displayed in the screen area *Severe Issues*, select all these tables and choose *Restart transfer*.
4. To restart the data transfer, choose ► *Control* ► *Start Transfer* ►.

Caution

Do not execute the underlying reports of transaction CRR_CONTROL in transaction SE38. Instead, always call transaction CRR_CONTROL.

Including or Excluding Tables from the Data Transfer

If you need to include or to exclude single tables into or from the data transfer, proceed as follows:

1. In the <DIR_PUT>/bin subdirectory of the SUM directory, open the template file CRRTABLIST.LST.
2. To include a single table, add the following entry to the existing entries of the CRRTABLIST.LST template file using the following format: **I** <Tabname>
3. To exclude a single table, add the following entry to the existing entries of the CRRTABLIST.LST template file using the following format: **E** <Tabname>

Note

- Note that the format includes a space between the character and <Tabname>.
- The best time to include or to exclude tables is after you have extracted the SUM package but before you start the upgrade since the CRRTABLIST.LST template file is processed in phase MODFILE_CRRTABLIST. After this phase, you can no longer include or exclude tables.

Stopping the Shadow Instance During the Data Transfer

If you need to stop the shadow instance during the data transfer (for example, to make an offline backup), proceed as follows:

1. Stop the data transfer as described above under *Stopping the Data Transfer*.
2. In the command line tool, enter the following command:
<SUM>/abap/bin/SAPup stopshd

Starting the Shadow Instance

If you stopped the shadow instance during the data transfer and you need to restart it, proceed as follows:

1. In the command line tool, enter the following command:
`<SUM>/abap/bin/SAPup startshd`
2. Restart the transfer as described above under *Restarting the Data Transfer*.

More Information

For more information about restrictions, database-specific settings, and troubleshooting of nZDM, see SAP Note [1678564](#).

End of 'Target Release': SAP NetWeaver 7.3 EHP1, SAP NetWeaver 7.4, SAP NetWeaver 7.5, SAP NetWeaver 7.0 EHP3, SAP NetWeaver 7.0 EHP2

3.10.4 Process and Tool Parameters

You can maintain process and tool parameters to configure the update process additionally. Several processes have parameter values for uptime and downtime. The values for downtime are active during the *Downtime* roadmap step of the update procedure. The values for uptime are active during the *Checks* and *Preprocessing* roadmap steps. Note that high values for processes during the uptime can have an impact on production operation.

- Host name of the background server
There is usually a background service available on the primary application server instance. You can check this with transaction SM51.
However, in larger systems, the background service may be elsewhere to improve load distribution. In this case, enter the host name and the name of the relevant application server.
In addition, make sure that the update directory is mounted on the host with the background service, and that the background server can process background jobs of class C.
The server you select has to be available for background operations round the clock. Check the active operation modes with transaction SM63 to find out if it satisfies this requirement.
- *ABAP PROCESSES (UPTIME)* and *ABAP PROCESSES (DOWNTIME)*
Number of parallel background processes and activator processes, also number of batch processes scheduled on the app server. The minimum number is 5. We recommend a value that is high enough to enable parallel processing, but small enough so that the production system is not affected.
- *SQL PROCESSES (UPTIME)* and *SQL PROCESSES (DOWNTIME)*
Number of parallel SQL processes used by `tp` to execute database statements
- *R3TRANS PROCESSES (UPTIME)* and *R3TRANS PROCESSES (DOWNTIME)*
Number of parallel import processes used by `R3trans` to import data into the database. Note that these processes can generate significant loads on the database.
- *R3LOAD PROCESSES*
Number of `R3load` processes used for the `EU_IMPORT` phases.
- *PARALLEL PHASES (UPTIME)* and *PARALLEL PHASES (DOWNTIME)*
Number of parallel phases used by `SAPup`
- Memory-optimized activation
The memory-optimized mode allows the activation of ABAP Dictionary objects with reduced memory consumption, but a longer runtime. This is the default for 32-bit systems.

3.10.5 Running the Shadow Instance Remotely

This topic is only valid for 'Target Release': SAP NetWeaver 7.3 EHP1, SAP NetWeaver 7.4, SAP NetWeaver 7.5, SAP NetWeaver 7.3, SAP NetWeaver 7.0 EHP3, SAP NetWeaver 7.0 EHP2

Use

If you are unable to operate the shadow instance on the same host as the original system, you can determine another host for the shadow instance in this phase.

If you have chosen the option *Switch expert mode on* (see also: [Preconfiguration Mode Planning \[page 53\]](#)), you are asked if you want to run the shadow instance remotely. In this case, proceed as follows:

Note

On the application server, the database client software may have to be updated.

Procedure

1. Enter the host name of the server for the shadow instance.
2. Determine the path of the update directory for remote access from the application server of the shadow instance. For example, enter the UNC path to the SUM directory: \\<HOST>\SHARE_PUT.
3. Install a license for the shadow instance.
 1. To do this, use `saplicense -get` on the other (remote) application server to get the hardware key. For more information, see SAP Note [94998](#).
4. Continue with the Software Update Manager.

Note

- Note that the new temporary license will not be removed automatically after the update. You can delete the temporary license manually after the update. Prior to this, check with transaction SLICENSE, if the old license still exists.
- The Software Update Manager does not handle the remote shadow instance like other dialog instances during the update. If you want to use it as dialog instance of the target system, a re-installation of the instance will be required.

End of 'Target Release': SAP NetWeaver 7.3 EHP1, SAP NetWeaver 7.4, SAP NetWeaver 7.5, SAP NetWeaver 7.3, SAP NetWeaver 7.0 EHP3, SAP NetWeaver 7.0 EHP2

3.10.6 Shadow Instance Parameters

When the Software Update Manager installs the shadow instance locally, an unused instance number is selected automatically. If you want to enter a specific instance number, choose the option *Switch expert mode on* (see also:

[Preconfiguration Mode Planning \[page 53\]](#)). You have to enter an instance number that is not used in your system landscape.

Only valid for 'Target Release': SAP NetWeaver 7.3 EHP1, SAP NetWeaver 7.4, SAP NetWeaver 7.5, SAP NetWeaver 7.3, SAP NetWeaver 7.0 EHP3, SAP NetWeaver 7.0 EHP2

Decide whether you want to operate the shadow instance on a different host. For more information, see [Running the Shadow Instance Remotely \[page 66\]](#).

End of 'Target Release': SAP NetWeaver 7.3 EHP1, SAP NetWeaver 7.4, SAP NetWeaver 7.5, SAP NetWeaver 7.3, SAP NetWeaver 7.0 EHP3, SAP NetWeaver 7.0 EHP2

3.10.7 SGEN Execution Modes

This topic is only valid for 'Target Release': SAP NetWeaver 7.3 EHP1, SAP NetWeaver 7.4, SAP NetWeaver 7.5, SAP NetWeaver 7.0 EHP3, SAP NetWeaver 7.0 EHP2

If you selected the *Advanced* preconfiguration mode, you need to choose an execution strategy for the ABAP load generation (transaction `SGEN`).

You can select one of the following `SGEN` execution modes:

- Release upgrade only: *Do not start ABAP load generation during the upgrade*
Enhancement package installation and SPS update: *Do not start ABAP load generation during the update*
If you plan to apply a high number of relevant changes to your system after the update in the form of a transport or a Support Package, we recommend that you generate the ABAP loads manually after the update. For more information about starting the load generation manually, see [Generating Loads \[page 190\]](#).
- *Generate ABAP loads on shadow system during uptime*
With this option, the Software Update Manager uses the maximum number of processes entered below to generate the loads in the shadow system during the uptime.
- *Generate ABAP loads on shadow system during uptime and start asynchronously in post downtime.*
With this option, the Software Update Manager uses the maximum number of processes entered below to generate the ABAP loads in the shadow system during the uptime. The transaction `SGEN` automatically starts again after the downtime during the *Postprocessing* roadmap step to regenerate the ABAP loads that were invalidated during the downtime.

Caution

The additional database space needed to generate ABAP loads is not added automatically to the space requirements reported in the *Checks* roadmap step. In addition, you will need approximately the size of `REPOSRC~`.

Only valid for 'Target Release': SAP NetWeaver 7.0 EHP2

i Note

Target Release SAP NetWeaver 7.0 including enhancement package 2 needs Support Package 09 or higher.

End of 'Target Release': SAP NetWeaver 7.0 EHP2

End of 'Target Release': SAP NetWeaver 7.3 EHP1, SAP NetWeaver 7.4, SAP NetWeaver 7.5, SAP NetWeaver 7.0 EHP3, SAP NetWeaver 7.0 EHP2

3.10.8 Incremental Table Conversion Parameters

You can adapt the parameter to configure transaction ICNV (see also [Incremental Table Conversion \[page 71\]](#)).

Only valid for 'Target Release': SAP NetWeaver 7.3 EHP1, SAP NetWeaver 7.4, SAP NetWeaver 7.5, SAP NetWeaver 7.0 EHP3

- You can choose if the program should determine tables for ICNV (incremental table conversion) to perform table adjustments during uptime. To keep the standard behavior, choose the option:

- *Perform adjustments using DDL statements as usual*

In addition, the program can calculate and propose further tables as ICNV candidates. To use this feature, see SAP Note [1663715](#) for further information.

End of 'Target Release': SAP NetWeaver 7.3 EHP1, SAP NetWeaver 7.4, SAP NetWeaver 7.5, SAP NetWeaver 7.0 EHP3

Only valid for 'Target Release': SAP NetWeaver 7.0, SAP NetWeaver 7.1, SAP NetWeaver 7.4, SAP NetWeaver 7.5, SAP NetWeaver 7.3, SAP NetWeaver 7.0 EHP2, SAP NetWeaver 7.0 EHP1

- You can choose, if the program should determine for ICNV to perform table adjustments during uptime. The following options are possible:

- *Do not consider ICNV at all*

- *Calculate tables for ICNV*

- *Do not consider ICNV at all*

- *Calculate tables for ICNV*

End of 'Target Release': SAP NetWeaver 7.0, SAP NetWeaver 7.1, SAP NetWeaver 7.4, SAP NetWeaver 7.5, SAP NetWeaver 7.3, SAP NetWeaver 7.0 EHP2, SAP NetWeaver 7.0 EHP1

3.11 Time Frame for Upgrading the Front-End Software

Use

i Note

This section is only relevant if you perform a release upgrade.

The new SAP system release cannot run until a compatible version of the front-end software (SAP GUI) has been installed. However, as the front-end software is compatible with several SAP system releases, you may not have to upgrade to a new front-end software release.

If you need or want to use a different front-end software, you can import it as soon as you receive the software package. If the front-end software you are using on the source release is not compatible with the target release,

the latest possible time for upgrading the front-end software is before you start the shadow system for the first time in the `START_SHDI_FIRST` phase during roadmap step *Preprocessing*. If you choose preconfiguration mode *standard* or *advanced*, this phase is part of roadmap step *Preprocessing*. If you choose preconfiguration mode *single system*, this phase is part of roadmap step *Downtime*.

i Note

You can already update your SAP GUI before you start with the upgrade of your SAP system.

This graphic shows the time period during which you can upgrade the front-end software:

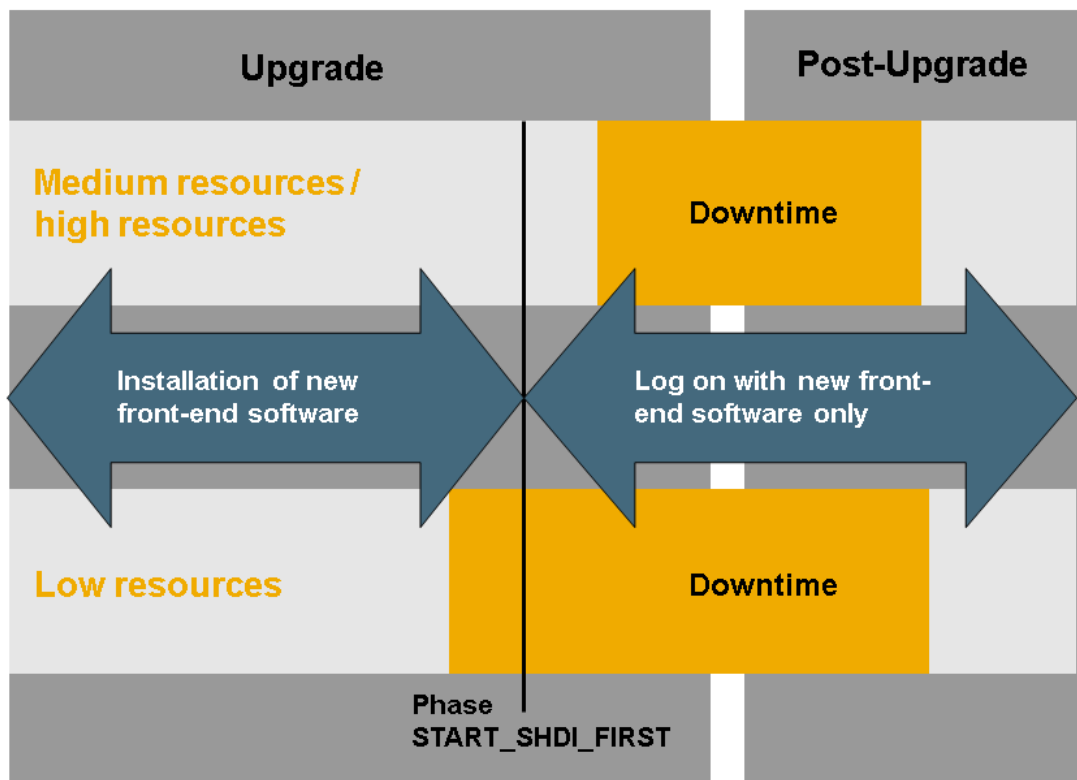


Figure 10: Time Frame for Upgrading the Front-End Software

i Note

You can use the SAP Front-End installation software, `NWSAPSetup`, to optimize the deployment of SAP GUI to thousands of clients. You can tailor installation packages to match your requirements, distribute patches, and set up automatic update processes for your clients.

More Information

Table 6: SAP Notes with Additional Information

Which front-end software to use	SAP Note 147519
Hardware and software requirements	SAP Note 26417
Using SAP GUI for HTML	SAP Note 178788
Installing the front-end software and using NWSAPSetup	SAP Front End Installation Guide

3.12 Database-Specific Aspects

Note

This section is only relevant if you perform a release upgrade.

MS SQL Server

- Database Recovery
You have to be able to recover the database to the state it had before the update, regardless of the chosen preconfiguration mode. Always make at least an online backup of the database before the update.

Recommendation

Make an offline backup (Windows file backup) before the update.

- Release upgrade only: Backup of Transaction Log During *standard* or *advanced* Preconfiguration Mode
Enhancement package installation and SPS update: Backup of Transaction Log
You can use your SAP system in production operation until you isolate the primary application server instance at the end of step *Preprocessing*.
When you are using the system in production operation at the same time as the Software Update Manager, large amounts of data may accumulate in the transaction log.
Make a regular backup of the transaction log. You can back up the transaction log to disk, over the network, or directly to tape. Backing up the transaction log means that it is available for you to analyze after a server crash, when you need to reset the database to its last consistent state.
Proceed as follows:
 1. Start of the update until the end of step *Preprocessing*
To back up the accumulated log data permanently, schedule a job in the SQL Server Management Studio for the time between the start of the update and the start of downtime. This job has to back up the transaction log at least every 10 minutes.
 2. At the end of step *Preprocessing*

When you isolate the primary application server instance in the this phase, you are prompted to stop all work with the system. You have to be able to recover the state of your database to this point in time. Proceed as follows:

- Manually back up the transaction log and make sure that there are no more user actions on the database at the time of the backup.
 - Back up the directory tree `\usr\sap\<sapsid>\upg`.
 - Deschedule the job for the automatic backup of the transaction log in the SQL Server Management Studio.
3. At the beginning of step *Execution*
You are prompted to deactivate logging of database transactions. To do this, you have to set the recovery model to *Simple* for MS SQL Server.
For more information, see [Changing the MS SQL Server Database Recovery Mode \[page 240\]](#).
4. After the update
Make an online backup after the update.
- Release upgrade only: Back up of Transaction Log During *single system* Preconfiguration Mode
With the preconfiguration mode *single system*, you can use your SAP system in production operation until you isolate the primary application server instance at the end of step *Preprocessing*.
 1. At the end of step *Preprocessing*
When you isolate the primary application server instance at the end of step *Preprocessing*, you are prompted to stop all work with the system. You have to be able to recover the state of your database to this point in time. Proceed as follows:
 - Manually back up the transaction log and make sure that there are no more user actions on the database at the time of the backup.
 - Back up the directory tree `\usr\sap\<sapsid>\upg`.
 2. At the beginning of step *Execution*
You are prompted to deactivate logging of database transactions. To do this, you have to set the recovery model to *Simple* for MS SQL Server 2005 or higher. You can make these changes with the SQL Server Management Studio.
For more information, see [Changing the MS SQL Server Database Recovery Mode \[page 240\]](#).
 3. After the upgrade
Make an online backup after the upgrade.

3.13 Incremental Table Conversion

Use

Note

The use of the incremental conversion function is optional. If you do not want to use incremental conversion, the tables are converted during downtime.

Caution

Release upgrade only: You can use incremental table conversion for ABAP tables only if you use preconfiguration mode *standard* or *advanced*.

The structure of some of the tables in your database changes when you update your system. In some cases you need to convert these tables. This involves completely restructuring them and converting each individual data record. These conversions are usually made during the downtime (phase `PARCONV_UPG`).

The incremental conversion function enables many of these tables to be converted before the downtime. The data is converted during production operation of the system.

This approach has the following benefits:

- Release upgrade only: Reduced downtime during the upgrade, especially for systems with one or more add-ons
- Enhancement package installation and SPS update: Reduced downtime during the update
- Simple return to the SAP standard for modified tables

Prerequisites

Release upgrade only:

The System Switch Upgrade only determines the candidates for transaction `ICNV` after the target structure of the tables has been defined. The candidates are determined in the `ICNVREQ` phase. The Software Update Manager checks whether the system contains tables for which an incremental conversion is an advantage. These include tables that need to be converted, and that contain large volumes of data, and therefore would increase the downtime significantly during a conversion. The System Switch Upgrade also enables you to use transaction `ICNV` for tables that have been modified by Support Packages, add-ons, or customer developments.

If the above mentioned applies, the Software Update Manager prompts you to start the incremental conversion.

Enhancement package installation and SPS update:

The Software Update Manager only determines the candidates for transaction `ICNV` after the target structure of the tables has been defined. The candidates are determined in the `ICNVREQ` phase. The Software Update Manager checks whether the system contains tables for which an incremental conversion is an advantage. These include tables that need to be converted and that contain large volumes of data, and therefore would increase the downtime significantly during a conversion. The Software Update Manager program also enables you to use transaction `ICNV` for tables that have been modified by Support Packages, add-ons, or customer developments.

If the above mentioned applies, the Software Update Manager prompts you to start the incremental conversion.

Features

Incremental conversion is performed using transaction `ICNV`. This transaction offers the following functions:

- Displays the tables determined by the Software Update Manager (candidates for incremental conversion)
- Decides which candidates should be converted incrementally
- Starts the conversion
- Monitors the conversion
- Estimates the runtime of the conversion

For up-to-date information, see SAP Note [490788](#). For more information, call transaction `ICNV` and choose F1 or *Information*.

Note the following:

- Target release SAP NetWeaver 7.3 only: You have to run transaction ICNV in client 000.
- Release upgrade only: Transaction ICNV makes modifications to the database tables that you want to convert during the preparation roadmap steps. You cannot reset these modifications by resetting the upgrade. In particular, you cannot directly upgrade these modifications.
Enhancement package installation and SPS update: Transaction ICNV makes modifications to the database tables that you want to convert during the preparation roadmap steps. You cannot reset these modifications by resetting the update.
- If you use incremental table conversion, do not start an SAP archiving program for these tables at the same time, since this can lead to performance bottlenecks. Therefore, archive as much data as possible before you start the conversion.
- After the incremental conversion starts, you cannot change any more ABAP Dictionary definitions for the relevant tables until the update is complete.
This means that you cannot change, delete, or add field definitions. Transaction SE11 is locked for these tables.
- Pay special attention to the resource usage of your database management system to detect bottlenecks early on. Incremental conversion requires double the space in the relevant database memory area for each table affected during the conversion. The continuous transfer of data results in more transactions being performed. Therefore, also monitor the space available for the rollback information.
- Do not begin the downtime before at least 95% of the total data has been converted. The Software Update Manager checks this at the beginning of downtime. If this percentage has not been reached, the Software Update Manager displays an appropriate message.
This gives you the advantage of reducing critical downtime. To monitor the progress of the conversion, you can call transaction ICNV.
You can start downtime even if the 95% minimum has not been reached. However, the remaining data is transferred entirely during downtime. If this process is not finished before the `PARCONV_UPG` phase, the downtime increases depending on the remaining conversion set.
- Incremental conversion requires a sufficient number of background work processes. Ideally, there should be one process for each table that needs to be converted. If you cannot have one process for each table because there are too many of them, you can still convert them since transaction ICNV automatically distributes the tables to the available background processes. However, the incremental conversion then takes longer to complete, and the time for beginning downtime is pushed back.

3.14 Data Management Planning

This section deals with the management of large database tables using methods such as data archiving.

Context

i Note

This section is only relevant if you perform a release upgrade.

The upgrade runtime – and in particular the system downtime – is extended when dealing with large database tables. Table conversions during the upgrade and data adjustments at the end of the upgrade are the most time consuming actions and can result in long upgrade runtimes. To avoid these problems, you should minimize the quantity of table entries that have to be converted prior to the upgrade. The best way to achieve this is to carry out data management measures such as archiving or deleting data records from the tables.

As part of an overall Information Lifecycle Management (ILM) process, data management is vital for maintaining a “healthy” live system because it helps to keep system performance high and to make optimal use of existing hardware resources. One of the most effective data management methods is data archiving. It allows administrators to remove data that is no longer needed in everyday operations from the database and store it in archive files. These files can then be passed on to a storage system for long-term storage. After archiving, the data can still be accessed in read-only mode when the need arises, for example, during an audit.

For more information about data archiving, see SAP Service Marketplace at <http://service.sap.com/ilm>.

Caution

Active archiving jobs managed in transaction SARA can significantly increase runtime and resource demands during an upgrade. Therefore, as of start release SAP NetWeaver 7.0, starting new archiving jobs is blocked during the `Preprocessing` roadmap step of the upgrade procedure.

If archiving jobs are still active, the Software Update Manager stops at a later phase (depending on your configuration settings). You can continue with the upgrade procedure once all archiving jobs are finished or canceled.

The start of new archiving jobs is only possible after the upgrade is reset or finished (in module `POST_CLEAN`). You need to apply SAP Note [2260116](#) via SAP Note Assistant as a preparation step. The Software Update Manager will stop if this SAP Note is not implemented.

Procedure

1. Before the upgrade, analyze the database to find out which database tables can be reduced in size, and how this can be achieved.

For more information, see the *Data Management Guide* on SAP Service Marketplace at <http://service.sap.com/ilm> ► [Data Archiving](#) ► [Media Library](#) ► [Literature & Brochures](#) ►.

2. If you use the CRM Marketing Segment Builder, you can reduce downtime by deleting target groups in your system. Two secondary indexes of database table `CRMD_MKTTG_TG_I` are deleted during the upgrade and one existing secondary index is enhanced by additional fields. The Software Update Manager deletes this index and re-creates it during downtime. The time needed to re-create the index depends on the number of records in table `CRMD_MKTTG_TG_I`. As a guide value, for 10 million records, the recreation needs 200 seconds on an average performance hardware.
3. Check the number of records in your `CRMD_MKTTG_TG_I` table and calculate the additional downtime. To reduce downtime, delete target groups in your system to remove entries from this table before you start the upgrade.

3.15 Modification and Enhancement Adjustment Planning

Use

Note

If you are sure that your SAP system corresponds exactly to the standard SAP system, you can skip this section.

Modifications are changes to objects of the SAP standard. There are two types of modifications: ones that make changes to the translation of an object text, and ones that make changes to the object itself.

In addition (as of SAP NetWeaver 7.0), the Enhancement Framework allows enhancements, such as source code plug-ins, implementations of the new kernel-based BAdI, and class enhancements. We recommend using the new Enhancement Framework to enhance or adapt SAP development objects.

Changes to the Translation of an Object Text

The changes are made in the translation environment (transaction SE63) or in the ABAP Workbench. An SSCR key is not required.

Caution

Changes to translations of SAP objects are not retained when you update your system. They are overwritten by a new version or deleted. For more information about retaining these changes, see SAP Note [485741](#).

Modifications and Enhancements of SAP Objects

You may need an SSCR key to perform the modification adjustment. Get the key **before** you start the update. For more information, see SAP Support Portal at <https://support.sap.com/sscr>.

Release upgrade only: All modified standard SAP objects are displayed for adjustment in transaction SPDD or SPAU. Objects that SAP no longer delivers are deleted. If you want to keep these objects, you have to accept the modifications in transaction SPDD or SPAU.

Enhancement package installation and SPS update: All modified standard SAP objects that are contained in a software package that is to be applied to your system are displayed for adjustment in transaction SPDD or SPAU. If you want to keep these objects, you have to accept the modifications in transaction SPDD or SPAU.

All enhancements that you have to adjust are shown in transaction SPAU_ENH. In contrast to modifications of source code units, you only have to adjust enhancements if the underlying SAP development objects were deleted or changed in an incompatible way.

Make sure that you perform the adjustments in transaction SPAU_ENH after the adjustments in transaction SPDD or SPAU and not the other way around.

Caution

Make sure that **before** the update there is at least one package in the customer namespace (Z*). You need this package if you have to create objects during the modification adjustment, for example, for an append structure for customer fields of an SAP table.

You cannot create packages during the update.

Release upgrade only: If you choose preconfiguration mode *standard* or *advanced*, the modification adjustment of ABAP Dictionary objects occurs during production operation. This is possible since the complete version management is available in the shadow system. The remaining Repository objects are still adjusted at the end of the upgrade.

Enhancement package installation and SPS update: The modification adjustment of ABAP Dictionary objects occurs during production operation. This is possible since the complete version management is available in the shadow system. The remaining Repository objects are still adjusted at the end of the update.

Process

Modification Adjustment in the First System (Development System)

i Note

Since all modifications to standard SAP objects are displayed during the update and you have to adjust all the displayed objects, you have to schedule enough time for the modification adjustment.

This also applies to enhancements of the new Enhancement Framework that you have to adjust. However, you only have to adjust the enhancements if the underlying development objects were deleted or changed in an incompatible way.

You have to test the modification and enhancement adjustment in a development system that has the same SAP system release and that has been modified in the same way as the production system. If the development system contains more modifications or enhancements, or has a different Support Package level, contact an experienced SAP consultant for help. The following explanation assumes that the levels of modification are identical.

1. The list of objects that has to be adjusted in your SAP system is determined in the `ADJUSTCHK` phase. This phase is executed in the *Configuration* roadmap step and runs between the import of the substitution set and the end of the production period.

The list is in the `UMODPROT.<SAPSID>` log in the `\abap\log` subdirectory of the `SUM` directory.

2. **Release upgrade only:** If you choose preconfiguration mode *standard* or *advanced*, the ABAP Dictionary objects (tables, data elements, domains, and so on) are adjusted during production operation. If you choose preconfiguration mode *single system*, they are adjusted during downtime before the ABAP Dictionary is activated. The adjusted objects are collected in a repair that is released to a transport request. You have to release the tasks of the SPDD transport request. You should not release this transport request; instead, you have to flag it for transport in transaction SPDD.

Enhancement package installation and SPS update: The ABAP Dictionary objects (tables, data elements, domains, and so on) are adjusted during production operation. The adjusted objects are collected in a repair that is released to a transport request. You have to release the tasks of the SPDD transport request. You should not release this transport request; instead, you have to flag it for transport in transaction SPDD.

3. Modified or enhanced repository objects (reports, screens, and so on) are adjusted towards the end of the update. At this stage, the import of SAP objects has already been completed. However, the old modified version is still available in the version database. As with ABAP Dictionary objects, all changes are released to a transport request that is flagged and then exported and registered by the Software Update Manager. If you need to adjust enhancements, release these adjustments to the flagged transport request that already contains the adjusted modified objects. You should adjust all modifications before you adjust the enhancements.

Towards the end of the update, the Software Update Manager exports the request to the transport directory `\$(SAPGLOBALHOST)\sapmnt\trans` and registers it for transport in the `umodauto.lst` file.

Note

Make sure that the user `<sapsid>adm` has write permissions for the file `\<DIR_TRANS>\bin\umodauto.lst`.

Modification Adjustment in Subsequent Systems

For the quality assurance and production system, we recommend that instead of adjusting modifications and enhancements manually, you automatically transfer the transport requests exported from the first system: one for the ABAP Dictionary objects adjusted using transaction SPDD and one for the Repository objects adjusted using transactions SPAU and SPAU_ENH.

Note

If you have not set up a central transport directory, you have to perform some more steps before the transport requests can be transferred automatically. These steps are described in SAP Note [51046](#).

Caution

Make sure that the Support Package levels included in the update of the subsequent systems are similar to the Support Package levels included in the update of the first system.

The `ADJUSTPRP` phase in the *Configuration* roadmap step prepares the requests from the development system to be transferred.

The Software Update Manager reads the `umodauto.lst` file and prompts you to confirm a proposed transport request or to enter your own transport request. When you confirm the transport requests, they are integrated into the update.

The phase also checks whether all the modifications identified in the system are handled by transport requests. If this is the case, you do not need to perform a modification adjustment.

Caution

The number of objects in the adjustment transport requests might exceed the number of modifications in the receiving system. In this case, the Software Update Manager imports changes that previously did not exist in the receiving system.

For a detailed description of the modification adjustment function, see the [SAP Library \[page 14\]](#) for your target release at:

Table 7: SAP Library Paths

Release	Path in SAP Library
SAP NetWeaver 7.5	▶ SAP NetWeaver Library ▶ Application Help ▶ Function-Oriented View ▶ Application Server ▶ Application Server ABAP ▶ Application Development on AS ABAP ▶ ABAP Customer Development ▶ Changing the SAP Standard (BC) ▶ Modifying the Standard ▶ Modification Assistant ▶ Upgrade Procedure / Support Packages (link at the bottom of Modification Assistant page) ▶
SAP NetWeaver 7.3 / 7.3 including EHP1 / 7.4	▶ SAP NetWeaver Library ▶ Application Help ▶ Function-Oriented View ▶ Application Server ▶ Application Server ABAP ▶ Application Development on AS ABAP ▶ ABAP Customer Development ▶ Changing the SAP Standard (BC) ▶ Modifying the Standard ▶ Modification Assistant ▶ Upgrade Procedure / Support Packages (link at the bottom of Modification Assistant page) ▶
SAP NetWeaver 7.1 / SAP NetWeaver 7.1 including EHP1	▶ SAP NetWeaver Library ▶ Application Help ▶ Function-Oriented View ▶ Application Server ABAP ▶ Application Development on AS ABAP ▶ ABAP Customer Development ▶ Changing the SAP Standard (BC) ▶ Upgrade Procedure / Support Packages ▶
SAP NetWeaver 7.0 / SAP NetWeaver 7.0 including Enhancement Package 1 or 2 or 3	▶ SAP NetWeaver Library ▶ Application Help ▶ Function-Oriented View ▶ SAP NetWeaver by Key Capability ▶ Application Platform by Key Capability ▶ ABAP Technology ▶ ABAP Workbench ▶ Changing the SAP Standard ▶ Upgrade Procedure / Support Packages ▶

3.16 Importing Additional Languages

i Note

This section is only relevant if you perform a release upgrade.

➔ Recommendation

Importing new languages during an upgrade is a highly efficient process and is preferable to importing a language into a production system after an upgrade.

To import additional languages, you can choose between the following options:

- You import additional languages during the upgrade.
We recommend that you choose this option since importing new languages during an upgrade is a highly efficient process and is preferable to importing a language into a production system after an upgrade. In this way, you can avoid any sequencing problems arising from Support Packages included in the upgrade, or Support Packages you need to import after the upgrade.
- You import additional languages after the upgrade.
We recommend that you only use this option if the system contains the Support Packages for the language archives you are using. This is the case if you did not include any additional Support Packages in the upgrade, or did not import any additional Support Packages after the upgrade. For more information, see the *Language Transport* documentation, or SAP Note [352941](#).

The upgrade procedure itself only offers to update existing languages. You cannot install any new languages during the upgrade. However, you do have the option of classifying new languages in the SAP system before the upgrade with transaction SMLT, and importing them during the upgrade. For more information about this procedure, see SAP Note [322982](#).

3.17 Handling of Customer-Specific Translations and Z Languages in the Upgrade

Use

i Note

This section is only relevant if you perform a release upgrade.

Using the translation environment in the SAP system, you can translate missing texts of SAP objects or translate existing texts, for example, to customize them with your own terminology. For the latter, you need to define your own language (Z language) in the SAP system.

SAP system objects that you have changed are scanned by the Repository scanner during the upgrade. For these objects, the Software Update Manager provides a conflict resolution mechanism: Objects for which the SAP standard has not changed for the new release are taken on by the upgrade. Objects that collide with the new SAP standard are offered for modification adjustment.

Changes to language-dependent texts – that means translations of SAP system texts – are not considered as modifications to the SAP system and are not covered by any conflict resolution mechanism either. Therefore, these translations do not appear in the modification adjustment and are not saved during the upgrade of the SAP system. They have to be transported separately when an upgrade is performed.

To preserve your translations, you have to gather them in a transport request or language package. You then download the request or package from the source system and upload it into the target system. The procedure varies depending on your source release.

Caution

If you decide to save your translations, note the following:

- In addition to your translations, the transport request also contains language-independent parts. Importing these language-independent parts into the target system using the standard import tool `tp` or `TMS` can harm your system considerably! Make sure that you only import them with report `RSTLAN_IMPORT_SINGLE`.
- If SAP has changed the texts for which you have created translations in the target system, the upload of your translation into the target system overwrites the changes made by SAP.

Process

1. To gather your translations on the source release, you proceed as follows:

- Only valid for 'Source Release': SAP Basis 4.6C

If your source release is 4.6C, you create a transport request using report `RSLTMOD`.

End of 'Source Release': SAP Basis 4.6C

- Only valid for 'Source Release': SAP Basis 4.6D, SAP Web AS 6.20, SAP Web AS 6.40, SAP NetWeaver 7.0, SAP NetWeaver 7.1, SAP NetWeaver 7.3, SAP Web AS 6.10, SAP NetWeaver 7.0 EHP3, SAP NetWeaver 7.0 EHP2, SAP NetWeaver 7.0 EHP1, SAP NetWeaver 7.3 EHP1, SAP NetWeaver 7.4, SAP NetWeaver 7.5

If your source release is higher than 4.6C, you create a language package using transaction `SMLT_EX`.

End of 'Source Release': SAP Basis 4.6D, SAP Web AS 6.20, SAP Web AS 6.40, SAP NetWeaver 7.0, SAP NetWeaver 7.1, SAP NetWeaver 7.3, SAP Web AS 6.10, SAP NetWeaver 7.0 EHP3, SAP NetWeaver 7.0 EHP2, SAP NetWeaver 7.0 EHP1, SAP NetWeaver 7.3 EHP1, SAP NetWeaver 7.4, SAP NetWeaver 7.5

2. You download the transport request or language package before you perform the upgrade.

3. You upload the transport request or language package after the upgrade.

To upload the language package, you use transaction `SMLT`.


More Information

- For detailed information about the handling of customer translations during the update, see SAP Note [485741](#)



- For more information about using transactions SMLT_EX, SMLT, Z languages, and customer translations, see the language transport documentation in the [SAP Library \[page 14\]](#) for your target release at:

Table 8: SAP Library Paths

Release	Path in SAP Library
SAP NetWeaver 7.5	▶ Application Help ▶ Function-Oriented View ▶ Solution Life Cycle Management ▶ Software Logistics ▶ Change and Transport System ▶ Language Transport ▶
SAP NetWeaver 7.3 / 7.3 incl. EHP 1 / 7.4	▶ Application Help ▶ Function-Oriented View ▶ Solution Life Cycle Management ▶ Software Logistics ▶ Change and Transport System ▶ Language Transport ▶
<ul style="list-style-type: none"> ◦ SAP NetWeaver Process Integration 7.1 / 7.1 incl. EHP 1 ◦ SAP NetWeaver Mobile 7.1 / 7.1 incl. EHP 1 	▶ System Administration and Maintenance Information ▶ Technical Operations for SAP NetWeaver ▶ Administration of SAP NetWeaver Systems ▶ AS ABAP ▶ Software Logistics ▶ Language Transport ▶ and SAP Note 1015959 
SAP NetWeaver 7.0 / 7.0 incl. EHP 1, 2, or 3	▶ System Administration and Maintenance Information ▶ Technical Operations for SAP NetWeaver ▶ Administration of SAP NetWeaver Systems ▶ AS ABAP ▶ Software Logistics ▶ Language Transport ▶

3.18 Component Levels Contained in the Upgrade Export

Note

This section is only relevant if you perform a release upgrade.

The transport requests that are imported during the upgrade from the *Upgrade Export* archives contain data for the main SAP system components and for add-on components that are included in the standard SAP delivery of SAP NetWeaver or your SAP solution. For Support Releases, the component levels in the archives are usually quite high.

In the `IS_SELECT` phase of the *Configuration* roadmap step, the Software Update Manager only prompts you for add-ons contained in the archive for which we may deliver another update. Add-ons from the standard delivery for which we will not ship updates until the next release are not offered on the screen. You do not have to make a decision about them as they are updated automatically.

In the `BIND_PATCH` phase of the *Configuration* roadmap step, the Software Update Manager asks you to include Support Packages in the upgrade. If the *Upgrade Export* archives already contains a Support Package level higher than 0, only include Support Packages above this level.

For information about the component levels of the *Upgrade Export* DVD and the minimum Support Package levels, see the SAP Note for SAP NetWeaver / your application:

Table 9: SAP Notes with Component and Support Package Level Information

SAP NetWeaver / Application	SAP Note Number
SAP CRM	774615
SAP ERP	774615
SAP NetWeaver	789220
SAP SCM	850038
SAP Solution Manager	781448
SAP SRM	819722

Caution

If, for some reason, you have to apply Support Packages shortly before the upgrade, make sure that at least the equivalent Support Package for the target release is included.

3.19 Update of Distributed and High Availability Systems

Use

High availability systems on Windows use the build-in Microsoft Failover Cluster to ensure the availability of database and SAP components, like SAP Central Services, (A)SCS. There are other SAP certified HA solutions available, which are not covered by this guide. Contact the vendor of these HA solutions to get direct support for SAP upgrades.

The update of high availability systems differs from updates of normal systems since the Software Update Manager, which runs on the host with the primary application server instance, cannot control processes on the remote (cluster) ASCS instance. However, for Microsoft Failover Cluster, the process is highly automated with only a few manual steps needed. These manual steps are briefly outlined below. The individual steps are described in more detail under *Preparation* and at the appropriate places where they occur in the process.

For heterogeneous systems, that is, systems that have different operating systems on the primary and additional application server instances, you have to perform manual actions. Provide at least the target kernel for the remote instances.

Note

As of Windows Server 2008 (R2), Microsoft renamed the “cluster groups” to “Services and Applications”, and as of Windows Server 2012 to “Roles” in the Failover Cluster Manager. However, in the command line tools (`cluster.exe`, PowerShell) the cluster groups were not renamed. Therefore, we keep using this term in our

document. Wherever you are asked to perform an action for a “cluster group”, you have to perform it for “Services and Applications” or “Roles”, respectively, when using the Failover Cluster Manager.

Process

The update process for a **high availability** system is briefly outlined below:

1. If necessary, you change your HA system configuration and clean up profiles. Also, check for the necessity to change your HA system configuration. If the primary application server instance is configured as a local instance on one of the cluster nodes, you move the `SAP<SAPSID> HA` group to the host where the primary application server instance runs. For more information, see section [Preparing the Update of Distributed and High Availability Systems \[page 108\]](#).
2. You start the Software Update Manager on the host with the primary application server instance. If this instance is installed on one of the Microsoft Failover Cluster nodes, start the Software Update Manager on the cluster node where the primary application server instance runs.
3. The Software Update Manager checks the profile directory and, if the ASCS instance is installed with a different host name, assumes that the update runs in a distributed or high availability environment.
4. Before the downtime begins, you prepare the ASCS instance for the downtime as described in [Preparing the ASCS Instance for the Downtime \(HA Only\) \[page 163\]](#).
5. If prompted, you install a temporary license key in the shadow system and in the system during downtime. For information about license keys, see <https://support.sap.com/licensekey>.

i Note

Note that the new temporary license will not be removed automatically after the update. You can delete the temporary license manually after the update. Prior to this, use transaction SLICENSE to check whether the old license still exists.

6. At the end of the downtime, the Software Update Manager prompts you to install the latest SAP kernel on the host with the ASCS instance (phase `REQ_ASCS_SWITCH`). Additionally, you prepare the ASCS as described in [Performing Manual Actions for the SAP Central Services Instances \[page 167\]](#) (phase `REQ_ASCS_SWITCH_CLUSTER`).

For more information about high availability, see <http://scn.sap.com/community/business-continuity>.

3.20 Updates in an MCOD System Landscape

As of SAP Web Application Server 6.10, you can update systems in a Multiple Components in One Database (MCOD) system landscape. Note the following when you update an SAP system in an MCOD system landscape:

- At the start of the update, the Software Update Manager determines automatically whether there is more than one SAP system installed in the database. If there is more than one SAP system installed in the database, you are not prompted about archiving. Archiving is automatically activated during the entire update.

i Note

Do not switch off archiving when updating SAP systems in an MCOD system landscape.

All SAP systems in the database are affected if you need to reset the update.

