

**PUBLIC**

**Component Installation Guide**



# **SAP ERP Central Component 5.0 SR1 ABAP on HP-UX : Oracle**

## **Part I — Planning and Preparation**

### **Target Audience**

- System administrators
- Technology consultants

Document version: 1.00 – February 28, 2005

© Copyright 2005 SAP AG. All rights reserved.

No part of this publication may be reproduced or transmitted in any form or for any purpose without the express permission of SAP AG. The information contained herein may be changed without prior notice.

Some software products marketed by SAP AG and its distributors contain proprietary software components of other software vendors.

Microsoft, Windows, Outlook, and PowerPoint are registered trademarks of Microsoft Corporation.

IBM, DB2, DB2 Universal Database, OS/2, Parallel Sysplex, MVS/ESA, AIX, S/390, AS/400, OS/390, OS/400, iSeries, pSeries, xSeries, zSeries, z/OS, AFP, Intelligent Miner, WebSphere, Netfinity, Tivoli, and Informix are trademarks or registered trademarks of IBM Corporation in the United States and/or other countries.

Oracle is a registered trademark of Oracle Corporation.

UNIX, X/Open, OSF/1, and Motif are registered trademarks of the Open Group.

Citrix, ICA, Program Neighborhood, MetaFrame, WinFrame, VideoFrame, and MultiWin are trademarks or registered trademarks of Citrix Systems, Inc.

HTML, XML, XHTML and W3C are trademarks or registered trademarks of W3C®, World Wide Web Consortium, Massachusetts Institute of Technology.

Java is a registered trademark of Sun Microsystems, Inc.

JavaScript is a registered trademark of Sun Microsystems, Inc., used under license for technology invented and implemented by Netscape.

MaxDB is a trademark of MySQL AB, Sweden.

SAP, R/3, mySAP, mySAP.com, xApps, xApp, SAP NetWeaver, and other SAP products and services mentioned herein as well as their respective logos are trademarks or registered trademarks of SAP AG in Germany and in several other countries all over the world. All other product and service names mentioned are the trademarks of their respective companies. Data contained in this document serves informational purposes only. National product specifications may vary.

These materials are subject to change without notice. These materials are provided by SAP AG and its affiliated companies ("SAP Group") for informational purposes only, without representation or warranty of any kind, and SAP Group shall not be liable for errors or omissions with respect to the materials. The only warranties for SAP Group products and services are those that are set forth in the express warranty statements accompanying such products and services, if any. Nothing herein should be construed as constituting an additional warranty.

#### **Disclaimer**

Some components of this product are based on Java™. Any code change in these components may cause unpredictable and severe malfunctions and is therefore expressly prohibited, as is any decompilation of these components.

Any Java™ Source Code delivered with this product is only to be used by SAP's Support Services and may not be modified or altered in any way.

#### **Legal Software Terms**

##### **Terms for Included Open Source Software**

This SAP software contains also the third party open source software products listed below. Please note that for these third party products the following special terms and conditions shall apply.

##### **SAP License Agreement for STLport**

SAP License Agreement for STLPort between  
SAP Aktiengesellschaft

Systems, Applications, Products in Data Processing  
Neurottstrasse 16  
69190 Walldorf, Germany  
(hereinafter: SAP)

and

you  
(hereinafter: Customer)

## 1. Subject Matter of the Agreement

- a) SAP grants Customer a non-exclusive, non-transferrable, royalty-free license to use the STLport.org C++ library (STLport) and its documentation without fee.
- b) By downloading, using, or copying STLport or any portion thereof Customer agrees to abide by the intellectual property laws, and to all of the terms and conditions of this Agreement.
- c) The Customer may distribute binaries compiled with STLport (whether original or modified) without any royalties or restrictions.
- d) Customer shall maintain the following copyright and permissions notices on STLport sources and its documentation unchanged: **Copyright 2001 SAP AG**
- e) The Customer may distribute original or modified STLport sources, provided that:
  - The conditions indicated in the above permissions notice are met;
  - The following copyright notices are retained when present, and conditions provided in accompanying permission notices are met:

**Copyright 1994 Hewlett-Packard Company**  
**Copyright 1996,97 Silicon Graphics Computer Systems Inc.**  
**Copyright 1997 Moscow Center for SPARC Technology.**  
**Copyright 1999,2000 Boris Fomitchev**  
**Copyright 2001 SAP AG**

Permission to use, copy, modify, distribute and sell this software and its documentation for any purposes is hereby granted without fee, provided that the above copyright notice appear in all copies and that both that copyright notice and this permission notice appear in supporting documentation. Hewlett-Packard Company makes no representations about the suitability of this software for any purpose. It is provided "as is" without express or implied warranty.

Permission to use, copy, modify, distribute and sell this software and its documentation for any purpose is hereby granted without fee, provided that the above copyright notice appear in all copies and that both that copyright notice and this permission notice appear in supporting documentation. Silicon Graphics makes no representations about the suitability of this software for any purpose. It is provided "as is" without express or implied warranty.

Permission to use, copy, modify, distribute and sell this software and its documentation for any purposes is hereby granted without fee, provided that the above copyright notice appear in all copies and that both that copyright notice and this permission notice appear in supporting documentation. Moscow Center for SPARC makes no representations about the suitability of this software for any purpose. It is provided "as is" without express or implied warranty.

Boris Fomitchev makes no representations about the suitability of this software for any purpose. This material is provided "as is", with absolutely no warranty expressed or implied. Any use is at your own risk. Permission to use or copy this software for any purpose is hereby granted without fee, provided the above notices are retained on all copies. Permission to modify the code and to distribute modified code is granted, provided the above notices are retained, and a notice that the code was modified is included with the above copyright notice.

Permission to use, copy, modify, distribute and sell this software and its documentation for any purposes is hereby granted without fee, provided that the above copyright notice appear in all copies and that both that copyright notice and this permission notice appear in supporting documentation. SAP makes no representations about the suitability of this software for any purpose. It is provided with a limited warranty and liability as set forth in the License Agreement distributed with this copy. SAP offers this liability and warranty obligations only towards its customers and only referring to its modifications.

## 2. Support and Maintenance

SAP does not provide software maintenance for the STLport. Software maintenance of the STLport therefore shall be not included. All other services shall be charged according to the rates for services quoted in the SAP List of Prices and Conditions and shall be subject to a separate contract.

3. Exclusion of warranty

As the STLport is transferred to the Customer on a loan basis and free of charge, SAP cannot guarantee that the STLport is error-free, without material defects or suitable for a specific application under third-party rights. Technical data, sales brochures, advertising text and quality descriptions produced by SAP do not indicate any assurance of particular attributes.

4. Limited Liability

- a) Irrespective of the legal reasons, SAP shall only be liable for damage, including unauthorized operation, if this (i) can be compensated under the Product Liability Act or (ii) if caused due to gross negligence or intent by SAP or (iii) if based on the failure of a guaranteed attribute.
- b) If SAP is liable for gross negligence or intent caused by employees who are neither agents or managerial employees of SAP, the total liability for such damage and a maximum limit on the scope of any such damage shall depend on the extent to which its occurrence ought to have anticipated by SAP when concluding the contract, due to the circumstances known to it at that point in time representing a typical transfer of the software.
- c) In the case of Art. 4.2 above, SAP shall not be liable for indirect damage, consequential damage caused by a defect or lost profit.
- d) SAP and the Customer agree that the typical foreseeable extent of damage shall under no circumstances exceed EUR 5,000.
- e) The Customer shall take adequate measures for the protection of data and programs, in particular by making backup copies at the minimum intervals recommended by SAP. SAP shall not be liable for the loss of data and its recovery, notwithstanding the other limitations of the present Art. 4 if this loss could have been avoided by observing this obligation.
- f) The exclusion or the limitation of claims in accordance with the present Art. 4 includes claims against employees or agents of SAP.

**Documentation in the SAP Service Marketplace**

You can find this document at the following address: [service.sap.com/instguides](http://service.sap.com/instguides)

# Typographic Conventions

Example	Description
< >	Angle brackets indicate that you replace these words or characters with appropriate entries to make entries in the system, for example, "Enter your <User Name>".
®	Arrows separating the parts of a navigation path, for example, menu options
<b>Example</b>	Emphasized words or expressions
<b>Example</b>	Words or characters that you enter in the system exactly as they appear in the documentation
<u>Example</u>	Textual cross-references to a URL, for example, <a href="http://www.sap.com">www.sap.com</a>
/example	Shortcuts added to the URL of a homepage to enable quick access to specific content on the Web
<i>Example</i>	<ul style="list-style-type: none"> <li>■ Words or characters quoted from the screen. These include field labels, screen titles, pushbutton labels, menu names, and menu options.</li> <li>■ Cross-references to other documentation or published works</li> </ul>
Example	<ul style="list-style-type: none"> <li>■ Output on the screen following a user action, for example, messages</li> <li>■ Source code or syntax quoted directly from a program</li> <li>■ File and directory names and their paths, names of variables and parameters, and names of installation, upgrade, and database tools</li> </ul>
EXAMPLE	Technical names of system objects. These include report names, program names, transaction codes, database table names, and key concepts of a programming language when they are surrounded by body text, for example, SELECT and INCLUDE
<b>EXAMPLE</b>	Keys on the keyboard

# Document History



## Caution

Before you start the implementation, make sure you have the latest version of this document. You can find the latest version in SAP Service Marketplace at the following internet address: [service.sap.com/instguides](http://service.sap.com/instguides).

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

Version	Date	Description
1.00	02/28/2005	Initial Version

# Table of Contents

<b>Chapter 1 Introduction</b>	<b><u>1</u></b>
1.1 Target Audience	<u>1</u>
1.2 About this Document	<u>1</u>
1.3 New Features	<u>3</u>
1.4 Before You Start	<u>4</u>
1.4.1 SAP Notes for the Installation	<u>4</u>
1.4.2 Information Available on SAP Service Marketplace	<u>5</u>
1.4.3 Accessing the SAP Library	<u>7</u>
1.4.4 Naming Conventions	<u>7</u>
<b>Chapter 2 Planning</b>	<b><u>9</u></b>
2.1 Implementation Considerations	<u>10</u>
2.1.1 Basic System Variants and Distribution of SAP System Instances	<u>10</u>
2.1.2 SAP System Components	<u>14</u>
2.1.3 User Management	<u>16</u>
2.1.4 SAP Solution Manager	<u>16</u>
2.1.5 Basic SAP System Parameters	<u>16</u>
2.1.6 SAP System Landscape Directory	<u>20</u>
2.1.7 Oracle System Configuration	<u>20</u>
<b>Chapter 3 Preparation</b>	<b><u>23</u></b>
3.1 Hardware and Software Requirements	<u>24</u>
3.1.1 General Information: Hardware and Software Requirements	<u>24</u>
3.1.2 Requirements for HP-UX	<u>25</u>
3.1.3 Requirements for the Central Instance	<u>27</u>
3.1.4 Requirements for an Oracle Database Instance	<u>28</u>
3.1.5 Requirements for a Dialog or Gateway Instance	<u>29</u>
3.2 Checking and Modifying the HP-UX Kernel	<u>30</u>
3.3 Setting up Swap Space for HP-UX	<u>35</u>
3.4 Creating Operating System Users and Groups Manually (Optional)	<u>36</u>
3.4.1 Network Information Service	<u>36</u>
3.4.2 Creating Operating System Users and Groups Manually (Optional)	<u>36</u>
3.4.3 Creating HP-UX Groups and Users (Optional)	<u>37</u>
3.5 Setting up File Systems and Raw Devices	<u>38</u>
3.5.1 Setting Up File Systems	<u>38</u>
3.5.2 Oracle File Systems	<u>41</u>
3.5.3 Setting Up File Systems and Raw Devices for HP-UX	<u>42</u>
3.6 Exporting and Mounting the Global Transport Directory	<u>45</u>
3.7 Mounting Directories via NFS for HP-UX (Optional)	<u>46</u>
3.8 Installing the SAP Front-End Software	<u>48</u>

3.9	Generating the SAP Solution Manager Key . . . . .	<u>48</u>
3.10	Preparing the System for SAPinst . . . . .	<u>49</u>
3.10.1	General Information about Preparing the System for SAPinst . . . . .	<u>49</u>
3.10.2	Preparing the System for the SAPinst GUI . . . . .	<u>49</u>
<i>Chapter 4</i>	<b>Additional Information</b> . . . . .	<u>51</u>
4.1	Installation of Multiple Components in One Database (Optional) . . . . .	<u>51</u>
4.2	Integration of LDAP Directory Services (Optional) . . . . .	<u>53</u>
4.3	Preparing the Active Directory (Optional) . . . . .	<u>55</u>
<i>Chapter A</i>	<b>Reference</b> . . . . .	<u>57</u>
A.1	The Main SAP Documentation Types . . . . .	<u>57</u>



# 1 Introduction

## 1.1 Target Audience

- System administrators
- Technology consultants

## 1.2 About this Document

This documentation explains how to install SAP ERP Central Component 5.0 SR1 (SAP ECC) ABAP when your database is Oracle.

SAP ECC 5.0 SR1 is part of mySAP ERP, which is a solution within the mySAP Business Suite. For more information on the technology provided by SAP ECC, see SAP Service Marketplace at [service.sap.com/erp](http://service.sap.com/erp). SAP ECC 5.0 SR1 is based on SAP Web Application Server (SAP Web AS) 6.40 SR1 technology, which is the underlying technology of almost all solutions of mySAP Business Suite. SAP Web Application Server is the application server of SAP NetWeaver '04. For more information about the technology provided by SAP Web AS, see SAP Service Marketplace at [service.sap.com/NetWeaver](http://service.sap.com/NetWeaver).

This documentation focuses on the **ABAP** part of the SAP ECC installation. It covers the **planning and preparation** for the installation of SAP ECC 5.0 SR1 on <OS> with Oracle, which is the **first part** of the installation.

For the **installation and post-installation**, see *Installation Guide – SAP ERP Central Component 5.0 SR1 ABAP on <OS>: Oracle, Part II – Installation and Post-Installation*, which is the **second part** of the installation.