- We do recommend to not perform parallel updates in MCOD systems. A restore that is necessary for one SAP system affects all SAP systems in the database and thereby affects other updates.

For more information about MCOD systems, see SAP Developer Network at <http://scn.sap.com/community/maxdb> ► [Overview](#) ► [Key Topics - General DBOS](#) ► [Multiple Components in One Database \(MCOD\)](#) ►, or go directly to <http://scn.sap.com/docs/DOC-8559>.

3.21 Importing Support Packages Before an Upgrade

i Note

This section is only relevant if you perform a release upgrade.

If you want to import a Support Package in a system for which you have already scheduled an upgrade, you have to ensure that the target release of the planned upgrade has at least the equivalent Support Package level as the source release.

When you import a current Support Package in the source release and the target release does not have the equivalent Support Package level, corrections of program errors and changes to the ABAP Dictionary may be missing in the target release. In a worst-case scenario, this may cause loss of data during the upgrade.

For more information, see SAP Note [832594](#).

3.22 Integration of Customer Transports

This topic is only valid for 'Target Release': SAP NetWeaver 7.3 EHP1, SAP NetWeaver 7.4, SAP NetWeaver 7.5, SAP NetWeaver 7.3, SAP NetWeaver 7.0 EHP2

This section deals with the integration of customer transports into the update procedure to reduce business downtime.

i Note

- The target release must be SAP NetWeaver 7.0 Enhancement Package 2 with SAP_BASIS support package 09 or a higher
- Note that the total technical downtime of the update procedure might become longer

After the update procedure and before you start the production system, that is, during the business downtime, you import your own transport requests, for example with new customizing or new developments for the target release. To reduce the business downtime, the Software Update Manager is equipped with the feature `Customer`

Transport Integration with SUM that integrates your transport requests into the update procedure. Moreover, it enables the import of multi-client customer transport requests and - in connection with the near-Zero Downtime Maintenance (nZDM) technology - the conversions of custom tables during the uptime.

Basic Concept

The Software Update Manager processes during the update a customer transport buffer file from the `Change and Transport System` (CTS). This file is a list of customer transport objects for the import into the target system during the update and contains the following information:

- Transports in the correct order
- One target client per transport line
- Transport deliveries already calculated by the CTS or `Change Request Management` (ChaRM)

The customer transports are imported logically after the SAP packages (upgrade packages, enhancement packages and support packages). If, for example, the target release of the SAP enhancement package installation is SAP ERP 6.0 Enhancement Package 6 with Support Package Stack level 2, all customer transports to be included must be valid for this target release, too.

The results of the import are synchronized back from the Software Update Manager to the `Transport Management System` (TMS) during the *Postprocessing* roadmap step of SUM. Afterwards, the transaction `STMS` can be used to analyze the results of the import.

If you use ChaRM of SAP Solution Manager, you can also integrate transports that were created by ChaRM. You can synchronize the information about the import status after the update using the *Refresh Status* option to have up-to-date information about your changes and projects.

i Note

It is also possible to process customer transport objects independently of a standard update procedure. A stack configuration file (`stack.xml`) is not necessary in this case.

White List Approach

The transport objects are processed based on a white list approach: Objects with an object type listed in a white list are imported and integrated into the shadow operations. Hence, these objects are enabled to be processed in the uptime. Examples for shadow-enabled objects are ABAP Dictionary objects such as tables, view types, or search help, or ABAP objects such as classes, programs, or screens.

Customer transport objects that are not enabled to run during uptime are integrated with SUM downtime operations. Examples for objects transported during downtime are roles, authorization objects, forms, or customizing.

Included Features and Products

The Customer Transport Integration feature of SUM includes the following features and products:

- **Modification handling**
Multiple SPDD and SPAU requests can be included in the customer buffer file together with customer transports. The dialogs to include SPDD or SPAU transport requests and single transport requests, which are normally displayed during the *Preprocessing* roadmap step, are not necessary and will not be displayed. SPDD/SPAU-related transports in the customer buffer file are identified automatically during the update procedure.
The correct order of the SPDD and SPAU transport requests in the customer buffer is preserved by the update procedure and already adjusted objects are automatically recognized in the transactions SPDD and SPAU.
- **Multiple clients**
Client-specific transport routing is used by default. Therefore, transport requests for multiple target clients are supported. The customer buffer file can contain multiple lines per transport with one target client per transport line (CTC=1 format).
- **Transport Management System (TMS)**
Information about customer transports managed in SUM will be transferred to the TMS. The transport logs can be viewed in TMS.
- **Change Request Management (ChaRM)**
ChaRM is a Solution Manager scenario that provides tracking and documentation of change requests and transports. Changes created in ChaRM can also be integrated in the update procedure.

More Information

The preparation and the use of the Software Update Manager with integrated customer transports is described in [Integrating Customer Transports into the Update Procedure \[page 120\]](#).

End of 'Target Release': SAP NetWeaver 7.3 EHP1, SAP NetWeaver 7.4, SAP NetWeaver 7.5, SAP NetWeaver 7.3, SAP NetWeaver 7.0 EHP2

3.23 ASCS Instance Split

This topic is only valid for 'Target Release': SAP NetWeaver 7.4, SAP NetWeaver 7.5

The Software Update Manager is equipped with a procedure to split off the ASCS from the primary application server instance. This procedure creates a new ASCS instance that runs on the primary application server. On systems with a single instance setup, the split is optional. It is mandatory for systems with a multi instance setup.

Since the standalone enqueue server is the future, we strongly recommend using the standalone enqueue server as the better solution. It offers better performance and better scalability for large systems (two or more additional application server instances). Furthermore, it is already the standard for all new installations and mandatory for high availability setups. In future releases, it will become mandatory for all systems.

As of SAP NetWeaver 7.50, the enqueue work process used within multi instance systems is not supported anymore for the following scenarios:

- Conversion of SAP systems to S/4HANA
- Upgrade or Update to SAP Business Suite 7 Innovation 2016 based on SAP NetWeaver 7.5

For more information about the desupport of the enqueue work process, see SAP Note [2146940](#).

If the Software Update Manager detects in the *Checks* roadmap step that you are using a system with a multi instance setup (one primary application server instance and several additional application server instances), the ASCS instance split is mandatory and will be performed automatically. You will be informed in the `CHECKS.LOG` file that the ASCS instance split will take place.

If you are using a system with a single instance setup (classical primary application server instance), the Software Update Manager prompts you in a dialog (phase `ASCS_ASK` of the *Checks* roadmap step) to select one of the following options:

- Perform the ASCS instance split
- Keep the current system setup

The ASCS split is optionally possible for updates with target release SAP NetWeaver 7.4 or higher, or if you carry out an update including the database migration option (DMO) of the Software Update Manager.

i Note

- If you use SUM with DMO, a lower target release might be possible, such as SAP BW 7.31. Check the requirements in the appropriate SAP Note for DMO. This SAP Note is listed in the *DMO Guide*, which is mentioned in the [List of Referenced Documentation \[page 248\]](#).
- If you perform an ASCS instance split on a high-availability (HA) system, contact your HA partner for questions regarding the changes of the cluster configuration.

Note that the usage of the enqueue work process is still possible for systems with single instance setup. However, we strongly recommend to perform the ASCS split and to migrate to a setup with a standalone enqueue server.

End of 'Target Release': SAP NetWeaver 7.4, SAP NetWeaver 7.5

4 Preparation

This part of the document contains information about the preparations that you need to make before you update your system. You can prepare for the update while the system is in production operation. Careful preparation of the update is the best guarantee that it runs without errors.

Caution

In addition to the general preparations described in this document, you need to perform the preparations that are specific to your product version, which are described in an additional product-specific document. This document is referenced in the *Master Guide* (or *Upgrade Master Guide*, respectively) for your product.

The Software Update Manager supports you here by making most of the necessary checks automatically. For more information about the checks performed by the Software Update Manager, see the descriptions in [Running the Software Update Manager \[page 110\]](#).

Actions

You perform the following actions before you start the Software Update Manager:

- [Determining the Host for the Preparations \[page 89\]](#)
- [Checking the Hardware Requirements \[page 89\]](#)
- [Checking the Software Requirements \[page 90\]](#)
 - Release upgrade and enhancement package installation: [Checking the Source Release of the SAP System \[page 91\]](#)
 - Only valid for 'Source Release': SAP NetWeaver 7.0, SAP NetWeaver 7.1, SAP NetWeaver 7.3, SAP NetWeaver 7.0 EHP3, SAP NetWeaver 7.0 EHP2, SAP NetWeaver 7.0 EHP1, SAP NetWeaver 7.3 EHP1, SAP NetWeaver 7.4, SAP NetWeaver 7.5

Release upgrade and enhancement package installation: [Checking the Uninstallation of Software Components \[page 92\]](#)
 - End of 'Source Release': SAP NetWeaver 7.0, SAP NetWeaver 7.1, SAP NetWeaver 7.3, SAP NetWeaver 7.0 EHP3, SAP NetWeaver 7.0 EHP2, SAP NetWeaver 7.0 EHP1, SAP NetWeaver 7.3 EHP1, SAP NetWeaver 7.4, SAP NetWeaver 7.5
 - [Meeting the Operating System-Specific Requirements \[page 93\]](#)
 - Release upgrade only: [Upgrade of the Operating System and Database System: Overview \[page 94\]](#)
 - [Installing or Updating SAP Host Agent \[page 96\]](#)
- [Checking the Database-Specific Requirements Before the Update \[page 98\]](#)
- [Checking the Structural Requirements for ABAP \[page 99\]](#)
- [Configuring OS User Authentication \[page 100\]](#)
- [Setting the Operation Mode for the Update \[page 101\]](#)
- [Checking the Consistency of the Host Name \[page 102\]](#)
- Enhancement package installation and SPS update: [Checking the Number of Background Processes \[page 103\]](#)
- [Deleting the AUTOSTART Parameter \[page 103\]](#)
- Only valid for 'Source Release': SAP Basis 4.6C, SAP Basis 4.6D, SAP Web AS 6.20, SAP Web AS 6.40, SAP NetWeaver 7.0, SAP Web AS 6.10, SAP NetWeaver 7.0 EHP1

[Making Preparations in the Monitoring Area \[page 104\]](#)
- End of 'Source Release': SAP Basis 4.6C, SAP Basis 4.6D, SAP Web AS 6.20, SAP Web AS 6.40, SAP NetWeaver 7.0, SAP Web AS 6.10, SAP NetWeaver 7.0 EHP1
- [Checking the Requirements for the Modification Adjustment \[page 105\]](#)

- [Filling the Download Directory \[page 106\]](#)
- [Preparing the Update of Distributed and High Availability Systems \[page 108\]](#)

4.1 Determining the Host for the Preparations

Context

You must prepare for the update on the host with the ABAP application server instance.

Procedure

Decide which hosts you need for the update preparation and the actual update of the SAP system:

- Host with the ABAP application server instance
You have to execute the update on the host where the ABAP application server instance is running. Typically, it is the host with the primary application server instance. However, you can also use an additional application server instance.
- Other hosts
The SL Common UI can run on any hosts that meet the necessary requirements.
- Database host
You have to perform the actions that affect the database on the database host.
- User Management Engine host
The remote instance host where the User Management Engine (UME) is located must be running.

4.2 Checking the Hardware Requirements

CPU, Main Memory, Disk, and Swap Space

Check whether you have sufficient hardware resources such as CPU, main memory, disk space, page files, and network bandwidth. For more information about sizing, see SAP Service Marketplace at <http://service.sap.com/sizing>.

Release upgrade only: To plan technical upgrades (without functional extensions), see the information about performing a delta sizing for upgrades on SAP Service Marketplace at <http://service.sap.com/sizing> [Sizing Guidelines](#).

Space Requirements in the File System

Make sure that there is enough temporary disk space available in the file system for the update. You need this free space for the `SUM` directory, the download directory, and directory `DIR_TRANS`. As the space requirements depend on the product, see the document with additional product-specific information for your update procedure to find information about the requirements. This document is referenced in the *Master Guide* or *Upgrade Master Guide*, respectively.

Space Requirements in the Database

Make sure that enough temporary and permanent free space is available in your database.

Release upgrade only: The Software Update Manager calculates the space requirements for the database. The free space required is in the range from 50 to 200 GB.

Enhancement package installation or SPS update: The Software Update Manager takes the status of your database into account and calculates the exact space requirements.

i Note

For Unicode systems, the amount of free space needed is higher than for non-Unicode systems. This highly depends on the database type, application component, and customer data.

For more information about Unicode systems, see SAP Service Marketplace at <http://service.sap.com/unicode> and SAP Note [1139642](#).

Release upgrade only: During MS SQL Server runtime, the option *Automatically grow file* is set. This makes the database adjust its size to the requirements during the upgrade if enough disk space is available.

Enhancement package installation or SPS update: The Software Update Manager gives you information about how much free space is needed in the database. During MS SQL Server runtime, the option *Automatically grow file* is set. This makes the database adjust its size to the requirements during the update if enough disk space is available.

4.3 Checking the Software Requirements

You have to meet certain software requirements before you update the SAP system.

1. Release upgrade and enhancement package installation: Check the [source release \[page 91\]](#) of the SAP system.

2. Only valid for 'Source Release': SAP NetWeaver 7.0, SAP NetWeaver 7.1, SAP NetWeaver 7.3, SAP NetWeaver 7.0 EHP3, SAP NetWeaver 7.0 EHP2, SAP NetWeaver 7.0 EHP1, SAP NetWeaver 7.3 EHP1, SAP NetWeaver 7.4, SAP NetWeaver 7.5

Release upgrade and enhancement package installation: Check the [uninstallation of software components \[page 92\]](#).

End of 'Source Release': SAP NetWeaver 7.0, SAP NetWeaver 7.1, SAP NetWeaver 7.3, SAP NetWeaver 7.0 EHP3, SAP NetWeaver 7.0 EHP2, SAP NetWeaver 7.0 EHP1, SAP NetWeaver 7.3 EHP1, SAP NetWeaver 7.4, SAP NetWeaver 7.5

3. Meet the [operating system-specific requirements](#) [page 93].
4. Release upgrade only: If necessary, upgrade the [operating system and database system](#) [page 94].
5. Install or update [SAP Host Agent](#) [page 96].

4.3.1 Checking the Source Release of the SAP System

Use

Note

This section is relevant if you perform a release upgrade or enhancement package installation.

Your SAP system should have one of the source releases that have been released for this update and apply to all databases. For information about the supported source releases, see the document with additional product-specific information, which is referenced in the *Master Guide* (or *Upgrade Master Guide*, respectively) for your product.

Different SAP NetWeaver usage types may have different minimum Support Package levels. If you update an SAP NetWeaver-based system containing various usage types, make sure that your source release is on any acceptable Support Package level for all usage types implemented in the system.

Note

The Software Update Manager will check whether your source release is supported for this update.

Caution

If you have to apply Support Packages to your source release shortly before the update, check whether the equivalent Support Package for the target release is already available. Otherwise, this may delay your update schedule.

Procedure

Procedure for ABAP Systems

To determine the source release of the SAP system, log on to the system and choose  [System](#)  [Status](#) .

The release appears in the [Component version](#) field.

4.3.2 Checking the Uninstallation of Software Components

This topic is only valid for 'Source Release': SAP NetWeaver 7.0, SAP NetWeaver 7.1, SAP NetWeaver 7.3, SAP NetWeaver 7.0 EHP3, SAP NetWeaver 7.0 EHP2, SAP NetWeaver 7.0 EHP1, SAP NetWeaver 7.3 EHP1, SAP NetWeaver 7.4, SAP NetWeaver 7.5

This section deals with the possible uninstallation of product instances and software components calculated by the Maintenance Planner.

Context

Note

This section is relevant if you perform a release upgrade or an enhancement package installation.

During the planning process with the Maintenance Planner, consider that the update can require the uninstallation of product instances and software components. The Maintenance Planner indicates the necessary uninstallations and the relevant SAP Notes. Read the SAP Notes carefully and, if necessary, carry out possible maintenance steps manually before you start the update.

During the update, the Software Update Manager lists the planned uninstallations and the relevant SAP Notes again in phase `PREP_EXTENSION/UNINSTALL_PREPARE`.

Caution

You cannot select further software components for the uninstallation in this phase.

Note that the uninstallation of software components requires the deletion of SAP repository or ABAP Dictionary objects, which might impact customer developments and functions. Using the *SAP Add-On Installation Tool* (transaction `SAINT`), you can carry out the uninstallation in a test scenario before the update. The *SAP Add-On Installation Tool* simulates the uninstallation, performs several detailed checks, and provides you with information about affected customer developments and functions. For more information, see the online help of the tool.

To simulate the uninstallation, proceed as follows:

Procedure

1. Start the *SAP Add-On Installation Tool* with transaction `SAINT`.
2. Choose **Extras** **Settings** **Import Queue**, and select the scenario *Test*.
3. Choose the tab page *Uninstallable Software Components* and select the software components to be uninstalled.

4. Choose *Start* and follow the further instructions.

End of 'Source Release': SAP NetWeaver 7.0, SAP NetWeaver 7.1, SAP NetWeaver 7.3, SAP NetWeaver 7.0 EHP3, SAP NetWeaver 7.0 EHP2, SAP NetWeaver 7.0 EHP1, SAP NetWeaver 7.3 EHP1, SAP NetWeaver 7.4, SAP NetWeaver 7.5

4.3.3 Meeting the Operating System-Specific Requirements

Only valid for 'Target Release': SAP NetWeaver 7.0 EHP3, SAP NetWeaver 7.0 EHP2, SAP NetWeaver 7.0 EHP1

All Supported Operating Systems

Depending on which SAP product and database you use, 32-bit systems and 64-bit systems are supported by the Software Update Manager. For more information, see the Product Availability Matrix (PAM) on SAP Service Marketplace at <https://support.sap.com/release-upgrade-maintenance/pam.html>

End of 'Target Release': SAP NetWeaver 7.0 EHP3, SAP NetWeaver 7.0 EHP2, SAP NetWeaver 7.0 EHP1

Only valid for 'Target Release': SAP NetWeaver 7.3 EHP1, SAP NetWeaver 7.1, SAP NetWeaver 7.4, SAP NetWeaver 7.5, SAP NetWeaver 7.3

All Supported Operating Systems

Release upgrade: Only 64-bit systems are supported by the Software Update Manager. For information about which operating systems are supported, see the Product Availability Matrix (PAM) on SAP Service Marketplace at <http://support.sap.com/pam>.

End of 'Target Release': SAP NetWeaver 7.3 EHP1, SAP NetWeaver 7.1, SAP NetWeaver 7.4, SAP NetWeaver 7.5, SAP NetWeaver 7.3

Windows

You need to install a new SAP MMC package (`sapmmc<Platform>.msi`) on all application servers. The package is available for download as `SAPMMCMSEI_<nr>.SAR` file on SAP Service Marketplace at <https://support.sap.com/swdc> [Support Packages and Patches](#).

i Note

In a distributed or high availability environment, you have to install the new SAP MMC version on all cluster nodes.

4.3.4 Upgrade of the Operating System and Database System: Overview

Use

When you update the SAP system, you may have to upgrade your operating system and database to a new version. For more information about which versions are currently supported, see the Product Availability Matrix on SAP Service Marketplace at <http://support.sap.com/pam>. The Software Update Manager only checks the minimum versions required for the update.

If you need to upgrade an operating system or database, or migrate a database, then the timing and the sequence of the individual upgrades is of great importance. The procedure differs according to the database you use. The following text provides an overview of the main process steps for upgrading the operating system and database system for each database.

Only valid for 'Target Release': SAP NetWeaver 7.3 EHP1, SAP NetWeaver 7.1, SAP NetWeaver 7.4, SAP NetWeaver 7.5, SAP NetWeaver 7.3

Caution

You have to migrate the operating system and database to 64-bit **before** the upgrade.

SAP only supports systems based on 64-bit on the target release. Make sure that you plan enough time in your upgrade schedule for the migration.

End of 'Target Release': SAP NetWeaver 7.3 EHP1, SAP NetWeaver 7.1, SAP NetWeaver 7.4, SAP NetWeaver 7.5, SAP NetWeaver 7.3

Only valid for 'Target Release': SAP NetWeaver 7.3 EHP1, SAP NetWeaver 7.1, SAP NetWeaver 7.4, SAP NetWeaver 7.5, SAP NetWeaver 7.3

➔ Recommendation

If you need to change the hardware, we recommend that you use the SAP System Copy procedure to migrate to 64-bit. For more information about system copy, see the installation documentation on SAP Service Marketplace.

End of 'Target Release': SAP NetWeaver 7.3 EHP1, SAP NetWeaver 7.1, SAP NetWeaver 7.4, SAP NetWeaver 7.5, SAP NetWeaver 7.3

i Note

Only valid for 'Target Release': SAP NetWeaver 7.4

Update to SAP NetWeaver 7.4 SPS08 and higher: You have to check if your current database version is supported for your scenario. To check the minimum database version, see SAP Note [1951491](#).

End of 'Target Release': SAP NetWeaver 7.4

Only valid for 'Target Release': SAP NetWeaver 7.5

Update to SAP NetWeaver 7.5 and higher: You have to check if your current database version is supported for your scenario. To check the minimum database version, see SAP Note [2158828](#).

End of 'Target Release': SAP NetWeaver 7.5

Process

MS SQL Server

1. You make sure that you meet the following requirements before you start the Software Update Manager for the first time:

1.

Only valid for 'Target Release': SAP NetWeaver 7.0 EHP2, SAP NetWeaver 7.0 EHP1

The required database version MS SQL Server 2005 or higher is installed.

For more information about the upgrade to MS SQL Server 2005, see SAP Note [799058](#).

For more information about the procedure for installing the service packs on MS SQL Server 2005, see SAP Note [985137](#).

For more information about configuration parameters for MS SQL Server 2005, see SAP Note [879941](#).

⚠ Caution

Make sure that you have installed all the required service packs for MS SQL Server. For a list of the MS SQL Server service packs required by SAP, see SAP Note [62988](#).

End of 'Target Release': SAP NetWeaver 7.0 EHP2, SAP NetWeaver 7.0 EHP1

2.

Only valid for 'Target Release': SAP NetWeaver 7.3 EHP1, SAP NetWeaver 7.4, SAP NetWeaver 7.5, SAP NetWeaver 7.3, SAP NetWeaver 7.0 EHP3

The required database version MS SQL Server 2008 or higher is installed.

For more information about the upgrade to MS SQL Server 2008, see SAP Note [1152240](#).

For more information about the procedure for installing the service packs on MS SQL Server 2008, see SAP Note [1473016](#).

For more information about configuration parameters for MS SQL Server 2008, see SAP Note [1237682](#).

Caution

Make sure that you have installed all the required service packs for MS SQL Server. For a list of the MS SQL Server service packs required by SAP, see SAP Note [62988](#).

End of 'Target Release': SAP NetWeaver 7.3 EHP1, SAP NetWeaver 7.4, SAP NetWeaver 7.5, SAP NetWeaver 7.3, SAP NetWeaver 7.0 EHP3

3. The startup parameter `-p` should **not** be set (standard MS SQL Server works with a maximum precision of 38 characters).
2. You run the Software Update Manager up to the *Checks* roadmap step and analyze the results.
3. You upgrade the system with your choice of preconfiguration mode. All preconfiguration modes are supported. The login `sapr3` no longer exists in the database after the upgrade. The upgrade deletes this login.

4.3.5 Installing or Updating SAP Host Agent

The SAP Host Agent is a tool that can be used for monitoring and control of SAP instances and non-SAP instances, operating systems, and databases.

The SAP Host Agent is present on all systems running on SAP Kernel 7.20 and higher. As part of an SAP instance, the SAP Host Agent is automatically updated along the SAP kernel. However, it can also be installed and upgraded independently from an SAP instance, whether by your choice to do so, or if the automatic update has not been performed (see SAP Note [1113545](#) for possible causes).

Furthermore, software provisioning manager 1.0 installs or updates the SAP Host Agent in the course of the installation of an SAP instance based on SAP NetWeaver 7.0 SR3 or higher. If the SAP Host Agent is not available on the host of the SAP instance, it will be installed. If the SAP Host Agent is already preinstalled on the host of the SAP instance, the software provisioning manager checks its version and updates it if necessary.

For a correct execution of the update procedure, make sure that you have installed at least the relevant minimum SAP Host Agent version on all application server instances as mentioned in the central SUM Note [2223738](#). However, we strongly recommend that you always use the latest version of the SAP Host Agent.

For more information, see SAP Notes [1031096](#) and [1907566](#).

Procedure

To manually install SAP Host Agent or update it on remote hosts, proceed as described in the [SAP Library \[page 14\]](#) at:

Table 10: SAP Library Paths

Release	Path in SAP Library
SAP NetWeaver 7.5	▶▶ Application Help ▶ Function-Oriented View <Language> ▶ Solution Life Cycle Management ▶ SAP Host Agent ▶, sections SAP Host Agent Installation or SAP Host Agent Upgrade
SAP NetWeaver 7.3 / 7.3 incl. EHP 1 / 7.4	▶▶ Application Help ▶ Function-Oriented View <Language> ▶ Solution Life Cycle Management ▶ SAP Host Agent ▶, sections SAP Host Agent Installation or SAP Host Agent Upgrade
SAP NetWeaver PI 7.1 / 7.1 incl. EHP 1	▶▶ Application Help ▶ Function-Oriented View <Language> ▶ ABAP Technology ▶ Administration Tools for AS ABAP ▶ Monitoring the CCMS ▶ Infrastructure of the SAP NetWeaver Management Agents ▶ SAP Host Agent ▶, sections SAP Host Agent Installation or SAP Host Agent Upgrade
SAP NetWeaver 7.0 / 7.0 incl. EHP 1 or 3	▶▶ Application Help ▶ Function-Oriented View <Language> ▶ SAP NetWeaver by Key Capability ▶ Solution Life Cycle Management by Key Capability ▶ SAP Host Agent ▶, in the Related Information section, chapters SAP Host Agent Installation or SAP Host Agent Upgrade
SAP NetWeaver 7.0 incl. EHP 2	▶▶ Application Help ▶ Function-Oriented View <Language> ▶ SAP NetWeaver by Key Capability ▶ Solution Life Cycle Management by Key Capability ▶ Solution Monitoring ▶ Monitoring in the CCMS ▶ SAP Host Agent ▶, sections SAP Host Agent Installation or SAP Host Agent Upgrade

i Note

During the update procedure, SAP Host Agent can be automatically installed only in the primary application server host if it is included in the `stack.xml` file.

If it is included in the `stack.xml` file, SUM automatically updates SAP Host Agent only on the local host where SUM is started. On remote hosts, you have to manually perform updates, as SAP Host Agent is not automatically replicated on these instances.

4.4 Checking the Database-Specific Requirements Before the Update

Procedure

You make sure that you meet the following requirements before you start the Software Update Manager for the first time:

- Check the logon of the user `<sapsid>adm`.

In this procedure, the SAP executable logs on to the SQL Server database under the Windows user under which it is called. Therefore it is necessary that the MS SQL Server contains a logon for each Windows user under which SAP processes are started. These are usually the users `<sapsid>adm` and `SapService<SAPSID>`.

Release upgrade only: During the upgrade, the SAP tools use the Windows user `<SAPSID>ADM` to log on to the database. This means that you have to make sure before the upgrade that a logon exists for user `<SAPSID>ADM` in the database and that it has the required settings.

Enhancement package installation and SPS update: During the update, the SAP tools use the Windows user `<SAPSID>ADM` to log on to the database. This means that you have to make sure before the update that a logon exists for user `<sapsid>adm` in the database and that it has the required settings.

Check the logon in the Microsoft SQL Server Management Studio as follows:

1. Start the Microsoft SQL Server Management Studio.
 2. Connect to your MS SQL Server using the Windows authentication.
 3. In the *Console Root* tree, expand the *MS SQL Server instance* node and choose **Security > Logins**. The child nodes of the *Logins* node display the available logons. The logon for the user `<SAPSID>ADM` has to exist here. Check that the `<SAPSID>` database is the default database for this logon and that *sysadmin* is set as the server role. If you are upgrading an MCO system, make sure that the default database name corresponds to the `rsdb/mssql/dbname` parameter (or `db/mss/dbname` in newer releases). If necessary, correct the settings and confirm your changes with *OK*.
 4. If there is no logon for the user `<sapsid>adm`, you have to create one:
 1. Right-click on the *Logins* node and choose *New Login*. The system displays the *Login - New* screen.
 2. On the *General* page:
 - Enter the name of the logon: `<sapsid>adm`.
If the `<sapsid>adm` user is a domain user enter `<domain>\<sapsid>adm`
 - For authentication, choose *Windows*.
 - Specify the `<SAPSID>` database as the default database.
If you are upgrading an MCO system, the name of the database in your system may not be `<SAPSID>`. For the correct name, see the `rsdb/mssql/dbname` parameter (or `db/mss/dbname` in newer releases) in the default profile.
 3. On the *Server Roles* page, select the server role *sysadmin*.
 4. Confirm your selection with *OK*.
- Check the environment variables.
 1. Check whether the following environment variables exist and are set correctly.
To check the value of a variable execute `set <variable name>` in the command prompt.
 - MSSQL_SERVER has to contain the database host. If you use a named instance, it should have the value `<hostname>\<instancename>`

- MSSQL_DBNAME has to contain the database name of your system.
 - Schema systems only: MSSQL_SCHEMA has to be set to <SID> in lower case. For all other systems, the variable should not exist or has to be set to dbo.
2. If necessary, set the missing variables in the user environment via the Windows control panel by choosing **► System ► Advanced ▾**.

Caution

Incorrect values in these environment variables lead to errors during the update.

Make sure that these environment variables and the corresponding profile parameters have the same values.

- Check the profile parameters in the default profile and in the instance profile
The default profile is located in `usr\sap\<SID>\sys\profile\DEFAULT.PFL`.
The instance profile is located in `usr\sap\<SID>\sys\profile\<SID>_DVEBMGS<NN>_<HOST>`.
Check whether the following profile parameters are set:
 - `dbms/type` should have the value `mss`.
 - `dbms/mss/server` has to contain the database host. If you use a named instance, it should have the value `<hostname>\<instancename>`.
 - `dbms/mss/dbname` has to contain the database name.
 - Schema systems only: `dbms/mss/schema` has to be set to <SID> in lower case. For all other systems, the parameter should not exist or has to be set to `'dbo'`.
 - `SAPDBHOST` has to contain the database host only without the instance name in case you use a named instance.

Caution

Incorrect values in these profile parameters lead to errors during the update.

Make sure that these profile parameters and corresponding environment variables have the same values.

4.5 Checking the Structural Requirements for ABAP

Context

Note

If you update a distributed or high availability system, this procedure does not apply. For more information, see [Update of Distributed and High Availability Systems \[page 82\]](#).

You have to meet the following structural requirements before you update your system:

- The message server has to run on the host with the primary application server instance.
During the update, the Software Update Manager uses Remote Function Call (RFC) to call function modules and temporarily schedules ABAP report programs for background processing.

For this reason, the message server has to still be running after the additional application server instances are stopped. You can only guarantee this if the message server is located on the same host as the primary application server instance.

SAP systems installed in the standard way meet the specified structural requirements.

If you are not sure whether you have a standard installation, you can use the following procedure to check the structural requirements.

Procedure

1. Call transaction RZ10.
2. Choose **► Goto ► Profile values ► Of a server ►**.
3. Choose the server (host) where the primary application server instance is running.

The profile parameters for this server are displayed with their values.

4. Check the profile parameter `rdisp/mshost`.

This parameter contains the host name where the message server is running. It has to run on the same host as the primary application server instance. This makes sure that the message server is active during downtime, because only the primary application server instance runs during downtime, while the additional application server instances are stopped.

5. If you have made changes to the standard SAP system, check the profile parameter `rdisp/wp_no_vb`. This parameter displays the number of update processes for the primary application server instance. The number should be greater than 0.

4.6 Configuring OS User Authentication

To ensure that the user authentication used by SUM is working and the restart operations during the update are successful, you have to configure the OS user authentication correctly before starting SUM.

Procedure

Apply SAP Note [927637](#) and the OS-specific SAP Notes attached to it.

4.7 Setting the Operation Mode for the Update

Prerequisites

No operation modes should exist that contain servers other than those belonging to the current system.

Context

Enhancement package installation and SPS update:

Various background jobs are started during the update. When you schedule jobs, a check is made to see whether the SAP instance on which you want them to run is defined in an operation mode. The operation mode specifies which services are offered by the work processes (dialog, update, background processing, enqueue, spool, and so on).

Release upgrade only:

Various background jobs are started during the upgrade. An operation mode defines how the resources of the individual instances of your system are configured. By specifying the operation mode, you can therefore determine which services are offered by the work processes (dialog, update, background processing, enqueue, spool, and so on) as well as the times that the services are available.

With the following steps, you perform the following tasks:

- Deleting invalid operation modes
- Defining the valid operation mode for the SAP instance on which you want to upgrade your SAP system

When you schedule background jobs, the Software Update Manager checks whether the SAP instance where the background jobs are intended to run is defined in an operation mode.

Procedure

1. Call transaction RZ04 to check the definition of your operation modes. In addition, check the DUMMY operation mode. The DUMMY operation mode may have <host name>_<SAPSID> entered as the server name. Change this entry to <host name>_<SAPSID>_<instance number>.
2. Delete the invalid operation modes. If operation modes contain names of servers other than those belonging to the system, problems may arise in the background interface in some phases. The jobs may be released, but not set as *active* (in theory, this affects all jobs scheduled to start on a specific server and triggered by an event).
3. If the SAP instance on which you want to perform the update is not entered in an operation mode, create the operation mode for the update as follows:
 - a. Call transaction RZ04.
 - b. Choose **Operation mode** > **Create**.

Enter a name for the operation mode, for example, **Update**. Enter a short description and then save the operation mode.

- c. Make sure that the instance required for the update has been started up.
 - d. Position the cursor on the new operation mode and choose ► *Operation mode* ► *Maintain instances* ► *Instances/OP modes* ►.
 - e. Choose ► *Settings* ► *Based on act. status* ► *New Instances* ► *Generate* ►.
- This displays all instances and their current configuration.
- f. Choose *Save*.
 - g. Call transaction SM63 to enter the operation mode you have defined as an active operation mode for 24 hours (select *Normal operation (24 hours)*).

4.8 Checking the Consistency of the Host Name

Use

For all references to the host names in the SAP system, you need to check whether you need to enter the host name in uppercase or lowercase letters. If the host name is inconsistent, problems occur in the phases `PROFCHK` and `RFCCHK`. When you enter the host name, you have to use the TCP/IP host name.

Procedure

Execute the following steps to check how host names are used:

1. Determine the TCP/IP name, choosing the following path:
 ► *Start* ► *Control Panel* ► *Network Connections* ► *Public Properties* ► *Properties* ►
 You can also check the TCP/IP name by entering the following command in the command line:
`ipconfig /all`
2. Check the SAP profiles:
 All references to the host name in SAP profiles (for example, `rdisp/btcname`, `SAPDBHOST`, `SAPLOCALHOST`) should contain the TCP/IP name. The only place where uppercase and lowercase letters are not important is the `SAPGLOBALHOST` parameter.
 If you have made corrections to the SAP profiles, stop the SAP system and the SAP service and start them both again.
3. Check the entries in the file `\etc\hosts`:
 Edit the file `%WINDIR%\system32\drivers\etc\hosts`

➔ Recommendation

We recommend that you maintain all the addresses and host names of all the SAP servers in the grouping in the local file hosts.

In addition, insert an entry for the IP address and the TCP/IP name of your computer according to the following convention:

```
<IP address> <TCP/IP host names>
```

Delete any ALIAS entries that assign the host names in a different case lettering than the ALIAS for your IP address.

Example of what you should not use:

```
155.56.172.17 pccpq1 PCCPQ1
```

4. Use transaction SM51 to check the host name. For each server, the different names are displayed in table format (columns *Server Name*, *Host Name*, and *Message Types*). The host names in the columns *Server Name* and *Host Name* have to be identical and have to match the TCP/IP host name.

The output could appear as follows:

```
pn0014_KKK_10 pn0014 Dialog Update Enqueue Batch
```

If the first parameter (*Server Name*) is not correct, check step 2 again (Check the SAP profiles). If the second parameter is not correct, check the entries made under step 3 (Check the entries in the file `\etc\hosts`).

5. Check the case lettering of your host name in the definition of your operating types. To do this, call transaction RZ04, double-click the operation mode, and make sure that the TCP/IP name is always referenced.

4.9 Checking the Number of Background Processes

i Note

This section is relevant if you perform an enhancement package installation or SPS update.

Make sure that the primary application server instance of your system is configured to run at least two background processes before you start the Software Update Manager. We highly recommend to use three background processes to be able to make use of the parallelization in the `RUN_RSDBSCPY_INIT` phase. If you use a background processing host different from your primary application server instance, it also applies to this background processing host.

4.10 Deleting the AUTOSTART Parameter

Delete the parameter `AUTOSTART = 1`, if it is set, in the start profile (`START_<SPECIFICATION><INSTANCE_NO>_<HOSTNAME><SAPSID>`.) You can find the start profile in the directory under `\usr\sap<SAPSID>\SYS\profile` or by calling transaction RZ10.

Setting the parameter `Autostart = 1` causes the SAP service and the SAP system to start when the Windows system is booted.

This mechanism should be switched off during the update.

You can set the parameter again if required once the update has been successfully completed. Note that this parameter may not be set in an Microsoft Failover Cluster configuration.

4.11 Making Preparations in the Monitoring Area

This topic is only valid for 'Source Release': SAP Basis 4.6C, SAP Basis 4.6D, SAP Web AS 6.20, SAP Web AS 6.40, SAP NetWeaver 7.0, SAP Web AS 6.10, SAP NetWeaver 7.0 EHP1

As of SAP NetWeaver 7.0 including enhancement package 2, the agents infrastructure has changed significantly. Before the update, you need to perform several activities to ensure a smooth transition to the new release. The procedure depends on the use of a central monitoring system (CEN).

For more information, see the [SAP Library \[page 14\]](#) for your target release at:

Table 11: SAP Library Paths

Release	Path in SAP Library
SAP NetWeaver 7.5	<p> Application Help > Function-Oriented View <Language> > Solution Life Cycle Management > Solution Monitoring > Monitoring the CCMS > Infrastructure of the SAP NetWeaver Management Agents > Technical Background of the SAP NetWeaver Management Agents > CCMS Agents: Upgrade of Monitored Systems from NW 7.0x to 7.1x or higher </p>
SAP NetWeaver 7.3 / 7.3 incl. EHP 1 / 7.4	<p> Application Help > Function-Oriented View <Language> > Solution Life Cycle Management > Solution Monitoring > Monitoring the CCMS > Infrastructure of the SAP NetWeaver Management Agents > Technical Background of the SAP NetWeaver Management Agents > CCMS Agents: Upgrade of Monitored Systems from NW 7.0x to 7.1x or higher </p>
SAP NetWeaver PI 7.1 / 7.1 incl. EHP 1	<p> Application Help > Function-Oriented View <Language> > Application Server ABAP > Administration Tools for AS ABAP > Monitoring the CCMS > Infrastructure of the SAP NetWeaver Management Agents > Technical Background of the SAP NetWeaver Management Agents > CCMS Agents: Upgrade of Monitored Systems from NW 7.0 to 7.1 </p>
SAP NetWeaver 7.0 incl. EHP 3	<p> Application Help > Function-Oriented View <Language> > Solution Life Cycle Management by Key Capability > Solution Monitoring > Monitoring in the CCMS > Infrastructure of the SAP NetWeaver Management Agents > Technical Background of the SAP NetWeaver Management Agents > CCMS Agents: Upgrade of Monitored Systems from NW 7.0x to 7.1x or Higher </p>

Release	Path in SAP Library
SAP NetWeaver 7.0 incl. EHP 2	Application Help > Function-Oriented View <Language> > Solution Life Cycle Management by Key Capability > Solution Monitoring > Monitoring in the CCMS > Infrastructure of the SAP NetWeaver Management Agents > Technical Background of the SAP NetWeaver Management Agents > CCMS Agents: Upgrade of Monitored Systems to NW 7.0 EhP 2

End of 'Source Release': SAP Basis 4.6C, SAP Basis 4.6D, SAP Web AS 6.20, SAP Web AS 6.40, SAP NetWeaver 7.0, SAP Web AS 6.10, SAP NetWeaver 7.0 EHP1

4.12 Checking the Requirements for the Modification Adjustment

If you modified SAP objects in your SAP system, make sure that you meet the requirements for the [modification adjustment \[page 75\]](#).

Caution

In particular, make sure that changes to the Repository are allowed in the client in which you want to perform the modification adjustment. To check this, call transaction SCC4.

For more information about the requirements for the modification adjustment, see the [SAP Library \[page 14\]](#) for your target release at:

Table 12: SAP Library Paths

Release	Path in SAP Library
SAP NetWeaver 7.5	Application Help > Function-Oriented View > Application Server > Application Server ABAP > Application Development on AS ABAP > ABAP Customer Development > Changing the SAP Standard > Modifying the Standard > The Modification Assistant
SAP NetWeaver 7.3 / 7.3 incl. EHP 1 / 7.4	Application Help > Function-Oriented View > Application Server > Application Server ABAP > Application Development on AS ABAP > ABAP Customer Development > Changing the SAP Standard > Modifying the Standard > The Modification Assistant
SAP NetWeaver 7.1 / 7.1 incl. EHP 1	Application Help > Function-Oriented View > Application Server ABAP > Application Development on AS ABAP > ABAP Customer Development > Changing the SAP Standard > The Modification Assistant

Release	Path in SAP Library
SAP NetWeaver 7.0 / 7.0 incl. EHP 1, 2, or 3	▶ Application Help ▶ Function-Oriented View ▶ SAP NetWeaver by Key Capability ▶ Application Platform by Key Capability ▶ ABAP Technology ▶ ABAP Workbench ▶ Changing the SAP Standard ▶ The Modification Assistant ▶

Caution

If you do not make sure that you have met the requirements for the modification adjustment, we cannot guarantee complete support during the adjustment. You also risk losing the data for ABAP Dictionary objects.

4.13 Filling the Download Directory

You can put all files and software packages with which you want to update your system in a download directory.

Context

During the *Select Target* roadmap step, you are prompted to enter the path to the stack configuration XML file that has to be available in your download directory. The Software Update Manager reads the download directory, unpacks the .SAR files, and moves the files to the appropriate directories from where they are then further processed by the Software Update Manager.

You can put the following files in the download directory:

- Support Package stacks of the target release
Release upgrade only: The Support Package stacks include among other things ABAP patches, which are optional. If you do not fill your download directory with ABAP patches, the Software Update Manager will not automatically extract them during the *Extraction* roadmap step.
- Enhancement packages
- SAP kernel for the target release
Release upgrade only: Unless you are performing the upgrade directly after you have downloaded the calculated software archives, you can always check whether there is a newer version of the SAP kernel available on SAP Support Portal and download it to the download directory. The Software Update Manager then unpacks the files and moves them to subdirectory `exe` of the `abap` subdirectory of the `SUM` directory. Downloading the latest version of the SAP kernel has the following advantages:
 - You do not have to install the latest SAP kernel after the upgrade.
During the *Configuration* roadmap step, the Software Update Manager prompts you to put the latest SAP kernel into the download directory. If the latest SAP kernel is available in this subdirectory, the SAP kernel of your system is already up-to-date after the upgrade.
 - You can avoid this prompt if you download the latest SAP kernel from SAP Service Marketplace to the download directory. It appears if you have included SAP Basis Support Packages in the upgrade and dependencies exist between these Support Packages and the SAP kernel version.

Enhancement package installation and SPS update:

There may be dependencies between the versions of the SAP Basis Support Packages and the SAP kernel. If you want to install Support Packages for SAP Basis during the update and such dependencies exist, then during the *Configuration* roadmap step, the Software Update Manager prompts you to put the latest SAP kernel into the download directory. You can avoid this prompt if you download the latest SAP kernel for the target release from SAP Support Portal to the download directory.

- Stack configuration XML file
- Calculated archive files

Release upgrade only: You can provide all necessary language archives in the download directory.

Caution

Make sure that the files and software packages that you want to include in the upgrade, such as `.SAR` files, are located at the top level of your download directory. They should not be located in any subdirectories. This could be the case, for example, when you just copy the upgrade archives into the download directory.

Note

Additional kernel components

Make sure that you have selected all necessary kernel components, such as the `IGSEXE.SAR` file, in the Maintenance Optimizer or the Maintenance Planner. Currently, the Maintenance Planner does not calculate these files automatically.

Usage of Spanning Archives

The media content may be delivered as spanning archives on SAP Support Portal. This means that the archives are split into several files to avoid a large data volume and provided in multiple archive files. To use these files with the Software Update Manager, you extract the archive files that belong together into the provided subdirectories.

When the Software Update Manager requests DVD mount points, you enter the subdirectories that contain the `MID.XML` file.

Procedure

1. Create a download directory. The directory can be located anywhere on your host.
2. Put all software packages and files required during the update into the download directory.

4.14 Preparing the Update of Distributed and High Availability Systems

Use

If you want to update a high availability (HA) system, prepare your system as follows:

Procedure

Creating an Optimal Starting Point

To create a reliable starting point for the update, it is crucial that you have implemented an HA system configuration as recommended by SAP. Below, you can find problems resulting from different configurations and possible solutions:

- Manually set up standalone enqueue server
The following only applies to standalone enqueue servers (separately started enqueue server process), not to officially supported ASCS instances.
If you have set up a standalone enqueue server manually, you have to revert this configuration before the execution of the downtime steps of the update. Revert this configuration before the kernel switch step at the latest. The Software Update Manager is unable to detect a manual setup of standalone enqueue servers and, therefore, cannot update them. This might cause problems when the system is started for the first time after the kernel switch.
- Profile directory
 - Remove any old, unused profiles and backup copies. The directory has to contain only active profile files. All file names have to match the SUM profile naming conventions.
 - Do not use links to local profiles with different names. The Software Update Manager can only work with physical profile files.

Moving the SAP <SAPSID> HA Group

If the primary application server instance runs on a cluster node, move the cluster group `SAP <SAPSID>HA` to this node. If there is no primary application server instance installed on any cluster node, it's not necessary to move the cluster group.

To move the cluster group proceed as follows:

Windows Server 2008 (R2)

1. Open ► *Administrative Tools* ► *Failover Cluster Manager* ►.
2. Choose ► *Groups* ► *SAP <SAPSID>* ►.
3. Check whether this group is online on the node with the primary application server instance.
4. If it is not online, move the group to the node with the primary application server instance. In the context menu of the group, choose *Move Group*.

Windows Server 2012 and Windows Server 2012 (R2)

1. Open the PowerShell console with elevated rights.

-
2. Check the node where the primary application server instance installed is the owner of the SAP <SAPSID> group by executing the following command: `get-clustergroup "SAP <SAPSID>"`.
 3. If the node with the primary application server instance is not the owner, move the group to this node by executing the following command: `move-clustergroup "SAP <SAPSID>"`.

5 Running the Software Update Manager

This section provides information about starting and running the Software Update Manager. It describes all required user input and actions, as well as critical points during the update.

Note the following:

- All required planning and preparation actions have to be completed.
- The Software Update Manager controls the entire procedure, from checking the system requirements and importing the necessary programs through stopping production operation until production operation is resumed. The procedure is divided up into a number of different roadmap steps. The roadmap steps are in turn divided into individual steps. The successful completion of a step is a precondition for the success of all subsequent steps.

For a complete list of all steps, see the `phaseslist.xml` file available in the directory `<DRIVE>:\<path to SUM directory>\SUM\abap\htdoc`.

Alternatively, you can check the [process overview report \[page 199\]](#).

- The Software Update Manager typically runs on the application server of the primary application server instance. However, you can also use an additional application server instance.
- If your primary application server instance and database are running on different hosts, you have to perform the actions that affect the database on the database host.
- **Enhancement package installation and SPS Update:** All customer implementations to SAP exit function modules within the SAP BASIS will be disabled on the shadow instance at the beginning of the update procedure. They will be re-enabled at the end of the downtime so that they can be used productively again in the updated system.

The reason for this is, that SAP exit function modules with access to tables can be implemented within customer enhancement projects (R3TR CMOD). However, this could lead to errors during the update because these tables do not exist in the shadow system.

- To monitor the procedure, you can use the logs created by the Software Update Manager, which are for example accessible on the SL Common UI or with the log tail viewer in the *More* menu (see also: [SL Common UI Elements and Options \[page 37\]](#)). Or you use the SUM [Process Overview Report \[page 199\]](#).
- Many steps require no user input. In the following, you can find a description of all necessary user input.
- User actions are also required when errors occur. If an error occurs, correct it and repeat the step in which the error has occurred. Once the step has been repeated successfully, you can continue with the update. For more information, see [Troubleshooting \[page 199\]](#).

Actions

Note

If the Software Update Manager displays a dialog box and you need further information about the required input, you can identify the current update step by checking the [process overview report \[page 199\]](#) or using the `SAPupConsole.log` file.

The `SAPupConsole.log` file is located in directory `<update directory>\abap\log`.

You perform the following actions to start and use the Software Update Manager:

- [Meeting the Requirements for the SUM Directory \[page 111\]](#)
- [Downloading and Unpacking the Software Update Manager \[page 112\]](#)
- [Registering SUM in SAP Host Agent \[page 114\]](#)
- [Starting and Restarting the Software Update Manager \[page 115\]](#)
- [Starting the SUM Observer Monitor \[page 116\]](#)
- [Resetting the Update \[page 117\]](#)
- [Using Breakpoints During the Update \[page 118\]](#)
- | |
|--|
| Only valid for 'Target Release': SAP NetWeaver 7.3 EHP1, SAP NetWeaver 7.4, SAP NetWeaver 7.5, SAP NetWeaver 7.3, SAP NetWeaver 7.0 EHP2 |
|--|

[Integrating Customer Transports into the Update Procedure \[page 120\]](#)
- | |
|--|
| End of 'Target Release': SAP NetWeaver 7.3 EHP1, SAP NetWeaver 7.4, SAP NetWeaver 7.5, SAP NetWeaver 7.3, SAP NetWeaver 7.0 EHP2 |
|--|

[Release upgrade only: Importing or Installing Software After Starting the Upgrade \[page 122\]](#)

You perform the following actions during the roadmap steps:

- [Making Entries for the Specify Authentication Mechanism Roadmap Step \[page 123\]](#)
- [Making Entries for the Select Target Roadmap Step \[page 123\]](#)
- [Making Entries for the Confirm Target Roadmap Step \[page 124\]](#)
- [Making Entries for the Extraction Roadmap Step \[page 124\]](#)
- [Making Entries for the Configuration Roadmap Step \[page 128\]](#)
 - [Entering Paths and Parameters \[page 129\]](#)
 - [Including Software \[page 132\]](#)
 - [Making Entries for the Shadow Instance Installation \[page 141\]](#)
- [Making Entries for the Checks Roadmap Step \[page 142\]](#)
- [Evaluating the Results of the Preparation Roadmap Steps \[page 145\]](#)
- [Making Entries for the Preprocessing Roadmap Step \[page 149\]](#)
- [Preparing the Remote Host for the Downtime \[page 162\]](#)
- [Preparing the ASCS Instance for the Downtime \(HA Only\) \[page 163\]](#)
- [Isolating the Primary Application Server Instance \[page 164\]](#)
- [Making Entries for the Execution Roadmap Step \[page 165\]](#)
- [Making Entries for the Postprocessing Roadmap Step \[page 168\]](#)
- [Evaluating the Update Process \[page 171\]](#)
- [Running the Software Update Manager Repeatedly \[page 172\]](#)
- [Stopping the Software Update Manager \[page 172\]](#)

5.1 Meeting the Requirements for the SUM Directory

Context

If you do not specify a path when you unpack the Software Update Manager package, the SUM directory is automatically created as a subdirectory of the directory where you unpack the software package. However, we recommend that you use the standard path <DRIVE>:\usr\sap\<SAPSID>.

i Note

If a directory with this name already exists, it has to be empty. Otherwise the startup of the update fails.

! Caution

- Do not use symbolic links to remote directories.
- Do not use volume mount points.
- Set security settings even for local symbolic links or junctions. For example, if you use the `SUM` directory `D:\SUM` and a symbolic link to `C:\usr\sap\SID\SUM`, you enter the same above-mentioned command in the PowerShell console.

Procedure

Make sure that there is enough free disk space for the `SUM` directory. This space is required for the update and the logs and is distributed among several [subdirectories \[page 46\]](#). For an estimation of the disk space needed for the `SUM` directory, see the update guide that is specific to your product.

i Note

The size in percentage of the subdirectories `\abap\data` and `\abap\log` of the update directory may vary depending on several factors.

The following factors increase the amount of free space needed for these directories:

- Your systems include extensive customer developments or large amounts of individual documentation.
- You want to include Support Packages and add-ons in the update procedure.
- Release upgrade only: Your systems contain languages other than English or German.

5.2 Downloading and Unpacking the Software Update Manager

Procedure

1. Download the latest version of the Software Update Manager from the main Software Logistics Toolset page at:

<http://service.sap.com/sltoolset>  *Software Logistics Toolset 1.0*  *download (SUM)* 

i Note

The latest version of the Software Update Manager can automatically be downloaded when calculating the target software components and the stack configuration file in SAP Maintenance Planner or in

Maintenance Optimizer of SAP Solution Manager. For more information about using this function, see <http://scn.sap.com/docs/DOC-65243>.

2. Log on to the host on which you want to run the Software Update Manager as user <SAPSID>ADM

Note

Typically, this is the host on which the primary application server instance is running. However, you can also use an additional application server instance.

3. Unpack the Software Update Manager package with the following command:

```
SAPCAR -xf <download directory>\<path>\<Archive>.SAR -R <DRIVE>:\usr\sap\<sapsid>
```

This command creates the directory SUM under the <DRIVE>:\usr\sap\<sapsid> directory. You can also specify a directory other than <DRIVE>:\usr\sap\<sapsid>. In the following, the directory \<path to SUM directory>\SUM is referred to as <update directory>.

Note

- The complete path to the SUM directory should not exceed 25 characters.
- The SAP profile parameter DIR_PUT is the parameter used to define the directory in which temporary data is stored during the update. If you perform an update with additional application server instances, make sure that:
 - The value of the SAP profile parameter DIR_PUT matches the current <update directory> \abap.
 - The parameter DIR_PUT is known to the additional application server instances.
 - The additional application server instances have read/write-permission for the <update directory>.
- If you want to run several updates in parallel on the same host, you have to unpack one SUM instance in each directory of the respective SID directories.
For example, if you have the SAP system IDs AB1 and AB2, unpack one SUM instance in the respective directory of each SAP system ID. When starting the SL Common UI, you enter the corresponding SAP system ID in the URL, thus connecting to the corresponding SUM instance. For more information, see [Starting and Restarting the Software Update Manager \[page 115\]](#). Note that when running several SUM instances using the default location <DRIVE>:\usr\sap\<sapsid> is mandatory.

If for the SUM directory you use a location other than the default <DRIVE>:\usr\sap\<SAPSID>, after you have unpacked the SUM package you have to copy the access control list (ACL) from the <SAPSID> directory to your selected SUM directory. For this, you open the PowerShell console with elevated rights and enter a command with the following structure: **set-acl [SUM directory] (get-acl [<SAPSID> directory])**.

Example

Your SUM directory is located in D:\SUM.

Your <SAPSID> directory is located in C:\usr\sap\SID.

You enter the following command in the PowerShell console with elevated rights: **set-acl D:\SUM (get-acl C:\usr\sap\SID)**

5.3 Registering SUM in SAP Host Agent

Before you start the update, you have to register the Software Update Manager in SAP Host Agent so that the operations and commands to the updated system are executed using SAP Host Agent mechanisms.

Prerequisites

- SAP Host Agent has been configured on your system with the minimum version required for your scenario. For more information, see [Installing or Updating SAP Host Agent \[page 96\]](#).
- The secure socket layer (SSL) for SAP Host Agent is configured as described in <http://help.sap.com>
▶ [Technology Platform](#) ▶ [SAP NetWeaver](#) ▶ [<SAP NetWeaver release>](#) ▶ [Application Help](#) ▶ [Function-Oriented View](#) ▶ [Solution Lifecycle Management](#) ▶ [SAP Host Agent](#) ▶ [SAP Host Agent Configuration](#) ▶ [SSL Configuration for the SAP Host Agent](#) ▶
- Your system has at least the minimum supported SAP Host Agent version stated in SAP Note [2223738](#) on your remote SCS instance and on all additional application server instances if your system has any.

Procedure

Note

- Make sure that you do not run the Software Update Manager during daylight saving time shifts. Otherwise, the update might fail.
- Always perform the procedure from within the SUM directory.

1. To start the Software Update Manager, enter the following:
 - For all target releases up to SAP NetWeaver 7.40 including:
`<DRIVE>:\<update directory>\STARTUP.BAT confighostagent jvm6`
 - For target release SAP NetWeaver 7.5:
`<DRIVE>:\<update directory>\STARTUP.BAT confighostagent`In addition, you have to perform the manual actions described in SAP Note [1145221](#).
2. Optionally, you can customize the user authorization. By default, the `<sapsid>adm` user is authorized to control the SL Common UI. If you want to authorize a different user, you have to edit the file `<HOSTAGENT directory>/exe/operations.d/sumabap.conf` as follows:
 1. Add the name of the user for the SL Common UI authorization at the end of the following line, separated with a comma:
`Authorization:[SID:#required#tolower]adm`

Example

If you want to enable the user `slcui` to control the SL Common UI, the line should look as follows:

```
Authorization:[SID:#required#tolower]adm, slcui
```

2. Restart the SAP Host Agent using the following commands:
`<HOSTAGENT directory>\exe\saphostexec -restart`

5.4 Starting and Restarting the Software Update Manager

This section describes how you start the SL Common UI and the SUM back-end process, or alternatively how you restart SUM if an error, a terminated step, or a system failure occurred.

Prerequisites

- You have met the requirements for the update.
- The SAP system and the database have been started.
- The `SAPCAR` version that is referenced in the environment variable `PATH` is identical with the one that is located in the kernel directory. In addition, no reference to any other `SAPCAR` version should exist in the `PATH` variable.
- You have downloaded and unpacked the latest version of the [Downloading and Unpacking the Software Update Manager \[page 112\]](#) and the software packages that you need for the update.
- When using Internet Explorer, you have to make sure that the URL relevant for your system is listed in the “Trusted” security zone. To do so, proceed as described in the Internet Explorer documentation.
- In the case of a SUM restart, you have corrected the errors as described in section [Troubleshooting \[page 199\]](#).

Procedure

1. Open a web browser window.
2. In the address bar, enter the following URL:

```
https://<hostname>:1129/lms1/sumabap/<SID>/doc/sluigui
```

- Replace `<SID>` with your system ID.
- 1129 is the https port of the SAP Host Agent.
- If the SSL has not been configured, use http instead of https at the beginning of the URL and use port 1128:

```
http://<hostname>:1128/lms1/sumabap/<SID>/doc/sluigui
```

3. In the dialog box that appears, enter the user name `<sid>adm` and the password.

Results

The SAP Host Agent starts the Software Update Manager, and the SL Common GUI of the Software Update Manager is displayed in the web browser.

In the case of a restart, SUM continues from the point where it had previously stopped.

i Note

Start Options: By default, the SL Common UI starts the Software Update Manager without any special parameters, and you can skip the field *Start Options*. If you want to start the Software Update Manager with special parameters provided by SAP, enter these parameters in the field *Start Options* and choose *Next*.

5.5 Starting the SUM Observer Monitor

The Software Update Manager offers an additional SL Common UI mode called the *observer mode*. This mode is displayed as *SUM observer monitor*.

Prerequisites

- You have prepared the `Observer Mode` as described in [SUM Observer Monitor \[page 42\]](#).
- You have started the Software Update Manager at least one time with the SL Common UI as user `<sid>adm` as described in [Starting and Restarting the Software Update Manager \[page 115\]](#).

Procedure

1. In the address bar of your browser, enter the following URL:

```
https:<hostname>:1129/lms1/sumobserver/<SID>/monitor/index.html
```

- Replace `<SID>` with your system ID.
- 1129 is the https port of the SAP Host Agent.
- If the SSL has not been configured, use http instead of https at the beginning of the URL and use port 1128:

```
http:<hostname>:1128/lms1/sumobserver/<SID>/monitor/index.html
```

2. Enter the observer user `<sid>obs` and the configured password.

5.6 Resetting the Update

The Software Update Manager offers the option to reset the update.

Prerequisites

- Make sure that the downtime has not yet started.
As of the beginning of the downtime, a reset is not possible anymore. To reset the update after the downtime has started, use the system backup created before the SUM process.
- Make sure that the SUM directory has not been cleaned up.
After the update procedure comes to an end, the Software Update Manager additionally offers the option *Cleanup*. Be aware that after a cleanup, you cannot reset the update. For example, you cannot carry out a manual reset on operating system level after a cleanup. Use a system backup created before the update procedure.
- If you use the database migration option, make sure that anyDB is still available.

Context

When you choose the `Reset` option of the Software Update Manager, the system undoes all changes that have been made during the update procedure. All update activities that have been carried out are reverted.

i Note

Database Migration Option (DMO)

If you are executing the database migration option of the Software Update Manager, you can reset the update during any roadmap step. See the DMO guide, which is mentioned in the [List of Referenced Documentation \[page 248\]](#) for more information.

All migration activities are also revoked, and the connection to the source database is reestablished. However, consider the following limitations:

- The target database client is not deleted from PAS/AAS automatically.
- BR tools are not restored.
- The user `DBACOCKPIT` and related roles are not deleted in the target database.

Procedure

1. Resetting the update procedure on the SL Common UI:

- a. To reset the update procedure before the beginning of the downtime, choose either *Back* or *Reset*.

This depends on the module that the update procedure is currently going through. The update procedure consists of modules that can be reset and of modules that you cannot reset directly. Whenever you are

inside a resettable module, the Software Update Manager offers you a [Reset](#) option. If not, choose [Back](#) repeatedly until you are in a resettable module and the [Reset](#) option appears. If the update procedure has not progressed far and you choose [Back](#) repeatedly, the [Welcome](#) dialog may appear.

- b. When the [Welcome](#) dialog appears, the system has completely been reverted to its state before the update procedure was started. You can now start the update procedure again. However, we strongly recommend that you delete the current SUM directory and use a newly unpacked SUM instance to do so.

i Note

When you are in an error dialog and you want to reset the update, be aware of the following:

- If you choose [Exit](#) and then [Next](#), close the browser window or tab page when the [In progress](#) process execution animation appears. Do not refresh the browser window or tab page, as this might restart the SL Common UI.
- The [Cancel](#) button only stops the SUM background process and the SL Common UI, but does not trigger the reset of the system to its original state. Also, closing the UI tab only closes the user interface.
- To prevent or correct errors with the reset procedure, see SAP Note [2011380](#).

2. Resetting the update procedure on operating system level

- a. On operating system level, change to the `SUM` directory with the following command:

```
cd /usr/sap/<SID>/SUM/abap/bin
```

- b. From the command line interface, start the internal `SAPup` executable using the `gt=scroll` parameter:

```
./SAPup gt=scroll
```

- c. Choose the [Back](#) button.
- d. In the dialog on the command line interface, choose [Reset](#).
- e. Enter the password for user `DDIC` in client `000`. Afterwards, the system executes reset activities automatically.
- f. If you use the database migration option of the Software Update Manager, enter the password for the user `SYSTEM` of the target database.

5.7 Using Breakpoints During the Update

You can stop the update procedure at a specified point by using breakpoints.

Setting Breakpoints in the SL Common UI

On the right-hand side of the browser window, the SL Common UI offers you the option to maintain breakpoints from a list of available breakpoints. You can sort, filter, and search for breakpoints. The icons for the breakpoint status are described in the legend.

The breakpoint list displays icons in three different colors:

- green - breakpoint lies in the past

- orange - breakpoint lies in the currently processed phase
- blue - breakpoint lies in future phases

After opening the list, it scrolls automatically to a position where the breakpoint of the current phase is listed at the fourth position from top, if available. You can scroll away from the position, but each time you choose *Refresh*, the breakpoint list gets refreshed and displays again the current phase highlighted at the fourth position of the table.

If SUM stops at a selected breakpoint, it displays a dialog with the options listed below in *Options in the Dialog*.

Setting Breakpoints in the ABAP Program

Alternatively, you can enter the following commands when you are in the update directory:

- Change the directory with the following command:
`cd <update directory>\abap\bin`
- Enter the following command if you want the ABAP program to stop at the **next** step:
`SAPup stop`
- Enter the following command if you want the ABAP program to stop at a **specific** step:
`SAPup stop <phase name>`

Options in the Dialog

Once you have set a breakpoint, the Software Update Manager stops at that specific point and displays a dialog with the following options:

- *Continue to next breakpoint*
The program continues and stops at the next breakpoint that you set, and this dialog appears again.
- *Delete breakpoints and continue*
The program deletes all set breakpoints and continues without any further stop.
- *Continue in single step mode (stop before each step)*
The program continues and stops before the next update step (not before the next breakpoint). You have to continue the program manually after each stop unless you choose another option.
- *End single step mode and continue to next breakpoint*
The program continues and does not stop at the next step but at the next breakpoint that you set, and this dialog appears again.
- *Exit program*
The update process stops and you exit the Software Update Manager. When you start the update process again, this dialog appears again.

i Note

Depending on the scenario, the dialog may vary in number of options.

5.8 Integrating Customer Transports into the Update Procedure

This topic is only valid for 'Target Release': SAP NetWeaver 7.3 EHP1, SAP NetWeaver 7.4, SAP NetWeaver 7.5, SAP NetWeaver 7.3, SAP NetWeaver 7.0 EHP2

This section deals with the Software Update Manager feature to integrate customer transports into the update procedure to reduce business downtime.

Prerequisites


- Target release SAP NetWeaver 7.0 Enhancement Package 2 with SAP_BASIS support package 09 or a higher target release.
- The customer transports must be made in a way that they can be imported in an `IMPORT-ALL` mode with return code 4 or 0.
- The customer transports must be tested successfully and verified.
- Make sure that you apply the latest `tp` and `R3trans` for the source release, and that you include the latest `tp` and `R3trans` in the download directory for the target release.

Context





The `Customer Transport Integration` feature offers you the possibility to integrate your transport requests into the update procedure to reduce business downtime. If you want to use the feature, note that the update procedure differs from the standard update procedure.

For more information about the feature, see [Integration of Customer Transports \[page 84\]](#).

Note

- Only valid for 'Target Release': SAP NetWeaver 7.3 EHP1, SAP NetWeaver 7.0 EHP2
If you perform an enhancement package installation or a support package installation with a target release based on SAP_BASIS 7.02 or 7.31, and you want to use the `Versioning` option, apply SAP Note [1719469](#)  first.

End of 'Target Release': SAP NetWeaver 7.3 EHP1, SAP NetWeaver 7.0 EHP2

- To avoid errors in the `Switch Framework` during the activation, apply SAP Notes [585789](#) , [574102](#) , [1386114](#)  and [1695884](#)  in the source release. If the notes are obsolete, do not apply them!
- The following BADIs cannot be implemented during the update procedure as part of the customer transports:
 - `SFW_BF_STATE_CHANGE`
 - `SFW_SWITCH_STATE_CHANGE`
 - `SFW_SWITCH_CHANGED`

Procedure

1. Provide the Software Update Manager with transport buffer file.

The transport buffer file is based on the import queue of the `Transport Management System (TMS)` of the system that you want to update. Make sure that the system use `Extended Transport Control`.

To provide the file, go on operating system level to the subdirectory `buffer` of the transport directory in the system that you want to upgrade. Copy the file `<SID of the system to be upgraded>` to the download directory of the Software Update Manager. The buffer file contains all transports, which are part of the import queue and which will be integrated into the update procedure. Check carefully that you integrate only the wanted transports into the update procedure.

Caution

The buffer file must not contain buffer lines with `umodes F` or `C`.

Note

If Change Request Management (ChaRM) is used, consider the following:

- Make sure that you only integrate transports of changes that were tested successfully. ChaRM cannot control this.
- Use transports for the production system only from projects that you want to include in the Go-live.

2. Monitor the parameters `CTC` and `mainimp_proc`.

In the transport buffer file, the customer transports are written in the correct order with client-specific `CTC=1` format. The update procedure automatically sets the parameter `CTC` to 1 in the transport profiles (`TPP files`) of the `tp` phases for customer transport integration. This default parameter `CTC=1` activates the client-specific transport control for all managed systems and enables the transport routing for multiple clients in the update procedure.

The parameter `mainimp_proc` must have the value 1.

Caution

Do not change the settings for the parameters `CTC` and `mainimp_proc` manually.

3. Make a backup of the file `SAPup_add.par` (if the file exists) and add the following lines to this file:

```
AskCustomerBuffer = 1
```

```
second_shd = YES
```

```
charm = TRUE
```

The file is located in the `SUM` directory in subdirectory `bin`. If the file `SAPup_add.par` does not yet exist, create it in the `bin` subdirectory with appropriate authorizations to grant the `SAPup` executable read access to this file.

4. Start the SUM as described in [Registering SUM in SAP Host Agent \[page 114\]](#) and the SL Common UI as described in [Starting and Restarting the Software Update Manager \[page 115\]](#).
5. Use the *Advanced* preconfiguration mode for the customer transport integration feature in SUM.

For more information, see [Preconfiguration Mode Planning \[page 53\]](#).

6. During the update procedure, SUM asks you in a dialog whether a `stack.xml` file exists or not.
 - If you want to import your customer transport requests only without performing a standard update procedure, select the option that no stack configuration file is available.
 - If you want to import your customer transport requests during the update, select the option to enter the stack configuration file name.
7. During the update procedure, a dialog appears in phase `BIND_PATCH` in which you provide path and name of the transport buffer file, which contains the customer transports that are supposed to be included.

Other preselected values for the transport profile are taken over from the transport profile file. Optionally, maintain additional parameters for the transport profile:

- Define the clients for which table logging should be turned on (parameter `RECCLIEN`T). Separate multiple clients with commas.
- Define if SUM shall create a version at import time (parameter `VERS_AT_IMP`).

i Note

If there is no dialog screen, do not continue with SUM and report an incident on component BC-UPG-TLS-TLA.

8. Note that the dialogs to include SPDD or SPAU transport requests will not be displayed during the update procedure in phase `BIND_PATCH`. SPDD- or SPAU-related transports in the customer buffer are identified automatically during the update procedure.
9. The Software Update Manager imports and activates the transports in the shadow system during the downtime.
10. If ChaRM is used to control the transports in your landscape, carry out the following procedure after the update:
 - a. Choose transaction `SMSY`.
 - b. Navigate to the system that has just been updated.
 - c. Switch to the *Header Data* tab page and choose *Delete Buffered Transport Data*.

End of 'Target Release': SAP NetWeaver 7.3 EHP1, SAP NetWeaver 7.4, SAP NetWeaver 7.5, SAP NetWeaver 7.3, SAP NetWeaver 7.0 EHP2

5.9 Importing or Installing Software After Starting the Upgrade

Context

i Note

This section is only relevant if you perform a release upgrade.

After you have started the upgrade, you may need to import software such as SAP Support Packages, languages, or add-ons (and add-on updates), or perform an add-in installation of Java software.

Procedure

1. Reset the upgrade procedure as described in [Resetting the Update \[page 117\]](#). If needed, exit the SL Common UI.
2. Import or install the required software.
3. Restart the upgrade and repeat the preparation roadmap steps.

If you have exited the SL Common UI, start it again as described in [Starting and Restarting the Software Update Manager \[page 115\]](#). Afterwards, restart the upgrade and repeat the preparation roadmap steps.

5.10 Making Entries for the Specify Authentication Mechanism Roadmap Step

Procedure

Enter the password for the <sapsid>adm user and choose [Next](#).

Next Steps

If the OS user credentials for any of the instances in your system do not match the ones that you have already entered for the primary application server instance, you have to specify the correct credentials for each instance on a subsequent screen.

5.11 Making Entries for the Select Target Roadmap Step

Context

The new content is updated with the stack that is available in the download directory. The stack is described in a stack configuration XML file.

If you have downloaded the software packages using the Maintenance Optimizer or the Maintenance Planner, the stack configuration file has been generated automatically and saved to the EPS inbox of SAP Solution Manager. In the [Select Target](#) roadmap step, you have to enter the path to the stack configuration file.

Caution

If the stack is located in a share on a different host, make sure that you copy it locally together with the stack configuration XML file and specify the local directory path in this step.

According to the provided stack configuration file, the Software Update Manager checks whether all required packages are available in the download directory. It then creates the import queue and validates whether all the dependencies are fulfilled.

Procedure

1. In the *Stack File or Directory* field, specify the path to the stack configuration XML file.
2. Choose *Next*.

5.12 Making Entries for the Confirm Target Roadmap Step

Procedure

Confirm the displayed target system version by choosing *Next*.

5.13 Making Entries for the Extraction Roadmap Step

Enter the following information or confirm the existing values when prompted by the Software Update Manager:

Only valid for 'Source Release': SAP Basis 4.6C

Path to the Stack Configuration Text File

i Note

This step is only relevant if you perform a release upgrade from source release SAP R/3 4.6C.

The new content is updated with the stack that is available in the download directory. The stack is described in a stack configuration XML file and in a stack configuration text file. If you have downloaded the software packages using the Maintenance Optimizer or the Maintenance Planner, the stack configuration files have been generated automatically and saved to the EPS inbox of the SAP Solution Manager.

In the *Select Target* roadmap step, you have to enter the path to the stack configuration XML file. Additionally, you have to enter the path to the stack configuration text file during the *Extraction* roadmap step. According to the provided stack configuration file, the Software Update Manager checks whether all required packages are available in the download directory. It then creates the import queue and validates whether all the dependencies are fulfilled.

Caution

If the stack is located in a share on a different host, make sure that you copy it locally together with the stack configuration XML and text file and specify the local directory path in this step.

End of 'Source Release': SAP Basis 4.6C

Download Directory / Mount Directories for the Data Carriers (Phase KEY_CHK)

Note

This step is only relevant if you perform a release upgrade.

You need to enter the path to the download directory.

If you have **not** copied the contents of all necessary data carriers into the download directory, the Software Update Manager asks for a path to the data carriers.

Note

- When you download DVDs from SAP Service Marketplace that are split into several ZIP files, you have to correctly recombine the split parts and unpack them into the same directory.
- For more information about the data carriers that are required for the upgrade, see the *Media List* for your SAP product on SAP Service Marketplace.
The other data carriers in the upgrade package are not required by the Software Update Manager. They are used by other programs related to the upgrade, for example, for importing a new version of the database system.
- For a system that is based on SAP NetWeaver 04 and higher, the package with the DVDs and CDs needed for the upgrade contains the following boxes:
 - Box with the DVDs and CDs for your SAP business system components
 - Box with the DVDs and CDs for SAP NetWeaver

If the upgrade requires you to install or upgrade a component that is part of the SAP NetWeaver delivery, for example, SAP kernel or SAP GUI, use the DVDs from the SAP NetWeaver box.

- **SL Common UI only:** When you are performing a release upgrade and you require DVD media content, you have to provide the path to the content by means reachable by the SL Common UI. Use one of the following approaches:
 - Provide a Universal Naming Convention path (UNC path) to the drive.
 - Copy the DVD media content to a directory on a local drive that is persistent, and provide a path to this directory.
 - Provide the location of the physical DVD drive containing the required data.

To access the content, provide the fully-qualified domain name (FDQN).

When creating windows shortcuts for all DVD mountpoints inside the download directory, the mountpoint dialog will be prefilled with those locations automatically.

If you have only **one DVD drive**, you do not have to enter any other mount directories. Whenever necessary, the Software Update Manager prompts you to specify a mount directory or to change the data carrier.

If you have **more than one DVD drive** or if you are able to copy the contents of the DVDs and CDs to disk, enter all the mount directories used. You can enter up to 24 mount directories.

The mount directory path may not contain any blanks or special characters.

i Note

When you enter the mount directories, you can use a wildcard in the last part of the mount directory path, for example, `\mnt*dvd*`. The Software Update Manager fills the mount directory entry fields with all directories that the wildcard matches. Any duplicate entries found by the wildcard are removed automatically.

If you entered mount directories for all data carriers required by the upgrade and the program finds the right directory, you are not prompted to enter mount directories. If you do this, you can ignore all further instructions to enter mount directories in this document.

If you do not have enough DVD disk drives, you can copy the contents of each DVD and CD to separate directories on your hard disk (provided you have sufficient disk space). Specify the names of these directories when the program prompts you to enter the mount directories.

SAP Host Agent Installation

If SAP Host Agent has not yet been installed in your system and you have put the installation package SAPHOSTAGENT into the download directory, the Software Update Manager asks you if you want the SAP Host Agent to be installed during the update procedure. If you do not want the Software Update Manager to install SAP Host Agent, you have to install it manually after the update has finished.

Password of User DDIC (Phase PROFREAD)

i Note

This step is only relevant if you perform a release upgrade.

You have to enter the password of user `DDIC` in the system, client `000`.

Only valid for 'Source Release': SAP Basis 4.6C, SAP Basis 4.6D, SAP Web AS 6.20, SAP Web AS 6.40, SAP Web AS 6.10

⚠ Caution

The length of the password of user `DDIC` is limited to 8 characters.

End of 'Source Release': SAP Basis 4.6C, SAP Basis 4.6D, SAP Web AS 6.20, SAP Web AS 6.40, SAP Web AS 6.10

This password is needed for the RFC connection to the SAP system. To be able to perform all necessary actions, user `DDIC` needs the authorization `SAP_ALL`.

During the upgrade, you have to unlock the user. After the upgrade, the user is not locked again automatically.

Usually, it is not necessary to change the password of user `DDIC` during the upgrade. If you do change the password, you have to change it in the original system, the shadow system, and in the Software Update Manager.

For a description of this procedure, see [Changing the DDIC Password \[page 234\]](#).

Checking the Configuration of sapcpe (Phase PREP_INIT/CHECKPROF_INI)

During phase `PREP_INIT/CHECKPROF_INI`, the Software Update Manager is checking various profiles and their settings including the configuration of program `sapcpe` for the kernel replication.

If there is a problem with the configuration of `sapcpe`, phase `PREP_INIT/CHECKPROF_INI` stops and points you to the problem with the kernel directory. You have to change the replication configuration so that the SAP kernel can be replicated to `$(DIR_INSTANCE) /exe`.

For more information and the corresponding procedure, see SAP Note [1649026](#).

SAP Note Implementation (CHECK4NOTES_TOOL)

Note

This step is relevant if you perform an enhancement package installation or SPS update.

A list of SAP Notes is displayed that you have to implement to avoid activation errors later in the procedure. Use the Note Assistant to apply the SAP Notes. After you have implemented all relevant SAP Notes, repeat the phase and then continue the process.

Recommendation

You can ignore inapplicable notes that are classified as *Can not be implemented* or *Obsolete*. However, we recommend that you transport both these inapplicable SAP Notes and the implementable SAP Notes into the system landscape. If you do not transport the inapplicable SAP Notes, too, the SUM execution in the follow-up systems will stop in this phase because these SAP Notes are not at the latest level. To transport the SAP Notes, use report `SCWN_TRANSPORT_NOTES` as described in SAP Note [1788379](#).

Note

Note that the Note Assistant also displays SAP Notes with ABAP-related corrections called *SAP Note transport-based correction instructions (TCI)*. You apply the corrections later on manually using the transaction `SPAM`. For more information, see SAP Note [2187425](#).

For more information about applying SAP Notes with the Note Assistant, see the [SAP NetWeaver Library \[page 14\]](#) for your source release at:

Table 13: SAP Library Paths

Release	Path in SAP NetWeaver Library
SAP NetWeaver 7.3 SAP NetWeaver 7.3 incl. EHP 1 SAP NetWeaver 7.4 SAP NetWeaver 7.5	▶▶ <i>Application Help</i> ▶ <i>Function-Oriented View</i> ▶ <i>Solution Life Cycle Management</i> ▶ <i>Software Logistics</i> ▶ <i>Note Assistant</i> ▶
SAP NetWeaver 7.1 incl. EHP 1	▶▶ <i>Application Help</i> ▶ <i>Function-Oriented View</i> ▶ <i>Application Server Infrastructure</i> ▶ <i>Software Logistics</i> ▶ <i>Note Assistant</i> ▶
SAP NetWeaver 7.1	▶▶ <i>System Administration and Maintenance Information</i> ▶ <i>Technical Operations for SAP NetWeaver</i> ▶ <i>General Administration Tasks</i> ▶ <i>Software Life-Cycle Management</i> ▶ <i>Software Maintenance</i> ▶ <i>Note Assistant</i> ▶
SAP NetWeaver 7.0 SAP NetWeaver 7.0 incl. EHP 1, 2, or 3	▶▶ <i>Application Help</i> ▶ <i>Function-Oriented View</i> ▶ <i>SAP NetWeaver by Key Capability</i> ▶ <i>Solution Life Cycle Management by Key Capability</i> ▶ <i>Software Life Cycle Management</i> ▶ <i>Software Maintenance</i> ▶ <i>Note Assistant</i> ▶

5.14 Making Entries for the Configuration Roadmap Step

This roadmap step asks for all information required to run the update. For clarity, this section is divided into the following subsections:

- [Entering Paths and Parameters \[page 129\]](#)
- [Including Software \[page 132\]](#)
- [Making Entries for the Shadow Instance Installation \[page 141\]](#)

5.14.1 Entering Paths and Parameters

Enter the following data:

Password of User DDIC (Phase PROFREAD)

i Note

This step is relevant if you perform an enhancement package installation or SPS update.

Password of user `DDIC` in the system, client `000`

This password is needed for the RFC connection to the SAP system. To be able to perform all necessary actions, user `DDIC` needs the authorization `SAP_ALL`.

During the update, you have to unlock the user. After the update, the user will not be locked again automatically.

Usually, it is not necessary to change the password of user `DDIC` during the update. If you do change the password, you have to change it in the original system, the shadow system, and in the Software Update Manager.

Configuring the Software Update Manager

To configure the Software Update Manager, you can choose between the following [preconfiguration modes \[page 53\]](#):

- Release upgrade only: *Single system*
If you choose this option, the actions in the shadow system run during the downtime to save system resources.
- *Standard* (archiving off during downtime)
If you choose this option, database archiving is switched off during the system downtime. You are prompted to create a database backup before the downtime starts.
- *Advanced* (archiving on)
If you choose this option, database archiving stays active during the whole update procedure.
- *Advanced* (archiving off)
If you choose this option, database archiving is switched off during the system downtime.

Port Number for Internal Communication (Phase INITPUT_PRE)

To prevent unwanted clients from accessing the message server as application servers, you need to separate internal communication from external communication by using different port numbers.

During the update, the concept is implemented on the primary application server instance by introducing parameter `rdisp/msserv_internal` in the default profile.

For more information about the concept, see SAP Note [821875](#).

Password of the Operating System User for Installing the Shadow Instance (Phase INITPUT_PRE)

The `SAP<SAPSID>_<shadow instance no.>` service is created during the update for locally installing the shadow instance. This service is started by the same operating system user as the primary application server instance.

Enter the password for the operating system user. You are then asked to verify the password by entering it a second time.

Caution

If you change the password for the operating system user, remember that in a standard installation, the SAP service runs under the same user. This means that you also have to change this logon data accordingly. Otherwise problems occur when the SAP service is started after the SAP kernel switch.

Upgrade of an MCODE System (Phase MCODE_CHK_INI)

Note

This step is only relevant if you perform a release upgrade.