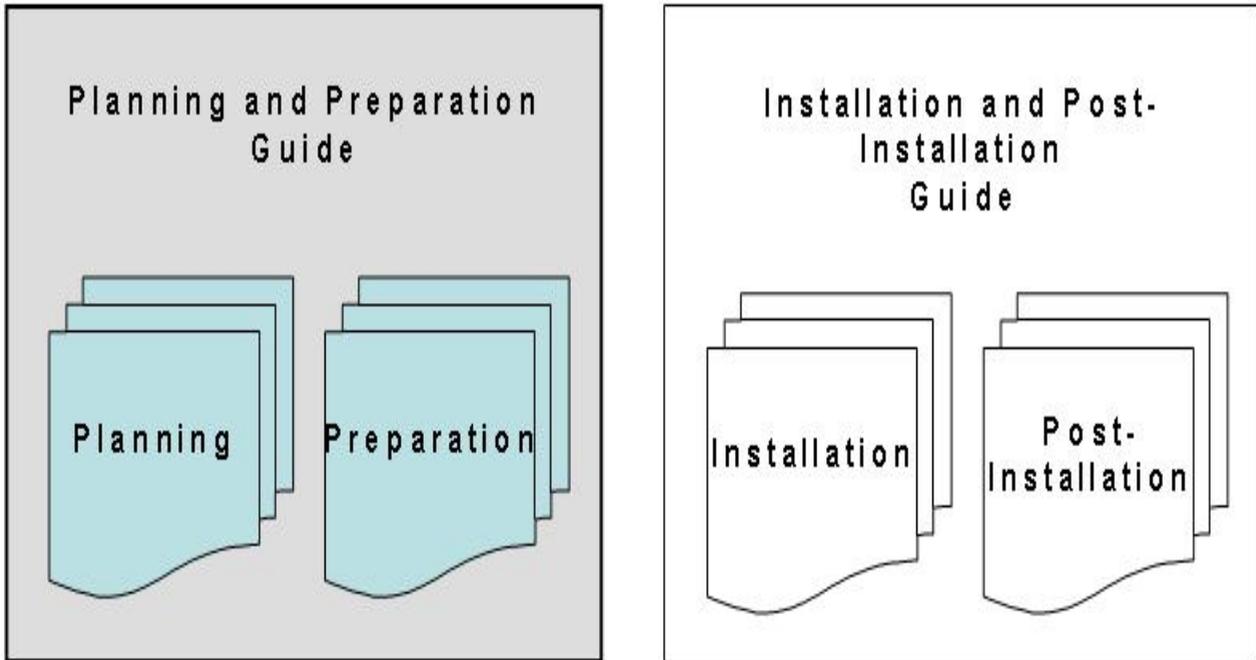


Note

If you want to install the **Java Add-In** for SAP ECC, see the documentation *Component Installation Guide – SAP Web Application Server Java on <OS>: Oracle, Part I – Planning and Preparation* and *Part II – Installation and Post-Installation* on SAP Service Marketplace at: [service.sap.com/instguidesnw04](http://service.sap.com/instguidesnw04) → *Installation* → *SAP Web AS*

**You are now here:**

Figure 1:



### Constraints



Caution

You must only use the SAP installation tools according to the instructions and for the purposes described in the SAP installation documentation. Improper use of the SAP installation tools can damage files and systems already installed.

You need consider the following constraints before you start your installation:

- This documentation **only** applies if you are installing on Oracle.
- SAP system installations should **only** be performed by SAP Technical Consultants, who are certified for your operating system, your database, and the SAP system that you are installing.
- Downward-compatible releases of DB/OS platforms for SAP products  
SAP plans to regularly release the newest database (DB) and operating-system (OS) versions of SAP products. These releases are downward-compatible with earlier SAP system releases.

Be aware that, for already shipped SAP components, we only support the installation for database versions proposed by the installation tool. Therefore, you must install a SAP component or perform a system copy using a downward-compatible database as follows:

- Install the component with the old proposed database version.
- Upgrade the old database version to the downward-compatible new version.

## 1.3 New Features

### SAP System Installation

Area	Description
SAPInst	As of SAP Web AS 6.40 SR1 there is a new F1-field-help displaying information about the input parameter fields of the SAPInst screens. This new field help replaces the former “What’s this”-help on the SAPInst screens and the former input parameter tables in the installation guides.
SAPInst	For the installation with SAPInst, you no longer have to create an installation directory as SAPInst normally creates automatically an installation directory directly below the temporary directory (TEMP, TMP, TMPDIR, or /tmp).
Integration of SAP Internet Transaction Server (SAP ITS)	As of SAP Web AS 6.40 the SAP Internet Transaction Server (SAP ITS) is an integrated part of SAP Web Application Server.
User Management Engine (UME)	You are now able to configure the User Management Engine (UME) of an SAP Web AS Java system to use the user management of a separate ABAP system.
System Landscape Directory (SLD)	The SLD is the central information provider for the whole system landscape. Generally, the SLD is deployed after the installation of SAP Web AS Java 6.40.
Installation DVDs	As of ECC 5.0 SR1 the <i>SAP Installation Master DVD</i> is the same for all databases.
Installation of ERP Java Components	Using the new installation service “SAP ECC 5.0 SR1 Java Web Application Components Installation” you can now install the following ERP Java Components simultaneously: <ul style="list-style-type: none"><li>■ Employee Self-Service / Manager Self-Service (ESS-MSS) 5.0</li><li>■ SAP Biller Direct (BD) 3.0</li><li>■ SAP Internet Sales (ISA) 4.0</li><li>■ Internet Pricing &amp; Configurator Web Application (IPC-WAC) 4.0</li><li>■ SAP Learning Solution – Course Content Player (LSO-CP) 3.0</li></ul>

Area	Description
	For more information and for the detailed installation procedure see the documentation <i>Installation Guide — Java Components for mySAP ERP 2004 SR1</i> on SAP Service Marketplace at <a href="http://service.sap.com/erp-inst">service.sap.com/erp-inst</a> → <i>mySAP ERP 2004</i> → <i>ERP Java Components</i> .
SAP Solution Manager	As of mySAP ERP 2004 SR1 you must install the SAP Solution Manager for your mySAP ERP system landscape. A key is required to perform the installation of SAP ECC 5.0 SR1. You generate this key with your SAP Solution Manager.

### Operating Systems

Area	Description
Support of Operating Systems	See the Product Availability Matrix (PAM) on SAP Service Marketplace at <a href="http://service.sap.com/platforms">service.sap.com/platforms</a> → <i>Product Availability Matrix</i> .

### Documentation

Area	Description
SAP Notes	You can now access SAP Notes directly in SAP Service Marketplace from your PDF. Place the cursor on “SAP Note <number>” and double-click. A separate browser windows opens and the SAP Note is displayed.

## 1.4 Before You Start

The following sections provide information about:

- *SAP Notes for the Installation* [page 4]
- *Information in the SAP Service Marketplace* [page 5]
- *Accessing SAP Library* [page 7]
- *Naming Conventions* [page 7]

### 1.4.1 SAP Notes for the Installation

You **must** read the following SAP Notes **before** you start the installation. These SAP Notes contain the most recent information on the installation, as well as corrections to the installation documentation.

Make sure that you have the up-to-date version of each SAP Note which you can find in the SAP Service Marketplace at [service.sap.com/notes](http://service.sap.com/notes).

### SAP Notes for the Installation

SAP Note Number	Title	Description
<a href="#">808866</a>	SAP ECC 5.0 SR1 ABAP Installation on UNIX	UNIX-specific information about the SAP system and corrections to this documentation
<a href="#">805390</a>	Preparation: ERP 2004 Inst. only with SAP Solution Manager	A key generated by the SAP Solution Manager is required to perform the installation of SAP ECC.
<a href="#">785927</a>	SAP Software on UNIX — OS Dependencies SAP Web AS 6.40 SR1	Operating-system specific information about the SAP system installation and corrections to this documentation
<a href="#">785921</a>	SAP Web AS 6.40 SR1 ABAP / Java Installation on UNIX : Oracle	Oracle-specific information about the SAP system installation and corrections to this documentation
<a href="#">598678</a>	Oracle9i: New functions (composite SAP Note)	Information about new Oracle features released for the SAP system.
<a href="#">98252</a>	Installing two Oracle databases on a host	This SAP Note is only required if you plan to install more than one Oracle database on the same host.
<a href="#">669902</a>	Oracle: Setting the National Character Set to UTF8	This SAP Note describes how to set the national character set to UTF8.
<a href="#">79991</a>	Multi Language Support / Unicode	Information about Unicode SAP systems and their availability. It is only required if you plan to install a Unicode SAP system.
<a href="#">45619</a>	R/3 with several languages or typefaces	Information about multiple languages and/or multiple typefaces on one SAP system.
<a href="#">42305</a>	RSCPINST (NLS installation tool)	Information about language and code page settings in your SAP system.

## 1.4.2 Information Available on SAP Service Marketplace

Information on the following areas is available on SAP Service Marketplace.



Description	Internet Address	Title
SAP Notes	<a href="http://service.sap.com/notes">service.sap.com/notes</a>	-
Released platforms and operating systems	<a href="http://service.sap.com/platforms">service.sap.com/platforms</a>	-
Master Guide for mySAP ERP 2004	<a href="http://service.sap.com/erp-inst">service.sap.com/erp-inst</a> → mySAP ERP 2004	Master Guide — mySAP ERP 2004 Support Release 1 powered by SAP NetWeaver '04
Installation of an SAP system based on SAP ECC	<a href="http://service.sap.com/erp-inst">service.sap.com/erp-inst</a>	Installation Guide — SAP ERP Central Component 5.0 SR1 ABAP on <OS>: <Database>
Installation of SAP Solution Manager	<a href="http://service.sap.com/instguides">service.sap.com/instguides</a> → SAP Components → SAP Solution Manager → Release 3.2	Installation Guide — SAP Solution Manager 3.2 on <OS>: <Database>
Configuration of SAP Solution Manager	<a href="http://service.sap.com/instguides">service.sap.com/instguides</a> → SAP Components → SAP Solution Manager → Release 3.2	Configuration Guide — SAP Solution Manager 3.2 on <OS>: <Database>
Installation of an SAP system based on SAP Web AS Java	<a href="http://service.sap.com/instguidesNW04">service.sap.com/instguidesNW04</a> → Installation → SAP Web AS	Installation Guide — SAP Web Application Server 6.40 SR1 Java on <OS>: <Database>
Installation of the Java Add-In for an SAP system based on SAP Web AS	<a href="http://service.sap.com/instguidesNW04">service.sap.com/instguidesNW04</a> → Installation → SAP Web AS	Installation Guide — SAP Web Application Server 6.40 SR1 Java on <OS>: <Database>
Upgrade to SAP ECC 5.0 SR1	<a href="http://service.sap.com/erp-inst">service.sap.com/erp-inst</a>	Upgrade to SAP ECC 5.0 SR1 <Platform>: <Database>
Installation of SAP NetWeaver Developer Workplace	<a href="http://service.sap.com/instguidesNW04">service.sap.com/instguidesNW04</a> → Installation → Dev Env	Installation Guide — SAP NetWeaver Developer Workplace
Installation of SAP NetWeaver Developer Studio	<a href="http://service.sap.com/instguidesNW04">service.sap.com/instguidesNW04</a> → Installation → Dev Env	Installation Guide — SAP NetWeaver Developer Studio
Installation of the SAP System Landscape Directory (SLD)	<a href="http://service.sap.com/instguidesNW04">service.sap.com/instguidesNW04</a> → Installation → SAP Web AS	Post-Installation Guide — SAP System Landscape Directory on SAP Web AS Java 6.40
Unicode SAP systems and their availability	<a href="http://service.sap.com/unicode">service.sap.com/unicode</a> See also SAP Note <a href="#">79991</a> .	-

Description	Internet Address	Title
Technical infrastructure – configuration scenarios and related aspects such as security, load balancing, availability, and caching	<a href="http://service.sap.com/ti">service.sap.com/ti</a>	-
Network infrastructure	<a href="http://service.sap.com/network">service.sap.com/network</a>	-
System sizing	<a href="http://service.sap.com/sizing">service.sap.com/sizing</a>	<i>Quick Sizer tool</i>
Front End installation	<a href="http://service.sap.com/instguidesNW04">service.sap.com/instguidesNW04</a> → <i>Installation → SAP Web AS</i>	<i>Front End Installation Guide (this guide is available on the SAP Presentation DVD)</i>
High availability	<a href="http://service.sap.com/ha">service.sap.com/ha</a>	-
Homogeneous and heterogeneous system copy for an ABAP system	<a href="http://service.sap.com/instguidesNW04">service.sap.com/instguidesNW04</a> → <i>Installation → SAP Web AS</i>	<i>Homogeneous and Heterogeneous System Copy for SAP Systems based on SAP Web Application Server ABAP 6.40 SR1</i>
Security	<a href="http://service.sap.com/security">service.sap.com/security</a>	-
Information on SAP Support Package Stacks	<a href="http://service.sap.com/sp-stacks">service.sap.com/sp-stacks</a>	-

### 1.4.3 Accessing the SAP Library

For more information about SAP NetWeaver, access the SAP Library from the **SAP Help Portal** at [help.sap.com/nw04](http://help.sap.com/nw04):

1. Choose the required language.
2. Choose *SAP NetWeaver*.

In the SAP Help Portal at [help.sap.com](http://help.sap.com) you can also find online documentation for all SAP Solutions.

### 1.4.4 Naming Conventions

In this documentation, the following naming conventions apply:

#### Terminology

SAP system refers to SAP ECC.

ABAP system refers to SAP ECC ABAP.

Java system refers to SAP Web AS Java for SAP ECC.

ABAP+Java system refers to SAP ECC ABAP+Java.

## Variables

Variables	Description
<SAPSID>	SAP system ID in uppercase letters
<sapsid>	SAP system ID in lowercase letters
<DBSID>	Database ID in uppercase letters
<dbsid>	Database ID in lowercase letters
<host_name>	Name of the corresponding host
<user_home>	Home directory of the user performing the installation.
<INSTDIR>	Installation directory for the SAP system
<DVD_DIR>	Directory on which a DVD is mounted
<OS>	Operating system name within a path
<SCHEMA_ID>	Database schema ID

The following example shows how the variables are used:



### Example

Log on as user <sapsid>adm and change to the directory /usr/sap/<SAPSID>.

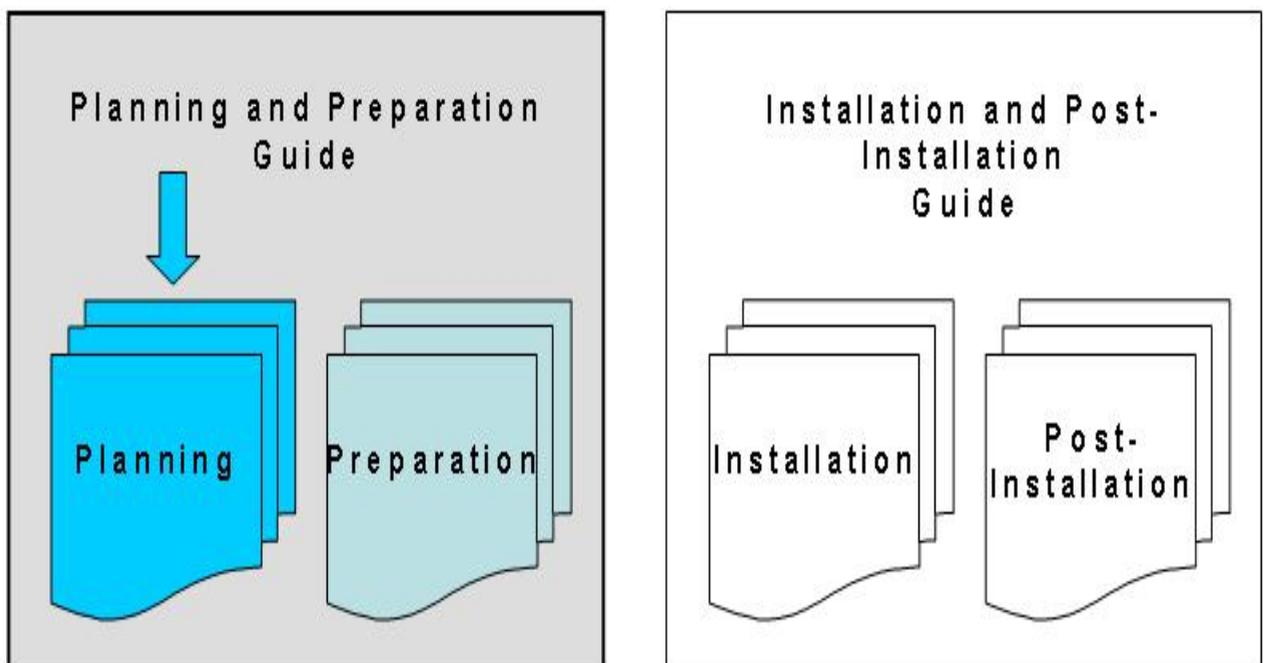
If your SAP system ID is C11, log on as user c11adm and change to the directory /usr/sap/C11.