The `MCODE_CHK_INI` phase asks you whether more than one SAP system is installed in your database, which means that you are [upgrading an MCODE system \[page 83\]](#).

Tool Versions (Phase TOOLVERSION_INI)

Note

This step is only relevant if you perform a release upgrade.

The Software Update Manager checks the tool versions in your system (SAP kernel patch level, the `tp` version, and the date of `R3trans`).

Note

If necessary, the Software Update Manager prompts you to switch the SAP kernel or the other tools to a version and patch level released for the upgrade.

SAP Kernel

The subsequent roadmap steps require the version of the SAP kernel released for the upgrade, since older versions contain errors that cause problems in some of the phases.

Caution

Apart from the `disp+work` package, you also need the corresponding database library for the SAP kernel.

Caution

Do **not** replace programs in the `preexe`, `tools` and `exe` subdirectories of the `abap` subdirectory of the `SUM` directory. You may only do this if you receive approval from SAP Support.

If your current SAP kernel does not fulfill the requirements of the upgrade, proceed as follows:

1. Before switching the SAP kernel, back up the existing kernel directory.

Caution

When you switch the SAP kernel, you overwrite all files and subdirectories in directory `<DRIVE>:\usr\sap\<SAPSID>\SYS\exe\run`.

For more information, see the log file `CHECKS.LOG`.

2. Only valid for 'Source Release': SAP Basis 4.6C, SAP Basis 4.6D
Switch the SAP kernel as described in SAP Note [318846](#).

End of 'Source Release': SAP Basis 4.6C, SAP Basis 4.6D

- Only valid for 'Source Release': SAP Web AS 6.20, SAP Web AS 6.10
Switch the SAP kernel as described in SAP Note [664679](#).

End of 'Source Release': SAP Web AS 6.20, SAP Web AS 6.10

- Only valid for 'Source Release': SAP Web AS 6.40, SAP NetWeaver 7.0, SAP NetWeaver 7.1, SAP NetWeaver 7.3, SAP NetWeaver 7.0 EHP2, SAP NetWeaver 7.0 EHP1, SAP NetWeaver 7.3 EHP1, SAP NetWeaver 7.4, SAP NetWeaver 7.5
Switch the SAP kernel.










End of 'Source Release': SAP Web AS 6.40, SAP NetWeaver 7.0, SAP NetWeaver 7.1, SAP NetWeaver 7.3, SAP NetWeaver 7.0 EHP2, SAP NetWeaver 7.0 EHP1, SAP NetWeaver 7.3 EHP1, SAP NetWeaver 7.4, SAP NetWeaver 7.5

Caution

Before continuing the upgrade, make sure that the SAP kernel has at least the minimum required patch level.

Tools R3trans and tp

The upgrade may require a certain version for tools `R3trans` and `tp`. For the required versions of these tools, see SAP Support Portal at:

<https://support.sap.com/swdc>  [Support Packages and Patches](#)  [Browse Our Download Catalog](#)  [SAP NetWeaver and complementary products](#)  [SAP NetWeaver](#)  [SAP NETWEAVER <Release>](#)  [Entry by Component](#)  [Application Server ABAP](#)  [SAP Kernel <Version>](#)  [<operating system version>](#)  [#Database independent](#) 

Add-on Strategy Check (Phase ADDON_INFO)

i Note

This step is only relevant if you perform a release upgrade.

For most of the add-ons produced by SAP, there are special SAP Notes containing information about the upgrade strategy. In the `ADDON_INFO` phase, the Software Update Manager writes the SAP Note numbers for your upgrade into the `CHECKS.LOG` file. The Software Update Manager lists the general add-on Note as well as, if possible, specific add-on upgrade Notes to the add-ons installed.

Before the upgrade, check all SAP Notes listed in the `CHECKS.LOG` file. If there are add-ons installed in your SAP system for which there is no information in one of the listed SAP Notes, refer to the add-on producer for information.

Combined Upgrade & Unicode Conversion (Phase UCMIG_DECISION)

If you are upgrading a non-Unicode system, you are asked if you want to perform a Combined Upgrade & Unicode Conversion (CUUC). If you plan to perform a unicode conversion after the upgrade, you have to answer this question with "yes". In this case, several preparatory steps for the unicode conversion should have already been performed on the source release or in the shadow system of the upgrade.

i Note

- Only valid for 'Target Release': SAP NetWeaver 7.3 EHP1, SAP NetWeaver 7.4, SAP NetWeaver 7.3, SAP NetWeaver 7.0 EHP3, SAP NetWeaver 7.0 EHP2
If you are performing an enhancement package installation or a Support Package Stack update, the CU&UC procedure is only possible for updates with Source Release SAP NetWeaver 7.0 or higher and target releases SAP NetWeaver 7.02 SP09 or higher or SAP NetWeaver 7.31 or higher up to SAP NetWeaver 7.4..
End of 'Target Release': SAP NetWeaver 7.3 EHP1, SAP NetWeaver 7.4, SAP NetWeaver 7.3, SAP NetWeaver 7.0 EHP3, SAP NetWeaver 7.0 EHP2
- Only valid for 'Target Release': SAP NetWeaver 7.5
SAP NetWeaver 7.5 supports Unicode only. A "Combined Upgrade & Unicode Conversion (CU&UC)" with target SAP NetWeaver 7.5 is not possible. Make sure that the SAP NetWeaver source system already supports Unicode.
End of 'Target Release': SAP NetWeaver 7.5

For more information about the Combined Upgrade & Unicode Conversion (CU&UC), see SAP Note [928729](#).

5.14.2 Including Software

In the following, you take decisions about which software packages will be included in the procedure. A summary of all included software packages is displayed at the end of the *Configuration* roadmap step in a separate window under the node *Information*. The software packages that are defined in the stack configuration file as well as additional software packages such as add-on upgrade packages for partner add-ons are listed in this summary.

Mount Directories for Languages (Phase LANG_SELECT)

Note

This step is only relevant if you perform a release upgrade.

If you have not provided all necessary language archives in the download directory, the Software Update Manager prompts you now to mount the necessary directories of the language archives. You need to do this even if only the standard languages English and German are installed in your system.

If you have installed languages other than the standard languages, you have the option of excluding some of these languages from the upgrade. The standard languages are always imported.

Caution

If you exclude a language, you cannot work in this language after the upgrade.

Caution

If you perform the upgrade in a Terminal Server Session, you also have to mount the language archive for accessing the SAP Kernel outside of the Terminal Server Session.

To do this, mount the language archive with the console as user <SID>ADM, or use pcAnywhere. You can also copy the contents locally to the hard drive, and specify the path of the local directories to the Software Update Manager.

In principle, it is possible to install additional languages during the upgrade. For more information, see [Importing Additional Languages \[page 78\]](#).

Only valid for 'Source Release': SAP Basis 4.6C, SAP Basis 4.6D, SAP Web AS 6.10

SPAM Version Check (Phase SPAMCHK_INI)

Note

This step is only relevant if you perform a release upgrade.

The Software Update Manager calls functions of the SAP Support Package Manager (transaction SPAM) to include add-on updates and support packages in the upgrade. The Software Update Manager checks if the level of the SPAM version on your source release is sufficient for the upgrade. If your SPAM version is not high enough, the Software Update Manager prompts you to import the latest SPAM update for your source release.

For more information about importing a SPAM update, see the online help in transaction SPAM, or the [SAP Library \[page 14\]](#) for the corresponding source release:

Only valid for 'Source Release': SAP Basis 4.6C

Choose **► Basis Components ► Upgrade – General ► Online Correction Support ► Support Package Manager ► Importing Support Packages with the Support Package Manager ► Importing a SPAM/SAINT Update ►**.

End of 'Source Release': SAP Basis 4.6C

Only valid for 'Source Release': SAP Basis 4.6D, SAP Web AS 6.20, SAP Web AS 6.10

Choose **► mySAP Technology Components ► SAP Web Application Server ► Upgrade – General ► Online Correction Support ► Support Package Manager ► Importing Support Packages with the Support Package Manager ► Importing a SPAM/SAINT Update ►**.

End of 'Source Release': SAP Basis 4.6D, SAP Web AS 6.20, SAP Web AS 6.10

End of 'Source Release': SAP Basis 4.6C, SAP Basis 4.6D, SAP Web AS 6.10

Only valid for 'Source Release': SAP Web AS 6.20, SAP Web AS 6.40, SAP NetWeaver 7.0, SAP NetWeaver 7.1, SAP NetWeaver 7.0 EHP2, SAP NetWeaver 7.0 EHP1

SPAM Version Check (Phase SPAMCHK_INI)

i Note

This step is only relevant if you perform a release upgrade.

The Software Update Manager calls functions of the SAP Support Package Manager (transaction SPAM) to include add-on updates and support packages in the upgrade. The Software Update Manager checks if the level of the SPAM version on your source release is sufficient for the upgrade. If your SPAM version is not high enough, the Software Update Manager prompts you to import the latest SPAM update for your source release.

i Note

As of SPAM Version 0024, you can import the latest SPAM update directly in the Software Update Manager. For this purpose, download the latest SPAM update in your EPS inbox in the transport directory of your SAP system.

For more information about importing a SPAM update, see the [SAP NetWeaver Library \[page 14\]](#) for the corresponding source release:

Choose [Application Help](#) > [Function-Oriented View](#) > [Key capabilities of Solution Life Cycle Management](#) > [Software Life Cycle Management](#) > [Software Maintenance](#) > [Support Package Manager](#) >

End of 'Source Release': SAP Web AS 6.20, SAP Web AS 6.40, SAP NetWeaver 7.0, SAP NetWeaver 7.1, SAP NetWeaver 7.0 EHP2, SAP NetWeaver 7.0 EHP1

SPAM Version Check (Phase SPAMCHK_INI)

i Note

This step is relevant if you perform an enhancement package installation or SPS update.

The Software Update Manager calls functions of the SAP Support Package Manager (transaction SPAM). The Software Update Manager checks if the level of the SPAM version in your system is sufficient for the update. If your SPAM version is not high enough, the Software Update Manager prompts you to import the latest SPAM update into your system.

i Note

As of SPAM Version 0024, you can import the latest SPAM update directly in the Software Update Manager. For this purpose, download the latest SPAM update in your EPS inbox in the transport directory of your SAP system.

For more information about importing a SPAM update, see the online help in transaction SPAM, or the [SAP NetWeaver Library \[page 14\]](#):

Table 14: SAP NetWeaver Library Paths

Release	Path in SAP Library
SAP NetWeaver 7.5	Application Help > Function-Oriented View > Solution Life Cycle Management > Software Logistics > Support Package Manager > Importing Support Packages with the Support Package Manager > Importing a SPAM/ SAINT Update >
SAP NetWeaver 7.3 / 7.3 incl. EHP1 / 7.4	Application Help > Function-Oriented View > Solution Life Cycle Management > Software Logistics > Support Package Manager > Importing Support Packages with the Support Package Manager > Importing a SPAM/ SAINT Update >

Release	Path in SAP Library
SAP NetWeaver 7.1	▶ System Administration and Maintenance Information ▶ Technical Operations for SAP NetWeaver ▶ General Administration Tasks ▶ Software Life Cycle Management ▶ Software Maintenance ▶ Support Package Manager ▶ Importing Support Packages with the Support Package Manager ▶ Importing a SPAM/SAINT Update ▶
SAP NetWeaver 7.0 / 7.0 incl. EHP 1, or 2	Choose ▶ Application Help ▶ Function-Oriented View ▶ SAP NetWeaver by Key Capability ▶ Solution Life Cycle Management by Key Capability ▶ Software Life Cycle Management ▶ Software Maintenance ▶ Support Package Manager ▶ Importing Support Packages with the Support Package Manager ▶ Importing a SPAM/SAINT Update ▶

Upload of Additional Packages (Phase UPLOAD_REQUEST)

Note

This step is only relevant if you perform a release upgrade.

The Software Update Manager prompts you to make additional packages such as add-on upgrade packages (SAINT packages) that are required for the upgrade available in the specified directory. If corresponding add-on archives are available, you can add them now. The Software Update Manager searches for packages in the archive files and copies them to the EPS directory. For more information about available add-on archives, see the add-on-specific upgrade Notes.

Caution

If you want to include Conflict Resolution Transports as well as add-on support packages for add-on components, make sure that these packages are also in the EPS inbox.

When you select add-ons in the `IS_SELECT` phase, or when you select support packages in the `BIND_PATCH` phase, the selected packages appear as the default value.

Stack Configuration File (Phase SELSTACKXML)

Release upgrade only: You can include an enhancement package, support packages, add-on updates and add-on installations into the upgrade in this phase. The Software Update Manager searches the download directory and, if it finds the XML file of the SAP Solution Manager Maintenance Optimizer or the Maintenance Planner, it prompts you to confirm it. If the Software Update Manager does not find a stack configuration file or if you want to choose another stack configuration file, you can enter the path to the stack configuration file manually. Based on the

provided stack configuration file, the Software Update Manager calculates the import queue and checks if all required packages are available in the EPS inbox.

Enhancement package installation and SPS update: The Software Update Manager searches the download directory and, if it finds the stack configuration file (XML file) of the SAP Solution Manager Maintenance Optimizer or the Maintenance Planner, it prompts you to confirm it. If the Software Update Manager does not find a stack configuration file or if you want to choose another stack configuration file, you can enter the path to the stack configuration file manually. Based on the provided stack configuration file, the Software Update Manager calculates the import queue and checks if all required packages are available in the EPS inbox.

Decision About Add-ons (Phase IS_SELECT)

The Software Update Manager determines all the add-ons that are contained in the SAP system and checks, which add-ons can be handled in the IS_SELECT phase. Moreover it checks for which add-ons a decision has already been included in the stack configuration file of the SAP Solution Manager Maintenance Optimizer or the Maintenance Planner, which you have entered in the SELSTACKXML phase. The add-ons that can be handled in this IS_SELECT phase and that have not been decided using the stack configuration file are displayed. These are, for example, all optional add-ons that are not part of the stack configuration file.

i Note

To complete phase IS_SELECT successfully, none of the add-ons may have status *UNDECIDED*

- **Release upgrade only: Add-ons with default status INST/UPG WITH STD CD**

All add-ons that are included in the *Upgrade Export* archives and that you can update to a new release appear on the selection screen with default status *INST/UPG WITH STD CD*. For these add-ons, there is no need to make a new decision, unless you want to include a newer version of the add-on in the upgrade. Depending on whether the software components required by the add-on have to be kept the same or have to be updated, the add-on can also remain unchanged or may have to be updated. For this you have the following alternatives:


 - Only valid for 'Source Release': SAP Basis 4.6C, SAP Basis 4.6D, SAP Web AS 6.20, SAP Web AS 6.40, SAP NetWeaver 7.0, SAP Web AS 6.10
Upgrade with SAINT packages (*Upgrade the add-on with SAINT package*).
The packages have to be in the EPS inbox of the transport directory `\usr\sap\trans\EPS\in`.
End of 'Source Release': SAP Basis 4.6C, SAP Basis 4.6D, SAP Web AS 6.20, SAP Web AS 6.40, SAP NetWeaver 7.0, SAP Web AS 6.10
 - Upgrade with an add-on-specific archive (*Upgrade the add-on with CD/DVD*)
When you choose this alternative, you are asked to insert the corresponding CD or DVD. The data is copied to the SUM directory.
 - Upgrade to the version in the *Upgrade Export* archives (*Upgrade the add-on to version delivered with upgrade DVDs*)
This alternative is only valid if there is an add-on in the *Upgrade Export* archive. Once you have chosen this alternative, you do not need any additional archives or packages for the add-on.
- **Add-ons with default status KEEP YOURS**

All add-ons that you can take over unchanged appear on the selection screen with default status *Keep yours*. For these add-ons, there is no need to make a new decision, unless you want to include a newer version of the add-on in the update procedure. You can decide whether you want to keep this add-on unchanged, or whether you want to update it. If you want to update it, choose *Upgrade the add-on with SAINT package*.

The packages have to be in the EPS inbox of the transport directory `\usr\sap\trans\EPS\in`.

- **Add-ons with default status UNDECIDED**

These are optional add-ons that were installed on the source system. You have to decide how to proceed.

 **Caution**

Your software vendor has predefined the strategy to choose for each add-on. For more information, see the SAP Note displayed by the Software Update Manager or contact your software vendor.

For an add-on with status *UNDECIDED*, you have the following options in addition to the ones described above:

- Keep the present version of the add-on (*Keep the add-on with the current version. Use only if supported by the add-on vendor! A vendor key is required*).
The add-on is transferred unchanged to the target release. If you choose this alternative, you have to enter a vendor key. You have to query the add-on vendor beforehand whether you can use the key.
- Keep the add-on as it is (*Keep yours*).
If you choose *Keep yours*, the add-on is transferred without any changes to the target release. You do not have to enter a vendor key. This option is only possible if the requirements of the installation of the add-on have been met.

- **Deletion of Add-ons**

You can delete an add-on either actively or passively. The following options are available:

- *Delete the Add-on with SAINT package actively*.
This option includes a deletion package for the deletion of repository objects as well as for the deletion of table data of the add-on.
- Release upgrade only: *Delete the Add-on passively. Use only if supported by the Add-on vendor!*
This option does not include a deletion package, and the deletion is performed indirectly. To prevent data inconsistencies and errors, ask the add-on vendor if you can use this option.

- **Reset all decisions**

If you select option *Reset all decisions* and choose *Continue*, the system resets all the decisions that you have made. The system reinitializes the values and opens the selection screen for decisions about the add-ons again.

If you want to continue with the decisions that you have made, choose *Continue* without selecting *Reset all decisions*.

Support Package Confirmation Check (Phase PATCH_CHK3)

This phase tests whether all support packages have been confirmed.

Unconfirmed support packages are displayed on the screen and in the `PATCHOUT.LOG` file in subdirectory `log` of the `abap` subdirectory of the update directory. Confirm these support packages with transaction SPAM.

Release upgrade only:

If the source release contains support packages that are more recent than those in the delivered target release, a warning appears that informs you which support packages these are. All software components appear whose support package level is more up-to-date than the status of the software components in the *Upgrade Export* archives.

➔ Recommendation

Always include all available support packages for the target release, and all available Basis support packages. This means that your system is completely up-to-date after the upgrade.

If you use an add-on component, you can find information about including the corresponding add-on support packages or Conflict Resolution Transports in the SAP Note for the add-on supplement archive.

If the Software Update Manager displays a warning that your support package level of the source release is too up-to-date and you want to include the corresponding support packages of the target release, you have to do this in the next phase `BIND_PATCH`. You can include the support packages for multiple software components in this phase.

Including Support Packages (Phase `BIND_PATCH`)

In rare cases, you might have to include support packages of certain software components, such as HR packages, because these packages have a shorter release cycle than the complete support package stack. For these cases, in the phase `BIND_PATCH`, you have the option to add the additional support packages to those that have already been included in the `SELSTACKXML` phase.

If you answer **Yes** to the prompt about including support packages, you have to provide information about the support package level you want for your various software components. You can also include SPAM updates and single change requests.

For this phase, we recommend that you also check the correctness of the support package levels of included software components. Note that only those software components are shown that are activated in the system.

For a complete list of imported software components, see the [Process Overview Report \[page 199\]](#).

It may take a few minutes to unpack the support package data.

If the release of a component does not change during the upgrade, the support packages previously installed for this component are automatically kept and do not have to be included again. Even another adjustment of the modifications contained within using transaction SPDD or SPAU is not required. You can also include additional support packages for this component.

To include support packages, proceed as follows:

1. If you want to include support packages for your various software components, answer **Yes** to the prompt about including support packages in the `BIND_PATCH` phase.
If you did not download the support packages during the `UPLOAD_REQUEST` phase, do this now. Proceed as described in the description of phase `UPLOAD_REQUEST` above.
2. In the *Selection* column, enter the support package level you want for your various software components.

i Note

When the `BIND_PATCH` phase is started for the first time, the Software Update Manager tries to find a default support package queue. It first searches for a package inclusion file of a previous upgrade. If it can find one in subdirectory `save` of the `abap` subdirectory of the `SUM` directory, the Software Update Manager checks whether this package inclusion file contains a selection valid for the current upgrade. If the selection is valid, you can use it as the default.

If there is no package inclusion file from a previous upgrade, the Software Update Manager calls the SPAM Patch Queue Calculator. It tries to generate a support package queue of all support packages that you have uploaded. If it can generate a valid queue, you can use it as the default.

Column *Minimum Level* contains the minimum support package level required for a component to meet the import prerequisites of the add-ons in the `IS_SELECT` phase.

Column *Equivalent Level* contains the equivalent support package level. This is the support package level of the target release, which corresponds to the support package level of the source release. To avoid data loss, the support package level of the target release should not be lower than the equivalent support package level.

Note

You no longer need to reset the Software Update Manager to reduce the number of support packages that you want to include. All you need to do is to overwrite the default support package level.

If you want to cancel the selection for a software component completely, delete the relevant entry.

Column *Current Level* contains the highest support package level that is currently included. To find out the current state of the SAP system, the Software Update Manager checks the following support package level information:

- Support package level that has already been installed in the source system. This only applies when the release of the SAP component does not change during the upgrade (component upgrade procedure).
 - Support package level that is delivered with the upgrade archives (for example, a support release level)
 - Support package level that has already been selected and confirmed by the customer
3. Apart from including support packages, you can also include the latest SPAM update for the target release. This prevents any error messages caused by the SPAM update in the source release being newer than the SPAM version in the upgrade archive. It can also save you from having to import the latest SPAM update immediately after the upgrade. The Software Update Manager automatically looks in the EPS inbox for a current SPAM update and includes it automatically.
 4. In addition, you can include a single change request. In certain situations, you can use a single change request to avoid losing data. The modification adjustment function ignores this request.

Caution

Using the single change request function is risky. Only use this function if the owner of the request can guarantee that it is compatible with the upgrade.

Note

Apart from the single change request and the requests for the modification adjustment, there is no other way of importing a request into the system before activation, or during the adjustment of the ABAP Dictionary objects.

5. When you confirm the confirmation prompt, you integrate all support packages up to the specified level into the upgrade for this component.

It may take a few minutes to unpack the support package data.

You can include any necessary Conflict Resolution Transports (CRTs) in the upgrade. Any support packages that you cannot include in the upgrade have to be imported into the system after the upgrade.

Request for Automatic Modification Adjustment (Phase ADJUSTPRP)

If you have exported an ABAP Dictionary modification adjustment transport on a development system that belongs to the same system track as the current system, you can choose the appropriate request in this phase. In addition, you can decide whether you want to double-check the ABAP Dictionary modifications from that transport manually at the beginning of the `ACT_UPG` phase.

Note

Make sure that the support package level of the transport request matches the target support package level of this update.

5.14.3 Making Entries for the Shadow Instance Installation

Use

All tables of the application server are needed as shadow tables to operate the shadow system.

You decide whether to run the primary application server instance and the shadow instance on the same host or on different ones. If you install the shadow instance locally, the Software Update Manager automatically creates the SAP Service, required profiles, and directories, and copies programs and files for the shadow instance in the *Installation* module. If you run the shadow instance remotely, the additional application server instance that already exists is adjusted for use as the shadow instance.

Caution

We recommend that you install the shadow instance locally, if this does not cause a bottleneck of resources when you run both instances at the same time.

If you want to run the shadow instance on a separate host, follow the instructions in SAP Note [430992](#) before you start with the entries for the shadow instance installation.

Only valid for 'Target Release': SAP NetWeaver 7.3 EHP1, SAP NetWeaver 7.4, SAP NetWeaver 7.5, SAP NetWeaver 7.3, SAP NetWeaver 7.0 EHP3, SAP NetWeaver 7.0 EHP2

For more information about running the shadow instance on a remote host, see [Running the Shadow Instance Remotely \[page 66\]](#).

End of 'Target Release': SAP NetWeaver 7.3 EHP1, SAP NetWeaver 7.4, SAP NetWeaver 7.5, SAP NetWeaver 7.3, SAP NetWeaver 7.0 EHP3, SAP NetWeaver 7.0 EHP2

Note

The Software Update Manager configures the instance profile of the shadow system setting `PHYS_MEMSIZE` to 50%. Consider to adapt this to your specific needs.

Procedure

Operating System-Specific Actions (Phase SHDINST_OS)

The Software Update Manager performs operating system-specific actions in this phase:

1. It maintains the ports that are required for the shadow system in the file `%WINDIR%\system32\drivers\etc\services`.
2. If it is a local shadow instance, the SAP service is installed and started for the shadow instance. If it is a remote shadow instance, the existing SAP service is adjusted and started for the shadow instance.

Reusing Shadow Instance Profiles (Phase SHDINST_CPY)

Note

This procedure is only relevant if you perform a release upgrade.

If you have made a backup of the `save` directory from a previous upgrade, you can now use the [profiles for the shadow instance \[page 196\]](#) that have been stored in the directory.

Caution

Only use the profiles if both upgrades have the same environment and use the same preconfiguration mode.

If you want to use the shadow instance profiles, make sure that the `save` directory has been copied to the `SUM` directory and confirm the prompt with **Yes**.

5.15 Making Entries for the Checks Roadmap Step

Making Entries for the Microsoft Failover Cluster Configuration

In a Microsoft Failover Cluster configuration, the `CONFCHK` phase determines that the database and primary application server instance are running on different servers and prompts you for the operating system of the database host. This prompt also appears if both are running on the same cluster server because, in a cluster, the database and the SAP System are assigned different logical host names.

Enter the operating system for the database.

Starting the Application-Specific Upgrade Toolbox

Note

This step is only relevant if you perform a release upgrade.

You can start the application-specific update toolbox (ASU toolbox) using transaction `/ASU/UPGRADE`. The system loads the XML file (`ASU.XML`) contained in the `SUM` directory, generates a task list, and branches to the task list maintenance.

For more information, see SAP Note [1000009](#).

Saving Variants

i Note

This step is only relevant if you perform a release upgrade, or an enhancement package installation with a preconfiguration mode other than *Single System*.

After the upgrade, many of your variants can no longer be used because the relevant selection screens have changed. To save the variants, the SAP system offers two reports:

- RASUVAR1 saves your variants on the source system.
- RASUVAR2 restores the variants in the target system.



During phase `SAVE_VAR_CHK` you can decide whether you want the upgrade tool to run report RASUVAR1. The report is started in phase `JOB_RASUVAR1`. If you have decided to run report RASUVAR1, phase `JOB_RASUVAR2` automatically starts report RASUVAR2 towards the end of the upgrade.

For more information about the reports, see SAP Note [712297](#).

Checking for ICNV Flags (Phase `CHK_ICNVFLAGS`)

Transaction ICNV adds a field `CNV_FLAG` (or `CNV_FLAG<nn>` if `CNV_FLAG` already exists) to each cluster that is to be converted. If you reset the conversion, this flag still exists. The Software Update Manager checks if there are cluster tables that have the `CNV_FLAG` field from former conversions. If the Software Update Manager finds such a field you are prompted to remove it. Proceed as follows:

1. Log on as a user with development authorizations.
2. Start transaction SE11.
3. Remove the `CNV_FLAG<nn>` field(s) from the cluster(s).
4. Save your changes and activate the cluster(s).
 - If no error occurs, the database is able to delete the field from the cluster.
 - If an error message occurs that prompts you to adapt the table on the database level, then remove the field as described in the documentation for your database version.
 - If it is not possible to delete the field with database means, use transaction ICNV. However, database means are usually faster than ICNV.
 1. Start transaction ICNV.
 2. Choose **► Edit ► Add table ►**.
 3. Enter the cluster name and choose *Continue*. The cluster appears in the work list.
 4. For information about the next steps, choose the information button. Note that you have to perform the initialization and switch steps at a time when the cluster and its table are not in use.

- If any other error message appears than the one that prompts you to adapt the cluster on the database level, then contact SAP Support.
5. Check in transaction SE11 that the field has been removed. Further, you can check the consistency as follows:
- Choose **Utilities > Runtime Object > Check** 
 - The result should be *Runtime Object is Consistent*.
 - Choose **Utilities > Database Object > Check** 
 - The result should be *Database Object for <cluster name> is consistent*.

Checking the Results of the System Check

At the end of the *Checks* roadmap step, the Software Update Manager displays the results of the system check. The entries can be error messages, information, or prompts for user actions.

Carry out the user actions before you can start with the *Preprocessing* roadmap step.

Checking for Database Triggers (SLT) on Exchange Tables (Phase RUN_CHECK_SLT_TRIGGER_PRE and RUN_CHECK_SLT_TRIGGER)


The SAP Landscape Transformation (SLT) software allows SAP customers to effectively manage the impact that new business or IT-driven transformation requirements have on their existing SAP landscape. Database triggers of the SLT can update a database automatically in response to a certain event. However, database triggers that are based on exchange tables can cause issues during the update procedure. The reason is that during the update procedure, exchange tables are replaced in the database with a new version, and the replaced tables are renamed or dropped. If such database triggers exist, the behavior of the `REname` or `DRop` statement for these tables can vary depending on the database.

To avoid later issues, the Software Update Manager checks if relevant database triggers exist and displays, if applicable, an error message. The check is performed in phase `RUN_CHECK_SLT_TRIGGER_PRE` during the preparations of the update. If an error occurs in this phase, it can be ignored but it should be communicated to the responsible SLT Operations Team.

The Software Update Manager checks again in phase `RUN_CHECK_SLT_TRIGGER` shortly before the downtime. An error in this phase must be resolved.

The lines in the error log file are similar to the following:

```
2EETG010 "Found trigger" "/1LT/REPOSRC" "on switch table" "REPOSRC".
```

In this case, follow the instructions of SAP Note [1620618](#)  to delete the relevant database triggers. The deleted triggers have to be created again after the downtime, and an initial load of the affected tables is required.

Note

The check is limited to database triggers that follow the naming convention of the SLT add-on. Database triggers created by other means than SLT are not covered by this check. You must check them manually.

5.16 Evaluating the Results of the Preparation Roadmap Steps

Use

The results of the *Checks* roadmap step are displayed in the *SDTExecution Intervention* window, which opens up once this roadmap step is completed. The entries in the windows can be error messages, information, or prompts for user action. You need to carry out the required user actions before you can start with the *Preprocessing* roadmap step.

You can also find the results in the `CHECKS.LOG` file. This file is located in subdirectory `log` of the `abap` subdirectory of the update directory.

Procedure

Check the entries in the dialog box and perform any measures required by the information it contains. Most of the entries are self-explanatory. You can find information and troubleshooting procedures for entries that are not self-explanatory below:

- Your Windows dlls have been updated.
Reboot your operating system before starting the update. The Software Update Manager has updated several Dynamic Link Libraries of Windows that contain SAP-specific corrections. You have to restart the host before you start the update so that the current DLLs are used.
- The buffers of your SAP system instance are not automatically validated.
 1. Make sure that parameter `rdisp/bufrefmode` has one of the following values in the `DEFAULT.PFL` profile of directory `\usr\sap<SAPSID>\SYS\profile`:

Table 15: Values in DEFAULT.PFL Profile

Value	Meaning
<code>sendon,exeauto</code>	Your SAP system (<SAPSID>) has multiple instances.
<code>sendoff,exeauto</code>	Your SAP system (<SAPSID>) has only one instance.

2. Make sure that parameter `rdisp/bufrefmode` is **not** set in the instance profile.
If you have distributed application servers that do not use NFS to share access to the profile of the primary application server instance, follow the procedure described above for each server.

Caution

After making changes to the `DEFAULT` profile and the `START` profile you have to start up the SAP service to activate the changes. It is not enough to just start the SAP system.

- Insufficient freespace in the database as follows:
Release upgrade only: The new release needs more space in the database. The existing space in your database is not sufficient to import the data for the new release. For information about the extensions that

you need to make, see the table that follows the message in the dialog box. Add the space you need for any extra data that is created before you actually upgrade your system.

Enhancement package installation and SPS update: The existing space in your database is not sufficient for the update. For information about the extensions that you need to make, see the table that follows the message in the dialog box. Add the space you need for any extra data that is created before you actually update your system.

The procedure is described in [Extending Free Space in the MS SQL Database \[page 239\]](#).

Note

Release upgrade only: Due to limited statistical data about table and index sizes, in rare cases the Software Update Manager may ask for more free space than is actually needed during the upgrade. This occurs especially for index tablespaces. In this case, report an incident to help us improve the statistics.

- In Release <rel> you applied the following unconfirmed patches to your system. There are unconfirmed Support Packages in your SAP system (such as Support Packages for technical components SAP_BASIS, or SAP_BW). To confirm these Support Packages, call transaction SPAM.
- There are dependencies between Basis Support Packages included in phase BIND_PATCH and the patch level of the target release kernel in directory \<upgrade directory>\exe.
The disp+work needs at least patch level <number> or higher.
Please proceed as described in note 211077.
A Support Package included in update requires a different patch level for the SAP kernel. Proceed as described in SAP Note [211077](#).
- The following function groups (FUGR) are inconsistent. The TADIR entry (and the frame program) have no corresponding entry in the master table TLIBG.

Note

This entry is only displayed if you perform a release upgrade.

Your SAP system contains customer function groups that have not been entered in table TLIBG. To enter the function groups in table TLIBG, call transaction SE80. If you do not fix the problem, the customer function groups are lost during the upgrade. In case of questions or problems, report an incident on component BC-DWB-TOO-FUB.

- no write permission on <file name>:
The specified file in the directory of user <sapsid>adm cannot be overwritten because the authorizations have not been set correctly or the owner of the file is not <sapsid>adm. Correct this by changing the authorizations or the owner.
- Release these open transport requests and repairs:

Caution

If you ignore open repairs, you could lose modifications.

Your SAP system contains locked SAP objects in open repairs or requests. The numbers of these repairs or requests are listed.

We recommend that you inform the owners of open repairs or requests so that they release them. You can continue with the update until the REPACHK2 phase. In the REPACHK2 phase, all listed open requests and repairs have to be released.

For more information, see [Releasing and Confirming Open Repairs and Requests \[page 240\]](#).

i Note

If open repairs that do not belong to this system appear, then this system was created by a database copy. You cannot release these repairs in the normal way. To release these repairs, release all tasks and requests in the current system. Call the Workbench Organizer (transaction SE06). All locks created by repairs and requests not known to the system are deleted. The status of the affected tasks and requests changes in this case to *RELEASED*.

To release and confirm these open repairs, you have to log on to the system with the name of their owner. The list in the dialog box contains these names.

- Restart logs of DB conversions found. Outstanding DB conversions found. Your SAP system contains outstanding conversions and restart logs of terminated conversions. Clean these up as described under [Cleaning Up Terminated Conversions in the DB Conversion Phases \[page 215\]](#).

- Unresolved request found in TRBAT.

```
.....
TRBAT entry indicates that a batch job is running.
.....
TRBAT entry indicates that a batch job has finished.
.....
Corrupted TRBAT entry found.
.....
```

The transport control program `tp` uses table TRBAT to communicate with the SAP system. Entries found in this table by the Software Update Manager may be the remains of terminated or running imports or exports. When you prepare the update, locate any entries left over from imports or exports that terminated and clean them up. Do not delete entries made by running imports or exports during production operation.

First try to process the TRBAT entries from `\usr\sap\trans\bin` with the following command:

`tp getprots <SAPSID>`

This does not affect any imports or exports that are still running. `tp` informs you about possible processing problems in the file `\usr\sap\trans\log\SLOG<rel>`. You can monitor this file using the command `type` or `tail` (MKS tools), but do not use an editor.

where `<YY>` is the year (two digits) and `<ww>` is the calendar week (two digits).

To delete any entries in TRBAT that cannot be processed and that are no longer needed, call transaction SM31. In cases of doubt we recommend that you contact SAP Support, which can assess if an entry is still needed.

For more information about the transport control program `tp`, see the [SAP Library \[page 14\]](#) for your source release:

Table 16: SAP Library Paths

Release	Path in SAP Library
SAP NetWeaver 7.3 / 7.3 incl. EHP 1 / 7.4 / 7.5	Application Help > Function-Oriented View > Software Logistics > Change and Transport System > Transport Tools > Transport Control Program tp

Release	Path in SAP Library
SAP NetWeaver 7.1	▶ SAP NetWeaver Process Integration Library ▶ System Administration and Maintenance Information ▶ Technical Operations for SAP NetWeaver ▶ General Administration Tasks ▶ Software Life Cycle Management ▶ Software Logistics ▶ Change and Transport System ▶ Transport Tools ▶ Transport Control Program tp ▶
SAP NetWeaver 7.0	▶ Application Help ▶ Function-Oriented View ▶ SAP NetWeaver by Key Capability ▶ Solution Life Cycle Management by Key Capability ▶ Software Life Cycle Management ▶ Software Logistics ▶ Change and Transport System ▶ Transport Tools ▶ Transport Control Program tp ▶

- The following indexes <number> were read:

i Note

This entry is only displayed if you perform a release upgrade.

Indexes whose names are identical up to the 14th character were found in a table belonging to the substitution set. The 14th character is an 'X' in one of the two names and is empty in the other. This is an inconsistency and would result in an error during the import of the substitution set.

The index with the 'X' as the 14th character can only have occurred in a previous upgrade or have been created outside the SAP system. For more information, contact your SAP consultant.

- The following database tables have names that are identical to names of Basis views. The views will be created in this upgrade. Therefore ...

i Note

This entry is only displayed if you perform a release upgrade.

Delivered views may have names identical to the names of customer tables in the SAP namespace. You have to delete these tables. If you need the table data, you should make a backup before deleting the tables.

- Update records still exist - please process
 Make sure that you have cleaned up the following by the JOB_RSVBCHCK_R, JOB_RSVBCHCK_D, or JOB_RSVBCHCK_D_MIG phase (during downtime) at the latest:
 - All outstanding updates
 - All outbound queue RFC calls
 - All open data extraction orders

If you are still in the preparation phase (before the beginning of the *Preprocessing* roadmap step) and therefore in production operation, you have to only delete the **terminated** updates.

➔ Recommendation

We recommend that you clean up as many updates, RFC calls, and open data extraction orders as possible. Otherwise, you have to clean them up during downtime.

To find terminated or outstanding updates, proceed as follows:

1. Call transaction SM13.
2. Delete the default values for the client, user, and time.
3. Select all the update requests.

To find outstanding outbound queue RFC calls, proceed as follows:

1. Call transaction SMQ1.
2. Delete the default values for the client.
3. Make sure that the list of outbound queue RFC calls is empty. Otherwise, you might lose data in other systems (for example, in SAP BI).
4. Make also sure that there is no open data extraction order in the system anymore. Otherwise changes to the ABAP Dictionary structures could lead to data extraction orders not being able to be read after the import and their processing terminating. See SAP Note [1081287](#) for more information.

Repeat these checks when production operation ends. For more information, see [Isolating the Primary Application Server Instance \[page 164\]](#).

Caution

If you have installed the PI plug-in, more information is displayed.

- Your database and primary application server instance are running on different hosts. Executables have to be transferred to the database host.
Microsoft Failover Cluster configuration: If the database and the SAP system are running on different nodes in a cluster installation, ignore the above warning.

5.17 Making Entries for the Preprocessing Roadmap Step

Confirmation of Support Packages (Phase PATCH_CHK)

Release upgrade only:

This phase checks that the following prerequisites are met:

- All support packages have to be confirmed for the source release. Unconfirmed support packages are displayed on the screen and in the `PATCHOUT.LOG` file in subdirectory `log` of the `abap` subdirectory of the `SUM` directory.
- The source release does not contain support packages that are more recent than those in the delivered target release.

If you have to confirm support packages for the source release, proceed as follows:

1. Call transaction SPAM and confirm the support packages that are proposed there.
2. If a warning appears that the support package level of your source release is too high, proceed as follows:
 - If you have already included support packages in the `BIND_PATCH` phase, you can ignore this warning.
 - If you have not included any support packages in the `BIND_PATCH` phase, you will lose data if you continue with the upgrade. In this case, you have to reset the upgrade, repeat all phases including phase `BIND_PATCH` and include the necessary support packages.

Enhancement package installation and SPS update:

All support packages have to be confirmed in your system. Unconfirmed support packages are displayed on the screen and in the `PATCHOUT.LOG` file in subdirectory `log` of the `abap` subdirectory of the update directory.

If you still have to confirm support packages, call transaction SPAM and confirm the support packages that are proposed there.

SPAU Fill Level Display (Phase PREP_PARSETUP/SPAU_FILL_LEVEL_DEC)

In this phase, the Software Update Manger checks for SAP Notes and repository objects that were modified but not adjusted in the transactions SPDD and SPAU in previous updates. If such objects are detected, the phase `SPAU_FILL_LEVEL_DEC` displays the dialog *Open actions in transaction SPDD and SPAU*. This dialog offers you the possibility to complete all outstanding modification adjustments in an early stage of the current update to reduce the adjustment effort at a later point in time.

The dialog shows the following numbers:

- Obsolete and non-adjusted SAP Notes
- Non-adjusted objects that were modified either with or without Modification Assistant, and the SPDD-relevant objects thereof
- Modified but non-adjusted objects with active SAP versions that can be reset to SAP standard versions

If you perform the current update on your development system, we strongly recommend that you perform the following actions:

- Confirm all obsolete notes.
- Reset all non-adjusted objects with active SAP version to SAP standard versions.
- Carry out the outstanding modification adjustments.

Afterwards, release the resulting workbench request into the system landscape before you continue with the current update procedure.

In the development system, you can use the report `RSUPG_AUTO_ADJ_SPAU`. It retrieves the non-adjusted objects that can be reset to the SAP original version and writes a detailed list to a log file. Depending on the number of objects listed in the summary, you can execute this report in the background.

Furthermore, this report offers you the possibility to perform the reset of the listed non-adjusted objects to the SAP original version automatically. For this purpose, set the parameter `p_check` to `<space>` and enter a valid and already existing workbench request as value for parameter `p_trkorr` during the execution of the report.

If you want to use the automatic reset, note the following:

- Import the workbench request, which is required for this automatic adjustment, into the subsequent systems **before** you start the update of these systems.
- Do **not** include this workbench request as single change request or as SPDD/SPAU transport request during the update.

Automatic Reset of Non-Adjusted Repository Objects to SAP Original Version (Phase RUN_SUM_SPDD_RESET_CANDIDATES or RUN_SUM_SPDD_RESET_CANDIDATES_TRANS)

In this phase, the Software Update Manager identifies and lists ABAP Dictionary objects with active SAP versions that have been modified but not yet adjusted and can be reset to the SAP standard versions. The Software Update Manager compares the existing customer version of a repository object with the new, imported SAP version. If the SAP version is type compatible with the customer version, the Software Update Manager lists the object as a potential reset candidate. Type compatibility in this context means that the customer version is completely included in the SAP version.

Example

- A domain in the customer version is of the type char with length 10. The SAP version is of the type char with length 10 or greater. In this case, the domain is listed as a potential reset candidate. However, if the SAP version of the object is of the type char with length 9, the domain is not listed as a reset candidate because the customer version is larger than the SAP version.
- Concerning a structure or a table, type compatibility means that all fields in the customer version of the structure or table are also part of the SAP version and are type compatible with the SAP version. Note that the SAP version may contain more fields than the customer version.

The compatibility check includes more data for a comparison than the data mentioned in the examples above. The log file of the phase RUN_SUM_SPDD_RESET_CANDIDATES contains the details about the compared objects and informs you about the reasons why an object is considered to be a potential reset candidate or not. In addition, the log file contains a plain list of all potential reset candidates in the summary section.

The potential reset candidates can be reset automatically using the report RSUPG_SPDD_RESET_CANDIDATES that is mentioned in the dialog *Repository Modifications*. Make sure that you check the candidates list before you execute the automatic reset since the compatibility check covers the technical perspective only.

Example

You have added a field to a structure. SAP delivers the structure with a field that is named identically and technically compatible. You must decide whether the fields are semantically the same. If the fields have been added for your own purpose, it is probably not identical to the use intended by SAP. On the other hand, the field could be added because of a manual correction described in an SAP Note.

Only valid for 'Target Release': SAP NetWeaver 7.3 EHP1, SAP NetWeaver 7.4, SAP NetWeaver 7.5, SAP NetWeaver 7.3, SAP NetWeaver 7.0 EHP2

Caution

If either SPPD or SPAU transports are registered or you use the Customer Transport Integration feature (see [Integration of Customer Transports \[page 84\]](#)), the Software Update Manager does **not** calculate potential reset candidates.

End of 'Target Release': SAP NetWeaver 7.3 EHP1, SAP NetWeaver 7.4, SAP NetWeaver 7.5, SAP NetWeaver 7.3, SAP NetWeaver 7.0 EHP2

Keywords for Add-Ons (Phase ADDONKEY_CHK)

Note

This step is only relevant if you perform a release upgrade.

If you use SAP add-on components in your SAP system (such as IS components), you are prompted for keywords. SAP systems that have other software components (add-ons) installed on top of them have to wait until the upgrade has been released by the relevant add-on software vendor.

Operating System and Database Version (Phase CONFCHK_X)

Note

This step is only relevant if you perform a release upgrade.

This target release is released for certain combinations of operating system and database versions only. This phase checks that the operating system and database versions installed on your computer satisfy the requirements for the upgrade.

If the version check determines that the database or the operating system has to be upgraded to a new version, or that you need to import additional software, you can interrupt the Software Update Manager at this point.

Caution

Do not make any changes in the SUM directory.

Conflicts with Customer Tables in the SAP Namespace (Phase VIEWCHK*)

Note

This step is only relevant if you perform a release upgrade.

This phase displays conflicts between customer tables in the SAP namespace and views that are delivered for the first time. It also writes this information to a log file.

You have to rename or delete the tables. If the tables are transparent, you can delete the customer tables using the Software Update Manager. You have to delete pool or cluster tables manually in the SAP system. First save any data that you need in these tables.

Repairs and Requests Containing Objects Locked by SAP (Phase REPACHK1)

This phase displays all repairs and requests containing objects locked by SAP and writes them to the `REPACHK1.LOG` file.

You can ignore the messages at this point. These objects have to be released and the repairs confirmed at the latest by the `REPACHK2` phase.

Outstanding or Incomplete Updates (Phase JOB_RSVBCHCK2)

If there are any outstanding or incomplete updates, the update stops in this phase with a message.

If errors occur in this phase and you have not stopped production operation yet, you can skip these errors with *ignore* without entering a password. However, we recommend that you check for these updates and clean them up. The message is:

```
Update records still exist - Please process
```

Free Space in Subdirectory log (Phase FREECHK_X)

Release upgrade only: This phase checks whether there is enough free space in subdirectory `log` of the `abap` subdirectory of the `SUM` directory during the upgrade. You should have enough free space in the `log` subdirectory so that the upgrade can run without errors.

Enhancement package installation and SPS update: This phase checks whether there is enough free space in the `log` subdirectory of the update directory during the update. You should have enough free space in the `log` directory so that the update can run without errors.

Enhancement package installation and SPS update: The update may require a higher SAP kernel patch level than the one that is currently installed. In this case, the SAP kernel is switched in the SAP kernel directory. This phase also compares the free disk space in the SAP kernel directory with the space requirements of the new SAP kernel.

Release upgrade only: During downtime, the SAP programs are substituted in the SAP kernel directory `\usr\sap\<SAPSID>\SYS\exe\run`. This phase also compares the free disk space in the SAP kernel directory with the space requirements of the new SAP kernel.

At this point, make sure that you are able to restore the old SAP kernel if this becomes necessary.

Caution

All files and subdirectories in the kernel directory `\usr\sap<SAPSID>\SYS\exe\run` are overwritten when the SAP kernel is switched. For more information, see the log file `CHECKS.LOG`.

This log file includes, among other things, the protection list file `PROTECT.LST`, in which all files and subdirectories appear that can be protected from deletion. To prevent their deletion in the kernel directory, you copy the file `PROTECT.LST` from the directory `\usr\sap<SAPSID>\abap\var\` to the kernel directory `\usr\sap<SAPSID>\SYS\exe\run`. Note that the saved files may not fit to the new kernel version.

ABAP Workbench Locking (Phase `LOCKEU_PRE`)

Note

This step is only relevant if you perform a release upgrade.

If you have chosen preconfiguration mode *standard* or *advanced*, the Software Update Manager asks you in this phase if you want the ABAP Workbench to be locked on all SAP instances now or in phase `REPACHK2` (see *Unreleased Repairs and Corrections (Phase `REPACHK2`)* below).

This lock is needed to prevent development objects (for example, ABAP reports, table definitions, and so on) from being changed during the upgrade, since these modifications would be lost.

If you have chosen preconfiguration mode *standard* or *advanced*, you can continue to use your SAP system in production operation, even if you confirm that the ABAP Workbench can be locked.

If you confirm the lock now:

- The Software Update Manager does not stop in the `REPACHK2` phase to allow you to confirm the lock on the ABAP Workbench. This increases the time in which the Software Update Manager does not need user input after the last request for a mount directory.
- You may not perform any more transports into or out of the SAP system.

ABAP Workbench Locking (Phase `REPACHK_CLONE`)

Note

This step is relevant if you perform an enhancement package installation or an SPS update.

If you have chosen preconfiguration mode *standard* or *advanced*, the Software Update Manager asked you in this phase to confirm the locking of the ABAP Workbench on all SAP instances. In contrast to the release upgrade, the Software Update Manager requires the lock in this phase only.

This lock prevents development objects (for example, ABAP reports, table definitions, and so on) from being changed during the update since these modifications would be lost.

You can continue to use your SAP system in production operation, even if you confirm that the ABAP Workbench can be locked. However, after you have confirmed the ABAP Workbench lock, no more transports can be made

into or out of the SAP system. Some further actions might be blocked that either check for this lock as well or for the running update. This is especially known in the area of Business Intelligence and SAP Solution Manager.

This phase displays all the repairs that are still in open transport requests. They are also written to the `REPACHK2.LOG` file. Release these transport requests so that you can continue; otherwise, the objects contained in these repairs are locked.

Note

SUM checks in this phase also for inactive development objects. During this check, it can occur that SUM reports inactive objects, which cannot be found in the SAP system. For information about removing these inconsistencies, see SAP Note [538167](#).

Unreleased Repairs and Corrections (Phase REPACHK2)

This phase displays all the repairs and corrections that are not released and writes them to the `REPACHK2.LOG` file.

- Before you continue, you have to release and confirm all the open repairs; otherwise, the objects in them are locked.
For a description of this procedure, see [Releasing and Confirming Open Repairs and Requests \[page 240\]](#).

Caution

If you ignore open repairs, you could lose modifications.

Once you have released and confirmed all the open repairs, you have to repeat the `REPACHK2` phase. Any modifications made to SAP objects in your repairs might be overwritten during the update. For information about how modifications are copied to the new SAP standard during the update, see the [SAP NetWeaver Library \[page 14\]](#) for the target release at:

Table 17: SAP Library Paths

Release	Path in SAP Library
SAP NetWeaver 7.5	<p>▶ Application Help ▶ Function-Oriented View ▶ Application Server ▶ Application Server ABAP ▶ Application Development on AS ABAP ▶ ABAP Customer Development ▶ Changing the SAP Standard ▶ Modifying the Standard ▶ The Modification Assistant ▶ In section <i>The Modification Assistant</i>, choose Upgrade Procedure / Support Packages</p>
SAP NetWeaver 7.3 / 7.3 incl. EHP 1 / 7.4	<p>▶ Application Help ▶ Function-Oriented View ▶ Application Server ▶ Application Server ABAP ▶ Application Development on AS ABAP ▶ ABAP Customer Development ▶ Changing the SAP Standard ▶ Modifying the Standard ▶ The Modification Assistant ▶ In section <i>The Modification Assistant</i>, choose Upgrade Procedure / Support Packages</p>

Release	Path in SAP Library
SAP NetWeaver 7.1 incl. EHP 1	▶▶ Application Help ▶ Function-Oriented View ▶ Application Server ABAP ▶ Application Development on AS ABAP ▶ ABAP Customer Development ▶ Changing the SAP Standard ▶ The Modification Assistant ▶ In section <i>The Modification Assistant</i> , choose Upgrade Procedure / Support Packages
SAP NetWeaver 7.1	▶▶ Application Help ▶ Function-Oriented View ▶ ABAP Technology ▶ Application Development on AS ABAP ▶ ABAP Customer Development ▶ Changing the SAP Standard ▶ The Modification Assistant ▶ In section <i>The Modification Assistant</i> , choose Upgrade Procedure / Support Packages
SAP NetWeaver 7.0 / 7.0 incl. EHP 1, 2, or 3	▶▶ Application Help ▶ Function-Oriented View ▶ SAP NetWeaver by Key Capability ▶ Application Platform by Key Capability ▶ ABAP Technology ▶ ABAP Workbench ▶ Changing the SAP Standard ▶ Upgrade Procedure / Support Packages ▶

- **Release upgrade only:**

If you have chosen preconfiguration mode *standard* or *advanced* and you did not confirm the ABAP Workbench lock in the `LOCKEU_PRE` phase, do this now.

i Note

After you have confirmed the ABAP Workbench lock, no more transports can be made into or out of the SAP system.

The Software Update Manager waits until the time you entered as the maximum synchronization time for all instances has expired.

This phase displays all the repairs that are still in open transport requests. They are also written to the `REPACHK2.LOG` file. Release these transport requests so that you can continue; otherwise, the objects contained in these repairs are locked.

Terminated Conversion Cleanup (Phase `CNV_CHK_XT`)

This phase checks whether the following still exist:

- Unprocessed conversion requests
- Restart logs

If there are errors, you receive an error message. Proceed as described in [Cleaning Up Terminated Conversions in the DB Conversion Phases \[page 215\]](#).

Comparison of Modifications (Phase ADJUSTCHK)

If you chose to copy a request in the `ADJUSTPRP` phase, the modifications it contains are now compared with the modifications in the system. The result of this comparison appears.

You are prompted to confirm that the request was copied. If this request contains all the modifications found in the system, the Software Update Manager does not stop before the activation of the ABAP Dictionary objects. However, you can still specify that you want the Software Update Manager to stop in this phase.

Cleanup of Outstanding Updates (Phases `JOB_RSVBCHCK_R` and `JOB_RSVBCHCK_D`)

If some updates have not been performed yet, the Software Update Manager stops in the following phase:

- `JOB_RSVBCHCK_R` if you perform an upgrade with preconfiguration mode *single system*
- `JOB_RSVBCHCK_D` if you perform an upgrade with preconfiguration mode *standard* or *advanced*, or if you perform an enhancement package installation or SPS update
- `JOB_RSVBCHCK_D_MIG` if you are executing the database migration option of the Software Update Manager

In these phases, you must clean up all outstanding updates. Furthermore, you have to clean up all outbound queue RFC calls and all open data extraction orders that you notice in the system at this point in time.

Proceed as follows:

1. Clean up the outstanding updates, outbound queue RFC calls, and open data extraction orders as described in [Evaluating the Results of the Preparation Roadmap Steps \[page 145\]](#).
See there under message: `Update records still exist - Please process`
2. Repeat the current phase.

Modification Adjustment and Activation (`ACT_UPG`)

Depending on the results of the `ADJUSTCHK` phase, the Software Update Manager may ask you at the beginning of this phase to adjust your modifications to ABAP Dictionary objects so that they correspond to the new SAP standard version of the objects.

i Note

Release upgrade only:

If you chose preconfiguration mode *standard* or *advanced* during the *Configuration* roadmap step, the Software Update Manager requests you to adjust your modifications to ABAP Dictionary objects during the *Preprocessing* roadmap step.

However, if you chose preconfiguration mode *single system* during the *Configuration* roadmap step, the Software Update Manager requests you to adjust your modifications to ABAP Dictionary objects during the *Execution* roadmap step.

The `ACT_UPG` phase can take very long, particularly when you have made many modifications to the SAP system or included a lot of support packages. This is because report `RADMASDSC` calculates the dependent objects and the activation sequence for all ABAP Dictionary objects that need to be activated. For example, structures have to be activated before they can be used in tables or table types. These dependencies between ABAP Dictionary objects are often complicated. The same kind of dependencies might have to be calculated several times with different input sets. Nevertheless, you can check in the process overview of transaction `SM50` that report `RADMASDSC` is running.

Caution

Do not attempt to import adjustment transport requests into the system manually in this phase. This leads to the loss of data in customer fields.

Release upgrade only: Any requests for automatic adjustment from previous upgrades can be included in this upgrade in phase `ADJUSTPRP` only.

Modification Adjustment

Caution

If you have made structural changes to tables, you have to make adjustments in the `ACT_UPG` phase. Otherwise, data is lost.

The objects are adjusted on the shadow instance.

To make adjustments, proceed as follows:

1. On the Software Update Manager GUI, confirm that you want to perform a modification adjustment.
2. Add an entry for the shadow instance to the SAP Logon.
For the server and system ID, use the values from the original system; for the instance number, use the value you specified in the preparation units for the shadow instance. The default value is the instance number of the original system plus one.
Release upgrade only: Since the original system is still running if you use the preconfiguration mode *standard* or *advanced*, you can also log on to the shadow instance in transaction `SM59` with the RFC connection `SAP_UPGRADE_SHADOW_SYSTEM`.
Enhancement package installation and SPS update: Since the original system is still running, you can also log on to the shadow instance in transaction `SM59` with the RFC connection `SAP_UPGRADE_SHADOW_SYSTEM`.
3. Log on to the shadow instance as user `DDIC` with the `DDIC` password of the original system.
Only the users `DDIC` and `SAP*` exist in the shadow instance.
4. To set the system change option, call transaction `SE06`. Perform the following actions:
 1. Set the global setting to *Modifiable*.
 2. Set the change option for the software components to *Modifiable* or *Restricted modifiable*.
 3. Set the SAP namespace to *Modifiable*.
5. Call transaction `SU01` to create one or more users to perform the modification adjustment. The new users exist only on the shadow instance and are not copied to the original system.
Release upgrade only: Copy the user `DDIC` of client `000`.
Enhancement package installation and SPS update: Since all users of client `000` are copied in the `DBCLONE` phase to the shadow instance, any of them can be used for the modification adjustment.
6. Log on to the shadow instance with one of the new users.
Modification adjustment of ABAP Dictionary objects has to be performed in client `000`.

7. To determine the ABAP Dictionary objects that need to be adjusted, call transaction SPDD.

Caution

On the shadow system, adjust only objects of the ABAP Dictionary. You can make changes to the SAP Repository (changing and creating programs or packages, for example), but we do not recommend this since it may make the system inconsistent.

For more information about transaction SPDD, see the [SAP NetWeaver Library \[page 14\]](#) for the target release at:

▶ [Function-Oriented View](#) ▶ [Application Server ABAP](#) ▶ [Application Development on AS ABAP](#) ▶ [ABAP Customer Development](#) ▶ [Changing the SAP Standard \(BC\)](#) ▶ [Modifying the Standard](#) ▶ [The Modification Assistant](#) ▶ [Upgrade Procedure /Support Packages \(link at the bottom of the page\)](#) ▶ [Adjusting ABAP Dictionary Objects](#) ▶

For more information about the Modification Assistant, see the [SAP NetWeaver Library \[page 14\]](#) for the target release at:

▶ [SAP NetWeaver Library Process Integration Library](#) ▶ [Function-Oriented View](#) ▶ [Application Server ABAP](#) ▶ [Application Development on AS ABAP](#) ▶ [ABAP Customer Development](#) ▶ [Changing the SAP Standard \(BC\)](#) ▶ [The Modification Assistant](#) ▶

Activation

Customer-defined ABAP Dictionary objects happen to have activation errors during the `ACT_UPG` phase. This happens, for example, when these objects refer to SAP objects that were deleted in the target release. For similar reasons, modifications of ABAP Dictionary objects that belong to the SAP standard delivery may also cause activation errors.

If your customer-defined objects have activation errors, you can correct them using transaction SE11 in the shadow system. If, however, you activate the objects using transaction SE11 in the shadow system, the objects are created with inactive runtime objects. This behavior is different compared to the regular behavior of transaction SE11 in a development system.

➔ Recommendation

We recommend that you correct all activation errors in modified ABAP Dictionary objects because follow-up activities after the update might rely on the correctness of these objects.

All changes to an ABAP Dictionary object during the `ACT_UPG` phase are automatically recorded in a transport request. If you have to adjust modified SAP objects in transaction SPDD, the SAP system creates the transport request automatically, as mentioned above. If, however, you correct your customer-defined objects, we recommend that you create a transport request and use it as a single change request in your subsequent system during the update. For more information about including the single change request, see *Including Support Packages (Phase BIND_PATCH)* in [Including Software \[page 132\]](#).

However, you can also choose *accept non-severe errors* to temporarily ignore these errors. You do not need a password to do this. If you chose *accept non-severe errors* here, you have to activate these objects after the update.

Caution

Only choose *ignore* if you are sure that this does not affect SAP objects.

If you are prompted for a password anyway, this means that the activation has terminated and you should not continue with the next phase. You first have to remove the cause of the termination.

Safety Export for Objects Adjusted with SPDD (Phase UEXP_SPDD_SAV)

During an update, subsequent systems might require an SPDD transport request before the *Postprocessing* roadmap step. To meet this requirement, the Software Update Manager creates and exports a safety transport request directly after the activation phase ACT_TRANS (*Single System* mode) or ACT_UPG (*Standard* or *Advanced* mode).

This transport request contains all objects of the flagged SPDD transport request. Both the data and the cofiles of the safety transport request are copied to the transport directory of your SAP system. The name of this transport request is stored in the log file UEXP_SPDD_SAV.LOG.

Incremental Table Conversion (Phase ICNVREQ)

Release upgrade only: If you chose preconfiguration mode *standard* or *advanced*, you are asked if you want to use the incremental table conversion (ICNV). The Software Update Manager only displays this dialog if it has found tables that fulfill the prerequisites.

Enhancement package installation and SPS update: You are asked if you want to use the incremental table conversion (ICNV). The Software Update Manager only displays this dialog if it has found tables that fulfill the prerequisites.

For more information, see [Incremental Table Conversion \[page 71\]](#).

Creation of Database Indexes (Phase RUNASYN_RSINDCRE)

The Software Update Manager starts the background job RSINDCRE that creates secondary database indexes. The Software Update Manager does not wait for the results of this phase, it continues with the next phase.

If the creation of a secondary database index fails, an error message is written to the log file RSINDCRE.<SAPSID> and the creation of the index is repeated during the downtime. This can in rare cases increase the duration of the downtime.

If you want to make sure that all secondary database indexes have been created successfully before you start with the downtime, check log file RSINDCRE.<SAPSID> for any error messages. If log file RSINDCRE.<SAPSID> displays error messages and you can solve these errors, restart the asynchronous index creation during the uptime by performing the following steps:

1. Check whether background job RSINDCRE has stopped and is no longer running as a background job.
2. Reschedule background job RSINDCRE.

Preparation of SAP System for Downtime (Phase DOWNCONF*)

At the end of the *Preprocessing* roadmap step, the Software Update Manager requests you in phase `DOWNCONF_DTTRANS` to perform actions that prepare your SAP system for the downtime.

The Software Update Manager requests you to perform the following actions:

1. Make sure that all production work in the SAP system is stopped and no users are logged on to the SAP system.
2. Make sure that no scheduled batch jobs can start anymore and await regular completion of currently running jobs.

Note

The Software Update Manager automatically executes the report `BTCTRS1` before the update will be started. This report transfers all jobs with the status *Released* to the status *Suspended*. (See also the report documentation for more information.)

After the update, you can reschedule jobs using report `BTCTRS2`. See also [Rescheduling Background Jobs \[page 189\]](#).

3. Isolate the primary application server instance.
For more information, see [Isolating the Primary Application Server Instance \[page 164\]](#).
4. After having completed these actions, choose *OK* to proceed to the next screen.
The Software Update Manager stops the primary application server instance.
5. Before you enter the downtime, you are requested to perform the following backups:
 1. Back up your database.

Caution

To restart the update from this point, make sure that you can restore the database, the system directory, and the update directory to the current state.

In case of problems during the downtime, for example, a hardware failure, you need the backup of your database and the directories to reset the SAP system to the current state. The directories include, among others, profiles, trace files, and files for the SAP kernel needed for a reset of the SAP system.

2. Back up directory `\usr\sap\<SAPSID>` including the update directory.

Note

If the update directory is not part of directory `\usr\sap\<SAPSID>`, make a separate backup of the complete directory including the subdirectory `sdt`.

Note

If you experienced problems during the downtime and had to restore your SAP system, you can choose *Go productive again* to resume production operation. You can enter the downtime at a later point in time.

6. Release upgrade only: If you have chosen the preconfiguration mode *single system* or *standard*, archiving is disabled. If the disabling of the archiving fails, the Software Update Manager prompts you to disable archiving manually.

Enhancement package installation and SPS update: If you have chosen the preconfiguration mode *standard*, archiving is disabled. If the disabling of the archiving fails, the Software Update Manager prompts you to disable archiving manually.

For information about how to do this, see [Changing the MS SQL Server Database Recovery Mode \[page 240\]](#).

7. Only valid for 'Source Release': SAP Web AS 6.40

Release upgrade only: If you are upgrading from a source release based on SAP NetWeaver 2004 and you have additional application server instances, back them up in case a system restore is required and then **uninstall** them.

To uninstall the additional application server instances, proceed as described in the installation guide for your source release. If you want to use the profiles of the additional application server instances to adapt the profiles of the target system, save them before you uninstall the additional application server instances.

➔ Recommendation

We recommend that you do not back up the profiles of the additional application server instances in the profile directory. The profile directory must only contain active profile files.

End of 'Source Release': SAP Web AS 6.40

5.18 Preparing the Remote Host for the Downtime

Before the downtime begins, prepare the remote host by installing the Microsoft Visual C++ runtime environment manually.

Context

Install the Microsoft Visual C++ runtime environment (`vcredist_*.msi` or `.exe` package), which is delivered with the new SAP kernel and SAP JVM components in the stack, on the remote Windows hosts.

i Note

For SAP kernel versions lower than 744, the `vcredist_*.msi` is available. As of SAP kernel 744, use the `vcredist_*.exe` package.

⚠ Caution

If you have a remote SCS instance running in a clustered or high availability environment, install the `vcredist_*` package on both cluster nodes.

Procedure

- The `vcredist_*` package needed by [SAP kernel](#) is available in the `SAPEXE_*.SAR` archive delivered with the stack file. Extract the `vcredist_*.msi` or `.exe` package on the remote host using the following command:

SAP kernel lower than 744:

```
sapcar -xvf SAPEXE_*.SAR vcredist_*.msi -R <DRIVE>:\<target_dir>
```

SAP kernel 744 and higher:

```
sapcar -xvf SAPEXE_*.SAR vcredist_*.exe -R <DRIVE>:\<target_dir>
```

- The `vcredist_*` package needed by [SAP JVM](#) is available in the `SAPJVM<version>_*.SAR` archive delivered with the stack file. Extract the `exe` package on the remote host using the following command:

SAP kernel lower than 744:

```
sapcar -xvf SAPJVM<version>_*.SAR vcredist_*.msi -R <DRIVE>:\<target_dir>
```

SAP kernel 744 and higher:

```
sapcar -xvf SAPJVM<version>_*.SAR vcredist_*.exe -R <DRIVE>:\<target_dir>
```

5.19 Preparing the ASCS Instance for the Downtime (HA Only)

Procedure

Note






This procedure is only valid if you are running an update of a high availability system.

Caution

The following actions will stop the ASCS instance and therefore your whole system!

Proceed further as described for your operating system version:

For Windows Server 2008 (R2):

1. Go to  [Administrative Tools](#)  [Failover Cluster Manager](#) .
2. Choose  [Groups <SAPSID>](#) .
3. Perform the following steps for the ASCS instance of your SAP system:
 1. Bring the `SAP <SAPSID> <instance_number> Instance` cluster resource offline.
 2. Bring the `SAP <SAPSID> <instance_number> Service` cluster resource offline.
 3. Double-click the `SAP <SAPSID> <instance_number> Instance` and choose the [Parameters](#) tab.
 4. Select the [Maintenance Mode](#) flag.

5. After bringing the SAP Cluster Resources offline, start the SCS service manually and make sure the *Startup Type* of the SCS service is set to *Automatic*. This is required so that Software Update Manager can execute the maintenance activities on the SCS.
6. Start the SCS instance.

For Windows Server 2012 and Windows Server 2012 (R2):

1. Open a PowerShell console with elevated rights.
2. Stop the SAP <SAPSID> <instance_number> Instance and the SAP <SAPSID> <instance_number> Service cluster resources by using the following commands:

```
stop-clusterresource "SAP <SID> <instance_number> Instance"  
stop-clusterresource "SAP <SID> <instance_number> Service"
```
3. Set the Maintenance Mode in the Properties of the SAP <SAPSID> <instance_number> Instance cluster resource:

```
Get-ClusterResource "SAP <SID> <instance_number> Instance" | set-clusterparameter  
MaintenanceMode -value 1
```

Leave both SAP Cluster Resources offline. Do not start them again at this point in time. Otherwise, the cluster might fail over in the event of a restart of the SAP Instance resource.
4. Set the SAP<SAPSID>_<instance_number> service startup type to automatic and start it by using the following commands in an elevated command prompt or PowerShell:

```
sc.exe config SAP<SAPSID>_<instance_number> start= auto  
sc.exe start SAP<SAPSID>_<instance_number>
```

5.20 Isolating the Primary Application Server Instance

Use

You need to isolate the primary application server instance so that only the Software Update Manager can work with the system during downtime. This means that you can use the primary application server instance exclusively for the update. The Software Update Manager asks you to isolate the primary application server instance when downtime begins.

During downtime, all users have to be logged off from the system. You can use transaction SM02 to inform the users who are logged on to the system.

Procedure

1. Make sure that no job is scheduled in the Task Scheduler that affects the SAP system, such as starting and stopping the SAP system, backing up the database, or similar actions.
This could impair the full control of the Software Update Manager over the SAP system.

2.  **Caution**

The transaction DB13 uses a different scheduling and naming format for DB13 jobs in new SAP releases. It is important to delete and reschedule the DB13 jobs, if it is required for the update of your SAP system. For

this, follow the steps in section 4. [Upgrade/Update of SAP system](#) of SAP Note [1817705](#) to carry out the required processing steps before you start the downtime.

3. Make sure that no change of operation mode is defined on the primary application server instance during the update.
If this is the case in normal operation, call transaction SM63 either to choose a single operation mode for all time spans, or to delete all the assignments.
4. Clean up all outstanding updates as described in [Evaluating the Results of the Preparation Roadmap Steps \[page 145\]](#) when the message `Update records still exist - Please process` appears.
5. Shut down all application servers, if necessary (secondary SAP instances).
6. Make sure that you can recover the database to its current state.
7. If you have chosen strategy *downtime-minimized*, back up the update directory now.
If a hardware problem occurs during downtime, you may need to reset the update to the state it had when the SAP system was isolated. So that the Software Update Manager has the correct control information, the update directory should have the same state as at the beginning of the `MODPROF_TRANS` phase.
8. If the primary application server instance and the database server are on the same host, you can lock the database against remote access. Contact the database administrator.

Caution

Make sure that no transport requests are imported into the system during downtime. Otherwise you may lose data. For example, by manually importing requests for the automatic adjustment, you may lose all your modifications to the SAP system.

9. The SAProuter in directory `\usr\sap<SAPSID>\SYS\exe\run` should not be active while the new SAP kernel is being imported. You have the following options:
 - Stop the SAProuter now and restart it after the update.
 - If you need the SAProuter during the update, stop it at the beginning of the downtime at the latest. If you need the SAProuter during the downtime, make sure that the update is not running in parallel, especially during phase `KX_SWITCH`.

5.21 Making Entries for the Execution Roadmap Step

Actions After Shutdown (Phase `STOPSAP_<x>`)

If you want to use transaction RZ10 to adjust the instance profile during or after the update, start by reimporting the current version of the profile into your SAP system. If you do not do this, the changes made by the update are reset, which can cause the update to stop running.

If you called transaction ICNV during the update, the Software Update Manager checks whether you have already converted the recommended percentage of the selected data (see [Incremental Table Conversion \[page 71\]](#)). The Software Update Manager informs you if you have not. If you ignore the information from the Software Update Manager, the rest of the data is converted in the conventional manner during downtime. For details on the status of the incremental conversion, call transaction ICNV.

Modification Adjustment and Activation (Phase ACT_UPG)

i Note

This step is only relevant if you perform a release upgrade.

i Note

If you selected preconfiguration mode *standard* or *advanced* during the *Configuration* roadmap step, the Software Update Manager requests you to adjust your modifications to ABAP Dictionary objects during the *Preprocessing* roadmap step.

For more information, see *Modification Adjustment and Activation (Phase ACT_UPG)* in [Making Entries for the Preprocessing Roadmap Step \[page 149\]](#).

Manual Actions for the ASCS Instance (Phase REQ_ASCS_SWITCH)

If you are running the ASCS instance on a separate host (for example, in a high availability environment) and the operating system of the host is different from that on the primary application server instance, you are prompted to install the latest SAP kernel on the host with the ASCS instance.

Manual Actions for the ASCS Instance in a High Availability Setup (Phase REQ_ASCS_SWITCH_CLUSTER)

If you are running the ASCS instance in a high availability setup such as a cluster, you carry out consecutively several manual actions. See for this [Performing Manual Actions for the SAP Central Services Instances \[page 167\]](#).

Database Archiving and Backup (Phase STARTSAP_PUPG)

You are asked to make a full backup of your database. If you have deactivated archiving, you are asked to change the archiving mode of your database.

Release upgrade only: For more information about database archiving and backup strategies, see [Database-Specific Aspects \[page 70\]](#).

Enhancement package installation and SPS update: For more information about database archiving and backup strategies, see *Database-Specific Aspects* in [Update Schedule Planning \[page 33\]](#).

5.22 Performing Manual Actions for the SAP Central Services Instances

Use

The following procedures have to be performed consecutively during phase REQ_ASCS_SWITCH_CLUSTER.

Procedure

Restarting the ASCS Windows Service

Windows Server 2008 (R2)

1. Open the Windows Cluster Administrator by choosing **Administrative Tools > Cluster Administrator**.
2. Choose **Groups > SAP<SAPSID>**.
3. Check whether this group is online on the node with the primary application server instance.
4. If it is not online, move the group to the node with the primary application server instance. In the context menu of the group, choose **Move Group**.

Windows Server 2012 and Windows Server 2012 (R2)

1. Open the powershell console with elevated rights.
2. Check the node where the primary application server instance installed is the owner of the SAP <SAPSID> group by executing the following command: `get-clustergroup "SAP <SAPSID>"`.
3. If the node with the primary application server instance is not the owner, move the group to this node by executing the following command: `move-clustergroup "SAP <SAPSID>"`.

Only valid for 'Source Release': SAP Web AS 6.40, SAP NetWeaver 7.0, SAP NetWeaver 7.1, SAP NetWeaver 7.0 EHP2, SAP NetWeaver 7.0 EHP1

Merging the Start Profile with the Instance Profile

i Note

This step is only relevant if you perform a release upgrade.

For information about merging the start profile with the instance profile, see SAP Note [1528297](#).

Apply this SAP Note to the ASCS instance of your SAP system.

End of 'Source Release': SAP Web AS 6.40, SAP NetWeaver 7.0, SAP NetWeaver 7.1, SAP NetWeaver 7.0 EHP2, SAP NetWeaver 7.0 EHP1

Preparing the ASCS Instance for Production Operation (HA Only)

1. In a command prompt with elevated rights or PowerShell console, change the SAP<SAPSID>_<instance_number> service back to manual startup type by using the following command:
`sc.exe config SAP<SAPSID>_<instance_number> start= demand`

Proceed further as described for your operating system version:

For Windows Server 2008 (R2):

1. In the Failover Cluster Manager, open the cluster group `SAP <SAPSID>`.
2. Double-click the `SAP <SAPSID> <instance_number> Instance` cluster resource and choose the *Parameters* tab.
3. Deselect the *Maintenance Mode* flag.
4. Bring the `SAP <SAPSID> <instance_number> Instance` cluster resource online. This automatically brings the `SAP <SAPSID> <instance_number> Service` cluster resource online.

For Windows Server 2012 and Windows Server 2012 (R2):

1. Open a command prompt with elevated rights or PowerShell console.
2. Disable the Maintenance Mode in the Properties of the SAP Instance Resource by using the following command:

```
Get-ClusterResource "SAP <SID> <instance_number> Instance" | set-clusterparameter MaintenanceMode -value 0
```
3. Bring the `SAP <SAPSID> <instance_number> Instance` cluster resource online by using the following command:

```
start-clusterresource "SAP <SID> <instance_number> Instance"
```

5.23 Making Entries for the Postprocessing Roadmap Step

Load Generation (Phase REQGENLD)

You can now start to generate loads for your SAP system.

For more information, see [Generating Loads \[page 190\]](#).

Solution of P-Errors (Phase CHK_POSTUP)

Some of the problems, which occur during an update, can be tackled after you have completed the update but before you start the productive system. This type of problem is indicated by a *P* in the second column of the `.ELG` logs.

You can find a complete list of these P messages in the `CHK_POSTUP` phase in the `LONGPOST.LOG` file.

Caution

It is stringently required that you remove the cause of the P messages before you start using your SAP applications again.

Example

Some of the secondary indexes may not have been created because they were not unique. Use the ABAP Dictionary tools (transaction SE14) to create these indexes in the database.

To remove an error, proceed as described in the long text of the message that can be accessed as follows:

1. Identify the appropriate message class and the message number. In general, the message class is indicated by the letters after the *Px*, followed by message number and the message short text. The system is the following: P<message language><message class><message number>.

Example

P-message *4PEDH176 Parameter list of append search help "PRCTR_APPEND" differs from appending one* means:

- message type: *P*
- message language: *E (English)*
- message class: *DH*
- message number: *176*
- message short text: *Parameter list of append search help "PRCTR_APPEND" differs from appending one*

2. In your SAP system, choose transaction SE91 (Message Maintenance), and fill in the fields *Message Class* and *Number* accordingly. Then choose *Display*.
3. Select the message in the list and choose *Long Text*. The long text with further information appears. Note that no long text will be displayed if the checkbox *Self-Explanatory* is marked. In this case, the short text describes the issue sufficiently.

Any messages that you do not handle immediately need to be handled at the next opportunity.

Note

If you receive an error message stating that a table with the naming convention `M_<four-character matchcode object><one-character ID>` does not have an ABAP Dictionary reference, you can delete this table without informing SAP Support.

Modification Adjustment of Repository Objects (Phase SPAUINFO)

If you have made modifications to programs, screens or interfaces (GUIs), you have to adjust them with transaction `SPAU` and - if applicable - transaction `SPAU_ENH`. You can either do the modification adjustment now or after you have finished the update. If you adjust the modifications now, the Software Update Manager exports the related transport request to the transport directory and registers it for transport in the `umodauto.lst` file. Using this file, the Software Update Manager can integrate the transport into subsequent updates.

Note

Make sure that the user `<sapsid>adm` has write permissions for the file `\<DIR_TRANS>\bin\umodauto.lst`

To use this automatic registration of the transport in the `umodauto.lst` file, proceed as follows:

1. Stop the update by choosing *Exit* on the SL Common UI.
2. Perform the modification adjustment.
3. Restart the update and choose *Adjustment completed*.

If you want to finish the update without adjusting modifications, choose *Continue* on the Software Update Manager GUI.

For more information, see [Adjusting Repository Objects \[page 177\]](#).

Temporary Renaming of SPAU Transport Request Owner and Client (Phase UEXP_SPAU)

If you carry out the modification adjustment during the update, note that the Software Update Manager performs the following in phase `UEXP_SPAU`:

- The owner of the modifications transport request changes temporarily to user `DDIC`.
- The client changes temporarily to client `000`.

After this phase, the Software Update Manager revokes the changes so that the client has the original number and the transport request has the original owner again.

If the Software Update Manager GUI aborts during this phase and you have to look for the transport request, bear in mind that the request owner is user `DDIC`. The number of the transport request remains unchanged.

If you restart the Software Update Manager GUI, SUM uses the original client and transport request owner again.

Starting Cleanup Processing (Phase REQUPFINAL)

In this phase, the Software Update Manager performs cleanup activities in the background. However, the system is already unlocked and available again for all users without any restriction.

Saving Log Files (Phase SAVELOGS)

The Software Update Manager saves selected log files and control files. If there are problems after the update, SAP Support can use these files for error analysis. The files are saved in the following directory:

Release upgrade only: `\usr\sap\trans\upgrade\`

Enhancement package installation and SPS update: `\usr\sap\trans\ehpi\`

5.24 Evaluating the Update Process

To give your feedback to the update process, you can send a feedback form to SAP.

Prerequisites

- The update has finished.
- The machine has an e-mail connection.

Context

SAP is always interested in improving its tools. Our aim is to provide you with a fast and efficient update process. Upon completing the process successfully, the important statistics of the update are collected in a comprehensive report – the `EvaluationSummary.xml` file. Evaluating the collected information helps us to improve the update process but also brings benefits like transparency and predictability. Note that the form does not collect any business-related data.

To be able to identify areas in need of improvement, we would highly appreciate getting feedback on your experience with the SUM process. For this purpose, we have incorporated a simple feedback form directly in the GUI (*Summary* roadmap step). The *Summary and Evaluation of the Process* dialog contains the following sections:

- *Summary*
Using the corresponding link in the dialog (*ProcessOverview.html*), you can open the *Software Update Manager Process Report*, which is designed to easily evaluate your update and to better plan follow-up updates. It collects all important artifacts into a single file.
For more information about the report, see [Process Overview Report \[page 199\]](#).
- *Feedback Form*
This form consists of a simple questionnaire on your experiences with the SUM process, a free-text feedback field, XML data generated during the update process, and an e-mail field.

Procedure

1. Answer the questions in the *Feedback Form* section.

i Note

Answering the questions is optional.

2. Choose *SEND TO SAP*.

5.25 Running the Software Update Manager Repeatedly

This section describes how you start the Software Update Manager again from the beginning.

Prerequisites

You have successfully performed an update using SUM and you have exited the tool.

Procedure

1. Rename the update directory used for the update that has already finished.
2. Unpack SUM again and start it as described in [Starting the Software Update Manager \[page 114\]](#).

5.26 Stopping the Software Update Manager

After a successful update, you have to stop the Software Update Manager manually.

Context

After the update procedure has been performed successfully, SUM displays an appropriate information in the Web browser window. Afterwards, you must terminate all remaining `SAPUP` processes on operating system level to stop SUM completely. This also applies after a reset and the subsequent cleanup in case you do not want to continue the update.

Procedure

1. Close all browser windows connected with SL Common UI.
2. Open the *Task Manager*.
3. Choose the *Processes* tab page.
4. Search for the `SAPUP` processes. Stop them by right-clicking and choosing *End Process Tree*.

6 Follow-Up Activities

This part of the document contains information about the follow-up activities that you need to perform after you have updated your SAP system.

When you perform follow-up activities, note the following information:

- Perform the actions described in [Quick Guide \[page 15\]](#) in the specified order.
- Before you start the follow-up activities, the Software Update Manager needs to have reached the `MODPROFP_UPG` phase. The Software Update Manager stops in the `MODPROFP_UPG` phase and prompts you to start several follow-up activities. It then executes the last phases and completes the procedure. At the same time, you can already perform the specified follow-up activities.

The follow-up activities are divided into three blocks:

- Actions needed before resuming production operation
These actions ensure that all the processes that are relevant to system operation are available again. You can start these actions while the Software Update Manager is finishing the update.
- Actions during limited production operation
During this time, your SAP system is already consistent and all the processes that are relevant to system operation are available. However, this system state does not yet contain measures for optimizing performance, or actions for resuming standard operation (resuming background processing, or adjusting authorizations, for example). Check the actions that are listed in this block and if necessary, perform them before you restart production operation.
- Actions during production operation
You can also perform these actions when the system is back to production operation.