## 2 Planning

This section provides information on how to plan the installation of your SAP system.

You are now here:

**Figure 2:**



### Process Flow for Planning

You have to complete the following planning activities:

1. You choose your basic system variant and decide how you want to distribute the SAP system instances [page 10].
2. Before you install your SAP system, you need to know how you are going to manage your user data [page 16].
3. You make sure, that the SAP Solution Manager [page 16] is available in your SAP system landscape.
4. You identify basic SAP system parameters [page 16].
5. You decide whether you want to use SAP System Landscape Directory [page 20].
6. You plan your Oracle system configuration [page 20].

The following planning activities are **optional** and **only** apply, if you want to perform one of the following:

- Install *multiple components in one database (MCOB)* [page 51].
- Use the *Lightweight Directory Access Protocol (LDAP)* [page 53] for SAP Logon for the Microsoft Management Console (MMC).  
LDAP can also be used for other purposes (for example, the LDAP Connector). If you do not want to use LDAP for SAP Logon or MMC, no LDAP-specific installation steps are required now.

## 2.1 Implementation Considerations

### 2.1.1 Basic System Variants and Distribution of SAP System Instances

The following section provides information about the basic system variants and how you can distribute the SAP system instances for them.

#### Basic System Variants

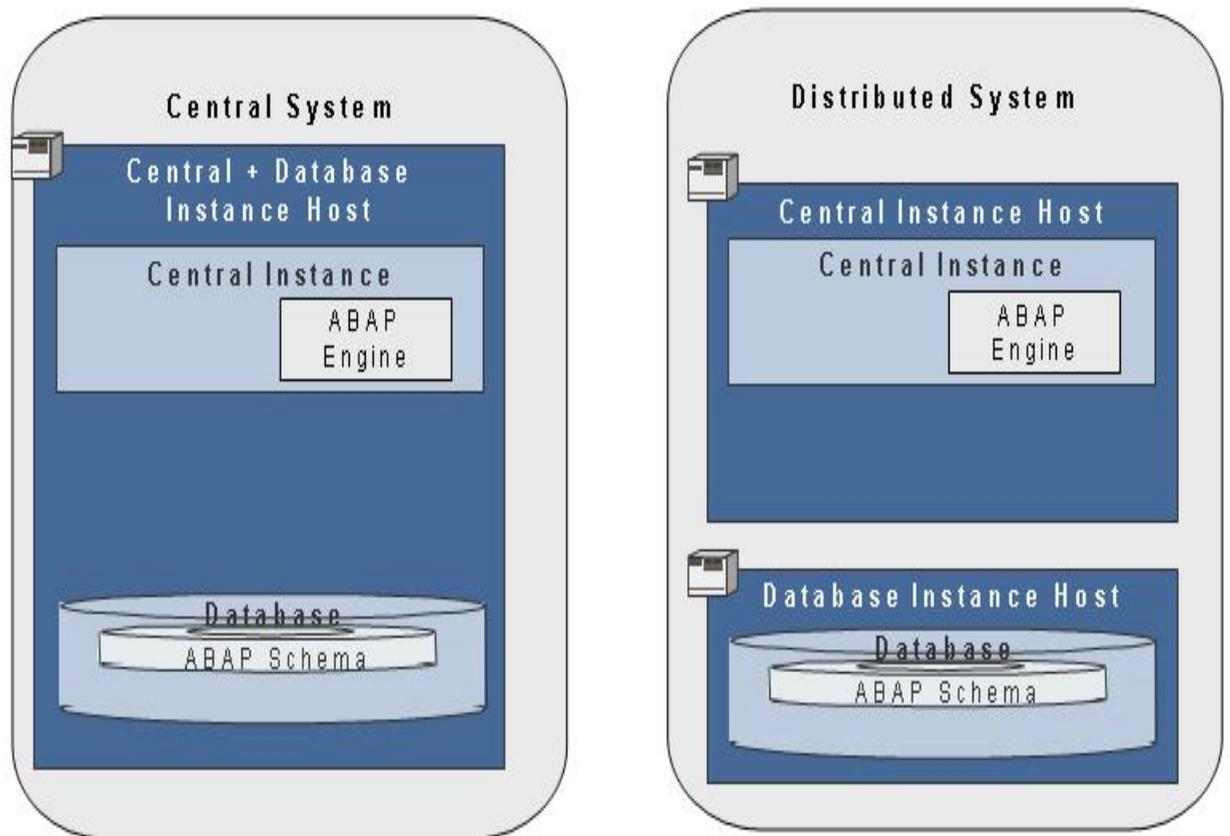
There are the following basic SAP system variants:

- **ABAP System**  
This system variant consists of the ABAP installation. There is **no** J2EE Engine.
- **Java System**  
This system variant consists of the Java installation, that is the J2EE Engine and auxiliary services. There is **no** ABAP application server.
- **ABAP+Java System**  
This system variant consists of the ABAP installation and the installation of the Java Add-In. You can then operate **both** the ABAP application server and the J2EE Engine on the SAP system.

#### Distribution of SAP System Instances

The following graphics show how you can distribute the SAP instances for the different SAP system variants. You can install all mandatory *SAP system components* [page 14] on a single host (central system) or on separate hosts (distributed system).

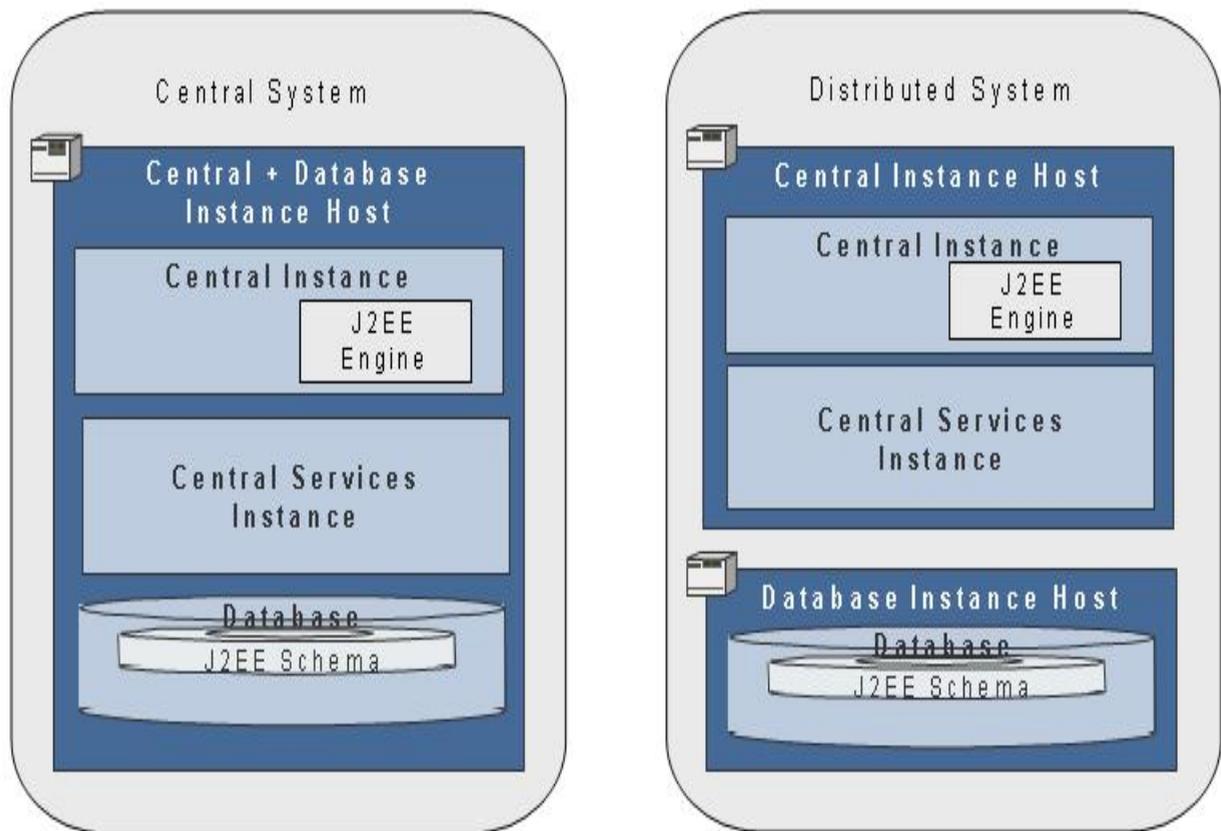
- **ABAP System**  
Mandatory instances of an ABAP system are the central instance and the database instance.  
Optionally, you can install one or more dialog instances and gateway instances.

**Figure 3:****■ Java System**

Mandatory instances of a Java system are the central instance, the central services instance, and the database instance. The central instance and the central services instance run on the same host.

Optionally, you can install one or more Java dialog instances.

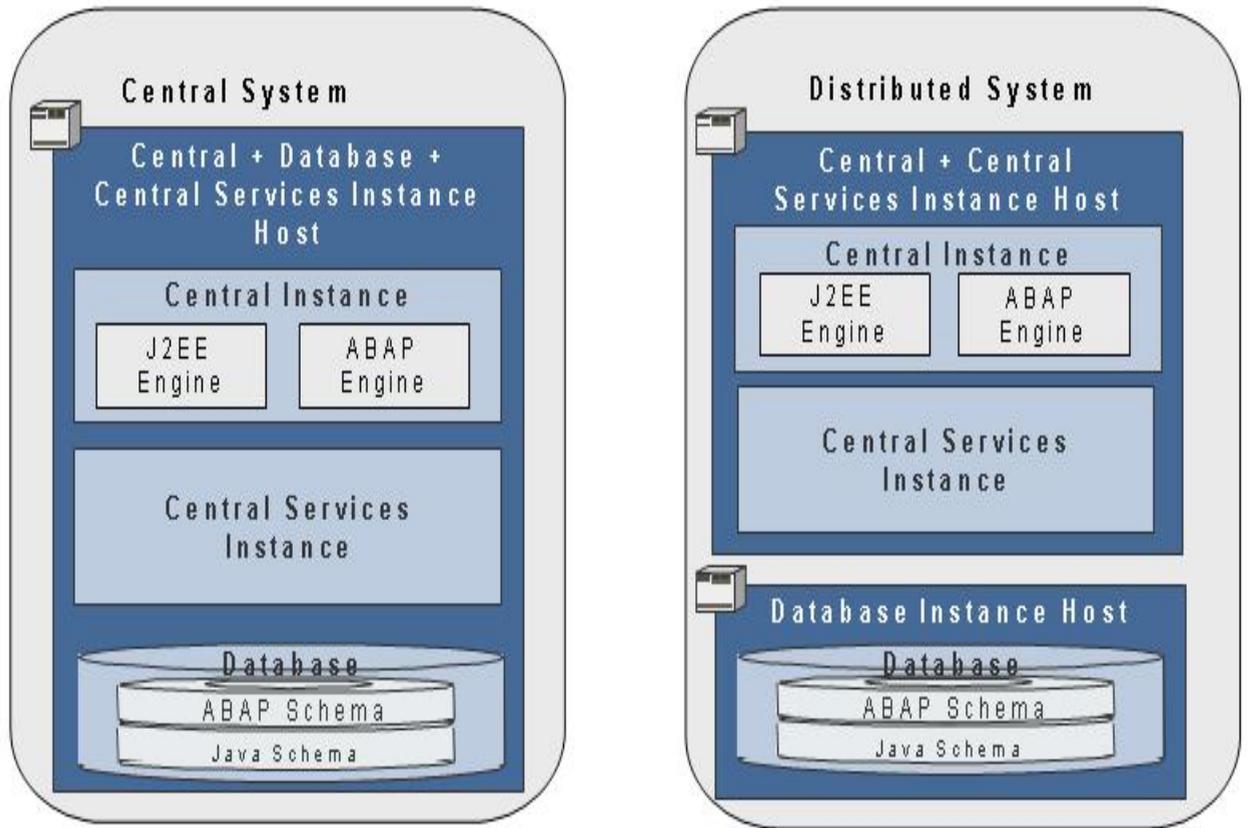
**Figure 4:**



■ **ABAP+Java System**

Mandatory instances of an ABAP+Java system are the central instance, the central services instance, and the database instance.

Optionally, you can install one or more dialog instances, if required.

**Figure 5:** ABAP+Java System


Once you have made your decision on how many instances you want to install and you know all your host names, you can use the following table to note this important information:

SAP Instance	Possible Number of Instances	Planned Number of Instances	Host Name
Central instance	1	1	...
Database instance	1	1	...
SCS instance	1	1	(same as central instance host)
Dialog instance(s)	0 — <nn>	...	...
Gateway instances(s)	0 — <nn>	...	...


**Note**

Depending on your system variant, you can install ABAP dialog instances, Java dialog instances, or dialog instances that contain ABAP and Java parts.

## See Also

*SAP System Components* [page 14]

## 2.1.2 SAP System Components

### Definition

A minimum SAP system consists of a central instance, a database instance, and – if you install an SAP system with a J2EE Engine – a central services instance. You can then install optional dialog instances on different hosts after you have completed the installation of the central instance, the central services instance (if required), and the database instance.



### Note

You can think of an SAP instance – central instance, central services instance, database instance, dialog instance, or gateway instance – as a group of processes that are started and stopped at the same time. Every instance except the database instance has a two-digit identifier between 00 and 97 that must be unique on a computer.

### Use

When you set up an SAP system, you need to install the main components that enable the system to operate the:

#### ■ Central instance

The central instance is the core component of an SAP system. Exactly **one** central instance must exist in each SAP system. The central system usually provides all SAP system utilities, especially the central utilities enqueue service and message service.

If you install an SAP system with a J2EE Engine, the Software Deployment Manager (SDM) is part of the J2EE Engine of the central instance.

#### ■ Central services instance

If you install an SAP system with the J2EE Engine, a central services instance (SCS) is also a mandatory installation component of your SAP system. The central services instance forms the basis of communication and synchronization for the Java cluster. A central services instance consists of the message service and the enqueue service:

- The *message service* keeps a list of the Java dispatchers and Java server processes of the Java cluster. It provides the infrastructure for data exchange (small datasets only) between the participating nodes. The message service also supplies information to the SAP Web Dispatcher about load balancing between multiple Java instances.
- The *enqueue service* manages logical database locks, which are set by the executed application program in a Java server process. The enqueue service also synchronizes data across the Java cluster.