Caution

In addition to the general follow-up activities described in this document, you need to perform the follow-up activities that are specific to your product version, which are described in an additional product-specific document. This document is referenced in the *Master Guide* (or *Upgrade Master Guide*, respectively) for your product.

Actions

You have to perform the following actions **before you resume production operation** of your system:

- [MS SQL Server: Performing Specific Actions \[page 174\]](#)
- Preparing the ASCS Instance for the Production Operation
- [Performing Follow-Up Activities in the Monitoring Area \[page 174\]](#)
- [Performing Follow-Up Activities for the SAP Kernel \[page 176\]](#)
- [Reimporting Additional Programs \[page 176\]](#)
- [Adjusting Repository Objects \[page 177\]](#)
- [Updating the Where-Used List in the ABAP Workbench \[page 180\]](#)
- Release upgrade only: [Adjusting Customizing Settings \[page 180\]](#)
- Release upgrade only: [Adjusting Customer Developments \[page 181\]](#)
- [Performing Follow-Up Activities for SAP Solution Manager \[page 182\]](#)

- Release upgrade only: [Secure Single Sign-On with Microsoft LAN Manager SSP \[page 184\]](#)
- [Adjusting the User and Role Administration \[page 188\]](#)

You can perform the following actions **during limited production operation** of your system:

- [Rescheduling Background Jobs \[page 189\]](#)
- [Generating Loads \[page 190\]](#)
- [Performing Follow-Up Activities for Application Link Enabling \(ALE\) \[page 191\]](#)
- Only valid for 'Source Release': SAP Web AS 6.40
 Release upgrade only: [Installing Additional Application Server Instances \[page 192\]](#)
 End of 'Source Release': SAP Web AS 6.40
- Enhancement package installation and SPS update: [Checking for Indexes Unknown to the SAP System \[page 193\]](#)

You can perform the following actions **during production operation** of your system:

- [Importing Support Packages After the Upgrade \[page 194\]](#)
- [Transport Management System: Distributing the Configuration \[page 194\]](#)
- [Performing Follow-Up Activities for the Language Transport \[page 195\]](#)
- [Saving Files for Subsequent Updates \[page 196\]](#)

6.1 MS SQL Server: Performing Specific Actions

1. Create a full online backup of the database.
2. Start the SQL Server Agent, if it is not running.

6.2 Performing Follow-Up Activities in the Monitoring Area

Setting Up the Monitoring Architecture

With the monitoring architecture of the Computing Center Management System (CCMS), you can monitor your entire IT landscape centrally, including quick and reliable problem reporting. SAP Support can only provide optimal support for landscapes for which the CCMS has been set up properly.

Perform the configuration tasks that are described in the document *Monitoring Setup Guide for SAP NetWeaver* available on SAP Service Marketplace at <http://service.sap.com/instguidesnw> >> <Release> > Operations > Monitoring >.

Monitoring with CCMS Agents

For SAP NetWeaver 7.0 including enhancement package 2, the CCMS agents infrastructure has changed significantly. If necessary, perform the follow-up activities for central monitoring as described in [SAP Library \[page 14\]](#) for your target release at:

Table 18: SAP Library Paths

Release	Path in SAP Library
SAP NetWeaver 7.3 / 7.3 including enhancement package 1 / 7.4 / 7.5	<p>▶ <i>Function-Oriented View <Language></i> ▶ <i>Solution Life Cycle Management</i> ▶ <i>Solution Monitoring</i> ▶ <i>Monitoring the CCMS</i> ▶ <i>Infrastructure of the SAP NetWeaver Management Agents</i> ▶ <i>Technical Background of the SAP NetWeaver Management Agents</i> ▶ <i>CCMS Agents: Upgrade of Monitored Systems from NW 7.0x to 7.1x or higher</i> ▶</p>
SAP NetWeaver PI 7.1/ 7.1 including enhancement package 1	<p>▶ <i>Function-Oriented View <Language></i> ▶ <i>Application Server ABAP</i> ▶ <i>Administration Tools for AS ABAP</i> ▶ <i>Monitoring the CCMS</i> ▶ <i>Infrastructure of the SAP NetWeaver Management Agents</i> ▶ <i>Technical Background of the SAP NetWeaver Management Agents</i> ▶ <i>CCMS Agents: Upgrade of Monitored Systems from NW 7.0 to 7.1</i> ▶</p>
SAP NetWeaver 7.0 including enhancement package 3	<p>▶ <i>Function-Oriented View <Language></i> ▶ <i>Solution Life Cycle Management by Key Capability</i> ▶ <i>Solution Monitoring</i> ▶ <i>Monitoring in the CCMS</i> ▶ <i>Infrastructure of the SAP NetWeaver Management Agents</i> ▶ <i>Technical Background of the SAP NetWeaver Management Agents</i> ▶ <i>CCMS Agents: Upgrade of Monitored Systems from NW 7.0x to 7.1x or Higher</i> ▶</p>

Release	Path in SAP Library
SAP NetWeaver 7.0 including enhancement package 2	▶ Function-Oriented View <Language> > Solution Life Cycle Management by Key Capability > Solution Monitoring > Monitoring in the CCMS > Infrastructure of the SAP NetWeaver Management Agents > Technical Background of the SAP NetWeaver Management Agents > CCMS Agents: Upgrade of Monitored Systems to NW 7.0 EhP 2 ▶

End of 'Source Release': SAP Basis 4.6C, SAP Basis 4.6D, SAP Web AS 6.20, SAP Web AS 6.40, SAP NetWeaver 7.0, SAP Web AS 6.10, SAP NetWeaver 7.0 EHP1

6.3 Performing Follow-Up Activities for the SAP Kernel

Installing the SAP Kernel

For production operation, you have to replace the SAP kernel that was installed during the update with the current SAP kernel from SAP Service Marketplace.

i Note

If you have downloaded the latest SAP kernel files to the [download directory \[page 106\]](#) before the update, you do not have to replace the SAP kernel.

For more information about installing the current SAP kernel, see SAP Note [19466](#).

6.4 Reimporting Additional Programs

Context

During the update, the contents of directory `\usr\sap<SAPSID>\SYS\exe\run` are completely deleted before the new SAP kernel is imported. If you installed additional programs in this directory such as the RFC library, you have to install them again.

In the *Preprocessing* roadmap step in the phase *FREECHK_X*, you were prompted to protect files and subdirectories that you do not want to be deleted during the kernel switch. This protection could be performed during the update by copying the file `PROTECT.LST` into this directory.

If you did not use the `PROTECT.LST` file and if you backed up files and subdirectories of the kernel directory before the update, you can now reimport them into this directory.

Procedure

Download the files for the RFC library, the CPIC library, or `ArchiveLink` and unpack them into the kernel directory.

You can now also reimport files and subdirectories that you have not protected using file `PROTECT.LST`.

6.5 Adjusting Repository Objects

Use

If you have made modifications to objects such as programs, screens or interfaces (GUIs), you have to adjust them with transaction SPAU. Adjust notes before adjusting modifications. Modification adjustment of an object is only possible after all notes, which are changing the object, have been adjusted.

In the past, customer exits were used to enhance the standard SAP system without modifying it. To exploit the advantages of the new Business Add-In technology, and to unify enhancement techniques, some of the customer exit definitions you use might have been migrated to Business Add-Ins by SAP. You can migrate the customer exits you have implemented to Business Add-In implementations at the touch of a button. The implementations that need migrating are displayed by the modification adjustment functions.

If you have implemented enhancement framework options of the new Enhancement Framework or implemented a new kernel-based BAdI (also part of the new Enhancement Framework), and the underlying development objects have changed in an incompatible way, you have to adjust these objects in transaction SPAU_ENH. Make sure that you perform the adjustments in transaction SPAU_ENH after the adjustments in transaction SPAU and not the other way around.

We recommend that you modify enhancement definitions or enhancement implementations. In some cases you can, however, replace enhancement implementations with your own enhancement implementations.

Procedure

For more information about the modification adjustment, see the [SAP Help Portal \[page 14\]](#) for the target release at:

Table 19: SAP Library Paths

Target Release	Path in SAP Help Portal
SAP NetWeaver 7.5	<p>▶ SAP NetWeaver Library ▶ Application Help ▶ Function-Oriented View ▶ Application Server ABAP ▶ Application Development on AS ABAP ▶ ABAP Customer Development ▶ Changing the SAP Standard ▶ The Modification Assistant ▶</p> <p>In section <i>The Modification Assistant</i>, choose <i>Upgrade Procedure / Support Packages</i>. On page <i>Upgrade Procedure / Support Packages</i>, choose <i>Adjustment of Repository Objects</i></p>
SAP NetWeaver 7.3 / 7.3 including enhancement package 1 / 7.4	<p>▶ SAP NetWeaver Library ▶ Application Help ▶ Function-Oriented View ▶ Application Server ABAP ▶ Application Development on AS ABAP ▶ ABAP Customer Development ▶ Changing the SAP Standard ▶ The Modification Assistant ▶</p> <p>In section <i>The Modification Assistant</i>, choose <i>Upgrade Procedure / Support Packages</i>. On page <i>Upgrade Procedure / Support Packages</i>, choose <i>Adjustment of Repository Objects</i></p>
SAP NetWeaver 7.1 including enhancement package 1	<p>▶ SAP NetWeaver Library ▶ Application Help ▶ Function-Oriented View ▶ Application Server ABAP ▶ Application Development on AS ABAP ▶ ABAP Customer Development ▶ Changing the SAP Standard ▶ The Modification Assistant ▶</p> <p>On the <i>The Modification Assistant</i> overview page, choose <i>Upgrade Procedure / Support Packages</i>. On page <i>Upgrade Procedure / Support Packages</i>, choose <i>Adjusting Repository Objects</i></p>
SAP NetWeaver 7.1	<p>▶ SAP NetWeaver Library ▶ Application Help ▶ Function-Oriented View ▶ ABAP Technology ▶ Application Development on AS ABAP ▶ ABAP Customer Development ▶ Changing the SAP Standard ▶ Upgrade Procedure / Support Packages ▶ Adjusting Repository Objects ▶</p>

Target Release	Path in SAP Help Portal
SAP NetWeaver 7.0 including enhancement package 1 or 2 or 3	▶ SAP NetWeaver Library ▶ Application Help ▶ Function-Oriented View ▶ SAP NetWeaver by Key Capability ▶ Application Platform by Key Capability ▶ ABAP Technology ▶ ABAP Workbench ▶ Changing the SAP Standard ▶ Upgrade Procedure / Support Packages ▶ Adjustment of Repository Objects ▶

For more information about Business Add-Ins, see the [SAP Help Portal \[page 14\]](#) at:

Table 20: SAP Library Paths

Release	Path in SAP Library
SAP NetWeaver 7.5	▶ SAP NetWeaver Library ▶ Function-Oriented View ▶ Application Server ABAP ▶ Application Development on AS ABAP ▶ ABAP Customer Development ▶ Changing the SAP Standard ▶ Enhancements to the Standard ▶ Classic Techniques ▶ Classic BAdIs ▶
SAP NetWeaver 7.5	▶ SAP NetWeaver Library ▶ Function-Oriented View ▶ Application Server ABAP ▶ Application Development on AS ABAP ▶ ABAP Customer Development ▶ Changing the SAP Standard ▶ Enhancements to the Standard ▶ Classic Techniques ▶ Classic BAdIs ▶
SAP NetWeaver 7.1 including enhancement package 1	▶ SAP NetWeaver Library ▶ Function-Oriented View ▶ Application Server ABAP ▶ Application Development on AS ABAP ▶ ABAP Customer Development ▶ Changing the SAP Standard ▶ Classic BAdIs ▶
SAP NetWeaver 7.1	▶ SAP NetWeaver Library ▶ Function-Oriented View ▶ Application Server ABAP ▶ Application Development on AS ABAP ▶ ABAP Customer Development ▶ Changing the SAP Standard ▶ Enhancements to the Standard ▶ Classic Techniques ▶ Classic BAdIs ▶
SAP NetWeaver 7.0 including enhancement package 1 or 2	▶ SAP NetWeaver Library ▶ SAP NetWeaver by Key Capability ▶ Application Platform by Key Capability ▶ ABAP Technology ▶ ABAP Workbench ▶ Changing the SAP Standard ▶ Classic BAdIs ▶

For more information about replacing enhancement definitions or enhancement implementation, see SAP Note [922557](#).

i Note

After you have completed the update, you have a maximum of 14 days to execute transaction SPAU without the object registration key being checked (SAP Software Change Registration) for the objects that you modified.

6.6 Updating the Where-Used List in the ABAP Workbench

Context

i Note

This action is optional.

The where-used list for ABAP object types has its own index. If you need a complete display of the where-used list in your SAP system, you have to re-create the index after the update.

Procedure

To create the index, you need to run report `SAPRSEUB` in the background.

i Note

Since the runtime of the report may be long, we recommend that you run it in the development system only.

For more information about this report, see SAP Note [28022](#).

6.7 Adjusting Customizing Settings

Context

i Note

This section is only valid if you perform a release upgrade.

After the upgrade, there are new and changed functions in your SAP system for which you may have to adjust the Customizing settings.

Caution

Adjusting the Customizing settings is done in close cooperation with the business consultants and other upgrade project team members.

Procedure

1. Call transaction `SPRO_ADMIN`.
2. Select your existing project IMG or create a new Customizing project.
3. Create one or more release-specific project views of your project IMG by selecting the activities for delta Customizing and upgrade Customizing.
4. Call transaction `SPRO`.
5. Choose *Add to work list* and add the project view.
6. Make the necessary Customizing settings in your release-specific project views.

For more information about creating project views and making Customizing settings, see the online documentation for the transactions.

6.8 Adjusting Customer Developments

Context









The programs and applications that you have written, which run without errors on the source release, may contain syntax or runtime errors after the update. These may be caused by additional developments of the ABAP Workbench, changes to the ABAP syntax, or stronger syntax checks when you update from one release of SAP Basis, SAP Web AS, or SAP NetWeaver AS to the next one. You can solve these problems by adjusting your programs to the new version of the ABAP Workbench.

We also recommend to check the customer developments, which will be replaced by SAP standard during the update, if they are still necessary.

Procedure

For information about adjusting customer developments (recommendations for adjustments and instructions), see the following SAP Notes:

Table 21: SAP Notes for Adjusting Customer Developments

SAP Note	SAP Basis/SAP Web AS/SAP NW AS Release
857904 	6.40 to 7.0
1404458 	7.0 to 7.0 EHP1
1361211 	7.0 or 7.0 EHP1 to 7.0 EHP2
1089700 	7.0 to 7.1
1361368 	7.1 to 7.2
1615807 	7.2 to 7.3
1615808 	7.3 to 7.31
1810104 	7.0 EHP3 or 7.3 EHP1 to 7.4

6.9 Performing Follow-Up Activities for SAP Solution Manager

Use

To connect the newly updated system to SAP Solution Manager, you need to perform the following activities:

- Make sure that the data is up-to-date in the SAP Solution Manager system.
- Configure the diagnostics capabilities and the *Wily Introscope Agent*.
- If required, update the product version of the system where the Integration Server is installed.

Procedure

Checking System Data

In the System Landscape Directory (SLD), check whether the system landscape is up-to-date. To do this, check whether the newest software component versions are assigned to the relevant technical systems in your system landscape. After having verified that the system information in the SLD is up-to-date, the system needs some time (up to 24 hours) to also update the system information in SAP Solution Manager.

Updating the System Data in SAP Solution Manager

After updating your system, you need to make sure that the correct product version is assigned to the system in SAP Solution Manager.

For more information, see the SAP Library at <http://help.sap.com/solutionmanager>:

Table 22: SAP Library Paths

Release	Path in SAP Library
SAP Solution Manager 7.2	<p>▶ <i>Application Help</i> ▶ <i>SAP Library <version></i> ▶ <i>SAP Solution Manager Operations</i> ▶ <i>Managing System Landscape Information</i> ▶</p> <p>Read sections <i>Setting Up the Landscape Management Infrastructure</i> and <i>Managing Technical System Information</i>.</p>
SAP Solution Manager 7.1 SPS 08 and higher	<p>▶ <i>Application Help</i> ▶ <i>SAP Library <version></i> ▶ <i>SAP Solution Manager Operations</i> ▶ <i>Managing System Landscape Information</i> ▶</p> <p>Read sections <i>Setting Up the Landscape Management Infrastructure</i> and <i>Managing Product System Information</i>.</p>
SAP Solution Manager 7.1 up to SPS 05–07	<p>▶ <i>Application Help</i> ▶ <i>SAP Library SAP Solution Manager SPS 05</i> ▶ <i>SAP Solution Manager Operations</i> ▶ <i>Managing System Landscape Information</i> ▶</p> <p>Read sections <i>Set Up the Landscape Management Infrastructure</i> and <i>Manage Logical Landscape Information</i>.</p>
SAP Solution Manager 7.1 up to SPS 04	<p>▶ <i>Application Help</i> ▶ <i>SAP Library SAP Solution Manager SPS 01</i> ▶ <i>SAP Library <version></i> ▶ <i>SAP Solution Manager Operations</i> ▶</p>

i Note

For Solution Manager 7.1 SP01 to SP04, also see the *Setup Guide Landscape Management Database* at <http://support.sap.com/solutionmanager> ▶ *Media Library* ▶ *Technical Information* ▶.

Configuring Diagnostics Capabilities and Wily Introscope Agent

1. Start SAP Solution Manager.
2. Call transaction `SOLMAN_SETUP`.
3. On page *SAP Solution Manager: Overview*, choose *Managed System Configuration*.
4. Select the system where the Integration Server is installed.
5. On page *Managed System Configuration* in the process diagram, choose *Diagnostics Configuration*.
6. In row *Configure Diagnostics*, choose *Select URL*.
7. On page *Managed System Configuration* in the process diagram, choose *Wily Introscope Configuration*.
8. In row *Configure Wily Introscope Agent*, choose *Select URL*.
9. Under *Introscope Agent*, choose *Setup Introscope Agent*.

For more information about Wily Introscope Agent, see SAP Community Network at <http://wiki.scn.sap.com/wiki/x/CBkMDg>.

6.10 Secure Single Sign-On with Microsoft LAN Manager SSP

Use

i Note

This section is only relevant if you perform a release upgrade.

Single Sign-On (SSO) is a secure method of logging on to the SAP system and simplifies the logon procedure without reducing security. When your system is configured for SSO, an authorized user who has logged on to the operating system can access the SAP system simply by selecting it in the SAP logon window or clicking the shortcut. No SAP system user name or password is necessary. SSO makes it significantly easier for you to manage SAP system users.

In this section, we describe the option that is the easiest to implement when using a full 32-bit Microsoft Windows landscape (Windows XP, Windows Server 2003, Windows Vista, Windows Server 2008 and higher). It is a tailored version for SSO with Secure Network Communications (SNC), which uses Microsoft's domain authentication, LAN Manager Security Service Provider (NTLM SSP).

For more information about SNC, see the *SNC User's Guide* on SAP Service Marketplace at <http://service.sap.com/security>

Prerequisites

- Typically, SNC requires an external security product that adheres to the Generic Security Service API V2 (GSS-API V2) interface and that has been certified by the SAP Software Partner Program. However, in this scenario, we provide a library that adheres to the GSS-API V2 interface on one side and that communicates with Microsoft's NTLM SSP on the other. Since NTLM SSP is already built into Microsoft Windows 32-bit platforms, you do not need to purchase an additional security product to use SSO.

i Note

The Microsoft NTLM SSP only provides authentication based on a challenge-response authentication scheme. It does **not** provide data integrity or data confidentiality protection for the authenticated network connection. All third-party SNC certified security products offer data integrity and privacy protection. If you want to use these security features, you have to obtain a certified security product.

If you use Windows XP and higher, we offer an alternative library (`gsskrb5.dll`) that uses the Microsoft Kerberos SSP instead of the NTLM SSP for authentication.

We distribute two different versions of the wrapper library for Microsoft's NTLM SSP. The older version is called `gssapi32.dll` and the newer version is called `gssntlm.dll`. For more information about obtaining the `gssntlm.dll` file, see **SAP Note 595341**.

- A pure Microsoft Win32 environment is required (Windows XP, Windows Server 2003, Windows Vista, Windows Server 2008 and higher). The Microsoft NTLM SSP is **not** available for UNIX or any other operating system.

- Bi-directional trust between Windows domains is required if there are separate domains for users, front-end PCs, and SAP application servers.
- The GSS-API V2 library wrapper (`gssntlm.dll`) should be installed on every application server.
- The GSS-API V2 library wrapper should also be installed on every front-end PC.
- We recommend that you use the 7-bit ASCII character set for all Windows user IDs.
- When the code page of the SAP system is different from the code page on the Windows machines, it is not possible to enter Windows user IDs that contain 8-bit characters into the USRACL table (for example, by calling transaction SU01). The combination of Windows ANSI (=ISO Latin 1) and the default SAP code page 1100 provides the same encoding of 8-bit characters and permits the use of 8-bit characters with `gssntlm.dll`.
- For more information about improving the security of your system with third-party products, see the SAP Library for your target release at:

Table 23: SAP Library Paths

Target Release	Path in SAP Library
SAP NetWeaver 7.3, 7.3 including enhancement package 1 / 7.4 / 7.5	▶ SAP NetWeaver Library ▶ Application Help ▶ Function-Oriented View <Language> ▶ Security ▶ Network and Transport Layer Security ▶ Transport Layer Security on the AS ABAP ▶ Secure Network Communications ▶
SAP NetWeaver PI 7.1 including enhancement package 1	http://help.sap.com/nwpi71 ▶ Application Help ▶ Function-Oriented View <Language> ▶ Security ▶ Network and Transport Layer Security ▶ Transport Layer Security on the AS ABAP ▶ Secure Network Communications ▶
SAP NetWeaver PI 7.1	http://help.sap.com/nwpi71 ▶ Application Help ▶ Function-Oriented View <Language> ▶ Security ▶ Network and Transport Layer Security ▶ Transport Layer Security on the AS ABAP ▶ Secure Network Communications ▶
SAP NetWeaver 7.0 including enhancement package 3	http://help.sap.com/nw703 ▶ Application Help ▶ SAP Library <Language> ▶ SAP NetWeaver ▶ SAP NetWeaver by Key Capability ▶ Security ▶ Network and Transport Layer Security ▶ Transport Layer Security on the AS ABAP ▶ Secure Network Communications ▶
SAP NetWeaver 7.0 including enhancement package 2	http://help.sap.com/nw702 ▶ Application Help ▶ SAP Library <Language> ▶ SAP NetWeaver ▶ SAP NetWeaver by Key Capability ▶ Security ▶ Network and Transport Layer Security ▶ Transport Layer Security on the AS ABAP ▶ Secure Network Communications ▶

Target Release	Path in SAP Library
SAP NetWeaver 7.0 including enhancement package 1	http://help.sap.com/nw701 ► <i>Application Help</i> ► <i>SAP Library</i> <Language> ► <i>SAP NetWeaver</i> ► <i>SAP NetWeaver by Key Capability</i> ► <i>Security</i> ► <i>Network and Transport Layer Security</i> ► <i>Secure Network Communications</i> ►

Procedure

1. Prepare the application server for Single Sign-on.
 1. Start the service *NT LM Security Support Provider*:
 1. Choose ► *Start* ► *Programs* ► *Administrative Tools* ► *Services* ►.
 2. Select the service *NT LM Security Support Provider*.
 3. Choose *General*.
 4. Change the startup type from *manual* to *automatic*.
 2. Copy the `gssntlm.dll` file to the following directory on your global host:
`<DRIVE>:\USR\SAP\<SAPSID>\SYS\EXE\<codepage>\<platform>`
 For more information about obtaining the `gssntlm.dll` file, see [SAP Note 595341](#) ►.
 3. Set the environment variable `SNC_LIB` to the location of the library.
 4. In the primary application server instance profile, set the following SNC parameters:


```
snc/data_protection/max =1
snc/data_protection/min =1
snc/data_protection/use =1
snc/enable =1
snc/gssapi_lib =
(<DRIVE>:\USR\SAP\<SAPSID>\SYS\EXE\<codepage>\<platform>\<gssntlm.dll>)
snc/identity/as =p:<DOMAIN_NAME>\SAPService<SAPSID>
```

`SAPService<SAPSID>` is the user who runs the SAP system.
`<DOMAIN_NAME>` is the Windows domain of this user.

i Note

If you use a local account for `SAPService<SAPSID>`, most operations are successful. However, any operations or communications where the SAP system initiates SNC-protected communication to a remote machine, do **not** work with a local account for `SAPService<SAPSID>`. Therefore, use a domain account.

Additional SNC Parameters

The following profile parameters let you continue with password-based access to the SAP system when SNC has been enabled. To log on to the SAP system as an administrator to maintain the mapping of Windows user accounts to SAP system user IDs (user and client), you have to use these additional parameters at least once after enabling SNC. Once the mapping (at least for the administrator) has been entered, you can disable further password-based logons by removing the respective profile parameters.

```
snc/accept_insecure_cplic =1
snc/accept_insecure_gui =1
```

```
snc/accept_insecure_rfc =1
snc/permit_insecure_start =1
snc/permit_insecure_comm =1
```

5. Stop and restart the SAP system to activate the profile parameters. Changes to SNC profile parameters always require an application server restart to take effect.
2. Prepare SAP GUI and SAP Logon for Single Sign-on.
 1. Copy the `gssntlm.dll` file to the SAP GUI directory.
For downloading the `gssntlm.dll` file, see [SAP Note 352295](#).
 2. Set the Windows environment variable `SNC_LIB` on the PC where your SAP GUI runs.
The variable specifies the path to the `gssntlm.dll` file. You can do this using one of the following methods:
 - Copy `gssntlm.dll` to a location of your choice and set the environment variable `SNC_LIB` to that location, for example,
`<DRIVE>:\<SAPGUI_PATH>\gssntlm.dll`
 1. Right-click *My Computer* and choose **► Properties ► Advanced ► Environment Variables**.
 2. In *User Variables for <user>* enter the following:
Variable:`SNC_LIB`
Value:`<DRIVE>:\<SAPGUI_PATH>\gssntlm.dll`
 3. Confirm your entries with *OK*.
 4. To activate the new environment variable setting, log off and log on to your Windows system again as the same user.
 - Copy `gssntlm.dll` to a directory of the default search path, for example, `%SystemRoot%\system32` and rename the file to `sncgss32.dll`. This is the default file name that SNC uses when `SNC_LIB` is neither entered on the command line nor available in the environment.
 3. Set the required logon options to activate SSO:
 1. In the SAP logon window, right-click an entry and choose *Properties*.
 2. Select the *Network* tab and activate *Activate Secure Network Communication*.
 3. In the *SNC name* field, enter:
p:`<DOMAIN_NAME>\SAPService<SAPSID>`
`<DOMAIN_NAME>` is the Windows domain that the user `SAPService<SAPSID>` belongs to.

Example

If the system HWA is running on account `SAPServiceHWA` of the `DEC_NT` domain, you enter:

```
p:DEC_NT\SAPServiceHWA
```

The SAP Logon window now displays an icon with a small yellow key beside the system entry. This indicates that SSO is active.

When the SAP administrator has entered the mapping between a user's Windows Account and the user's SAP system user ID, the next time this SAP system user logs on to the system, the application is opened without requiring the user to enter a user name and password.

If only one possible match exists between the Windows account and the SAP system user ID, the logon screen is skipped, unless the profile parameter `snc/force_login_screen = 1` is present in the instance profile of the application server.

3. Map SAP system users to Windows users for Single Sign-On.
 1. Log on to the SAP system.
 2. Choose **► Tools ► Administration ► User Maintenance ► Users** or call transaction `SU01`.

The *User Maintenance* window appears.

3. Enter the name of the SAP system user and choose **► User names ► Change ►**.

4. Choose *SNC*.

5. In *SNC name*, use **upper case** to enter the name of the Windows user that is to be assigned to the SAP system user:

`p:<DOMAIN_NAME>\<NT_USERNAME>`

`<DOMAIN_NAME>` is the Windows domain that the Windows user belongs to, `<NT_USERNAME>` is the logon ID of the Windows user.

`p` is a prefix that all SNC names require.

Example

For the Windows user `Kissnerj`, belonging to the domain `SAP_ALL`, enter:

`p:SAP_ALL\Kissnerj`

6. Select *Insecure communication permitted*.

This lets the user work in a different domain because it permits the user to access the system without SSO.

7. Save your entries.

6.11 Adjusting the User and Role Administration

Use

After the update, you have to make adjustments to the user and role administration. What these are depends on whether you were already using the profile generator in the source release.

Procedure

For information about adjusting the user and role administration, see the [SAP NetWeaver Library \[page 14\]](#) at:

Table 24: SAP NetWeaver Library Paths

Release	Path in SAP NetWeaver Library
SAP NetWeaver 7.5	► SAP NetWeaver Library ► Application Help ► Function-Oriented View ► Security ► Identity Management ► User and Role Administration of Application Server ABAP ► Configuration of User and Role Administration ► Upgrade Procedure ►

Release	Path in SAP NetWeaver Library
SAP NetWeaver 7.3 / 7.3 including enhancement package 1 / 7.4	▶ SAP NetWeaver Library ▶ Application Help ▶ Function-Oriented View ▶ Security ▶ Identity Management ▶ User and Role Administration of Application Server ABAP ▶ Configuration of User and Role Administration ▶ Upgrade Procedure ▶
SAP NetWeaver 7.1/ SAP NetWeaver 7.1 including enhancement package 1	▶ SAP NetWeaver Library ▶ Application Help ▶ Function-Oriented View ▶ Security ▶ Identity Management ▶ Identity of the Application Server ABAP ▶ Configuration of User and Role Administration ▶ Upgrade Procedure ▶
SAP NetWeaver 7.0 including enhancement package 1 or 2 or 3	▶ SAP NetWeaver Library ▶ Application Help ▶ Function-Oriented View ▶ SAP NetWeaver by Key Capability ▶ Security ▶ Identity Management ▶ User and Role Administration of AS ABAP ▶ Configuration of User and Role Administration ▶ Upgrade Procedure ▶

6.12 Rescheduling Background Jobs

Use

Use this procedure to release all background jobs that were locked when you isolated the primary application server instance.

Procedure

1. Log on in client 000 as user DDIC.
2. Execute report BTCTRNS2.

Errors may occur if a background report was changed by the Software Update Manager, since the report variants are no longer correct. If this is the case, you have to reschedule the job.

6.13 Generating Loads

Use

Caution

Before starting the load generation after the update, make sure that the new SAP kernel has been installed. If you have placed the SAP kernel files in the [download directory \[page 106\]](#), the SAP kernel has been installed by the Software Update Manager. SAP kernel parameters introduced in the new SAP kernel might otherwise invalidate the loads.

Caution

The additional database space needed to generate ABAP loads is not added automatically to the space requirements reported in the [Checks](#) roadmap step. In addition, you will need approximately the size of REPOSRC.

Load generation requires a large amount of system resources. There are several ways to create loads after the update, depending on the way you use the SAP system.

- For objects that are new in the SAP system after the update, you can use transaction `SGEN` to create the following loads:
 - ABAP programs in the SAP system
When you call an ABAP program, a load is automatically generated if it does not already exist for this program. This may, however, impair performance in a production system. To avoid this, you can generate the missing loads using the option [Regenerate after an SAP System upgrade](#) in transaction `SGEN` before you use the system in production operation.
 - Business Server Page applications (BSP applications)
If you plan to implement BSP applications in your SAP system, you can generate them with the `SGEN` option [Generation of BSP Applications](#).
 - Web Dynpro applications
Select the `SGEN` option [Generation of Web Dynpros](#).

Transaction `SGEN` offers the following functions:

- Selection of predefined generation tasks
 - Selection of software components (such as `SAP_ABA`, `SAP_BASIS`) to restrict the amount of objects being generated
 - Selection of the application servers for parallel generation
 - Generation in the background
 - Job Monitor for checking the progress of the generation in the background
- If you want to regenerate invalidated loads after the update, you can use report `RSGENINVLAS` (until SAP Basis 7.02 SP08) or `RSGENINVLASM` (as of SAP Basis 7.02 SP09). This report regenerates all invalidated ABAP loads for every machine type that exists in your system.

i Note

The load of an object is invalidated if, since the time the load was generated, activated changes have been made to the object or objects used by this object (such as includes or tables). This can occur, for example, in SAP systems into which you import objects regularly.

To minimize wait times for users or developers while the SAP system regenerates invalidated loads, you can schedule the report `RSGENINVLAS` or `RSGENINVLASM` to run periodically (every night, for example).

Procedure

Generating Loads with Transaction SGEN

1. Call transaction `SGEN`.
2. Select one of the following options:
 - *Regenerate after an SAP System upgrade*
 - *Generation of BSP Applications*
 - *Generation of Web Dynpros*
3. Repeat the generation for all options that you want to perform.

For a detailed description of these features, see the online documentation in transaction `SGEN` by choosing [▶ Information on the SAP Load Generator ▶](#), or in the Job Monitor by choosing [▶ Job Monitor ▶](#).

Running Report `RSGENINVLASM`

i Note

- Running the report is optional.
- The report is called `RSGENINVLAS` until SAP Basis 7.02 SP08. As of SAP Basis 7.02 SP09, the name of the report is `RSGENINVLASM`.
- The report regenerates invalidated loads only, not new loads. Use `SGEN` in this case.

1. Call transaction `SE38`.
2. Run report `RSGENINVLAS`.

6.14 Performing Follow-Up Activities for Application Link Enabling (ALE)

Context

If you are using Application Link Enabling Shared Master Data Management, you need to migrate the change pointers to the new table `BDCP2` after the update. Until you have migrated all change pointers, both the former and the new table are used. For performance reasons, migrate the change pointers as soon as possible after the update.

Procedure

1. To check which message types are affected and how many change pointers need to be migrated, run report RBDCPMIG_ALL_WITHOUT_MIG_FLAG in test mode.
2. Decide if you want to run the report for all message types at once or separately.
Running the report for each message type separately splits up the total runtime into smaller sections.
3. Run report RBDCPMIG_ALL_WITHOUT_MIG_FLAG in production mode.

➔ Recommendation

If you directly access tables BDCP, BDCPS and BDCPV from your own programs, you need to adjust the source code. We recommend that you do not directly access the SAP tables, but use the interfaces provided for this purpose instead.

When you use change pointers, use the following function modules:

- For generation
 - CHANGE_POINTERS_CREATE
 - CHANGE_POINTERS_CREATE_DIRECT
 - CHANGE_POINTERS_CREATE_LONG
- For reading
 - CHANGE_POINTERS_READ
- For changing the status
 - CHANGE_POINTERS_STATUS_WRITE
- For deletion
 - CHANGE_POINTERS_DELETE

6.15 Installing Additional Application Server Instances

This topic is only valid for 'Source Release': SAP Web AS 6.40

Context

i Note

This section only applies to the following scenarios:

- You perform a release upgrade from a source release based on SAP NetWeaver 2004.
- Your system is heterogeneous, and you have uninstalled the additional application server instances.

After the upgrade of the primary application server instance, you need to reinstall the additional application server instance to the new release.

To do this, uninstall the existing (old) version of the additional application server instance before entering the downtime. You can now install the new additional application server instance using the `software provisioning manager 1.0` tool.

If necessary, you can also install more additional application server instances.

Procedure

1. Install the new additional application server instance as described in the document *Installation Guide - SAP Systems Based on the Application Server <Technology> of SAP NetWeaver on <OS>: <DB> Using Software Provisioning Manager 1.0*, which corresponds to your target release.
2. Only valid for 'Source Release': SAP Web AS 6.40
If you want to reuse the profiles of the old additional application server instances and now use other instance numbers than on the source release, adapt the instance numbers in the profiles.

End of 'Source Release': SAP Web AS 6.40

End of 'Source Release': SAP Web AS 6.40

6.16 Checking for Indexes Unknown to the SAP System


Context

Note

This section is relevant if you perform an enhancement package installation or SPS update.

Procedure

1. Call transaction DBO2.
2. Choose *Missing Tables/Indexes*.
3. Choose *Unknown objects in ABAP Dictionary*.
4. Check if there are indexes in the database that are unknown to the SAP System. If this is the case, delete them manually.

For more information, see SAP Note [1227270](#) .

6.17 Importing Support Packages After the Update

To make sure that your SAP ABAP software is running smoothly, we recommend that you import new Support Packages into your system as soon as they become available. This also applies after the upgrade, to avoid potential problems in your system before they occur.

If you have not included all the necessary Support Packages in the update, you can still import them after the update.

6.18 Transport Management System: Distributing the Configuration

After an update, you have to distribute the information about the new release to all systems in the transport domain.

Procedure

1. Log on to the system that is configured as the domain controller.
2. Call transaction `STMS` and choose [► Overview ► Systems ►](#).
3. Select the system that has been updated and choose [► SAP System ► Update Configuration ►](#).
4. Choose [► Extras ► Distribute and Activate Configuration ►](#).

Only valid for 'Target Release': SAP NetWeaver 7.3 EHP1

Next Steps

If, after an update to SAP enhancement package 1 for SAP NetWeaver 7.3, the described procedure to update the TMS configuration does not update the displayed release, proceed as follows:

1. Call transaction `STMS` and choose [► Overview ► Systems ►](#).
2. Double-click the system that has been updated and switch to the *Change* mode.
3. Do not change anything unless another action requires changes, and choose *Save*.
4. Go back to the system overview.

The displayed release matches the current release now.

Note that a release upgrade to SAP enhancement package 1 for SAP NetWeaver 7.3 includes the following source releases from a technical point of view:

- SAP NetWeaver 7.3
- SAP NetWeaver Process Integration 7.1 including enhancement package 1

- SAP NetWeaver Composition Environment 7.1 including enhancement package 1

End of 'Target Release': SAP NetWeaver 7.3 EHP1

6.19 Performing Follow-Up Activities for the Language Transport

Prerequisites

- You have imported a language during the update.
- You are using a glossary or terminology in your system.

Context

To reduce downtime during the update, some data from the *Languages* archive was only imported into container tables, and has not yet been imported into the actual database tables of the system. This data includes glossary and terminology data. If you want to use a glossary or terminology in your system, use the following procedure to copy the data from the container tables to the database tables.

Procedure

Call transaction `SMLT`.

The transaction automatically recognizes that follow-up activities are necessary, and schedules a background job for this purpose.

Caution

For languages that have been supplemented before or imported during the update, you have to perform the supplementation after the update with transaction `SMLT`.

For more information about language supplementation, see SAP Note [1156507](#).

6.20 Saving Files for Subsequent Updates

Prerequisites

You are planning a subsequent update with the same environment and, in the case of a release upgrade, with the same preconfiguration mode.

Context

In phase `SAVEPRO`, several update files are saved in subdirectory `save` of the `abap` subdirectory of the update directory. If you perform a subsequent update with the same environment and, in the case of a release upgrade, with the same preconfiguration mode, you can reuse these files.

Procedure

1. After the update, make a backup of subdirectory `save` of the `abap` subdirectory of the current update directory.
2. When you start with the new update, copy the `save` subdirectory to the new update directory.

i Note

Release upgrade only: You can copy the subdirectory as soon as you have created the new `SUM` directory. The new `SUM` directory has to be empty.

The following files are saved in the directory and can be used in a subsequent update:

- Shadow system profile
In the preparation phase `SHDINST_COPY`, you can reuse the shadow system profiles.
- Results from phase `BIND_PATCH` (file `patbind.sav`)
If suitable, you can use the Support Package selection as the default selection.

7 Correction of Installed Software Information

7.1 Introduction

This topic is only valid for 'Source Release': SAP NetWeaver 7.0, SAP NetWeaver 7.1, SAP NetWeaver 7.3, SAP NetWeaver 7.0 EHP3, SAP NetWeaver 7.0 EHP2, SAP NetWeaver 7.0 EHP1, SAP NetWeaver 7.3 EHP1, SAP NetWeaver 7.4, SAP NetWeaver 7.5

Note

This scenario is only relevant if your source release is based on SAP NetWeaver 7.0 or higher.

This part of the document describes how you can correct and update the information about the installed software instances in SAP systems using the Software Update Manager SPO8 and higher. Inconsistencies in this information might cause errors during the regular update processes.

To trigger this scenario, you have to specify the path to a specific stack configuration XML file (`stack_cisi.xml`) in the *Select Target* roadmap step.

End of 'Source Release': SAP NetWeaver 7.0, SAP NetWeaver 7.1, SAP NetWeaver 7.3, SAP NetWeaver 7.0 EHP3, SAP NetWeaver 7.0 EHP2, SAP NetWeaver 7.0 EHP1, SAP NetWeaver 7.3 EHP1, SAP NetWeaver 7.4, SAP NetWeaver 7.5

7.2 Making Entries for the Select Target Roadmap Step

This topic is only valid for 'Source Release': SAP NetWeaver 7.0, SAP NetWeaver 7.1, SAP NetWeaver 7.3, SAP NetWeaver 7.0 EHP3, SAP NetWeaver 7.0 EHP2, SAP NetWeaver 7.0 EHP1, SAP NetWeaver 7.3 EHP1, SAP NetWeaver 7.4, SAP NetWeaver 7.5

Prerequisites

- You have followed the workflow described in [Running the Software Update Manager \[page 110\]](#).
- You have generated the specific stack configuration file in the Maintenance Optimizer client of SAP Solution Manager. For more information, see SAP Note [1816146](#).

Procedure

To start the Correction of Installed Software Information scenario, proceed as follows:

1. In the *Select Target* roadmap step, choose *Stack configuration file (XML)*.
2. Specify the path to the `stack_cisi.xml` file.

At this point in time, SUM recognizes a special tag within the file and triggers the Corrections of Installed Software Information scenario.