For more information, see the following documentation in the *SAP Library* [page 7]:

*Application Platforms (SAP Web Application Server) → Java Technology in SAP Web Application Server → Architecture Manual → Java Cluster Architecture → Central Services*

- **Database instance**

The database instance is a mandatory installation component for the installation of an SAP system. The J2EE Engine uses its own database schema. For the installation of a Java Add-In, both the ABAP and the Java database schema are installed in the same database.

- **Dialog instances**, if required.

Dialog instances are installed on application servers. The dialog instances of a Java system are called **Java dialog instances**.

Dialog instances are SAP instances that include only:

- Dispatcher, IGS, and CCMS agents
- Java and Java Add-In system: Java server processes
- ABAP and Java Add-In system: Gateway and certain ABAP work processes (dialog, batch, spool, or update)

- **Gateway instance**, if required

It is possible to install an SAP instance of an SAP system exclusively as a standalone gateway. This type of instance does not contain normal work process types (dialog, background, update, enqueue or spool).

Only the gateway process (`gwr`) is started. If there is an SNA connection to an R/2 System, gateway work processes (`gwwp`) are also started.

- **Front Ends**

The installation of front ends for the SAP system is described separately in the documentation *SAP Front End Installation Guide on SAP Service Marketplace* [page 5].

- **SAP NetWeaver Developer Workplace**

The SAP NetWeaver Developer Workplace consists of a special SAP NetWeaver Java in addition to the SAP NetWeaver Developer Studio, the SAP Java Integrated Development Environment (IDE). If required, you can install the Java IDE separately.



Note

The installation of the SAP NetWeaver Developer Workplace is **not** described in this installation documentation. For its installation, see the documentation *Installation Guide – SAP NetWeaver Developer Workplace on SAP Service Marketplace* [page 5].

- **SAP NetWeaver Developer Studio**

The SAP NetWeaver Developer Studio is the SAP environment for developing Java-based, multi-layered business applications. The new development environment is based on Eclipse, an open source product. The open plug-in architecture of Eclipse provides a suitable platform for incorporating specific functions.

For more information, see the following in the *SAP Library* [page 7]:

*Application Platform (SAP Web Application Server) → Java Technology in SAP Web Application Server → Development Manual → The SAP NetWeaver Developer Studio*

You can install the SAP NetWeaver Developer Studio in either of the following ways:

- Separately

For more information, see the documentation *Installation Guide – SAP NetWeaver Developer Studio on SAP Service Marketplace* [page 5].

- As part of the SAP NetWeaver Developer Workplace

For more information, see the documentation *Installation Guide – SAP NetWeaver Developer Workplace on SAP Service Marketplace* [page 5].

## 2.1.3 User Management

Before you install your SAP system, you need to know how you are going to manage your user data. This is especially important if you have an existing system landscape and you need to decide which system is your primary user management system.

For more information, see the documentation *Integration of User Management in your System Landscape* in *SAP Library* [page 7] → *Security* → *SAP NetWeaver Security Guide* → *User Administration and Authentication*

## 2.1.4 SAP Solution Manager

By using SAP Solution Manager throughout the life cycle of your mySAP ERP solution you can achieve faster implementation and more efficient operation of your system. The SAP Solution Manager provides you with all implementation and upgrade content for commonly used standard processes. In addition, projects become more transparent because you have the up-to-date central project documentation all in one place at any time. To make sure that this application management platform is available you require a SAP Solution Manager system (minimum requirement 3.1 SP20) to perform any upgrade or installation of mySAP ERP 2004. During the installation process a SAP Solution Manager system is required to generate the “SAP Solution Manager key” for the installation of SAP ECC. Without this key, the installation process cannot continue. You can generate the required key with SAP Solution Manager Release 3.1 SP20 or SAP Solution Manager Release 3.2 SP4.

Make sure that a SAP Solution Manager is available for your SAP ECC system. If required, you can install SAP Solution Manager as described in the documentation *Installation Guide — SAP Solution Manager 3.2 on <OS> : <Database>* on SAP Service Marketplace at:

[service.sap.com/instguides](http://service.sap.com/instguides) → *SAP Components* → *SAP Solution Manager* → *Release 3.2*.

## 2.1.5 Basic SAP System Parameters

The tables below list the basic system parameters that you should determine before installing your SAP system. For all other SAP system parameters, use the F1 help in the SAPinst dialog phase.



Note

In the column “Your Values”, you write down the values that you plan to use, for example, the *Message Port Number*.

### SAP System ID and Database ID

Parameters	Description	Your Values
SAP System ID <SAPSID>	<p>The SAP System ID &lt;SAPSID&gt; identifies the whole SAP system.</p> <p> Caution Choose your SAP system ID carefully. You <b>cannot</b> change the SAP system ID after the installation.</p> <p>Make sure that your SAP system IDs:</p> <ul style="list-style-type: none"> <li>■ Are unique throughout your organization</li> <li>■ Consist of exactly three alphanumeric characters</li> <li>■ Contain only uppercase letters</li> <li>■ Have a letter for the first character</li> <li>■ Do not include any of the following, which are reserved IDs: ADD ALL AND ANY ASC COM DBA END EPS FOR GID IBM INT KEY LOG MON NIX NOT OFF OMS RAW ROW SAP SET SGA SHG SID SQL SYS TMP UID USR VAR</li> </ul> <p> Caution If you want to install a <b>standalone gateway</b> you must choose a SAP system ID that is different from the SAP system ID of the central instance.</p>	...
Database ID <DBSID>	<p>The &lt;DBSID&gt; identifies the database instance.</p> <p>The database ID &lt;DBSID&gt; can be different from the SAP system ID.</p>	...

## Parameters Relevant for the System Landscape

Parameters	Description	Your Values
For each instance: Instance Number / Name of Instance Host	<p><b>Instance Number:</b> Technical identifier for internal processes. Consists of a two-digit number from 00 to 97. The instance number must be unique on a host. That is, if more than one SAP instance is running on the same host, these instances must be assigned different numbers.</p> <p> <b>Caution</b> If you want to install a <b>standalone gateway</b> you must choose an instance number that is different from the instance number of the central instance.</p> <p><b>Instance Host:</b> Host name of the specific instance. To find out the host name, open a command prompt and enter <b>hostname</b>. For more information about the allowed host name length and characters, see <a href="#">SAP Note 611361</a>.</p>	...
Message Port	<p><b>Port number of the SAP Message Service:</b> If you do not specify a value, the default port number will be used: If the instance number of the ABAP message server is DVEBMGS&lt;nn&gt;, then the port number is 36&lt;nn&gt;.</p> <p> <b>Example</b> If the instance number of the ABAP message server is DVEBMGS15, then the port number is 3615.</p> <p>The message port number must be unique for the SAP system on all hosts.</p>	...
User / Group IDs	<p><b>User ID / Group ID for the OS user:</b> Make sure that the ID is unique and the same on each instance host.</p>	...

Parameters	Description	Your Values
ABAP RFC User, Password	For the RFC logon ABAP RFC user, the user DDIC is normally used. It has the required special administrator rights you need. Alternatively, you can also use user SAP* .	...
SAP Solution Manager key	To perform the installation of SAP ECC, a SAP Solution Manager key is required. You need to <i>generate this key</i> [page <a href="#">48</a> ], because the installation process requires this key to continue. See also <a href="#">SAP Note 805390</a> .	...

#### Parameters Relevant for the Connectivity to System Landscape Directory (SLD) / CEN

Parameters	Description	Your Values
RFC User, Password	The ABAP RFC user of the SLD	...
Gateway Host	The host on which the gateway instance of the SLD is running.	...
SAP System Client	The client in which the ABAP RFC user exists.	...

#### Parameters Relevant for the File System

Parameters	Description	Your Values
File System for the Home Directory User	/home/<username>	...
SAP System Mount Directory	<p>/&lt;sapmnt&gt; is the base directory for the SAP system.</p> <p>For /&lt;sapmnt&gt; you can use a directory of your choice.</p> <p>Do not add &lt;SAPSID&gt; as subdirectory because the system adds this directory automatically.</p> <p> Example</p> <p>If you enter /&lt;sapmnt&gt;, the system creates the directory /&lt;sapmnt&gt;/&lt;SAPSID&gt;.</p>	...
Oracle Database File System	<ul style="list-style-type: none"> <li>■ Oracle Home</li> <li>■ sapdata Home</li> <li>■ Client Destination</li> <li>■ sapdata Directory</li> </ul>	...

### Parameters Relevant for the Database

Parameters	Description	Your Values
Code page	The code page that is used by your database (Unicode or Non-Unicode).	...
Database schemata, Passwords	The database schema consists of SAP<SAPSID>for ABAP systems.	...
Database OS User, Groups	Oracle User Ora<dbSID>, Oracle Group oper, dba	...
Database User	Oracle User System	...
Oracle Listener Name, Port	If you are installing on a host where no other Oracle database is installed, you normally do not have to change the default values for Listener Name and Listener Port. If there is already an Oracle database installed on your installation host, you can either use one listener for both databases (in this case, see <a href="#">SAP Note 98252</a> for more information) or you have to specify an unused Listener Name and an unused Listener Port for the new listener. The Listener Port must be the same on each SAP instance.	...
Oracle Table Spaces	See <a href="#">SAP Note 785921</a>	...

## 2.1.6 SAP System Landscape Directory

The SAP System Landscape Directory (SLD) is the central information provider for the complete system landscape. In general, the SLD is deployed after the installation of a Java or ABAP+Java system. Nevertheless, to bring the SLD server into operation, you have to configure and activate it.

For more information about the installation and configuration of SLD, see the documentation *Post-Installation Guide: SAP System Landscape Directory on SAP Web AS 6.40* on SAP Service Marketplace at [service.sap.com/instguidesnw04](http://service.sap.com/instguidesnw04) → *Installation* → *SAP Web AS*.

## 2.1.7 Oracle System Configuration

To decide how many hard disks are required for your Oracle database, take into account the information in the following sections.

### Security Issues

- For data security reasons, we recommend to distribute the redo logs to different fail-safe areas (for example, on different disks). This can be achieved either by the hardware or by the operating system
- A production system must run in archive log mode.
- If a test system does not run in archive log mode, data written since the last complete backup will be lost after a system crash.
- If an advanced disk array is available (for example, RAID), contact your hardware vendor to make sure that the data security requirements are covered by this technology.

### Performance Issues

- For performance reasons, it is recommended to distribute archive files, redo log files and sapdata files to separate disks.
- It is recommended to distribute the archive files and the redo log files to fail-safe areas with high I/O performance. Since the redo logs are written synchronously, they cause more I/O activity than any other database files.

### Minimal Configuration



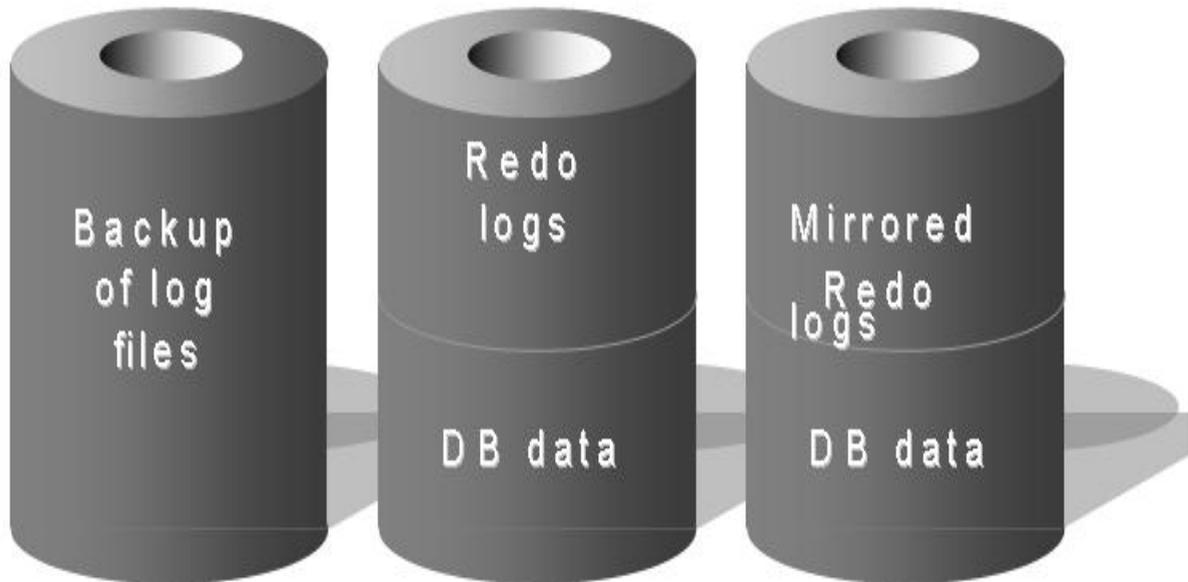
#### Caution

We recommend that you use this configuration only at small installations for test or demo systems.

Device 1: Backup of redo logs

Device 2: Redo logs and database data

Device 3: Mirrored redo logs and database data

**Figure 6:** Minimal Configuration

Although this "minimal configuration" satisfies the SAP security requirements, it has the following disadvantages:

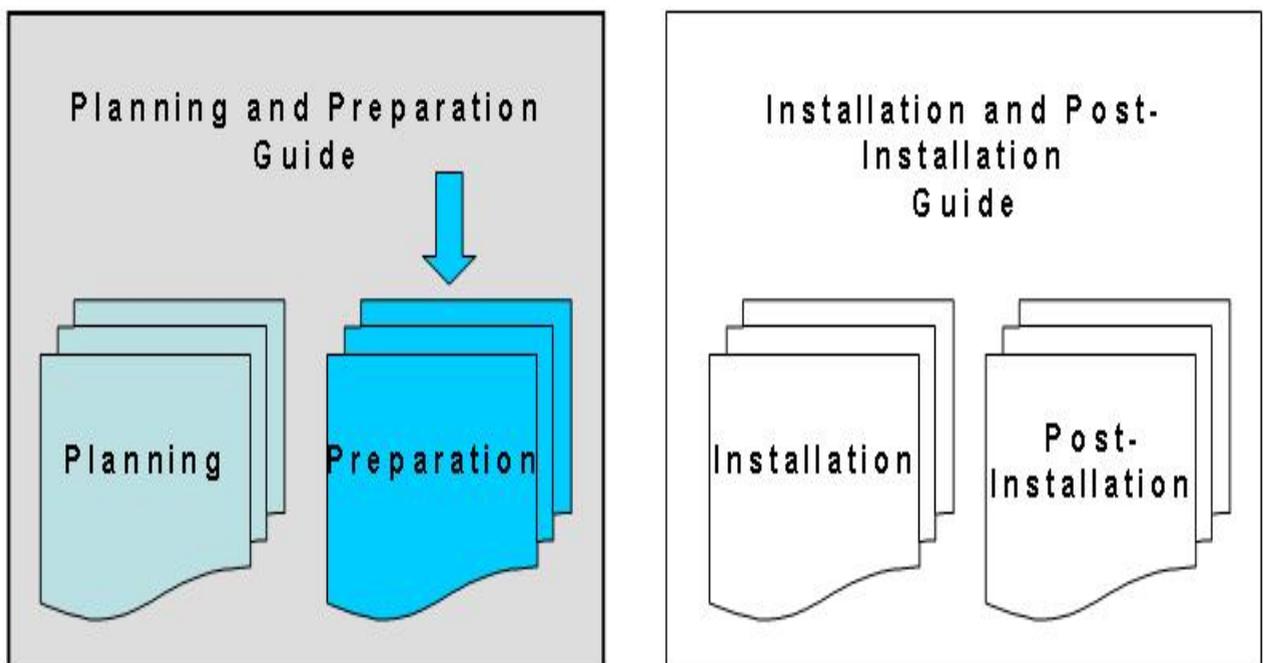
- Security
  - The minimal configuration does not ensure that both the database files and redo log files will not be lost if there is a single device failure.
  - The minimal configuration makes sure that no data will be lost, but recovery will be complicated and time-consuming.
- Performance
  - The I/O-intensive redo logs are on the same device as the data files.

## 3 Preparation

This section provides information on how to prepare the installation of your SAP system .

You are now here:

**Figure 7:**



### Process Flow for Preparation

You have to complete the following preparation activities:

1. You check the *hardware and software requirements* [page [24](#)].
  - a) *Requirements for HP-UX* [page [25](#)]
  - b) *Requirements for the Central Instance* [page [27](#)]
  - c) *Requirements for the Oracle Database Instance* [page [28](#)]
  - d) *Requirements for a Dialog or Gateway Instance* [page [29](#)]
2. You *check and modify the UNIX kernel for HP-UX* [page [30](#)].

**Caution**

If you do not check the kernel parameters, there might be unpredictable problems with your system during and after installation.

3. You *set up swap space for HP-UX* [page 35].
4. If required, you *create operating system users manually* [page 36].

**Note**

If you do not create these users manually, they are created automatically by SAPinst during the installation.

5. You *set up file systems and raw devices* [page 38].
6. You *export and mount the global directory* [page 45].
7. You *install the SAP front-end software* [page 48].
8. You *generate the SAP Solution Manager Key* [page 48].
9. You *prepare the system for SAPinst* [page 49].

The following preparation activities are **optional** and **only** apply, if you want to perform one of the following:

- If you decided to use LDAP for SAP Logon or Microsoft Management Console (MMC), you have to *prepare the active directory for use with the SAP system* [page 55].

## 3.1 Hardware and Software Requirements

### 3.1.1 General Information: Hardware and Software Requirements

You check the hardware and software requirements for your operating system (OS) and the SAP instances using the requirements tables in the following sections.

The tables below give the **minimum** requirements for SAP system installations and do not take customer data into account. Depending on the amount of data involved, the requirements might change.

**Recommendation**

For a more precise sizing that reflects your particular system load, we strongly recommend that you use the *SAP Quick Sizer* available on SAP Service Marketplace. You enter information on your planned system and the tool calculates the requirements.

For more information, see SAP Service Marketplace at [service.sap.com/sizing](http://service.sap.com/sizing).

Alternatively, you can contact a hardware vendor. The vendor analyzes the load and calculates suitable hardware sizing.

- For supported operating system releases, see SAP Service Marketplace at [service.sap.com/platforms](http://service.sap.com/platforms) → *Product Availability Matrix*.
- Contact your OS vendor for the latest OS patches.

## Process Flow

1. You check the *requirements for HP-UX* [page [25](#)]
2. You check the requirements of the SAP system instances that you want to install:
  - *Central instance* [page [27](#)]
  - *Database instance* [page [28](#)]
  - *Dialog or gateway instance* [page [29](#)], if you want to install additional dialog or gateway instances



Note

If you install multiple SAP system instances on one host, you need to add up the requirements.

3. You check the network requirements. For more information, see the documentation *Network Integration of SAP Servers* on SAP Service Marketplace at: [service.sap.com/network](http://service.sap.com/network).  
For more information on SAP software in PC networks, see **SAP Note [5324](#)**.



Caution

If you do not fully meet the above requirements, you might experience problems when working with the SAP system.

## 3.1.2 Requirements for HP-UX

Check the **SAP Note [785927](#)** for updates to the documentation and other information.



Note

The information here on HP-UX is not intended to replace the documentation of the HP-UX operating system (OS).



Note

HP has released HP-UX 11i for the Itanium processor family. HP-UX 11i for Itanium is built from the same code base as HP-UX 11i for PA-RISC and has the same look-and-feel.

In general, all OS requirements for HP-UX are valid for both the PA-RISC version and the Itanium versions. There are some exceptions due to new functionality of the latest HP-UX releases. They are listed in the appropriate sections of this documentation.

For more information on HP-UX see:

<http://docs.hp.com>

## Requirements

The host machine must meet the following requirements:

Requirement Type	Requirement
Hardware	<ul style="list-style-type: none"> <li>■ Tape drive High-capacity tape drive with hardware compression is recommended. You can test the drive <code>/dev/rmt/0m</code> as follows: <b>tar -cvf /dev/rmt/&lt;tape_device&gt; &lt;test_file&gt;</b></li> <li>■ CD /DVD drive ISO 9660 compatible. The CD /DVD drive must be connected locally to your central instance host. Many CD /DVD drives can be configured but not all can be mounted. Refer to section “Mounting a CD /DVD for HP-UX” in <i>Part II — Installation and Post Installation</i></li> <li>■ Disks For data security reasons distribution over three disks is required (over five is recommended). Display available disks: <b>ioscan -f -C disk</b> (the CD /DVD is also displayed) To find out the size of the disks, use the command <code>diskinfo</code>: <b>diskinfo /dev/rdisk/&lt;dev_file&gt;</b> If an advanced disk array is available (for example, RAID), contact your hardware vendor to make sure that the data security requirements are covered by this technology.</li> <li>■ RAM To display the RAM size, run <code>SAM</code> and choose: <i>Performance Monitors</i> → → <i>System Properties</i> → <i>Memory</i></li> </ul>
Software	<ul style="list-style-type: none"> <li>■ Operating system (OS) Check the operating system version with the following command: <b>uname -r</b></li> <li>■ File set Make sure that the file set LANG-MIN is installed. Enter <b>swlist -v   grep -i lang-min</b> If nothing is displayed, the file set is not installed yet.</li> <li>■ Network File System (NFS) The NFS driver must be in the kernel. You can check this using the current kernel configuration files: <b>grep nfs /stand/system</b> Check whether NFS is running: <b>ps -ef   grep nfsd</b> <b>ps -ef   grep rpcbind</b> <b>grep NFS_C /etc/rc.config.d/nfsconf</b> <b>grep NFS_S /etc/rc.config.d/nfsconf</b></li> </ul>

Requirement Type	Requirement
	<p>Either <code>NFS_CLIENT</code>, <code>NFS_SERVER</code> or both should be set to <b>1</b>. You can use <code>SAM</code> to start NFS or/and add the driver to the kernel.</p> <ul style="list-style-type: none"> <li>■ National Language Support (NLS)           <p>Check whether National Language Support (NLS) is installed.</p> <pre>swlist -v   grep -i nls</pre> <p>The output should contain the string <code>NLS-AUX ...</code></p> <p>Display which locales are available:</p> <pre>locale -a</pre> <p>The following files must be available: <code>de_DE.iso88591</code>, <code>en_US.iso88591</code>.</p> </li> <li>■ C++ Runtime Environment           <p>Make sure that the latest patch of C++ runtime libraries is installed. Contact your HP Response Center for more information.</p> </li> <li>■ LDAP support           <p>If you want to use Lightweight Directory Access Protocol (LDAP) directory services, the following LDAP libraries are required:</p> <ul style="list-style-type: none"> <li>■ HP-UX on PA-Risc (11.0/11.11): <code>libldapssl40.sl / libldap41.sl</code></li> <li>■ HP-UX on Itanium (11.22/11.23): <code>libldapssl41.so</code></li> </ul> </li> <li>■ Fonts           <p>The directory <code>/lib/X11/fonts</code> contains the available fonts.</p> <p>You can choose these fonts in your default profiles for X11 and CDE.</p> <p> Example</p> <pre>iso_8859.1 or hp_roman8</pre> <p>To prevent link problems, ask your hardware partner for the latest linker patch and install it.</p> </li> </ul>
Other	<ul style="list-style-type: none"> <li>■ Printer           <p>Check whether a file can be printed with this command:</p> <pre>lp -d&lt;printer_name&gt; &lt;test_file&gt;</pre> <p>Check the status of your spool and the printers with this command:</p> <pre>lpstat -t</pre> </li> <li>■ Keyboard           <p>You can set the keyboard on an ASCII console as follows. A configuration menu bar is activated via the <code>User/System</code> key:</p> <pre>config keys → terminal config</pre> <p>Select <i>Default Values</i> or make your selection in the fields <i>Keyboard</i> and <i>Language</i>.</p> </li> </ul>

### 3.1.3 Requirements for the Central Instance

The central instance host must meet the following requirements:

Requirement Type	Requirement
Hardware	<ul style="list-style-type: none"> <li>■ DVD drive</li> <li>■ Hard disk drives with sufficient space for the central instance. For more information, see <i>Setting Up File Systems</i> [page 38] → <i>SAP File Systems</i>.</li> <li>■ Hard disk drives with sufficient space for swap: <ul style="list-style-type: none"> <li>■ 32-bit SAP Kernel: 3 * RAM, minimum 3 GB</li> <li>■ 64-bit SAP kernel: at least 20 GB is recommended for standard installations. For more information, see <b>SAP Note 153641</b>. If you want to install only a small system, contact your hardware partner for appropriate swap space values.</li> </ul> </li> <li>■ 4.3 GB of temporary disk space for every installation DVD you have to copy to a local hard disk For more information, see “Preparing the Installation DVDs” in <i>Part II — Installation and Post-Installation</i>.</li> <li>■ 1.2 GB of temporary disk space on separate hard disks for SAP system.</li> <li>■ Minimum RAM: <ul style="list-style-type: none"> <li>■ Central instance of an ABAP system: <ul style="list-style-type: none"> <li>■ Non-Unicode SAP system: at least 512 MB</li> <li>■ Unicode SAP system: at least 768 MB</li> </ul> </li> </ul> </li> </ul>
Software	<ul style="list-style-type: none"> <li>■ If application servers are installed decentralized, Network File System (NFS) must be installed.</li> <li>■ Make sure that the required fonts and code pages are installed.</li> <li>■ Make sure that National Language Support (NLS) and corresponding saplocales are installed.</li> </ul>
Other	<ul style="list-style-type: none"> <li>■ Make sure that the host name meets the requirements listed in <b>SAP Note 611361</b>. For example, the host name must not be longer than 13 characters.</li> <li>■ Check your keyboard definitions.</li> <li>■ If you want to install a printer on a decentralized host for the SAP system, make sure that the printer can be accessed under UNIX.</li> </ul>

### 3.1.4 Requirements for an Oracle Database Instance

The database instance host must meet the following requirements:

Requirement Type	Requirement
Hardware	<ul style="list-style-type: none"> <li>■ DVD drive</li> <li>■ For security reasons (system failure), the file systems must be distributed physically over at least 3 (recommended: 5) hard disks For more information, see <i>Oracle System Configuration</i> [page 20].</li> <li>■ Hard disk drives with sufficient space for the database instance (see <i>Setting Up File Systems and Raw Devices</i> [page 38] © Oracle File Systems).</li> <li>■ Hard disk drives with sufficient space for swap: 3 * RAM + 500 MB</li> <li>■ 4.3 GB of temporary disk space for every required installation DVD you have to copy to a local hard disk (see “Preparing and Mounting the Installation DVDs” in <i>Part II — Installation and Post-Installation</i>).</li> <li>■ 1.2 GB of temporary disk space on separate hard disks for SAP system.</li> <li>■ Minimum RAM: <ul style="list-style-type: none"> <li>■ Database instance for non-Unicode SAP system: At least 256 MB</li> <li>■ Database instance for Unicode SAP system: At least 384 MB</li> </ul> </li> </ul>
Software	<ul style="list-style-type: none"> <li>■ If application servers are installed decentralized, Network File System (NFS) must be installed.</li> <li>■ Make sure that the required fonts/code pages are installed.</li> <li>■ Make sure that NLS and corresponding saplocales are installed.</li> <li>■ On the database host, a graphical user interface (GUI) is required for the Oracle database software installation with runInstaller.</li> <li>■ Check <a href="#">SAP Note 306408</a> whether you require an interim patch for the Oracle database installation. In this case, make sure you have the corresponding Perl version as stated in that SAP Note.</li> <li>■ Make sure that you have installed the latest version of the Oracle Universal Installer (OUI) as described in <a href="#">SAP Note 601965</a>.</li> <li>■ For the Oracle installation and importing Oracle patches, a C compiler and the <code>make</code> utility must be installed.</li> </ul>
Other	<ul style="list-style-type: none"> <li>■ Make sure that the host name fulfills the requirements listed in <a href="#">SAP Note 611361</a> (for example, the host name must not be longer than 13 characters).</li> <li>■ Check your keyboard definitions.</li> <li>■ If you want to install a printer on a decentralized host for the SAP system, make sure that the printer can be accessed under UNIX.</li> </ul>

### 3.1.5 Requirements for a Dialog or Gateway Instance

The dialog or gateway instance host must meet the following requirements:

Requirement Type	Requirement
Hardware	<ul style="list-style-type: none"> <li>■ DVD drive</li> <li>■ Hard disk drives with sufficient space for the dialog instance. For more information, see <i>Setting up File Systems</i> [page 38].</li> <li>■ Hard disk drives with sufficient space for swap: 3*RAM + 500 MB</li> <li>■ 4.3 GB of temporary disk space for every required installation DVD you have to copy to a local hard disk For more information, see “Preparing the Installation DVDs” in <i>Part II — Installation and Post-Installation</i>.</li> <li>■ Minimum RAM: <ul style="list-style-type: none"> <li>■ Dialog instance for an ABAP system: <ul style="list-style-type: none"> <li>■ Non-Unicode ABAP system: at least 256 MB</li> <li>■ Unicode ABAP system: at least 384 MB</li> </ul> </li> <li>■ Gateway instance: 256 MB</li> </ul> </li> </ul>
Software	<ul style="list-style-type: none"> <li>■ Ask your system programmer whether all PTFs for their APARs have been installed.</li> </ul> <p>Network File System (NFS) must be installed.</p>
Other	<ul style="list-style-type: none"> <li>■ Make sure that the host name fulfills the requirements listed in <b>SAP Note 611361</b>. For example, the host name must not be longer than 13 characters.</li> <li>■ Check your keyboard definitions.</li> <li>■ If you want to install a printer on a decentralized host for the SAP system, make sure that the printer can be accessed under UNIX.</li> </ul>

## 3.2 Checking and Modifying the HP-UX Kernel

To run an SAP system, you must check and, if necessary, modify the HP-UX kernel.



Caution

We recommend that the UNIX system administrator performs all kernel modifications.