3. In the *Confirm Target* roadmap step, confirm the target version that SUM has detected.
4. To confirm the scenario, choose *Next*.

This triggers the update of the installed software information in your SAP system.

5. In the *Execute Process...* roadmap step, choose *Next* on all subsequent dialogs until the scenario is completed.

End of 'Source Release': SAP NetWeaver 7.0, SAP NetWeaver 7.1, SAP NetWeaver 7.3, SAP NetWeaver 7.0 EHP3, SAP NetWeaver 7.0 EHP2, SAP NetWeaver 7.0 EHP1, SAP NetWeaver 7.3 EHP1, SAP NetWeaver 7.4, SAP NetWeaver 7.5

A Appendix

A.1 Process Overview Report

This section covers the overview report that contains detailed information about the update process.

Use

The SUM process overview reports aim at increasing transparency, supportability and predictability of the software maintenance operations.

The comprehensive html reports are generated by SUM during the tool run. As a function of the process progress, they contain a growing number of relevant subsections that contain the following:

- Information about the stack configuration file (`stack.xml`) and archives in the download directory
- Software component versions and product structure changes
- Important parameter settings, process steps including descriptions of the manual steps and links to relevant SAP Notes
- Statistics about performance and downtime

You can access and use the process overview html report as follows:

1. From the SL Common UI, choose **More > Utilities**. A second window opens in which several options are offered. For more information, see [SL Common UI Elements and Options \[page 37\]](#).
2. Choose *SUM Analysis*.

The report is a visualization of the `upgana.xml` file, which is stored in the `htdocs` folder.

A.2 Troubleshooting

This chapter contains information about how to proceed when you want to correct known problems that have occurred during the update.

i Note

In the following, some information is related to steps. As long as the Software Update Manager is running, the step name is displayed on the program tool tab page.

If the Software Update Manager displays a dialog box and you need further information about the required input, you can identify the step you are currently in by using the `SAPupConsole.log`.

This log file is located in directory `<update_directory>\abap\log`.

- SL Common UI
 - [SL Common UI: Known Issues \[page 201\]](#)
 - [SL Common UI: Solving Problems with the UI \[page 201\]](#)
 - [SL Common UI: Getting Support Using the Support File \[page 202\]](#)
- Logs
 - [Update Logs \[page 202\]](#)
 - [Evaluating the ELG Log Files \[page 206\]](#)
- [Reentering Passwords \[page 207\]](#)
- Correcting errors in steps
 - [Accelerating the Runtime of Certain Phases \[page 208\]](#)
 - [Correcting Errors in the HIAV_CHK Phase \[page 210\]](#)
 - [Correcting Errors in the DBCHK Phase \[page 211\]](#)
 - [Correcting Errors in the BATCHCHK Phase \[page 212\]](#)
 - [Correcting Errors in the INTCHK and INTCHK_SW Phases \[page 213\]](#)
 - [Enhancement package installation and SPS update: Errors in the DBCLONE Phase \[page 213\]](#)
 - [Correcting Errors in the START_SHDI_FIRST Phase \[page 214\]](#)
 - [Correcting Errors in the JOB Phases \[page 214\]](#)
 - [Cleaning Up Terminated Conversions in the DB Conversion Phases \[page 215\]](#)
 - [Correcting Errors in the TRBATCHK_XT Phase \[page 217\]](#)
 - [Correcting Errors in the ACT_UPG Phase \[page 218\]](#)
 - [Correcting Conversion Errors in the PARCONV Phase \[page 219\]](#)
 - [Correcting Errors in the XPRAS Phase \[page 220\]](#)
 - [Correcting Errors in the VALCHK_INI Phase \[page 222\]](#)
- General problems
 - [Error Handling for ABAP \[page 223\]](#)
 - [Correcting Problems when Processing ABAP Steps \[page 225\]](#)
 - [Switch of SAP Programs During the Update \[page 226\]](#)
 - [Release upgrade only: Kernel Version and Instance Numbers Used During the Upgrade \[page 227\]](#)
 - [Providing Information to SAP Support \[page 228\]](#)
 - [Starting and Stopping the Shadow Instance Manually \[page 229\]](#)

In addition to the problems listed here, also read the SAP Notes that are relevant to this update.

A.2.1 SL Common UI: Known Issues

This part of the document contains additional information about how to proceed when you want to correct known problems that have occurred during the update.

Table 25: Known Issues with the SL Common UI

Symptom	Solution
The error message <code>sumabap [id=...] terminated with errors : 127 (null)</code> is displayed after entering the URL in the Web browser.	Correct the permissions of the following files and directories that should be assigned to user <code><sid>adm</code> and group <code>sapsys:</code> <ul style="list-style-type: none"><code><SUM_DIR>\abap</code> and all subdirectories<code>\tmp\.saphostagent__lms1</code>
The error message <code>This page can't be displayed</code> is displayed after entering the URL in the Web browser and after entering the user name and password.	Make sure that the complete path to the <code>SUM</code> directory does not exceed 25 characters.
On a Windows server, the error message <code>Unable to open registry key HKEY_CURRENT_USER\Environment\SAPSYSTEMNAME</code> is displayed after executing STARTUP.BAT confighostagent .	The registry key is usually set during the installation of an SAP system. However, since this may not be the case for older releases, add the registry key <code>HKEY_CURRENT_USER\Environment\SAPSYSTEMNAME</code> manually as string type with the <code>SID</code> as value.
Texts on the user interface are not displayed correctly.	Use the latest version of the Software Update Manager.

A.2.2 SL Common UI: Solving Problems with the UI

If you have problems with the SL Common UI, you have several options to solve these issues.

Context

You have several options that might help to solve a problem with SL Common UI, for example, if an error or a system failure occurred. Note that the following procedure does not represent a sequence that you have to follow step by step, but it has to be read in this way: If the restart of the UI does not work, try step 2. If the restart of the SAP Host Agent does not lead to any success, try step 3, and so on.

Procedure

1. Restart the SL Common UI as described in [Starting and Restarting the Software Update Manager \[page 115\]](#).
2. Restart the SAP Host Agent using the following command:

```
<HOSTAGENT directory>\exe\saphostexec -restart
```

-
3. Install the latest SAP Host Agent version. For more information, see [Installing or Updating SAP Host Agent \[page 96\]](#)
 4. Cancel the running `SAPup` processes that were started by the SL Common UI. These processes will be started again automatically as soon as you start the SL Common UI again in the Web browser.
 5. To prevent that browser plug-ins and settings interfere with the SL Common UI, enter the URL in a new browser window in *Private Browsing* mode (Internet Explorer), *Incognito* mode (Chrome) or *Private Browsing* mode (Firefox).
 6. If the problems persist, proceed as described in [SL Common UI: Getting Support Using the Support File \[page 202\]](#).

A.2.3 SL Common UI: Getting Support Using the Support File

Context

The SL Common UI offers the possibility to create support files in case of problems with the user interface during the update procedure. You create a support file and supply it to SAP Support in order to receive assistance. Proceed as follows:

Procedure

1. On the SL Common UI, choose **More > Get Support File**.
- A new browser window opens.
2. Save the file locally. Do not copy and paste content.
3. Provide the file to SAP Support, for example, by e-mail.

A.2.4 Update Logs

The Software Update Manager logs all actions in log files to monitor the update. You can access the log files using the [Log](#) option on the user interface. Unless otherwise specified below, the log files are stored in the `log` subdirectory of the `abap` subdirectory of the `SUM` directory. If you encounter any errors, you can analyze them to help you find a solution.

SAPup.log

The Software Update Manager records all actions on the ABAP system in the log file `SAPup.log`. These log files provide you with a general overview of the status of the update. They contain information about all phases performed up to this point, the number of reruns, runtimes, final status, and so on. `SAPup.log` is updated by the Software Update Manager only.

Temporary logs are located in subdirectory `tmp` of the `abap` subdirectory of the update directory.

Log Files Written by `tp`

SLOG<Rel>

The ABAP program `tp` lists all its steps in log file `SLOG<rel>`. It also writes additional detailed logs for each step.

To monitor the collective log, you can display the log using the command `type` or `tail` (MKS tools). Do not use the option `-f` for the command `tail` and do not edit the file using an editor; otherwise, the file is write-protected by `tp`.

Each `tp`-driven phase is divided up into a number of different steps whose start and end times are noted in the SLOG log. The start and end of a phase are indicated by the lines `START put` and `STOP put`. The section in the SLOG log relating to the `ACT_UPG` phase looks like this:

Table 26: Section of SLOG Log Relating to the ACT_<Rel> Phase

START	put	PS1		200103071824 23	ps1adm	ds0007
INFO: event SAP_IMPORT_START triggered successfully						
START	SET STOPMARK	PS1		200103071824 23	ps1adm	ds0007
INFO: Buffer saved as \usr\sap\<sapsid>\upg_ps1\buffer\PS1SAV.						
STOP	SET STOPMARK	PS1		200103071824 23	ps1adm	ds0007
LIST	put	PS1	{3{3			
START	tplock_eu	PS1	(200103071824 23	ps1adm	ds0007
STOP	tplock_eu	PS1	(200103071824 23	ps1adm	ds0007
START	tpsapstart	PS1	3	200103071824 23	ps1adm	ds0007
STOP	tpsapstart	PS1	3	200103071824 23	ps1adm	ds0007
START	locksysX	PS1	{	200103071824 23	ps1adm	ds0007
STOP	locksysX	PS1	{	200103071824 23	ps1adm	ds0007

START	tpsapstart	PS1	3	200103071824 23	psladm	ds0007
STOP	tpsapstart	PS1	3	200103071824 23	psladm	ds0007
START	locksys	PS1		200103071824 23	psladm	ds0007
STOP	locksys	PS1		200103071824 23	psladm	ds0007
INFO: event SAP_IMPORT_STOP triggered successfully						
STOP	put	PS1	0008	200103071824 23	psladm	ds0007

ALOG<Rel>

This file is also written by `tp`. It provides information about which actions were started by `tp`. For information about these actions, see section *Transport Phase Log Files* below.

ULOG<YY_Q>

In `ULOG<YY_Q>`, “YY” is the year, and “Q” is the quarter.

This file contains all `tp` calls, including the relevant call parameters, which have been executed by the Software Update Manager during the update.

Transport Phase Log Files

Additional detailed logs are also written for most steps in the ABAP system. These are in subdirectory `tmp` of the `abap` subdirectory of the update directory, where you can also monitor them with `tail -f`. After the various steps of the phase have been completed, `tp` moves the individual logs to subdirectory `log` of the `abap` subdirectory of the update directory.

The names of transport phase logs have to follow the naming convention `SAP<T><ID>.<SAPSID>`, where `<T>` is the transport step, `<ID>` is a six (or sixteen) character string, and `<SAPSID>` is the name of your SAP system.

You can determine the relevant transport request from the name of the log file by replacing the transport step `<T>` with a **K**, omitting `<SAPSID>` and the preceding period. For example, `SAP<T><ID>.<SAPSID>` corresponds to `SAPK<ID>`.

The table below lists the most important steps together with their log names, and specifies which programs execute the steps:

Table 27: Log Files of Most Important Steps

Step	Log Name	Program Executing the Step
SHADOW_IMPORT	SAPK??????.<SAPSID>	R3trans
DD IMPORT (H)	SAPH??????.<SAPSID>	R3trans
DD ACTIVATION (A)	SAPA??????.<SAPSID>	ABAP program (RDDMASGL)
DISTRIBUTION OF DD OBJECTS (S)	DS<DATE>.<SAPSID>	ABAP program (RDDDIS0L)
TBATG CONVERSION OF DD OBJECTS (N)	N<DATE>.<SAPSID>	ABAP program (RDDGEN0L)
tpmvntabs	P<DATE>.<SAPSID> PA<DATE>.<SAPSID> PD<DATE>.<SAPSID> PL<DATE>.<SAPSID>	tp
MAIN IMPORT (I)	SAPI??????.<SAPSID>	R3trans
tpmvkernel (C)	C<DATE>.<SAPSID>	tp
TBATG CONVERSION OF MC OBJECTS (N)	N<DATE>.<SAPSID>	ABAP program (RDDGEN0L)
IMPORT OF SELFDEFINED OBJECTS (D)	SAPD??????.<SAPSID>	ABAP program (RDDDIC1L)
VERSION UPDATE (V)	SAPV??????.<SAPSID>	ABAP program (RDDVERSL)
EXECUTION OF REPORTS AFTER PUT (R)	SAPR??????.<SAPSID>	ABAP program (RDDEXECL)

Once the logs are located in subdirectory `log` of the `abap` subdirectory of the update directory, you can also display them in the SAP system.

You can do this by executing program `RDDPROTT` with transaction `SE38`. `RDDPROTT` displays all the logs for a specific transport request. In the *Transport Request* field, enter the name of the transport request (for example, `SAPK<rel>D01`) and then choose *Execute*.

A brief overview of all the logs existing for this transport request appears. Double-click a line to display a log for this step. The logs are broken down into several levels. Level 1 only displays the return code for the step. Check at least level 2 to display any error messages. Double-click an error to see its long text.

After completing each `tp`-driven phase, the Software Update Manager creates a summary of all individual logs in this phase.

The names of the summaries usually comprise the phase name (without underscores) and the extension `.ELG` (for example, `DDIC<rel>.ELG`). The summary contains the names of the individual logs, any errors that occurred and the return codes. If no errors have occurred, you need to check these summaries only.

A.2.5 Evaluating the ELG Log Files

Context

The `<PHASE>.ELG` log files are summary log files that contain a list of all the errors that occurred during a specific phase of the update. From these files, you can call up detailed log files that contain more information. When errors are detected during a phase, a message appears and prompts you to repeat that phase. First check the `<PHASE>.ELG` log to find out why the step terminated. In some cases, you can choose *ignore* in the Software Update Manager to continue with the update and avoid repeating the failed phase. You always remove the cause of the error. When you choose *ignore*, the Software Update Manager prompts you to enter a password if the errors are serious. In this case, you have to get approval from SAP Support to ignore the error. Remove all errors to avoid the risk of follow-on errors. If you are not sure how to proceed, contact SAP Support.

Procedure

1. Analyze the errors using the detailed log file if necessary. The name of this log is listed in the header of each phase step.
 - No errors have occurred if a return code **less than 8** appears in the log at the end of a step, and no error messages appear for that step.
 - A return code of **8** indicates that some individual objects have not been processed or not been processed completely.
 - If a return code is greater than or equal to **12**, then `tp` or a program called by `tp` has terminated.
2. Determine when the program terminated from the last two lines of the `SLOG` log. If `tp` or `R3trans` have terminated, analyze the last log that was written.
3. If a background step in the SAP system terminates, you have to analyze the job log in the SAP system to determine the cause of the error.
 - a. Log on as user `DDIC` and call transaction `SM37`. Enter the job name as the name of the report that usually processes the terminated step (`RDDMASGL` for `DD ACTIVATION`, for example).

Make sure that the date on the `SM37` input screen is correct and that an asterisk (*) appears in the *or after event* field. The job overview normally displays one canceled job and one background job that completed normally.
 - b. Double-click the canceled job to display the job log.
 - c. Double-click the error line to display the long text for the error.
 - d. Correct the error.

i Note

If you use a user ID other than `DDIC` to log on to the SAP system and correct the error, the SAP system may prevent you from logging on.

In this case, proceed as follows:

1. To unlock the SAP system, enter the following commands (here `<transport_profile>` or `DEFAULT.TPP` is the transport profile of the transport domain to which the system is connected):
The system may be either the original SAP system or the shadow system, depending on which one the error occurred.
 - Original SAP system

```
cd \<update_directory>\abap\exe
tp unlocksys <SAPSID> pf=..\var\DEFAULT.TPP
tp unlock_eu <SAPSID> pf=..\var\DEFAULT.TPP
```
 - Shadow system

```
cd \<update_directory>\abap\bin
SAPup unlockshd
```
2. Log on to the SAP system or shadow system and correct the error.
3. To lock the original SAP system or shadow system again, enter the following commands:
 - Original SAP system

```
cd \usr\sap\abap\exe
tp lock_eu <SAPSID> pf=..\var\DEFAULT.TPP
tp locksys <SAPSID> pf=..\var\DEFAULT.TPP
```
 - Shadow system

```
cd \<update_directory>\abap\bin
SAPup lockshd
```

4. Once you have found and corrected the error, repeat the phase by selecting *repeat* in the Software Update Manager.

The repeated phase is usually completed quickly, since the transport control program `tp` automatically starts from the point at which it terminated.

A.2.6 Reentering Passwords

Prerequisites

You have to be in a dialog step, that is, SUM is waiting for user input or actions.

Context

You have the option to reenter passwords that you entered in the *Configuration* roadmap step. Use it if, for example, you have accidentally entered a wrong password, or the update has failed because you changed a password after the *Configuration* roadmap step has been passed.

You can update the following passwords using this option:

- Standard database schema password – if you have changed the standard database schema password after the *Configuration* roadmap step, you have to run the *Reenter password* option so that the SUM can read the new password from the secure store.

i Note

The credentials for the shadow schema database user used during the update process are copied from the standard schema database user contained in the secure store.

- AS Java Administrator user password
- SDM user password
- SAPService<SID> user password
- <sapsid>adm user password

Procedure

1. On the SL Common UI, choose ► [More](#) ► [Reenter Passwords](#) ►.
The [Specify User Credentials](#) dialog is displayed.
2. Enter the passwords that need to be changed.
3. Choose [Continue](#).

A.2.7 Accelerating the Runtime of Certain Phases

Phases Running ABAP Programs

These phases use the SAP system to operate. If you improve the performance of the SAP system, this can speed up these phases.

EU_IMPORT Phases

i Note

This is only relevant if you perform a release upgrade.

- If you chose the preconfiguration mode [single system](#), these phases run during downtime. To reduce the runtime, you can allow the SAP system to start multiple `R3load` processes. In phases where only one package is imported, this parameter has no influence on the runtime.
- If the load on the database during the import is an issue, you can slow down the import of the substitution set to reduce its influence on the production system. To achieve this, enter a value lower than 1. The runtime is then extended to 6 hours multiplied by this factor. For example, the value 0.5 will slow down the import to last 12 hours.
- If archiving is still activated, it can slow down the phases if the directory where the archives are stored is full or the mechanism that moves these archives is too slow.

- A slow access to the archives or the directory to which you have copied the contents of the archives can increase the runtime of the `EU_IMPORT` phases.

Phase `RUN_RDDIT006`

i Note

This is only relevant if you perform a release upgrade.

This phase analyzes the SAP system to find objects modified by the customer and customer objects. Therefore, the runtime of phase `RUN_RDDIT006` is longer for SAP systems with a lot of modifications or customer objects. Since this phase starts an ABAP program, you can use the respective ABAP transactions to analyze the performance of this phase.

DIFFEXP Phases

i Note

This is only relevant if you perform a release upgrade.

Since these phases perform copy-to-shadow actions or export the transport requests generated during phase `RDDIT006`, they take longer for SAP systems with a lot of modifications or customer objects.

Phase `ACT_UPG`

The `ACT_UPG` phase uses parallel processes.

If you perform a release upgrade with the preconfiguration mode *standard* or *advanced* it uses the number of parallel processes used during production operation that you have entered during the preparation roadmap steps of the Software Update Manager. If you chose the preconfiguration mode *single system*, phase `ACT_UPG` uses the number of parallel background processes that you have entered during phase `INITSUBST`.

Since phase `ACT_UPG` calls up the ABAP Dictionary mass activator program, it takes longer for SAP systems with a lot of modifications or customer objects and if you have included a lot of add-ons and Support Packages.

SHADOW_IMPORT Phases

Release upgrade only:

These phases import the upgrade data into Customizing tables, as well as the transport requests of add-ons, Support Packages, and languages. During this phase, only the part for the shadow system is imported, the

remaining parts are imported during the `TABIM_UPG` phase. These phases take longer for upgrades where a lot of add-ons and Support Packages have been included in the upgrade or where many languages have to be imported. The duration of the import also depends on the number of clients in the system.

If you chose the preconfiguration mode *standard* or *advanced*, they use the number of parallel processes used during production operation that you have entered during the preparation phases. If you chose the preconfiguration mode *single system*, it uses the number of parallel background processes that you have entered during phase `INITSUBST`.

Enhancement package installation and SPS update:

These phases take longer if you have included a lot of Support Packages.

Phase `PARCONV_UPG`

In this phase, tables are converted to the target release structure. The `PARCONV_UPG` phase uses the number of parallel background processes you specified and three `tp` processes.

The runtime of this phase may be longer for the following reasons:

- Very large tables have to be converted. The tables that are converted are listed in the analysis file, which also displays the conversion time for each table.
- If tables get a new index on the target release or an index needs to be regenerated, these tables are listed in the analysis file under DDLs. The time needed to create the index depends on the size of the table.
- In case of other DDL statements, the runtime of `ALTER TABLE` or `ADD FIELD` statements with fields that contain default values depends on the size of the table.

A.2.8 Correcting Errors in the `HIAV_CHK` Phase

Context

The `HIAV_CHK` phase checks if the instance profile name adheres to the SAP naming conventions. If the instance profile name does not contain `DVEBMGS`, the phase stops with an error message.

Procedure

Make sure that the instance profile name follows the SAP naming convention and repeat the phase.

A.2.9 Correcting Errors in the DBCHK Phase

Use

This phase determines the database version and the release of the SAP system.

To do this, the Software Update Manager runs the transport control program `tp`, which logs on to the database and reads the necessary information from there.

Any problems in this phase are usually due to a failed database connection.

Prerequisites

The system has displayed the error message `No information received from the database.`

Procedure

1. Check the `SLOG<rel>` file in subdirectory `log` of the `abap` subdirectory of the `SUM` directory.
Any problems with `tp` are usually due to a non-initialized Transport Organizer.
2. To initialize the Change and Transport System, call transaction `STMS` from the Transport Management System (TMS).
For more information, see the TMS online documentation.
To display the documentation, choose *Information* in transaction `STMS`, or the following path in the [SAP Library \[page 14\]](#) of your source release:

Table 28: SAP Library Paths

Release	Path in SAP Library
<ul style="list-style-type: none">○ SAP NetWeaver 7.3○ SAP NetWeaver 7.3 incl. EHP 1○ SAP NetWeaver 7.4○ SAP NetWeaver 7.5	▶ SAP NetWeaver Library > Application Help > Function-Oriented View > Solution Life Cycle Management > Software Logistics > Change and Transport System > Transport Management System ▶
SAP NetWeaver 7.1 including EHP 1	▶ SAP NetWeaver Library > Function-Oriented View > Application Server ABAP > Administration Tools for AS ABAP > Change and Transport System > Transport Management System ▶

Release	Path in SAP Library
SAP NetWeaver 7.1	▶ SAP NetWeaver Library ▶ Administrator's Guide ▶ Technical Operations for SAP NetWeaver ▶ General Administration Tasks ▶ Software Life Cycle Management ▶ Software Logistics ▶ Change and Transport System – Overview ▶ Transport Management System ▶
SAP NetWeaver 7.0	▶ SAP NetWeaver Library ▶ SAP NetWeaver by Key Capability ▶ Solution Life Cycle Management by Key Capability ▶ Software Life Cycle Management ▶ Software Logistics ▶ Change and Transport System – Overview ▶ Transport Management System ▶
SAP Web AS 6.40	▶ SAP NetWeaver Library ▶ SAP NetWeaver by Key Capability ▶ Solution Life Cycle Management ▶ Software Change Management ▶ Change and Transport System ▶ Transport Management System ▶
SAP Web AS 6.20 and 6.10	▶ SAP Library ▶ mySAP Technology Components ▶ SAP Web Application Server ▶ Change and Transport System ▶ Transport Management System ▶
SAP Basis 4.6D and lower	▶ Basis Components ▶ Change and Transport System ▶ Transport Management System ▶

A.2.10 Correcting Errors in the BATCHCHK Phase

Context

This phase tests whether the background server can access the update directory. To do this, the background job RDDIT008 is started on the specified background server. This job writes a test log in subdirectory tmp of the abap subdirectory of the update directory.

Procedure

1. If errors occur, call transaction SM37 to check whether the background job has run.
 - If the background job cannot be started, this is generally due to a problem with the name of the background server.

1. Check whether the host specified in phase `INITPUT` is included in the list with a running background service.
To do this, perform a test call of function module `TH_SERVER_LIST` in transaction `SE37`. To display the list, double-click the table parameter `LIST` after executing the function module.
2. Depending on the problem, you either have to change the network configuration or change the entries made in the `INITPUT` phase.
 - If the job terminates, call transaction `SM21` to check the system log of the SAP system.
 - If the job is successful, but the Software Update Manager cannot find the log, make sure of the following:
 1. The file system of the update directory has to be mounted on the background server.
 2. The value of the SAP profile parameter `DIR_PUT` has to match the current update directory.
2. To repeat the phase, choose *repeat*.

A.2.11 Correcting Errors in the INTCHK and INTCHK_SW Phases

Context

These phases check whether the inactive nametab is empty. If not, an error occurs.

Procedure

1. To find the affected objects, analyze the `DDXTTCHK.LOG` file.
2. Activate these objects using transaction `SE11`.

The inactive nametab is then empty.

3. Continue the update with *repeat*.

A.2.12 Errors in the DBCLONE Phase

This section deals with the handling of errors in the `DBCLONE` phase.

i Note

This section is relevant if you perform an enhancement package installation or SPS update.

In the `DBCLONE` phase, the Software Update Manager starts a number of background jobs to create copies of the tables required for operating the shadow system. Depending on your system and your hardware, this operation can take several hours. These background jobs are executed on the background server that is configured with the `BATCH_HOST` parameter. The number of jobs is determined by the parameter `MAX_BATCH_PROCESSES`. It cannot be higher than nine or the number of background processes configured on the background server.

Each table is copied with a single `INSERT` statement. Therefore, the administrator has to take care that the undo-logs can grow accordingly.

Each cloning job writes a log file called `DBCLONE<NUMBER>.<SID>`. At the end of the phase, all errors found in these log files are collected in the `DBCLONE.ELG` file. The information in the `DBCLONE.ELG` file is rather sparse. Therefore, you also have to check the corresponding log files to find detailed information about the error.

A.2.13 Correcting Errors in the START_SHDI_FIRST Phase

Procedure

If the shadow instance does not start, proceed as described in SAP Note [525677](#).

A.2.14 Correcting Errors in the JOB Phases

Context

A `JOB` phase starts a background job in the SAP system and waits for it to be completed. If problems occur during the execution of the background job, you receive an error message.

i Note

The naming convention for the `JOB` phases is `JOB_<name>` or `RUN_<name>`, where `<name>` is the name of the job or report.

Procedure

1. Log on to the SAP system as user `DDIC`.
2. Call transaction `SM37` and restrict the start time and start date of the background job as much as possible.
 - If no background job was started, this is generally due to a syntax error in the calling program. If there is no SAP Note explaining this error, contact SAP Support.
 - If the background job was started, there are two possible situations:
 - The job was terminated.
Check whether the error can be reproduced by selecting *repeat* in the Software Update Manager. If the error occurs again, contact SAP Support. In this case, proceed as described in [Providing Information to SAP Support \[page 228\]](#).
 - The job was completed, but with error messages.
In certain situations, you can ignore these error messages. In this case the Software Update Manager does not require a password if you choose *ignore*. If you are not sure how to proceed, contact SAP Support.

A.2.15 Cleaning Up Terminated Conversions in the DB Conversion Phases

Use

These conversion errors are indicated by the following Software Update Manager error messages:

- Restart logs of DB conversions found
- Outstanding DB conversions found

These errors can occur in the phases `CNV_CHK_GEN`, `CNV_CHK_IMP` and `CNV_CHK_XT`.








Note

If both messages appear, process the message `Restart logs of DB conversions found` first.

Procedure

Procedure for “Restart Logs of DB Conversions Found”

To clean up terminated conversions indicated by the message `Restart logs of DB conversions found`, proceed as follows:

1. To find the terminated conversions, call the database utility transaction (transaction SE14).
2. Choose  [DB Requests](#)  [Terminated](#) .
- A list of the terminated conversions appears.
3. Double-click a table name to see its details.
4. Check the meaning and status of the table.
 1. Find out whether the table is still needed. Sometimes the tables are test tables that are no longer needed. For SAP tables, contact SAP Support, which can assess if an SAP table is still needed.
 2. Ask the last person who changed the table, or the table owner, to find out its status. If the table is no longer needed, choose [Unlock table](#) in the detailed display. This prevents the conversion from being continued automatically. The table itself does not return to a consistent state. Any data that is still in the temporary table is lost during the next conversion. In some cases, however, the table was already corrected without the reset log being deleted. The function [Unlock table](#) is harmless in this case.
 3. You can determine the state of the table with  [Check](#)  [Database object and Check](#)  [Runtime object](#) .
 4. Check if the table contains the data you expect. You can do this with transaction SE16, for example. If the data does not exist, it could still be in the temporary table. Contact your SAP consultant or SAP Support for help in saving this data.
5. Determine the cause of the error.

If you find out that the table is still needed, choose [Object log](#). Look for error messages that explain why the conversions were terminated. You could encounter the following problems here:

 - You cannot find a log because it was deleted at some time in the past. Continue with step 6 (continue the conversion to the end).

- The log does not contain an error message, but ends abruptly. This indicates that the conversion was stopped by an external event. Call transaction SM21 to read the system log and find out the approximate time the conversion was terminated, and to look for the cause of the error.
- If the log clearly gives a reason for the error, you have to correct it.

6. Continue the conversion to the end.

In the detailed display, choose *Continue adjustment*. Since you do not know how long this takes, choose processing type *Background*.

The situation can be as follows:

- The conversion finished successfully. You can see this because the error message disappears, the *Check* function does not display any further problems, and there is a success message in the object log.
- The conversion terminates again. A log now exists. Repeat the analysis from step 5 (*Determine the cause of the error*).

If you still cannot complete the conversion after several attempts, contact an SAP consultant or SAP Support.




Procedure for “Outstanding DB conversions found”

To clean up terminated conversions indicated by the message `Outstanding DB conversions found`, proceed as follows:

Caution

Process this message after you have processed the message `Restart logs of DB conversions found`.

1. Determine the objects that are affected.

1. Start the database utility transaction (transaction SE14) and choose  *DB Requests*  *Mass Processing* .

2. Choose *All requests*.

The worklist of the conversion program appears. This worklist was generated by developments or modifications in your SAP system, but has not yet been processed.

3. Choose  *DB requests*  *Created with import* .

The worklist that was not processed correctly during the last update appears.

2. Check the meaning and status of the requests.

In contrast to the procedure for the message `Restart logs of DB conversions found`, this procedure can also include requests for indexes, views and matchcode objects. The requests that are found are not always terminated. They might not even have been started.

1. Ask the last person who changed the object if the request should still be processed.
2. If the user does not want it to be processed, select the request and choose *Delete selected*.

This removes the objects from the worklist of the conversion program.

Do not remove requests from the last update.

3. Process the outstanding requests.

You can select the requests from the list of mass processing requests and schedule a job for execution with the function *Schedule selections*.

1. Go to the detailed display of the object by double-clicking it in the list of requests created by the import.
2. Schedule the request, or continue it. Since you do not know how long this takes, choose processing type *Background*.

A.2.16 Correcting Errors in the TRBATCHK_XT Phase

Use

The `tp` program uses table TRBAT to communicate with the SAP ABAP system. If this table contains entries, they could be the remains of an import or export that either terminated or is still running.

The Software Update Manager already made this check in the preparation roadmap steps.

Procedure

Clean up table TRBAT as follows:

1. Try to process the TRBAT entries from `\usr\sap\trans\bin` with the following command:
`tp getprots <SAPSID>`
 This does not affect any imports or exports that are still running. `tp` informs you about possible processing problems in the file `\usr\sap\trans\log\SLOG<rel>`. You can monitor this file using the command `type` or `tail` (MKS tools), but do not use an editor.
 where `<YY>` is the year (two digits) and `<ww>` is the calendar week (two digits).
2. To delete any entries in TRBAT that cannot be processed and that are no longer needed, call transaction SM31.

For more information about the transport control program `tp`, see the [SAP Library \[page 14\]](#) for your source release:

Table 29: SAP Library Paths

Source Release	Path in SAP Library
<ul style="list-style-type: none"> • SAP NetWeaver 7.3 • SAP NetWeaver 7.3 incl. including enhancement package 1 • SAP NetWeaver 7.4 • SAP NetWeaver 7.5 	▶ Application Help > Function-Oriented View > Solution Life Cycle Management > Software Logistics > Change and Transport System > Transport Tools > Transport Control Program tp ▶
SAP NetWeaver 7.1	▶ System Administration and Maintenance Information > Technical Operations Guide > General Administration Tasks > Software Life Cycle Management > Software Logistics > Change and Transport System > Transport Tools > Transport Control Program tp ▶

Source Release	Path in SAP Library
SAP NetWeaver 7.0 / 7.0 including enhancement package 1 or 2 or 3	▶ Application Help > ▶ Function-Oriented View > ▶ SAP NetWeaver by Key Capability > ▶ Solution Life Cycle Management by Key Capability > ▶ Software Life Cycle Management > ▶ Software Logistics > ▶ Change and Transport System > ▶ Transport Tools > ▶ Transport Control Program tp >

A.2.17 Correcting Errors in the ACT_UPG Phase

Context

Depending on the results of the `ADJUSTCHK` phase, you may be asked in the `ACT_UPG` phase to adjust your modifications to SAP objects so that they correspond to the latest SAP standard version of the objects. If your SAP system has been modified, error messages with return code 8 might occur during the `ACT_UPG` phase.

The errors are listed in the `ACTUPG.ELG` log file. It shows the same return code for all requests, no matter in which request the errors occurred. Check the error messages in the log file. Errors occurring several times for different objects can have the same cause. In this case, only the object that causes the original error should be corrected and the activation should be restarted. For example, a missing data element leads to error messages for all objects using it.

The shadow instance is automatically unlocked to correct the errors and locked again afterwards.

Procedure

1. Log on to the shadow instance as a user other than `DDIC`.

If you have not yet created users on the shadow instance, do so now as described in [Making Entries for the Preprocessing Roadmap Step \[page 149\]](#) under *Modification Adjustment and Activation (ACT_UPG)*.

2. Make the required corrections.

Caution

To make the corrections, use only the maintenance transaction of the ABAP Dictionary (SE11). Do not try to repair the objects with the *Database Utility* transaction (SE14). This can cause serious inconsistencies.

Results

Once you have corrected all the errors, you can proceed with the update where it terminated in the `ACT_UPG` phases by selecting *repeat* in the Software Update Manager.

If you choose *ignore severe errors*, all error messages with return code 8 are ignored.

A.2.18 Correcting Conversion Errors in the PARCONV Phase

Context

This procedure enables you to correct problems that occur in the `PARCONV_UPG` phase. The errors can roughly be divided into two classes:

- Technical problems on the database
You can recognize these in the system log (transaction SM21), where they are marked with `SQL-ERROR` followed by an abbreviation with an error number. The problem is often caused by a lack of space.
- Logical errors in the object definition
These could also appear in the form of SQL errors. Some of them, however, are already detected by the system before a command can be given to the database. This type of error frequently occurs if you decide to revert to the SAP standard when you use the modification adjustment functions in transaction SPDD (`ACT_UPG` phase).

Example

A field was added to an SAP table. This field was also used in an index or view. In the `ACT_UPG` phase, however, you decided to return to the standard definition of the table (using transaction SPDD) and this additional field was removed. The index or view definition is now incorrect since the relevant table field is missing. If the index definition is not corrected and the `ACT_UPG` phase was completed with *ignore*, errors occur when the objects are created.

Procedure

1. Analyze the `PARCONV.ELG` log.
2. Remove the cause of the error.
 - Technical problems on the database
Read the documentation in the database system about how to correct the error. If necessary, extend the database.
 - Logical errors in the object definition
Correct the objects. To do this, you can use transaction SE11. In the above example, you could, for instance, remove the deleted field from the index or view definition or reinsert the deleted field into the table. In addition, check whether the objects that are not contained in the standard system and that are now incorrect can be deleted completely.
3. Repeat the `PARCONV_UPG` phase.

For more information about alternative procedures, see SAP Note [177680](#).

A.2.19 Correcting Windows Error in Phase KX_SWITCH

Use

On Windows systems, the following error can occur in phase `KX_SWITCH` of the *Downtime* roadmap step:

```
ERROR: Could not delete <filename>
```

```
Reason: ErrorMessage: Access is denied.
```

This issue is a known windows behavior when a process accesses a file that the Software Update manager wants to delete.

In phase `KX_SWITCH`, the Software Update Manager replaces old kernel files with the new ones. In the course of this procedure, the Software Update Manager deletes all files from the kernel directory of the instance that is used for the downtime. But if one of these files is already accessed by other processes or applications, such as virus scanners, or software backup programs, or open *Windows Explorer* windows, the update stops in this phase with the above-mentioned message.

Procedure

If the error occurs, proceed as follows:

1. Close all applications that are not needed.
2. Delete manually the file that is mentioned in the error message.
3. Continue with the update.

A.2.20 Correcting Errors in the XPRAS Phase

Use

If errors occur in the `XPRAS_UPG` phase during the execution of XPRAs reports, the Software Update Manager stops and refers to the `XPRASUPG.ELG` log, which contains error messages with the following header:

```
~~~~~  
XPRAs ERRORS and RETURN CODE in <file name>  
~~~~~
```

If this header is followed by lines other than the return code, then errors have occurred while the reports were being executed. In addition to the actual error lines, a separate line indicates the names of the reports that generated the preceding error messages.

You can display a detailed help text for each of these error messages in the SAP system. These texts usually contain all the information you need to correct the error.

Procedure

Finding Help Texts for Error Messages

1. Search the `XPRASUPG.ELG` log to find the file name specified in the header.

i Note

The file name that appears in the header of `XPRASUPG.ELG` is important for finding the help text. The file name always has the following format:

```
SAPR<ID>.<SAPSID>
```

<ID> can be any string of six characters.

The name of the relevant transport request can be derived from the two names. Replace the `R` with a `K` and delete the period and all characters that follow it.

You now have `SAPK<ID>` as the name of the transport request.

2. Log on to the SAP system.
3. Call transaction `SE09`.
4. Choose **Request/task** **Display individually** and enter the name of the transport request `SAPK<ID>`.
5. To display the individual transport logs, choose **Goto** **Transport logs**.
6. To navigate to the log display for this step, double-click the line *Exec after put*.
You can expand the log to view it in more detail. The error messages are visible as of the second level. To display a help text, position the cursor on the error message and choose *Long text*.

Correcting Errors

1. Follow the instructions in the help text precisely. The help text helps you correct the error.
If you are asked to implement an SAP Note, proceed as follows:
 1. To unlock the SAP system, enter the following commands (here `DEFAULT.TPP` is the transport profile of the transport domain to which the system is connected):

```
cd \<update directory>\abap\exe
\tp unlocksys <SAPSID> pf=.. \var\DEFAULT.TPP
```
 2. Logon to the system with a user other than user `DDIC` and implement the SAP Note using the Note Assistant (transaction `SNOTE`).
 3. Lock the SAP system using the following command:

```
cd \<update directory>\abap\exe
\tp locksys <SAPSID> pf=.. \var\DEFAULT.TPP
```
2. When you have corrected all the errors, repeat the `XPRAS` phase.
3. If you need more information or if the report still results in errors when you repeat the `XPRAS_UPG` phase, read the documentation of the report in question. To access this information, log on to the SAP system. Call transaction `SE38` and display the documentation for the report that is named in the error log.
4. You can also choose *Accept non-severe errors and repeat phase XPRAS_UPG*.
The Software Update Manager repeats the phase and accepts all error messages with the return code 8. The errors have to be removed **after** the update.
You require a password for *ignore all errors*. The Software Update Manager then continues with the next phase, without executing the following XPRAs. Before you can choose *ignore*, you should have approval from SAP Support.

Correcting Errors After the Update

If possible, correct errors immediately. However, you can correct some errors that occur during the execution of XPRAs reports after you have completed the update. This option makes sense, for example, when special measures in the SAP application areas are necessary to correct the errors, and the corresponding specialists are not available right now. To do this, you have to suppress the execution of the corresponding report before you repeat the update phase. After the update, correct the error and run the report manually using transaction SE38.

For technical instructions on skipping an XPRAs report, see SAP Note [122597](#).

Caution

Only skip an XPRAs report if you are sure you can execute it later (for example, if an SAP Note tells you that this is allowed).

If you cannot execute an XPRAs report later and still want to skip it, contact SAP Support.

Special Error Situations

Note

This is relevant if you perform an enhancement package installation or SPS update.

- The error "Name xyz has already been used". e065(fdt_core)" can occur in method FDT_AFTER_IMPORT. To solve the problem, proceed as follows:
 1. Continue the update with option *Accept non-severe errors and repeat phase XPRAS_UPG*.
 2. Apply SAP Note [1301695](#).
 3. Restart the after import processing for method FDT_AFTER_IMPORT using report FDT_TRANS_Q_RESTART for S tables, T tables, and C tables.
- The following short dump occurs:

```
Runtime Errors COMPUTE_INT_PLUS_OVERFLOW
Exception CX_SY_ARITHMETIC_OVERFLOW
Date and Time [...]
```

Check whether the dump is the same as described in SAP Note [1243486](#) and if so, proceed as described there. If the dump is different, contact SAP Support.

A.2.21 Correcting Errors in the VALCHK_INI Phase

Context

An error can occur when you have reset the update incorrectly. For example, you have aborted the Software Update Manager and deleted the update directory. This results in an inconsistent system state and a failure in phase VALCHK_INI when you start the Software Update Manager again.

If you were in one of the preparation roadmap steps when you tried to reset the update, proceed as described below. If you had already reached the *Preprocessing* roadmap step, then contact SAP Support.

Procedure

1. Choose *Exit* to stop the SAPup.
2. Change to the <update directory>\abap\bin directory.
3. Enter the following command:

```
.\SAPup.exe reset prepare
```
4. Delete the update directory.
5. Extract the Software Update Manager archive and start the Software Update Manager again.