You can change kernel parameters in one of the following ways:

- Manually
- Using the System Administration Manager (SAM)

### Procedure

#### Recommended Kernel Parameters for HP-UX

1. Check the following table for the recommended kernel parameters for HP-UX.

**Caution**

If a kernel value is already larger than the one suggested in the table below, do not **automatically** reduce it to match the SAP requirement.

We recommend you to analyze the exact meaning of such a parameter and, if required, to reduce the parameter value. In some cases this might improve the performance of your SAP applications.

**Checking and Modifying the HP-UX Kernel**

Parameter Group	Parameter	Description	64-bit SAP Kernel Requirements
Memory paging	maxswapchunks	Maximal number of swap space chunks	>= 16384
		 <b>Note</b> Starting with HP-UX 11.22, the HP-UX kernel automatically adjusts the data structures previously controlled by this parameter. As of this HP-UX release, the maxswapchunks kernel parameter is no longer changeable.	
Message parameters	msgseg	Message segments	32767
	msgssz	Message segment size	32
	msgmnb	Maximum sum of messages in a queue	65535
	msgmni	Maximum number of message queues that can exist simultaneously on the system	IBM DB2 UDB for UNIX and Windows only: 256
	msgtql	Maximum number of message headers	2046
	msgmap	msgtql + 2	2048
Semaphores	semaem	“adjust on exit” – maximum. value	16384

Parameter Group	Parameter	Description	64-bit SAP Kernel Requirements
Shared memory	semnu	Number of semaphores UNDO	>= 256 (IBM DB2 UDB for UNIX and Windows: 1024)
	semms	Number of semaphores	>=1024
	semnri	Number of semaphore keys	>=520
	semume	Number of UNDO keys	100
	semvmx	Maximum value semaphore	32767
	shmmax	Maximum shared memory	>=17.179.869.184
File system	shmmni	Maximum shared memory keys	>=256 (IBM DB2 UDB for UNIX and Windows: 300)
	shmseg	Shared memory segments	>=200
	maxfiles	Soft-limit for number of opened files	1024
	maxfiles_lim	Hard-limit for number of opened files	2048
Process management	nflocks	Number of file locks	800 (IBM DB2 UDB for UNIX and Windows: 8192)
	nfile	Number of files	8192
	ninode	Number of open inodes	8192
	maxdsiz	Maximum data segment size	990.056.448
	maxdsiz_64bit	Maximum data segment size 64-bit	17.179.869.184
	maxssiz_64bit	Maximum user-stack segment size in bytes	83.886.080
			 Note MaxDB only: 268.435.456
	maxuprc	Number of processes per user	400

Parameter Group	Parameter	Description	64-bit SAP Kernel Requirements
Miscellaneous parameters	max_thread_proc	Maximum number of threads allowed per process	250
		 Note See <a href="#">SAP Note 534867</a>	
	nkthread	Number of threads allowed to run simultaneously	7200
		 Note For more information, see <a href="#">SAP Note 534867</a>	
	nproc	Number of processes system-wide	10 * maxusers
	maxusers	Maximum number of users (system resource allocation)	128
	dbc_min_pct	Minimum percentage of memory to be used by dynamic buffer cache	5
	dbc_max_pct	Maximum percentage of memory to be used by dynamic buffer cache	8
		 Note The kernel parameter <code>dbc_max_pct</code> should be decreased to 8 from its default value If your system has more than 4 GB of physical memory, even smaller values of <code>dbc_min_pct</code> and <code>dbc_max_pct</code> might be reasonable.	



Note

The values listed in the table above are required by the SAP system.

If the currently configured kernel parameters have already been set by another application to approximately the values recommended by SAP, the values shown in the table might not be high enough. As a result, the SAP system or other applications might fail to start up correctly.

2. If necessary, modify the kernel values:
  - On **HP-UX 11.0/11.11**, proceed as described below in “Configuring the Kernel Using SAM for HP-UX 11.0/11.11”.
  - On **HP-UX 11.22/11.23**, proceed as described below in “Configuring the Kernel Using kcweb for HP-UX 11.22/11.23”.

### Configuring the Kernel Using SAM for HP-UX 11.0/11.11

1. Enter this command:  
`/usr/sbin/sam`
2. Choose *Kernel Configuration* → *Configurable Parameters*
3. Select the parameter you want to modify and choose *Actions* → *Modify Configurable Parameter*
4. Modify all kernel parameters according to the table above, “Checking and Modifying the HP-UX Kernel”.
5. Choose *Process New Kernel* from the *Actions* menu.
6. Exit SAM.
7. Reboot your system.

### Configuring the Kernel Using kcweb for HP-UX 11.22/11.23

Kernel configuration using `kcweb` is a combination of a command set and a Web-based graphical user interface (GUI) that allows you to configure an HP-UX kernel, and to monitor consumption of kernel resources controlled by parameters.

The `kcweb` application replaces the kernel configuration portion of SAM and adds the following commands for kernel configuration and monitoring to the system:

- `kcweb(1M)`
- `kcusage(1M)`
- `kcalarm(1M)`

There is also the daemon `kcmd(1M)`, which replaces the obsolete `krmond(1M)`.

The `kcweb` application provides the following new features:

- New Web-based, PC-supported GUI that is faster and easier to use remotely than the current SAM interface
  - Kernel parameter documentation that you can view within the GUI
  - Support for dynamic (no reboot) kernel tuning
  - Parameter monitoring that lets you continually monitor the usage of kernel resources (with `kcmd`) and proactively tune the kernel instead of waiting for an application to fail
- Parameter monitoring offers you:
- Tables and graphs of kernel resources controlled by kernel parameters
  - User-created threshold alarms that issue alerts when consumption of a kernel resource exceeds a specified percentage of the parameter value
- Improved command line interface (CLI) that offers all functionality available in the GUI
  - Improved separation between GUI and kernel so that the application does not need to be patched as often

Less than 12 MB of disk is necessary for `kcweb`, and minimal memory is required by CLIs (approximately 20 MB memory for HP Apache-based Web Server and Netscape).

Additionally, the `kcweb` application GUI offers online help.

## 3.3 Setting up Swap Space for HP-UX

### Procedure

1. Check the minimum swap space requirements in *Requirements for HP-UX* [page 25].
2. Find out whether you have to increase the swap space:
  - a) Determine the size of the installed RAM by starting the System Administration Manager (SAM) and choosing:  
*Performance Monitors* → *System Properties* → *Memory*
  - b) Find out how much swap is currently configured on your system with this command:  
`/usr/sbin/swapinfo`
3. If necessary, increase the swap space in one of the following ways:
  - Manually, as described below in “Setting Up Swap Space Manually”
  - Using SAM, as described below in “Setting Up Swap Space Using SAM”
4. If you are not installing a standalone database server, check the paging size and the kernel settings, as described below in “Check Paging Space Size and Kernel Settings”.

#### Setting up Swap Space Manually

1. Create a logical volume with this command:  
`lvcreate -n <LVName> /dev/<VGName>`
2. Define the size and allocate the logical volume to a disk with this command:  
`lvextend -L <size in MB> /dev/<VGName>/<LVName> /dev/dsk/<diskdevice>`
3. Add the following entry to the file `/etc/fstab`:  
`/dev/<VGName>/<LVName> /swap swap defaults 0 0`
4. Activate the swap space with this command:  
`/usr/sbin/swapon -a`
5. Check that the swap space has been activated with this command:  
`/usr/sbin/swapinfo -tm`

#### Setting up Swap Space Using SAM

1. Enter this command to start SAM:  
`/usr/sbin/sam`
2. Choose  
*Disks and Filesystems* → *Swap* → *Actions* → *Add Device Swap* → *Using the LVM*
3. Select a partition for swap and choose *OK*.
4. Exit SAM.

#### Check Paging Space Size and Kernel Settings



#### Note

If you are installing a **standalone** database server do **not** execute this step.

1. Make sure that the UNIX kernel, paging space, and user limits are already configured for the SAP system as described in *Hardware and Software Requirements* [page 24].

2. Execute `memlimits` to verify paging space size and kernel settings as follows:
  - a) Unpack the file `memlimits` with these commands:

```
cd <INSTDIR>
CD /<DVD-DIR>/K0<x>/UNIX/<OS>SAPCAR -xvfg <CD / DVD-DIR>/K0<x>/UNIX/<OS>/SAPEXE.SAR
memlimits
```
  - b) Start `memlimits`.
3. If you see error messages, increase the paging space and rerun `memlimits` until there are no more errors.

## 3.4 Creating Operating System Users and Groups Manually (Optional)

### 3.4.1 Network Information Service

If you use Network Information Service (NIS), you need to distribute users over the network.



#### Note

If you do not create users manually, SAPInst creates them automatically during the installation. All users **must** have identical environment settings. If you change the environment delivered by SAP, such as variables, paths, and so on, SAP does **not** assume responsibility.

SAPInst checks all required users, groups, and services on the local machine. If you manage users, groups or services network-wide in your company, we recommend that you create the user and group NIS entries **before** running SAPInst as described in *Creating Operating System Users and Groups Manually (Optional)* [page 36].

SAPInst checks if the required services are available on the host and creates them if necessary. See the log messages about the service entries and adapt the network-wide (NIS) entries accordingly.

SAPInst checks the NIS users, groups and services using NIS commands. However, SAPInst does not change NIS configurations.

### 3.4.2 Creating Operating System Users and Groups Manually (Optional)

If you do not want SAPInst to create operating systems users, groups and services, you can optionally create them manually before the installation.

#### Users and Groups

SAPInst checks whether the required users and groups already exist. If not, it creates new users and groups as necessary.

SAPInst chooses available user IDs and group IDs unless you are installing a dialog instance. On a dialog instance you have to enter the same IDs as on the central instance host.

As a general requirement, the user IDs and the group IDs must be the same on **all** hosts.



**Caution**

The user ID (UID) and group ID (GID) of SAP users and groups must be identical for all servers belonging to any SAP system.

This does not mean that all users and groups have to be installed on all SAP servers.

The following tables list the users and groups necessary for your database:

**Users and Their Primary Groups**

User	Primary Group
<sapsid>adm	sapsys, oper, dba
ora<dbsid>	dba, oper

**Groups and Members**

Groups	Members
sapsys	<sapsid>adm
oper	<sapsid>adm, ora<dbsid>
dba	<sapsid>adm, ora<dbsid>

**See Also**

*Creating HP—UX Groups and Users (Optional)* [page 37]

### 3.4.3 Creating HP-UX Groups and Users (Optional)

**Procedure**

1. Enter this command:  
`/usr/sbin/sam`
2. Choose *Accounts for Users and Groups* → *Local Users* → *Actions* → *Add*
3. Enter the required users.
4. Choose *Accounts for Users and Groups* → *Groups* → *Actions* → *Add*.
5. Enter the required groups.
6. Exit the System Administration Manager (SAM).
7. Verify that the TZ settings in the following are consistent:  
`/etc/TIMEZONE`  
`/etc/profile`  
`/etc/csh.logi n`

## See Also

For more information about the users and groups that are created either by SAPinst or manually, see *Creating Operating System Users and Groups Manually (Optional)* [page [36](#)].

## 3.5 Setting up File Systems and Raw Devices

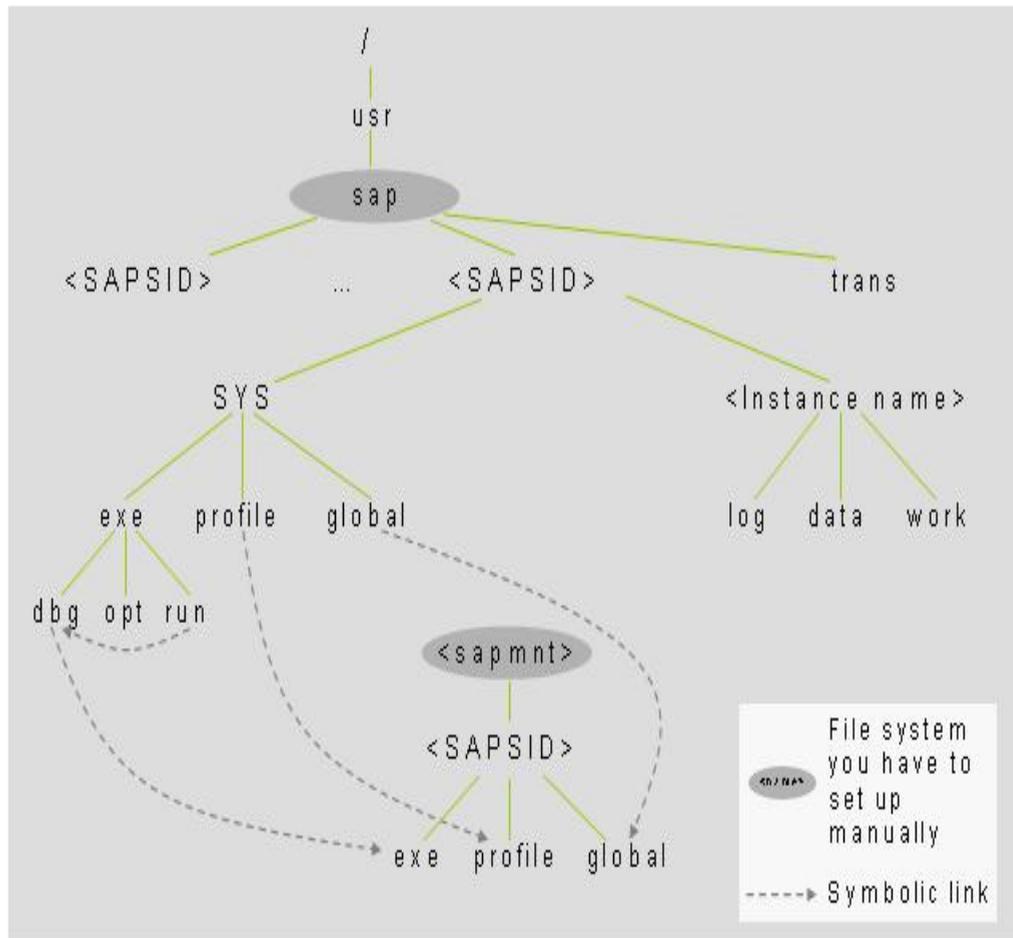
The following sections describe how to set up SAP file systems and, if required, raw devices on operating system level:

- *SAP file systems and file systems for your database* [page [38](#)]
- *file systems and raw devices for HP-UX* [page [42](#)]

### 3.5.1 Setting Up File Systems

Depending on the installation option you have chosen, you need to set up the following standard SAP file systems listed in the table below. In addition, you have to set up the database file systems.

**Figure 8:** Standard SAP File Systems



**Note**

The listed file system sizes are initial SAP requirements.

Depending on your operating system, you might also have to add space for administrative purposes.

The following file systems are global; that is, they are accessed by all hosts in the SAP system.

## SAP File Systems

File System Name	Description	Space Required
<sapmnt>/<SAPSID>	<p>Software and data for one SAP system</p> <p>This directory is physically located on the central instance. In homogeneous systems, you need to mount it via NFS (Network File System) for all hosts belonging to the same SAP system. It contains the following subdirectories:</p> <ul style="list-style-type: none"> <li>■ <b>exe</b> Contains executable kernel programs</li> <li>■ <b>global</b> Contains log files</li> <li>■ <b>profile</b> Contains the start and operations profiles of all instances</li> </ul>	<ul style="list-style-type: none"> <li>■ Central instance: 400 MB</li> <li>■ Dialog instance (same platform as central instance): no file system required</li> <li>■ Dialog instance (different platform) or central services instance: 340 MB</li> </ul>
/usr/sap/<SAPSID>	<p>Instance-specific data, symbolic links to the data for one system</p> <p>This directory contains files for the operation of a local instance. There is a subdirectory &lt;INSTANCE&gt; for each instance installed on the local instance host, whereas data used by several instances is located in directory SYS. There are subdirectories of /usr/sap/&lt;SAPSID&gt;/SYS with symbolic links to subdirectories of &lt;sapmnt&gt;/&lt;SAPSID&gt;.</p> <p>SAPinst sets up these directory structures during the installation.</p>	<ul style="list-style-type: none"> <li>■ Dialog instance with sapcpe in use: 680 MB</li> <li>■ Other instances: 1100 MB</li> </ul>
	<p> <b>Note</b></p> <p>Since SAP traces for the instance are created in directory /usr/sap/&lt;SAPSID&gt;/&lt;INSTANCE&gt;, you must make sure that sufficient space is available. Changes in SAP system profiles can also affect the disk space.</p>	
ABAP instances: /usr/sap/trans	<p>Global transport directory for all SAP systems</p> <p>For more information about exporting and mounting the global transport directory, see <i>Exporting and Mounting the Global Transport Directory</i> [page 45]</p>	<ul style="list-style-type: none"> <li>■ For the <b>installation</b> of all instances: 200 MB</li> <li>■ For the <b>production use</b> of all instances: 2 GB</li> </ul>

Set up the file systems required for the database as described in *Oracle File Systems* [page 41].

## 3.5.2 Oracle File Systems



Note

Be aware that Unicode systems require additional hardware resources. You can find more information about Unicode SAP systems on SAP Service Marketplace at [service.sap.com/unicode](http://service.sap.com/unicode).

Set up required file system for the Oracle database before the installation.

### Oracle File Systems

File System Name	Description	Space Required
<code>/oracle</code>	Oracle Base directory	50 MB for Oracle software
<code>/oracle/client/92x_32</code> or <code>/oracle/client/92x_64</code>	Directory for Oracle client software.	100 MB
<code>/oracle/stage/920_32</code> or <code>/oracle/stage/920_64</code>	Installation and upgrade directory for database software (staging area). This directory is also used for Oracle upgrades. We recommend that you do not delete it after the installation.	2000 MB
<code>/oracle/&lt;DBSID&gt;</code>	Home directory of user <code>ora&lt;dbsid&gt;</code> . We recommend that <code>/oracle/&lt;DBSID&gt;</code> resides not in the root directory. Also, it must reside in a file system with support of large files (for more information about how to create file systems larger than 2 GB on your operating system, see the documentation <i>SAP Software on UNIX: OS Dependencies</i> ). Therefore, either create <code>/oracle/&lt;DBSID&gt;</code> as separate file system with support of large files or create <code>/oracle</code> as file system with support of large files and create <code>/oracle/&lt;DBSID&gt;</code> as directory in <code>/oracle</code> .	100 MB for files of user <code>ora&lt;dbsid&gt;</code> (for example, log files)

File System Name	Description	Space Required
<code>/oracle/&lt;DBSID&gt;/920_32</code> or <code>/oracle/&lt;DBSID&gt;/920_64</code>	Home directory for Oracle instance <DBSID> (<ORACLE_HOME>). <ORACLE_HOME> must reside on a local disk. It <b>cannot</b> be a softlink.	<ul style="list-style-type: none"> <li>■ Database instance : 3.8 GB</li> <li>■ All other instances: 140 MB</li> </ul> Make sure that this file system has permissions 777.
<code>/oracle/&lt;DBSID&gt;/origlogA</code>	Original set A of redo logs	120 MB
<code>/oracle/&lt;DBSID&gt;/origlogB</code>	Original set B of redo logs	120 MB
<code>/oracle/&lt;DBSID&gt;/mirrlogA</code>	Mirrored set A of redo logs	120 MB
<code>/oracle/&lt;DBSID&gt;/mirrlogB</code>	Mirrored set B of redo logs	120 MB
<code>/oracle/&lt;DBSID&gt;/oraarch</code>	New standard backup file system for Oracle offline redo logs. Use a separate disk for the file system <code>/oracle/&lt;DBSID&gt;/oraarch</code> . The file system <code>/oracle/&lt;SAPSID&gt;/</code> <code>saparch</code> still persists but now only contains <code>brbackup</code> log files. <code>/oracle/&lt;SAPSID&gt;/ saparch</code> gets automatically created by SAPinst.	For the installation, the archive directory <code>/oracle/&lt;DBSID&gt;/</code> <code>oraarch</code> requires at least 350 MB of free disk space. For the operation of your SAP system, we recommend that it provides enough space for archives between two backups. In a production system, between 300 MB and 1 GB data is archived daily.
<code>/oracle/&lt;DBSID&gt;/sapreorg</code>	Work directory for database administration	1500 MB
<code>/oracle/&lt;DBSID&gt;/sapdata1</code>	SAP data	For space requirements of the SAP data file systems required for the installation, see the following file <Export_DVD>/ \\ EXP1/DB/ORA/ \\ DBSIZE.XML
<code>/oracle/&lt;DBSID&gt;/sapdata2</code>	SAP data	
<code>/oracle/&lt;DBSID&gt;/sapdata3</code>	SAP data	
<code>/oracle/&lt;DBSID&gt;/sapdata4</code>	SAP data	

### 3.5.3 Setting Up File Systems and Raw Devices for HP-UX

#### Procedure

##### HP-UX: Setting up File Systems using LVM

Using a logical volume manager allows you to distribute partitions (logical volumes) across several disks (physical volumes). The individual logical volumes are grouped together into volume groups. File systems can be larger than physical disks, but not larger than the volume group.

1. Examine device configuration

Enter the command:

```
ioscan -f -C disk
```

This command provides the logical unit (LU) number and the hardware addresses of all available devices, using the device class disk.

The following command scans all disks for logical volumes:

```
vgscan -pv
```

Make sure you use option **-p** (preview), otherwise `/etc/lvmtab` will be updated.

LVM can coexist in a system that uses fixed partitions.

## 2. Prepare disks

To assign an unused disk to a physical volume, enter:

```
pvcreate /dev/rdisk/<diskdevice>
```

## 3. Create volume group directory <VG Name> and group device file (for example SAPR3). For each volume group in the system, there must be a volume group directory that has a character device file named group in it:

```
mkdir /dev/<VG Name>
```

```
mknod /dev/<VG Name>/group c 64 0x<nn>0000
```

## 4. Create the volume group To create a volume group, you specify which physical volumes (disks) belong to the group:

```
vgcreate /dev/<VG Name> /dev/dsk/<diskdevice>
```

To add another disk to an existing volume group, enter:

```
vgextend /dev/<VG Name> /dev/dsk/<diskdevice>
```

## 5. Examine the size of volume group

To see how many physical disks you have in a volume group, enter:

```
vgdisplay /dev/<VG Name>
```

## 6. Calculate the free space in the volume group:

$\text{FREE\_Space} = \text{Free physical extents (PEs)} * \text{PE\_Size}$

## 7. Create one logical volume for each file system listed in the installation documentation in *Setting up File Systems* [page 38]:

```
lvcreate /dev/<VG Name>
```

Allocate the logical volume to a disk with the command:

```
lvextend -L <size in MB> /dev/<VGName>/<LVName> \
/dev/dsk/<diskdevice>
```

See *Setting up File Systems* [page 38] for required size for each file system. `<Size in MB>` should be a multiple of `PE_Size`, or the size will be rounded up.

You can find out the size of the logical volume with either of these commands:

```
vgdisplay -v /dev/<VG Name>
```

```
lvdisplay /dev/<VG Name>/<LV Name>
```



Note

- Write down the device names of the logical volumes (for example, lv12). You will need the device names when creating and mounting the file systems.
- The following steps are only needed for file systems, not for raw devices. If you set up raw devices, see “Accessing Raw Devices” for more information.

8. Determine the disk type with the command:

```
diskinfo /dev/rdsk/<diskdevice>
```

9. Create the file systems required by SAP.



Note

If you want to create file systems larger than 2 GB, use additionally option `-o largefiles` for the `newfs` command.

For `sapdata1` to `sapdata<n>` enter:

■ **HFS:**

```
newfs -L -i 20000 -F hfs -f 8192 -b 8192 -m 1 \  
/dev/<VG Name>/r<LV Name>
```

■ **JFS:**

```
newfs -F vxfs -b 8192 /dev/<VG Name>/r<LV Name>
```

For all others, enter:

■ **HFS:**

```
newfs -L -F hfs /dev/<VG Name>/r<LV Name>
```

■ **JFS:**

```
newfs -F vxfs /dev/<VG Name>/r<LV Name>
```

The logical volume is identified by the device file that you defined when you created the logical volume.

10. Create mount directories.

11. Add the new file system to the `/etc/fstab`.



Example

■ **HFS:**

```
/dev/<VG Name>/<LV Name> /<mountdir> hfs defaults 0 2
```

■ **JFS:**

```
/dev/<VG Name>/<LV Name> /<mountdir> vxfs delaylog, nodatainlog 0 2
```

12. Mount the file systems using the command:

```
mount -a
```



Note

The mount sequence is determined via the file `/etc/fstab`.

### Setting up File Systems using SAM



Note

- If you want to create file systems larger than 2 GB, choose *Disks and Filesystems* → *File Systems* → *Modify FS Defaults* → *Allow Large Files* when creating the file systems with SAM.
- SAM is not able to build file systems with 8 K fragment size.

1. Enter the command

```
/usr/sbin/sam
```

2. Select  
*Disks and Filesystems* → *File Systems* → *Actions* → *Add Local File System* → *Using the LVM*
3. Add all disks.
4. Select:  
*Disks and Filesystems* → *Volume Groups* → *Actions* → *Create*
5. Create all volume groups.
6. Select:  
*Disks and Filesystems* → *Logical Volumes* → *Actions* → *Create*
7. Create all logical volumes.
8. Exit SAM:

**Caution**

SAM already creates file systems with the `newfs` command, but the filesystems for `sapdata1` to `sapdata<n>` have to be rebuilt with special options.

9. Perform the steps 9 to 12 in section “HP-UX: Setting up File Systems Using LVM”:
  - Create the file system required by SAP
  - Create mount Directories
  - Add the new file system to the `/etc/fstab`
  - Mount the file system using the command

**Accessing Raw Devices**

File systems and raw devices differ in the way that data is written to and read from disk:

- **Buffering:** Reads and writes to a file system are buffered in a UNIX system. To be absolutely sure that all data is physically present on a disk, the buffers and files must be synced.  
Writes to a raw device are unbuffered: the system writes directly to the disk. These writes are faster and more secure.
- **File access:** Accessing files on a UNIX file system is transparent. Accessing data on a raw device is only possible with a special application.

Some databases prefer raw devices.

For Oracle it is not necessary to create symbolic links to access raw devices.

## 3.6 Exporting and Mounting the Global Transport Directory

In your ABAP or ABAP+Java SAP system landscape, a global transport directory for all SAP systems is required.

- If this global transport directory already exists, make sure that it is exported on the global transport directory host and mount it on the SAP instance installation host.
- If this global transport directory does not exist, proceed as follows:
  - Create the transport directory (either on the central instance host or on a file server).
  - Export it on the global transport directory host.
  - If you did not create the transport directory on your SAP instance installation host, mount it there.

## Procedure

### Exporting the Transport Directory

1. Log on as user `root` to the host where the global transport directory `/usr/sap/trans` resides.
2. Make sure that `/usr/sap/trans` belongs to the group `sapsys` and to the user `root` and has the permissions `775`.
3. If not already done, export the directory using Network File System (NFS).



#### Caution

For security reasons, set the permissions of the directory `/usr/sap/trans` to `771` after the installation.

### Mounting the Transport Directory



#### Note

If the transport directory resides on your local SAP instance installation host, you do not need to mount it.

1. Log on as user `root` to the central or dialog instance host where `/usr/sap/trans` is to be mounted.
2. Create the mount point `/usr/sap/trans`.
3. Mount `/usr/sap/trans` using Network File System (NFS) from the exporting host.
4. Check that the user `root` has write permissions with the following commands:

```
touch /usr/sap/trans/write_test
rm /usr/sap/trans/write_test
```

## See Also

*Mounting Directories via NFS for HP-UX (Optional)* [page 46]

## 3.7 Mounting Directories via NFS for HP-UX (Optional)

There are two ways of mounting directories via NFS:

- Manually
- Using SAM

## Procedure

### Mounting Directories via NFS using SAM

On the host on which the main instance runs, proceed as follows:

1. Enter the command  
`/usr/sbin/sam`
2. Select:  
*Networking and Communications* → *Networked File Systems* → *Exported Local File Systems* → *Actions* → *Add*
3. Enter the *Local Directory Name*



Example

```
/sapmnt/CUS
```

Select *Specify UID for unknown user* and enter at *User ID* the value **0**.

Select *Specify Root User Access* and add the *Remote System Names*.

4. Type **OK**.
5. Exit SAM

#### On the host on which the additional instance runs:

1. Enter the command  
**/usr/sbin/sam**
2. Select:  
*Networking and Communications* → *Networked File Systems* → *Mounted Remote File Systems* → *Actions* → *Add Remote File Systems* → *Using NFS*
3. Enter:
  - The *Local Directory Name*
  - The *Remote Server Name* of the host exporting the file system
  - The *Remote Directory Name*
4. Enable the mount *Now* and *On boot*.
5. Specify *Read-Write Access*.
6. Type **OK**.
7. Exit SAM

#### Mounting Directories via NFS manually

On the host on which the main instance runs, proceed as follows:

1. Add the file system you want to export to the file `/etc/exports` using the option  
`-root= <nfs_cli_hostname_1>: ... :<nfs_cli_hostname_n>,> \`  
`access= <nfs_cli_hostname_1>:...:<nfs_cli_hostname_n>`



Example

```
/sapmnt/C11/exe -root=hw5111:hw5115, access=hw5111:hw5115
```

When you encounter problems with your input similar to the example above, try something like

```
/sapmnt/C11/exe -anon=y, access=hw5111:hw5115
```



Note

For security reason the option

```
-root= <nfs_cli_hostname_1>: ... :<nfs_cli_hostname_n>
```

should be used during installation only.

2. Make the file system available to NFS clients:

```
/usr/sbin/exportfs -a
```

On the host on which the additional instance runs:

1. Add the remote file system to `/etc/fstab`.



Example

```
hwi173:/sapmnt/CUS /sapmnt/CUS nfs defaults 0 0
```

2. Mount the file system



Example

```
mount hwi173:/sapmnt/CUS
```

## 3.8 Installing the SAP Front-End Software

For the installation, make sure that the front-end software is installed on at least **one** host machine in your system environment. To simplify administration of your SAP system, we recommend you to do this on the central instance host.