A.2.22 Error Handling for ABAP

If the Software Update Manager reports an error during the update, it is essential that you find out what caused this error before you continue with the update.

Tool Reaction

The Software Update Manager reacts on errors in different ways:

- The phase in which the error occurs is interrupted. There is an error message on the screen and in the corresponding log file [page 202], and a trouble ticket is created.
- The phase in which the error occurs continues but writes an error message into the corresponding log file.
- The tool aborts.
- In rare cases, the Software Update Manager waits for processes (t_p, background jobs, and so on) which have terminated or cannot be started.

Error Analysis

Help in the Software Update Manager

The Software Update Manager provides help for many known errors.

Trouble Ticket

As soon as the Software Update Manager writes an error message to the log file, it also creates a trouble ticket. The trouble ticket mentions the phase in which the error occurred and various system parameters. In addition, an archive is created that contains all the relevant log files.

You can find the `SAPup_troubleticket.log` and `SAPup_troubleticket_logs.sar` files in the <update directory>\abap\log directory.

Note that these files are overwritten as soon as a new error occurs.

If you cannot solve the cause of the error yourself, report an [incident in SAP Support Portal \[page 228\]](#) and attach the `SAPup_troubleticket.log` and `SAPup_troubleticket_logs.sar` files.

File dev_SAPup

The Software Update Manager can abort due to internal program errors. An error message appears on the user interface. In some cases, the Software Update Manager creates a stack trace. You can find it in file `dev_SAPup` either in subdirectory `tmp` of the `abap` subdirectory of the update directory or, rarely, directly in the update directory.

If the error persists after repeating a phase, report an incident and include the stack trace. The stack trace speeds up processing of the incident.

If you can continue the update after a restart, report an incident anyway and include the stack trace. This helps SAP fix the tool error for future versions of the Software Update Manager.

Log Files

- **ELG Log Files**

Provided that an `.ELG` file [page 206] was generated at the end of the phase that terminated, this file provides helpful additional information about the error(s) that occurred during the phase. For more information, see [Evaluating the ELG Log Files \[page 206\]](#).

- **Detailed Log Files**

In the `.ELG` file, the heading of each phase step displays the name of a log file that contains more detailed information about the error.

The detailed log files are stored in subdirectory `log` of the `abap` subdirectory of the update directory.

Background Jobs

The reasons for terminated background jobs are either a lack of resources or program errors. The job log records the processing of background jobs. All background job steps executed are listed in the job log with their exit statuses. If a background job is terminated, you can obtain further information about the reasons using the job log. Proceed as follows:

1. Log on to the primary application server instance of the SAP system. During the phases `START_SHDI_FIRST` and `STOP_SHDI_LAST`, it may occur that you have to log on to the shadow instance instead. A SUM dialogue informs you about the correct log on.
2. Call transaction SM37 as user `DDIC`.
3. Enter `*` as the job name and specify the job conditions (for *or after event* enter `*`).
4. Start the job display (`F8`).
5. Sort the job list so that it is displayed chronologically.
The job name of the job displayed last is the most recent job and generally the job belonging to the terminated step.
6. To display the job log file, double-click the terminated job.
For some releases, you need to select the terminated job and choose *Job Log* to display the job log file.
7. To display the long text for the error or the ABAP short dump if it was an ABAP job that has terminated with a syntax error, double-click the error line in the job log file.

SAP System Log

The system log provides more accurate information about errors. It logs the incorrect system states occurring during operation. All irregularities such as a lack of resources or database errors during operation are collected here. The system log is administered by the SAP system and is available in the file system as a non-readable file. You use transaction SM21 to display the system log.

Since the update is always performed by user `DDIC`, it is mainly the system log entries for this user that are relevant for error analysis. The Software Update Manager itself does not know about the system log.

Note that no system log exists on the shadow instance.

To analyze the system log, proceed as follows:

1. Call transaction `SM21` as user `DDIC`.
2. Choose *Reread system log*.
Make sure that you enter the correct period so that only those entries are displayed which correspond to the time when the terminated phase ran.
3. Look for entries for user `DDIC`.
4. To display detailed error descriptions, double-click a single line in the system log.

Sometimes errors occur at the lowest system level. These errors are normally stored in the instance logs. During the update, you can find these logs in the current working directory of your SAP instance as follows:

1. Open the current working directory of your primary application server instance:
`\<update directory>\abap\system\<SAPSID>\DVEBMGS<shadow instance no.>\work`
2. Find out which log files have been written.
3. Examine the log files generated last for errors that may be related to the update.

Other Sources of Problems

If no clear errors are found, there may also be a lack of resources in the database or the file system or incorrect profile parameters may have caused the phase to terminate.

A.2.23 Correcting Problems when Processing ABAP Steps

Use

Some of the ABAP steps are performed in the SAP system. These are:

- ABAP Dictionary activation (A)
- Distribution of ABAP Dictionary objects (S)
- Table conversion (N)
- Matchcode activation (M)
- Import of application objects (D)
- Update of version management (U)
- Execution of XPRAs (R)

The `TRBAT` table forms the interface between the transport control program `tp` and the SAP system. To trigger an ABAP step, `tp` writes control information to this table.

The `JOB_RDDNEWPP` phase schedules the event-driven background job.

Procedure

1. Check that the SAP system was started correctly. Log on in client `000` as user `DDIC`.
2. Call transaction `SM37` and check whether the background job `RDDIMPDP` has been scheduled.

In the *or after event* field, enter an asterisk (*) so that event-driven jobs are also displayed.

3. Check when RDDIMPDP last ran and whether it ran without errors.
4. Check whether the control information in table TRBAT has been entered correctly.
The table should have one `HEADER` entry and should contain one entry for each transport request. While the ABAP Dictionary objects are being distributed (S) and the tables converted (N), table TRBAT may contain only one `HEADER` entry, since these steps are not carried out by transport request.
5. Call transactions SM37 and SM50 to check whether RDDIMPDP has already started the background job that processes the ABAP step.

For more information about the transport control program `tp` and the communication between `tp` and the SAP system, see the [SAP Library \[page 14\]](#) for your source release at:

Table 30: SAP Library Paths

Source Release	Path in SAP Library
<ul style="list-style-type: none"> • SAP NetWeaver 7.3 • SAP NetWeaver 7.3 incl. including enhancement package 1 • SAP NetWeaver 7.4 • SAP NetWeaver 7.5 	<p>▶ SAP NetWeaver Library ▶ Application Help ▶ Function-Oriented View ▶ Solution Life Cycle Management ▶ Software Logistics ▶ Change and Transport System ▶ Transactions and Tools in the CTS ▶ Transport Control Program tp ▶</p>
<ul style="list-style-type: none"> • SAP NetWeaver Mobile or Process Integration 7.1 • SAP NetWeaver Mobile or Process Integration 7.1 including enhancement package 1 	<p>▶ SAP NetWeaver Library ▶ Application Help ▶ Function-Oriented View ▶ Application Server ABAP ▶ Administration Tools for AS ABAP ▶ Change and Transport System ▶ Change and Transport System – Overview ▶ Transactions and Tools in the CTS ▶ Transport Control Program tp ▶</p>
SAP NetWeaver 7.0	<p>▶ SAP NetWeaver Library ▶ Application Help ▶ Function-Oriented View ▶ SAP NetWeaver by Key Capability ▶ Solution Life Cycle Management by Key Capability ▶ Software Life Cycle Management ▶ Software Logistics ▶ Change and Transport System – Overview ▶ Transport Tools ▶ Transport Control Program tp ▶</p>

A.2.24 Switch of SAP Programs During the Update

SAP programs are switched during the update when the kernel switch takes place.

In the `KX_SWITCH` phase, the SAP programs in directory `\usr\sap<SAPSID>\sys\exe\run` are switched.

Do not start the SAP system during this period; otherwise, the Software Update Manager cannot overwrite the old files.

A.2.25 Kernel Version and Instance Numbers Used During the Upgrade

i Note

This section is only relevant if you perform a release upgrade.

During the upgrade, the upgrade tools use different versions of the kernel and an additional temporary instance number for the shadow system and the original system during the downtime. This is done automatically and requires no user action. If, however, in case of an error you need to log on to the shadow instance or to exchange the kernel, you have to know which version to use.

In the ABAP system, the kernel version and instance numbers are used as follows:

- The source release kernel is used until the system switch. The validated kernel is used for the original system between the system switch and the SAP kernel switch and for the shadow system. You can either install the latest kernel after the upgrade, or let SUM install it for you in phase `KX_SWITCH`.
- During downtime, the instance number of the shadow system is temporarily used for the original system. It is switched back to the original instance number at the end of downtime.

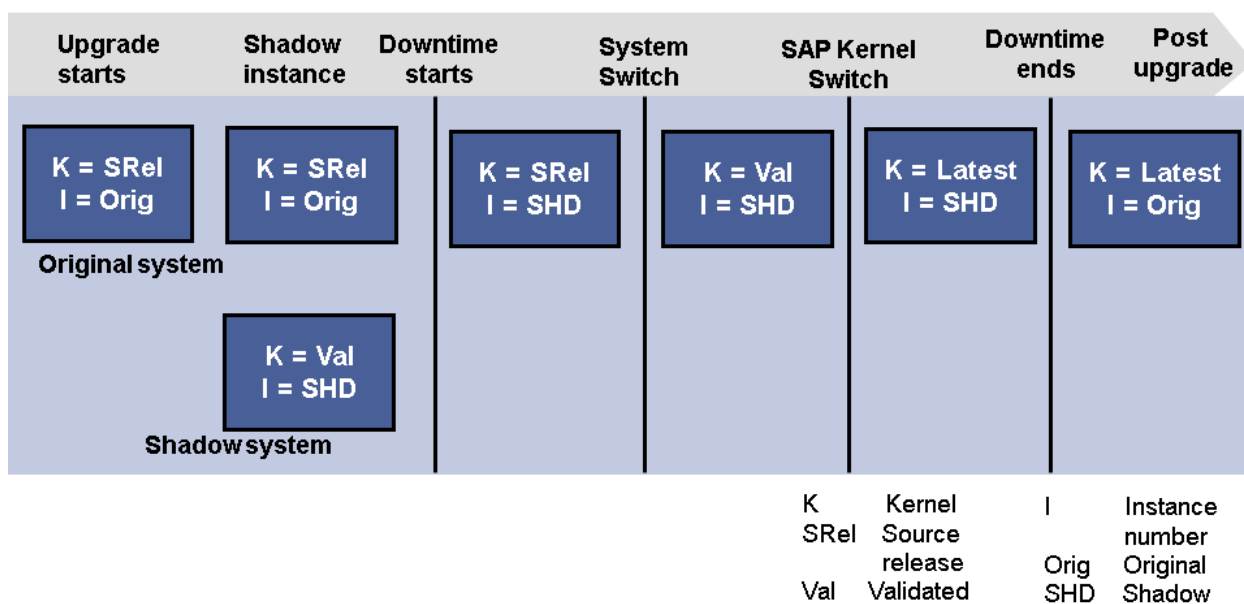


Figure 11: Kernel and Instance Numbers During the Upgrade

A.2.26 Providing Information to SAP Support

Use

If none of the measures described in [Troubleshooting \[page 199\]](#) solves your problem, contact SAP Support. To enable us to help you as quickly and efficiently as possible, follow the procedure given here.

Procedure

If you encounter problems that are specific to the update procedure, report an incident in SAP Support Portal (<http://support.sap.com>) and assign it to component BC-EHP-INS-TLA or BC-UPG-TLS-TLA. Answer the following questions and put these answers in your incident:

1. For which SAP component do you want to perform the update?
2. We recommend that you attach the [ProcessOverview.html report \[page 199\]](#) to the incident.
3. If a trouble ticket exists, attach it to the incident together with the log archive (`SAPup_troubleticket_logs.sar`). If there is no trouble ticket, include the following information in your incident:
 - Which operating system version are you using?
 - What was the original release of your SAP system?
 - In which phase does the error occur?
This information is listed at the end of the `SAPup.log` file located in the `SUM/sdt/log/SUM` directory.
4. Did you have problems with the SAP system before the update?

i Note

We can find the cause of the error more quickly if you set up an online connection to the SAP system.

If the program aborts due to an Access violation, add the user crash dump file to your incident. Please read SAP Note [1559353](#) on how to capture user dumps on Windows.

If you are certain that the problem is not an update-specific one but a product-specific one, assign your incident to the appropriate product-specific component. The following table gives you information about the different components to which you can assign your incident in SAP Support Portal.

Table 31: Components for Incidents

SAP Product	Component
SAP Solution Manager	SV-SMG
Index Management Server	BC-TRX
OLTP R/3 System	BC-UPG-TLS-TLA
R/3 Standalone Gateway	BC-UPG-TLS-TLA

SAP Product	Component
SAP Add-On	BC-UPG-ADDON
SAP Supply Chain Management	SCM-BAS
SAP Business Connector	BC-MID-BUS
SAP Business Information Warehouse	BW-SYS
SAP Business-to-Business Procurement	BW-BCT-BBP
SAP Customer Relationship Management: <ul style="list-style-type: none"> • Communication Station and Mobile Development Workstation • CRM Server • Internet Pricing and Configurator (IPC) • Mobile Client Component • SAP R/3, SAP R/3 Enterprise, SAP ECC 	<ul style="list-style-type: none"> • CRM-MW • CRM-MW • CRM-MT-IU-SPE • CRM-MT-IU-MC • BC-UPG-TLS-TLA
SAP TREX Search Engine (SAP DrFuzzy Search Engine)	BC-SRV-TRX
SAP Front End	BC-INS
SAP Internet Transaction Server	BC-FES-ITS
SAP Knowledge Warehouse	KM-KW
SAP Enterprise Core Component	BC-UPG-TLS-TLA
SAP Strategic Enterprise Management	BC-UPG-ADDON
SAP NetWeaver Application Server ABAP	BC-UPG-TLS-TLA
SMART Installation	BC-UPG-TLS-TLA

A.2.27 Starting and Stopping the Shadow Instance Manually

Use

If a problem with the update process occurs that requires actions with regard to the shadow instance to solve the problem, then it might be necessary to start and stop the shadow instance manually.

Procedure

To stop the shadow instance manually, proceed as follows:



1. `cd <update directory>\abap\bin`
2. `SAPup stopshd`

To start the shadow instance manually, proceed as follows:

1. `cd <update directory>\abap\bin`
2. `SAPup startshd`

More Information

For more information, see the following SAP Notes:

- [398100](#) 
- [525677](#) 

A.3 Administration

This part of the document contains additional information about the various administrative tasks that you can or should perform before and during the update.

- [Reducing Downtime \[page 231\]](#)
- [Configuring Parallel Processes During the Runtime \[page 233\]](#)
- [Changing the DDIC Password \[page 234\]](#)
- [Determining Versions \[page 235\]](#)
- [Setting the Environment of the SAP Kernel \[page 236\]](#)
- [Creating Shares and Directories and Checking Authorizations \[page 236\]](#)
- [Changing the Virtual Memory/Paging File Size \[page 237\]](#)
- [Extending Free Space in the MS SQL Server Database \[page 239\]](#)
- [Changing the MS SQL Server Database Recovery Mode \[page 240\]](#)
- [Releasing and Confirming Open Repairs and Requests \[page 240\]](#)
- [Sending a Message when User Action Is Required \[page 241\]](#)
- [Using the ABAP Phase List for the Update \[page 241\]](#)

A.3.1 Reducing Downtime

Use

Release upgrade only: The System Switch upgrade has been designed to reduce downtime to a minimum. The preconfiguration modes for the shortest possible downtime are *single system* and *standard*. In addition to the preconfiguration mode, there are other options to further reduce the downtime.

Procedure

Preconfiguration Mode

Note

This is only relevant if you perform a release upgrade.

To reduce downtime, we recommend that you first try the preconfiguration mode *advanced* or *standard*. This means that you run the shadow instance while your primary application server instance is still in production operation. When you run these two instances in parallel, there may be insufficient memory on your primary application server instance.

If so, consider using a remote shadow instance.

If you are not able to run the shadow instance in parallel to the production instance, you can use the preconfiguration mode *single system*. This way, you get an upgrade model where the data is loaded during uptime but the activation phase is executed during downtime.

Only valid for 'Target Release': SAP NetWeaver 7.3 EHP1, SAP NetWeaver 7.4, SAP NetWeaver 7.3, SAP NetWeaver 7.0 EHP3, SAP NetWeaver 7.0 EHP2

Remote Shadow Instance

Note

This is only relevant if you perform a release upgrade.

Instead of running the shadow instance on the primary application server instance, you can run it [remotely \[page 66\]](#) on one of your application servers. During roadmap step *Configuration*, you are asked if you want to use this option.

In this case, the application server does not have to run on the same operating system as the primary application server instance. For more information, see SAP Note [430318](#).

Caution

You cannot mix Windows and UNIX operating systems.

End of 'Target Release': SAP NetWeaver 7.3 EHP1, SAP NetWeaver 7.4, SAP NetWeaver 7.3, SAP NetWeaver 7.0 EHP3, SAP NetWeaver 7.0 EHP2

Hardware

Fast hardware is key to speeding up the update. With faster hardware, the overall runtime decreases and, therefore, the downtime as well.

Some phases benefit from a faster CPU and additional memory. Other phases require fast disk I/O.

- CPU
Several phases run parallel processes. However, since the number of parallel processes is usually not larger than eight, more CPUs may thus not be exploited fully. Four CPUs with 800 MHz are faster than eight CPUs with 400 MHz, for example.
- RAM
Additional memory for the database and the SAP kernel can improve speed, especially for phases that use the SAP system, such as the activation phase or the `XPRAS` phase.
- Disk I/O
During the main import phases (`EU_IMPORT` (release upgrade only), `SHADOW_IMPORT`, `TABIM`), a fast disk I/O is the key to reducing the upgrade runtime.

Backup

You need to be able to restore the update to the point when downtime began. You can do this using your usual backup and archiving model. You also need to make a backup of your database after the update has finished.

You can reduce the downtime significantly if you use a fast backup mechanism, such as a RAID-based mechanism or a hardware-based mirror mechanism.

Configuration

You can configure the update by modifying the number of processes used:

- Number of background processes
This is the key parameter for running ABAP reports in parallel. Increasing this parameter speeds up phases like `PARDIST_SHD`, `PARCONV_UPG`, and `XPRAS_UPG`. A value larger than **8** does not usually decrease the runtime.
- Number of `R3trans` processes
This parameter affects the number of `R3trans` processes that `tp` starts during phases `SHADOW_IMPORT` and `TABIM`. A value larger than **8** does not usually decrease the runtime.
- Release upgrade only: Number of load processes
For several databases, the `EU_IMPORT` phases may run with parallel load processes if you use the preconfiguration mode *single system*.

Do not increase these parameters to values much larger than the number of CPUs in your system.

Clients

The number of clients has a significant influence on the runtime. During phases `SHADOW_IMPORT` and `TABIM`, the data import for some client-specific tables needs to be cascaded into the different clients. The import time therefore increases with the number of clients.

The duration of the `XPRAS` phase, especially the duration of the after-import methods, also depends on the number of clients.

If you no longer need certain clients, you should delete them before you start the Software Update Manager because the free space calculation depends on the number of clients.

Archiving

In some cases it is useful to archive some of the content of large tables. If tables are converted during the update, the conversion time depends on the size of the table. If you can decrease the size of a table that needs to be converted, the downtime is reduced. The tables converted during the update are summarized in the [Process Overview Report \[page 199\]](#).

The duration of the ICNV and phase `XPRAS_UPG` also depends on the size of large tables.

ICNV

Release upgrade only: The incremental table conversion transaction (ICNV) is provided only if you use the preconfiguration mode *standard* or *advanced*. The incremental table conversion enables you to start the conversion during uptime. The upgrade procedure provides a list of tables for which you can use transaction ICNV. If the Software Update Manager finds these tables, the upgrade stops and prompts you to call transaction ICNV. The downtime does not start until at least 90% of the data transfer has been completed. Phase `DOWNCONF_DTTRANS` checks the progress.

Enhancement package installation and SPS update: The incremental table conversion enables you to start the conversion during uptime. The update procedure provides a list of tables for which you can use transaction ICNV. If the Software Update Manager finds these tables, the update stops and prompts you to call transaction ICNV. The downtime does not start until at least 90% of the data transfer has been completed. Phase `DOWNCONF_DTTRANS` checks the progress.

Since the duration of the ICNV also depends on the size of large tables, you should check if you can archive data before the update.

Modifications

If you have modified some tables in the source release, you may need to convert them if you choose to return to the SAP standard.

This may mean that you need to remove some fields or reduce a field length. You may want to consider keeping your modification to avoid such a conversion.

Errors

During a test update, errors might occur. These errors increase the runtime and downtime of the update significantly.

During the tests, find out, if necessary with the help of SAP Support, how to prepare the SAP system so that these errors do not occur again. For example, if the process fails in phase `PARCONV_UPG` because the tablespaces or containers are too small, increase the free space by the amount of space you need to run the phase.

A.3.2 Configuring Parallel Processes During the Runtime

This section covers the configuration of parallel processes during the update procedure.

Use

Any time during the update procedure, you can increase or decrease the limits that have been specified for the different types of parallel processes.

For some phases, these changes will have an immediate effect. For example, changing the values for `R3trans` processes during downtime will influence the phase `TABIM_UPG` immediately.

For other phases, you have to carry out the change before the corresponding phase is running. For example, the values for parallel background processes during uptime have to be set before the profiles for the shadow system are created and take effect.

Procedure

Browser Access

In the browser, enter the following internet address:

```
http://<hostname>:1128/lms1/sumabap/<SID>/set/procpar
```

Access via Command Line Interface

To access the command line interface in scroll mode (for example, using telnet), enter the following commands :

```
cd <update directory>\abap\bin
SAPup set procpar gt=scroll
```

A.3.3 Changing the DDIC Password

Context

In the `PROFREAD` phase, you enter the `DDIC` password. It is not usually necessary to change the password of the user `DDIC` later. After the installation of the shadow system, the password of user `DDIC` in client `000` is the same as on the original system.

However, if you want to change the password after the `PROFREAD` phase, you have to change it in the system as well as in the Software Update Manager parameter. The passwords in the original system and in the shadow system have to be identical with the passwords known by the Software Update Manager. The procedure below describes how you can change the parameter in the Software Update Manager.

Procedure

1. From the SL Common UI, choose **More > Utilities**.

A second window opens in which several options are offered. For more information, see [SL Common UI Elements and Options \[page 37\]](#).

2. Choose *SUM Parameters*. You can maintain the password for system user `DDIC` or for shadow system user `DDIC`.

A.3.4 Determining Versions

Determining the Operating System Version

Choose **Windows Explorer > Help > About Windows**, or open a command prompt and execute `winver`.

Windows 2012:

Enter the following command in the powershell console with elevated rights: `(Get-WmiObject -class Win32_OperatingSystem).Caption`

Determining the Database Version for MS SQL Server

Execute the following command in the MS SQL Server Query Analyzer:

```
select @@version
```

The first line of the output displays the MS SQL server release number.

Determining the SAP System Release

To determine your SAP source release, choose **System > Status** in your SAP system.

The release appears in the *SAP Release* field.

Determining the SAP Kernel Version

To determine the version of the SAP kernel you are using and its patch level, proceed as follows:

1. In the SAP system, choose **Administration > System Administration > Monitor > System Monitoring > Servers**.
2. Select a server and choose *Release Notes*.

Determining the Date of R3trans

Call `R3trans` with the following command:

```
R3trans -V
```

The program displays the date and the version number.

Determining the Version of tp

Call `tp` with the following command:

```
tp -v
```

The last line displays the highest patch level.

A.3.5 Setting the Environment of the SAP Kernel

The runtime environment of the SAP kernel consists of the following:

- System environment variables set when the system is started
- Environment variables listed in the Registry under the key ► `HKEY_LOCAL_MACHINE` ► `SOFTWARE` ► `SAP` ► `<SAPSID>` ► `Environment` ►.

These environment variables correspond to the user environment of the user entered in the Registry under the key ► `HKEY_LOCAL_MACHINE` ► `SOFTWARE` ► `SAP` ► `<SAPSID>` ► `AdmUser` ►.

Each time the SAP system is started, the user-specific environment for this user is copied to the subkey `Environment`, so that manual changes in this subkey do not have any effect.

A.3.6 Creating Shares and Directories and Checking Authorizations

Use

You have to check the authorizations on a shared directory, or create a share.

Procedure

Creating a share

1. Open the Windows Explorer and position the cursor on the directory that you want to share.
2. Choose ► `File` ► `Properties` ► `Sharing` ► `Shared As` ►.

Checking the permissions of a share

1. In the Windows Explorer, position the cursor on the directory that you have released.
2. Choose ► `File` ► `Properties` ►.
In the Share Name field, you can see all shares that are set for this directory. Select your share name and choose `Permissions`.

Creating a directory

1. In the Windows Explorer, position the cursor on the directory under which you want to create a subdirectory.
2. Choose **File > New > Folder**.
3. Replace the name New Folder of the new subdirectory with the new directory name.

Checking the permissions for a directory

1. In the Windows Explorer, position the cursor on the directory that you want to check for a permission.
2. Choose **File > Properties**.

Displaying attributes of an executable

1. In the Windows Explorer, position the cursor on the file where you want to check or set the attributes.
2. Choose **File > Properties**.

i Note

You can also open a command prompt and execute **net share** and **icacls** to create shares and to manage share, directory and file permissions. See the Microsoft documentation for more detailed information.

A.3.7 Changing the Virtual Memory/Paging File Size

- For Windows 2000, choose **Start > Settings > Control Panel > System > Advanced > Performance > Options > Virtual Memory > Change**.
- For Windows 2003, choose **Start > Settings > Control Panel > System > Advanced > Performance Settings > Advanced > Virtual Memory > Change**.
- For Windows 2008, choose **Start > Control Panel > System > Advanced System Settings > Performance > Settings > Advanced > Virtual Memory > Change**.

A.3.8 Checking and Changing the Paging File Settings on Windows Server 2012 (R2)

Use

This section describes how to check and change the paging file size on Windows Server 2012 (R2) with PowerShell.

The PowerShell commands also work in previous Windows versions where PowerShell is available.

i Note

Some paging file operations require a reboot of the server to activate the changes you made. Wmi-commands do not indicate whether a reboot is required or not. Therefore, we recommend rebooting your system every time you change the paging file settings with PowerShell.

Prerequisites

Always start the PowerShell in elevated mode (run as administrator).

Procedure

Checking the Size of a Paging File

1. Start Windows PowerShell.
2. Check whether the default value *Automatic manage pagefile size for all devices* is activated.

i Note

We do not support automatically managed page file sizes.

To check this, enter the following command:

```
(Get-WmiObject Win32_Pagefile) -eq $null
```

If *Automatic manage pagefile size for all devices* is enabled, the output value is *True*.

If necessary, disable *Automatic manage pagefile size for all devices* with the following command:

```
$sys = Get-WmiObject Win32_Computersystem -EnableAllPrivileges
$sys.AutomaticManagedPagefile = $false
$sys.put()
```

3. Check the size of the paging files with the following command:

```
Get-WmiObject WIN32_Pagefile | Select-Object Name, InitialSize, MaximumSize,
FileSize
```

The output looks like the following:

Name	InitialSize	MaximumSize
-----C:\pagefile.sys	0	0
41943040000E:\pagefile.sys	40000	80000
41943040000		

In this example, in the first line, the *InitialSize* and *MaximumSize* values of a paging file are 0, which means that the paging file size is *system managed* (not recommended).

In the second line, the paging file size has a minimum and a maximum size (recommended).

Changing the Size of a Single Paging File

Changing the *InitialSize* and *MaximumSize* values of a paging file to a size other than 0, will automatically switch off *system managed size*.

In the following example, we change the size of the paging file on *C:* to the *InitialSize* of 40 GB and to the *MaximumSize* of 80 GB.

Use the following commands in a PowerShell:

```
$Pagefile = Get-WmiObject Win32_PagefileSetting | Where-Object {$_.name -eq "C:\pagefile.sys"}
```

```
$Pagefile.InitialSize = 40000
```

```
$Pagefile.MaximumSize = 80000
```

```
$Pagefile.put()
```

Typically, you choose the same value for *InitialSize* and *MaximumSize*.

i Note

The sum of all paging files *InitialSize* values must be equal to or higher than the value recommended for your SAP system.

Creating a Second Paging File on Another Disk

You might want to create a second or additional paging files to improve system performance, or if your disk does not have enough space.

To do so, enter the following commands in a PowerShell:

```
$Pagefile = Get-WmiObject Win32_PagefileSetting
$pagefile.Name = "E:\pagefile.sys"
$pagefile.Caption = "E:\pagefile.sys"
$pagefile.Description = "'pagefile.sys' @ E:\"
$pagefile.SettingID = "pagefile.sys @ E:"
$pagefile.InitialSize = 80000
$pagefile.MaximumSize = 80000
$pagefile.put()
```

Deleting a Paging File on a Specific Device

To delete a paging file, enter the following commands in a PowerShell:

```
$pagefile = Get-WmiObject Win32_PagefileSetting | Where-Object {$_.name -eq "E:\pagefile.sys"}
$pagefile.delete()
```

A.3.9 Extending Free Space in the MS SQL Server Database

If you are asked to extend the database, it may be due to the following reasons:

- The default option *Automatically grow file* is not active.
- There is not enough disk space on the drives where the SQL Server data files are located.
- The maximum size of the data files for the *Automatically grow file* option is restricted.

Extend the available disk space by at least the values determined by the Software Update Manager.

A.3.10 Changing the MS SQL Server Database Recovery Mode

Use

You need to change the recovery mode of the database at the beginning and end of downtime.

During the update, you have to set the recovery model to *Simple* and then later back to *Full*.

Procedure

To do this use the SQL Server Management Studio.

1. Select your <SAPSID> database by clicking it.
2. Click right mouse key and choose ► *Properties* ▾.
3. Choose ► *Options* ▾ and make necessary changes.

A.3.11 Releasing and Confirming Open Repairs and Requests

Context

Before you start the update, you have to release and confirm all the open repairs and requests that conflict with the SAP delivery. The Software Update Manager determines a list of these repairs and requests. If you ignore open repairs, you could lose modifications.

Procedure

1. Log on to the SAP system as the owner of the open repair. You can find the user names of the owners in CHECKS.LOG.

i Note

If you cannot log on with a specific user ID, you can change the owner of the repair in transaction SE09 as follows:

1. In the list of open repairs, position the cursor on the repair.
2. Choose *Change owner*.

To be able to change an owner in transaction SE09, you need project authorization for the Workbench Organizer (S_CTS_PROJEC).

2. Call transaction SE09.
3. Choose ► *Request/task* ▸ *Find requests* ▾.

4. For *Request type*, only select *Repair*.
5. For *Request status*, select everything **except** *Released*.
6. Choose *Execute*.

A list of all open repairs for the selected user appears.

7. Position the cursor on the request that you want to release.
8. Choose *Release*.
9. Release the request to which the repair is assigned.

A.3.12 Sending a Message when User Action Is Required

Use

If a user entry is not made within 60 seconds during the update, you can send a message to another computer.

Prerequisites

A message informing you that the update has stopped can be sent from the update host if:

- You are not permanently monitoring the update during its runtime but still want to avoid long delays.
- Your workstation host can be reached from the update host with the NETBIOS protocol.
- You have started the workstation service on the update host.
- You have started the messenger service on your workstation host.

Procedure

Call the Software Update Manager with the option `messagehost=<host>`. As `<host>`, specify the workstation host on which you want to be informed about the update delay. The Software Update Manager sends a dialog box to the specified workstation host if no user entries are made for 60 seconds and the Software Update Manager is waiting for an entry.

A.3.13 Using the ABAP Phase List for the Update

Use

The extended user interface, which contains the utilities for the Software Update Manager, offers you the possibility to display a list about the different roadmap steps and their phases. The phase list provides you with information about each phase, such as arguments, upgrade actions, log files, error summary files, and user actions. The phase list is visualization of the `phaseslist.xml` file.

Procedure

1. From the SL Common UI, choose **More > Utilities**. A second window opens in which several options are offered. For more information, see [SL Common UI Elements and Options \[page 37\]](#).
2. Choose *SUM Phaselist*.
















A.4 List of Referenced SAP Notes


In addition to the SAP Notes that you need to prepare the update (see [SAP Notes \[page 13\]](#)), this document also refers you to other SAP Notes that contain **additional** information. The following lists contain these SAP Notes:



Table 32: Database-Independent SAP Notes







SAP Note Number	Description	Area
2146940	Desupport of Enqueue Work Process	ASCS Instance Split
1817705	DB13 Jobs - Post-proce. steps after Refresh/Copy/Restore/Upg	General Update Isolating the Primary Application Server Instance
2260116	Method GET_RUNNING_JOBS of class CL_ARC_UPGRADE_UTIL terminates with error message BT 450	Data Management Planning
1620618	Delete triggers	General Update
1081287	Data extraction orders block the upgrade process	General Update
1113545	Problems with SAP Host Agent	SAP Host Agent
51046	Copying the modification adjustment without a central transport directory	Change and Transport System
485741	Dealing with customer translations during the update	Language transport
211077	Exchanging the target release kernel during the update	SAP kernel
922557	Making changes to enhancements	Enhancements
821875	Security settings in the message server	General update
1227270	Mass activator terminates due to deleted indexes	General update

SAP Note Number	Description	Area
430318 	Shadow instance on another operating system	General update
94998 	Requesting a license key for a system	General update
147519 	Maintenance strategy / deadlines SAP GUI	Front end/SAP GUI Release upgrade only
26417 	SAP GUI resources: Hardware and software	Front end/SAP GUI Release upgrade only
178788 	Information about SAP GUI for HTML delivery	Front end/SAP GUI Release upgrade only
490788 	ICNV in the upgrade to SAP Web AS 6.20 and higher	ICNV
352941 	Language import and support packages	Language transport Release upgrade only
322982 	Installing language during upgrade	Language transport Release upgrade only
1015959 	Dealing with customer translations in the upgrade on systems based on SAP Net-Weaver 7.1	Language transport Release upgrade only
1156507 	Information about language supplementation after the upgrade	Language transport Release upgrade only
1528974 	Unintended failover during installation and upgrade	Windows-specific, high availability Release upgrade only
816211 	STARTUP script on Windows systems	Start of Software Update Manager
318846 	Installation of a 4.6D kernel	SAP kernel Release upgrade only
664679 	Installing SAP kernel 6.40 into a system using SAP Web AS 6.20	SAP kernel Release upgrade only
928729 	Combined Upgrade and Unicode conversion	Upgrade and Unicode

SAP Note Number	Description	Area
1139642 	Hardware requirements in Unicode systems	Unicode
430992 	Shadow instance on another host: Windows	Update under Windows
1000009 	ASU Toolbox 2008	General update Release upgrade only
712297 	Short dumps when restoring variants	General update Release upgrade only
1528297 	Merge start profile with instance profile	Windows-specific, ASCS/SCS instance
19466 	Downloading SAP kernel patches	SAP kernel Release upgrade only
595341 	Installation issues with Single Sign-On and SNC	Single Sign-On Release upgrade only
352295 	Microsoft Windows Single Sign-On options	Single Sign-On Release upgrade only
177680 	Correcting conversion problems in the PARCONV_UPG phase	General update
122597 	Ignore errors in the XPRAS_UPG phase	General update
1301695 	BRFplus AI activation: Name "xyz" has already been used	General update Enhancement package installation SPS update
1243486 	Dump COMPUTE_INT_PLUS_OVERFLOW during background cleanup	General update Enhancement package installation SPS update
33772 	Configuring Dr. Watson Correctly	System administration / troubleshooting
130334 	Windows: SAP requests crash dump of an SAP process	System administration / troubleshooting
28022 	Customer system: Where-used list of SAP objects	General update

SAP Note Number	Description	Area
1375494 	SAP system does not start due to Microsoft security patch	Windows-specific
1505480 	Post-Upgrade Steps for Upgraded SAP NW 7.3 HA systems	Windows/MSCS
1050343 	SCS: Post-Upgrade Steps for systems upgraded to NW 7.1	Windows/MSCS
1556113 	sapevents.dll in DIR_CT_RUN is locked	Windows-specific, System administration / troubleshooting
927637 	Web service authentication in sapstartsrv as of SAP NetWeaver 7.00	General update, System administration / troubleshooting
1156507 	Information about language supplementation after the upgrade	Language transport Release upgrade only
774615 	Support package levels of ERP/ECC installations/upgrades	General update Release upgrade only
789220 	Support package levels for SAP NetWeaver installations/upgrades	General update Release upgrade only
850038 	Support package levels for SCM/APO installations/upgrades	General update Release upgrade only
781448 	Support package levels of SAP Solution Manager installations / upgrades	General update Release upgrade only
819722 	Support package levels for SRM_SERVER installations/upgrades	General update Release upgrade only
857904 	Release upgrade from 6.40 to 7.0 for customer programs	General update Release upgrade only
1404458 	Release upgrade from 7.0 to 7.0 EHP1 for customer programs	General update Release upgrade only
1361211 	Release upgrade from 7.0 or 7.0 EHP1 to 7.0 EHP2	General update Release upgrade only

SAP Note Number	Description	Area
1089700 	Release upgrade from 7.0 or 7.0 EHP 1 to 7.1	General update Release upgrade only
1361368 	Release upgrade from 7.1 EHP1 to 7.2 for customer programs	General update Release upgrade only
1615807 	Release upgrade from 7.2 to 7.3	General update Release upgrade only
1615808 	Release upgrade from 7.3 to 7.3 EHP1 (7.31)	General update Release upgrade only
1810104 	Release upgrade from 7.0 EHP3 or 7.3 EHP1 to 7.4	General update Release upgrade only
398100 	Shadow instance during upgrade	General update System administration / troubleshooting
525677 	Problems when starting the shadow instance	General update System administration / troubleshooting
1649026 	SAP JVM Switch tool: Configuring replication using <code>sapcpe</code>	General update System administration / troubleshooting
1387739 	Out of memory in <code>ACT_UPG</code> phase during EHP installation	System administration / troubleshooting
1275873 	Memory bottleneck during ABAP Dictionary activation during EHP import	System administration / troubleshooting
832594 	Importing support packages before an upgrade	General update
1678565 	Prerequisites, terms, and conditions for nZDM/SUM	General update Enhancement package installation SPS update
1816146 	Correction of installed software information (CISI)	System administration / troubleshooting

SAP Note Number	Description	Area
1864705 	Compatibility checks for certified HA setups	System administration / troubleshooting
1678564 	Restrictions, database-specific settings, and troubleshooting of nZDM for SUM	General Update nZDM
1951491 	Minimum database system platform requirements for SAP NetWeaver 7.4 SP08	General Update
1788379 	Transport of SAP Notes	System Maintenance
538167 	Active objects are displayed as inactive	General update
1877731 	Installed Software Information (ISI)	Installing additional usage types (technical usages) or product instances
1031096 	Installing package SAPHOSTAGENT	General update System administration / troubleshooting
1907566 	Obtaining the latest SAP Host Agent documentation	General update
585789 	Poland - SAP R/3 Enterprise upgrade procedure	General Update Customer Transports Integration
574102 	Additional information on R/3 upgrade with SAP CORE CEE and former add-ons	General Update Customer Transports Integration
1386114 	MRSS 700: Installation and Delta Upgrade Note	General Update Customer Transports Integration
1695884 	Unintended deletion of SFW objects during the import	General Update Customer Transports Integration
1719469 	Reduce versioning time during upgrade process	General Update Customer Transports Integration
2187425 	Infos for SAP Note Transport based Correction Instructions (TCI)	General update System Maintenance
2146940 	Desupport of enqueue work process	General update System Maintenance


SAP Note Number	Description	Area
2011380 	Previous SUM not finished properly and asking for Clean Module Password	Troubleshooting

Table 33: MS SQL Server

SAP Note Number	Description	Area
1152240 	Setting up Microsoft SQL Server 2008	For database release MS SQL Server 2008
1473016 	Service Pack Installation for MS SQL Server 2008	For database release MS SQL Server 2008
1237682 	Configuration parameters for MS SQL Server 2008	For database release MS SQL Server 2008
62988 	Service Packs for MS SQL Server	MS SQL Server-specific

A.5 List of Referenced Documentation

The following table contains a list of all documentation referenced in this document and information about where to find this documentation.

Table 34: Referenced Documentation

Document	Internet Address
For the SAP NetWeaver release: <ul style="list-style-type: none"> • <i>Upgrade Master Guide</i> • <i>Master Guide</i> • <i>Upgrade and Update Guides</i> • <i>Installation Guide</i> 	http://help.sap.com ▶ <i>Technology Platform</i> ▶ <i>SAP NetWeaver</i> ▶ <i>SAP NetWeaver <release></i> ▶ <i>Installation and Upgrade Information</i> ▶ See also Accessing Documentation [page 14] .
For your SAP application: <ul style="list-style-type: none"> • <i>Upgrade Master Guide</i> • <i>Master Guide</i> • <i>Upgrade Guide</i> • <i>Installation Guide</i> 	http://help.sap.com ▶ <i>Enterprise Management</i> ▶ <i>SAP ERP <release></i> ▶ <i>Installation and Upgrade Information</i> ▶
<i>DMO Guide</i> (guide for the database migration option of SUM)	http://help.sap.com/sltoolset ▶ <i>System Maintenance</i> ▶ <i>Database Migration Option (DMO of SUM) with SUM <version></i> ▶

Document	Internet Address
<i>Installing the SAP Library</i> (Release upgrade only)	http://help.sap.com/sltoolset ▶ <i>System Provisioning</i> ▶ <i>Installation Option</i> ▶ <i>Guide for SAP Library</i> ▶

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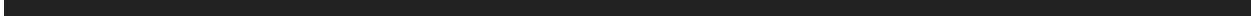
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