With the SAP front-end installation software, SAPSetup, you can optimize the deployment of SAP GUI to thousands of clients. You can easily tailor installation packages to match your requirements, distribute patches, and set up automatic update processes for your clients.

For more information on installing the front-end software, see the documentation on *SAP Service Marketplace* [page 5] at [service.sap.com/nw04installation](https://service.sap.com/nw04installation) → *SAP Web AS* → *SAP Web AS 6.40 SR1 and Related Documentation* → *SAP Front End Installation*:

- *SAP Front End Installation Guide* (English version)
- *SAP Frontend-Installationsleitfaden* (German version)

## 3.9 Generating the SAP Solution Manager Key

You need to generate the solution manager key because SAPinst prompts for it during the input phase of the installation process.

### Prerequisites

You have installed SAP Solution Manager as described in the documentation *Installation Guide — SAP Solution Manager 3.2 on <OS> : <Database>* on SAP Service Marketplace at:

[service.sap.com/instguides](https://service.sap.com/instguides) → *SAP Components* → *SAP Solution Manager* → *Release 3.2*

### Procedure

1. In your SAP Solution Manager, call the System Landscape Solution Manager with transaction SMSY.
2. Choose *Other object...*
3. Set the indicator *System*.
4. From the input help, choose the system on which you want to install your SAP system.
5. Choose *Generate Installation / Upgrade Key*.

6. Enter the requested information.  
If necessary, change the default values.
7. Choose *Generate Key*.  
The system displays the key.
8. If you have problems while generating the solution manager key, proceed as follows:
  - a) Create an OSS-message.
  - b) Enter the following data:
    - Component: **SV-SMG**
    - Short text: **Schluesselegenerierung**
    - Long text:
      - System ID (triple-digit)
      - System number (two-digit)
      - Server on which SAP ECC is to be installed.

### See Also

For more information, see also [SAP Note 805390](#).

## 3.10 Preparing the System for SAPInst

### 3.10.1 General Information about Preparing the System for SAPInst

You need to prepare your system for *the SAPInst GUI* [page 49].

The installation tool SAPInst uses the Java-based graphical user interface, SAPInst GUI, regardless of your system variant. Therefore, you always need a Java runtime environment (JRE) on the host where SAPInst is to run. The JRE is included in the JDK.



#### Note

If required, you can perform a **remote** installation using a standalone SAPInst GUI on a separate Windows or UNIX host. This enables you to perform the installation on a remote host while monitoring it with the SAPInst GUI from a local host. If you want to perform a remote installation, see “Remote Installation with SAPInst” in *Part II — Installation and Post-Installation*. In this case, prepare both the local and the remote host for the SAPInst GUI.

### 3.10.2 Preparing the System for the SAPInst GUI

As part of *Preparing the system for SAPInst* [page 49] you need to prepare for the SAPInst GUI. This includes the installation of the Java Runtime Environment (JRE).

## Procedure

1. Check the JRE versions that are released for SAP systems on SAP Service Marketplace at:  
[service.sap.com/platforms](http://service.sap.com/platforms) → *Product Availability Matrix* → *SAP NetWeaver* → *SAP NetWeaver 04* → *JSE Platforms*
2. Make sure a valid JRE version is installed on every host on which you want to install an SAP instance with the J2EE Engine, as follows:
  - The JRE is not already installed  
Since the JRE is not part of the SAP shipment, you need to download and install it from [www.java.com](http://www.java.com)
  - The JRE is already installed  
Check the installed version of the JRE by entering:  
**java -version**

## 4 Additional Information

The following sections are **optional** but provide important information if you want to perform one of the following:

- *Installation of multiple components in one database* [page 51]
- *Integration of Lightweight Directory Access Protocol (LDAP)* [page 53] for SAP Logon for the Microsoft Management Console (MMC).

LDAP can also be used for other purposes (for example, the LDAP Connector). If you do not want to use LDAP for SAP Logon or MMC, no LDAP-specific installation steps are required now.

If you decided to use LDAP for SAP Logon or Microsoft Management Console (MMC), you have to *prepare the active directory for use with the SAP system* [page 55].

### 4.1 Installation of Multiple Components in One Database (Optional)

You can install **multiple** SAP systems in a **single** database. This is called Multiple Components in One Database (MCOD).



Example

You install an SAP NetWeaver central system and an SAP CRM central system in a single database.

MCOD is scheduled to be available with all SAP components. We are releasing this technology on all the major databases for the SAP system, in line with our commitment to deliver platform-independent solutions.

Using this technology is as easy as installing a separate component. No extra effort is required because the MCOD installation is fully integrated into the standard installation procedure. MCOD is not an additional installation service. Instead, it is an option of the database instance installation.

With MCOD we distinguish two scenarios:

- The installation of an SAP system in a new database
- The installation of an additional SAP system in an existing database

#### Prerequisites

- For more information on MCOD and its availability on different platforms, see the SAP Service Marketplace at [service.sap.com/mcod](http://service.sap.com/mcod).
- For information about the availability of MCOD with Unicode, see **SAP Note 540911**.
- Improved sizing required

In general, you calculate the CPU usage for an MCOD database by adding up the CPU usage for each individual SAP system. The same applies to memory resources and disk space.

You can size multiple components in one database by sizing each individual component using the SAP Quick Sizer and then adding the requirements together. For more information on the SAP Quick Sizer, see the SAP Service Marketplace at [service.sap.com/sizing](http://service.sap.com/sizing).

## Features

- Reduced administration effort
- Consistent system landscape for backup, system copy, administration, and recovery
- Increased security and reduced database failure for multiple SAP systems due to monitoring and administration of only one database
- Independent upgrade

In an MCOD landscape you can upgrade a single component independently from the other components running in the same database, assuming that the upgraded component runs on the same database version. However, if you need to restore a backup, be aware that all other components are also affected.



### Note

Special MCOD considerations and differences from the standard procedure are listed where relevant in the installation documentation.

## Constraints



### Recommendation

We **strongly recommend** that you test MCOD in a test or development system.

We recommend that you run MCOD systems in the same context. We do not recommend that you mix test, development, and production systems in the same MCOD.

- In the event of database failure, all SAP systems running on the single database are affected.
- Automated support in an MCOD landscape for the following administrative tasks depends on your operating system and database:
  - Copying a single component from an MCOD landscape to another database at database level.
  - De-installing a single component from an MCOD landscape requires some additional steps. You can use remote connection to SAP support to request help with these tasks. For more information see [service.sap.com/remotecconnection](http://service.sap.com/remotecconnection).
- When you use `stopsap` in an MCOD system with two central instances, only one central instance and the database are shut down. Therefore, you must first stop the other SAP system with `stopsap R3` or make sure that it has already been stopped.
- You **cannot** install a Unicode SAP system with a non-Unicode SAP system in one database.
- For the first SAP system, the database system ID can be different from the SAP system ID.
- For the second SAP system, make sure that you use the same `DBSID` as for the first SAP system.
- If you install a system into an existing database (MCOD), make sure that the `SYSTEM` tablespace contains at least 350 MB of free space. If there is not enough space left, increase the size of this tablespace with `BRSPACE` or `BRTOOLS`.
- If you decide to turn off database logging during the database load phase of the installation, you need to plan downtime for all MCOD systems sharing the database.

## 4.2 Integration of LDAP Directory Services (Optional)

The Lightweight Directory Access Protocol (LDAP) is a feature of Windows 2000 or higher that allows important information within a corporate network to be stored centrally on a server. The advantage of storing information centrally for the entire network is that you have to maintain data only once, thus avoiding redundancy and inconsistency.

If an LDAP directory is available in your corporate network, you can configure the SAP system to use this feature. For example, a correctly configured SAP system can read information from the directory and also store information there.

This section explains the benefits of using the SAP system with the LDAP directory. In addition, it gives an overview of the configuration steps required to use an SAP system with the directory.



### Note

The SAP system can interact with the Active Directory using the LDAP protocol, which defines:

- The communication protocol between the SAP system and the directory
- How data in the directory is structured, accessed, or modified

If a directory other than the Active Directory also supports the LDAP protocol, the SAP system can take advantage of the information stored there. For example, if there is an LDAP directory on a UNIX or Windows server, you can configure the SAP system to use the information available there. In the following text, directories other than the Active Directory that implement the LDAP protocol are called **generic LDAP directories**.

### Prerequisites

You can only configure the SAP system for Active Directory services or other LDAP directories if these are **already available** on the network. The Active Directory is a feature of Windows 2000 or higher and is automatically available on all domain controllers. A generic LDAP directory is an additional component that you must install separately on a UNIX or Windows server.

### Features

In the SAP environment, you can exploit the information stored in an Active Directory or generic LDAP directory by using:

- SAP logon
- The Microsoft Management Console (MMC)

For more information on the automatic registration of SAP components in LDAP directories and the benefits of using it in SAP Logon and MMC, see the documentation *R/3 System Information in Directory Services* on SAP Service Marketplace at [service.sap.com/msplatforms](http://service.sap.com/msplatforms) → *Microsoft* → *Windows Server*

### SAP Logon

Instead of using a fixed list of systems and message servers, you can configure the SAP Logon in the `sapmsg.ini` configuration file to find SAP systems and their message servers from the directory. If you configure SAP logon to use the LDAP directory, it queries the directory each time *Server* or *Group* selection is chosen to fetch up-to-date information on available SAP systems.

To use LDAP operation mode, make sure that the `sapmsg.ini` file contains the following:

[Address]

Mode=LDAPdirectory

LDAPserver=

LDAPnode=

LDAPoptions=

Distinguish the following cases:

- If you use an Active Directory, you must set `LDAPoptions="DirType=NT5ADS"`. For more information, see the SAP system profile parameter `ldap/options`.
- You must specify the directory servers (for example, `LDAPserver=pcintc16 p24709`) if either of the following is true:
  - The client is not located in the same domain forest as the Active Directory
  - The operating system does not have a directory service client (Windows NT and Windows 9X without installed *dsclient*).

For more information, see the SAP system profile parameter `ldap/servers`.

- For other directory services, you can use `LDAPnode` to specify the distinguished name of the SAP root node. For more information, see the SAP system profile parameter `ldap/saproot`.

## MMC

The MMC is a graphical user interface (GUI) for administering and monitoring SAP systems from a central location. If the SAP system has been prepared correctly, the MMC presents and analyzes system information that it gathers from various sources, including the Active Directory.

Integrating the Active Directory as a source of information has advantages for the MMC. It can read system information straight from the directory that automatically registers changes to the system landscape. As a result, up-to-date information about all SAP application servers, their status, and parameter settings is always available in the MMC.

If you need to administer distributed systems, we especially recommend that you use the MMC together with Active Directory services. For example, you can simplify administration by using the MMC in a distributed environment that implements the mySAP Business Suite components SAP BW, SAP EBP, SAP APO, and SAP CRM. You can keep track of significant events in all of the systems from a single MMC interface. You do not need to manually register changes in the system configuration. Instead, such changes are automatically updated in the directory and subsequently reflected in the MMC.

## Configuration Tasks for Active Directory

To enable an SAP system to make use of the features offered by the Active Directory, you must configure both the Active Directory and the SAP system:

1. You prepare the Active Directory so that it can store SAP data.
 

This involves extending the schema for the SAP data types, creating a root container for the storage of SAP-specific information, and defining accounts that allow directory access. You perform all these tasks using the `R3SETUP` tool with the option *Configure Active directory for SAP*.

For more information, see *Preparing the Active Directory (Optional)* [page 55].
2. You configure the SAP system to enable interaction with the Active Directory.
 

You do this during the central instance installation using the `SAPinst` tool. `SAPinst` prompts you for information about the Active Directory and then configures the system accordingly.

### Configuration Tasks for Generic LDAP Directories

To prepare the SAP system to use generic LDAP services, you must perform several steps to configure both the LDAP directory and the SAP system:

1. You configure the LDAP directory to store SAP data.  
This involves extending the directory schema and creating a container for the SAP data.
2. You configure the SAP system to enable interaction with the LDAP directory.  
You do this during the central instance installation using the SAPinst tool. SAPinst prompts you for information about the Active Directory and then configures the system accordingly.
3. You set up a user with a password on the server where the SAP system is running to permit the system to access and modify the LDAP directory.  
You do this by running the script `1dappasswd`.

For more information on how to enable interaction between a generic LDAP directory and the SAP system, see the documentation *R/3 System Information in Directory Services* in the SAP Service Marketplace at [service.sap.com/msplatforms](http://service.sap.com/msplatforms) → *Microsoft* → *Windows Server*

### See Also

*Prepare the Active Directory for Use with the SAP system* [page 55]

## 4.3 Preparing the Active Directory (Optional)

If you decided to use LDAP directory services, you need to prepare the Active Directory. The SAP system can then use the Active Directory to store and access data.

To prepare the directory, you use the R3SETUP tool to automatically:

- Extend the Active Directory schema to include the SAP-specific data types
- Create the domain accounts required to enable the SAP system to access and modify the Active Directory. These are the group `SAP_LDAP` and the user `sap1dap`.
- Create the root container where information related to SAP is stored
- Control access to the container for SAP data by giving members of the `SAP_LDAP` group permission to read and write to the directory



#### Note

For more information on how to set up a Netscape /iPlanet directory server, see the documentation *R/3 System Information in Directory Services* on SAP Service Marketplace at [service.sap.com/msplatforms](http://service.sap.com/msplatforms) → *Microsoft* → *Windows Server*

### Prerequisites

- A Windows domain controller with an Active Directory must be installed on the network.
- You must have an *SAP Kernel CD* of an SAP system installation that is based on SAP Web Application 6.10, SAP Basis 4.6D, or lower and contains the previous installation tool R3SETUP.

**Note**

If you do not have an *SAP Kernel CD* with R3SETUP, you can download one from SAP Service Marketplace at [service.sap.com/installations](http://service.sap.com/installations) → *SAP Installations and Upgrades* → *Entry by Application Group* → *SAP NetWeaver Components* → *SAP NetWeaver Components ( < SAP NW 04 )* → *SAP Web AS* → *SAP Web AS 6.10* → *Installation* → *NT/I386* → *<your\_database>*

## Procedure

### Installing the R3SETUP Tool

You use this procedure to install the R3SETUP tool on the domain controller where the Active Directory is located.

1. Log on to the domain controller as domain administrator.
2. Check that the TEMP environment variable has been set:
  - a) Right-click *My Computer* on the Windows desktop
  - b) Choose *Properties* → *Advanced* → *Environment Variables*.  
TEMP is normally set to:  
%userprofile%\Local Settings\Temp  
For more information, see **SAP Note [387745](#)**.
3. Insert the *SAP Kernel CD*.
4. Start the program R3SETUP.BAT from the directory  
<CD\_DRIVE>:\NT\COMMON  
The R3SETUP window opens.
5. Enter the following when R3SETUP prompts you:
  - The name of your SAP system <SAPSID>
  - The directory on your hard disk that the R3SETUP files are to be copied to. The default directory is  
<DRIVE>:\USERS\<SAPSID>ADM\INSTALL  
When you have made all the required entries, the R3SETUP tool is automatically installed.
6. Choose *Yes* when a dialog box appears prompting you to log off or reboot.  
The R3SETUP tool now automatically logs off or reboots.

### Configuring the Active Directory

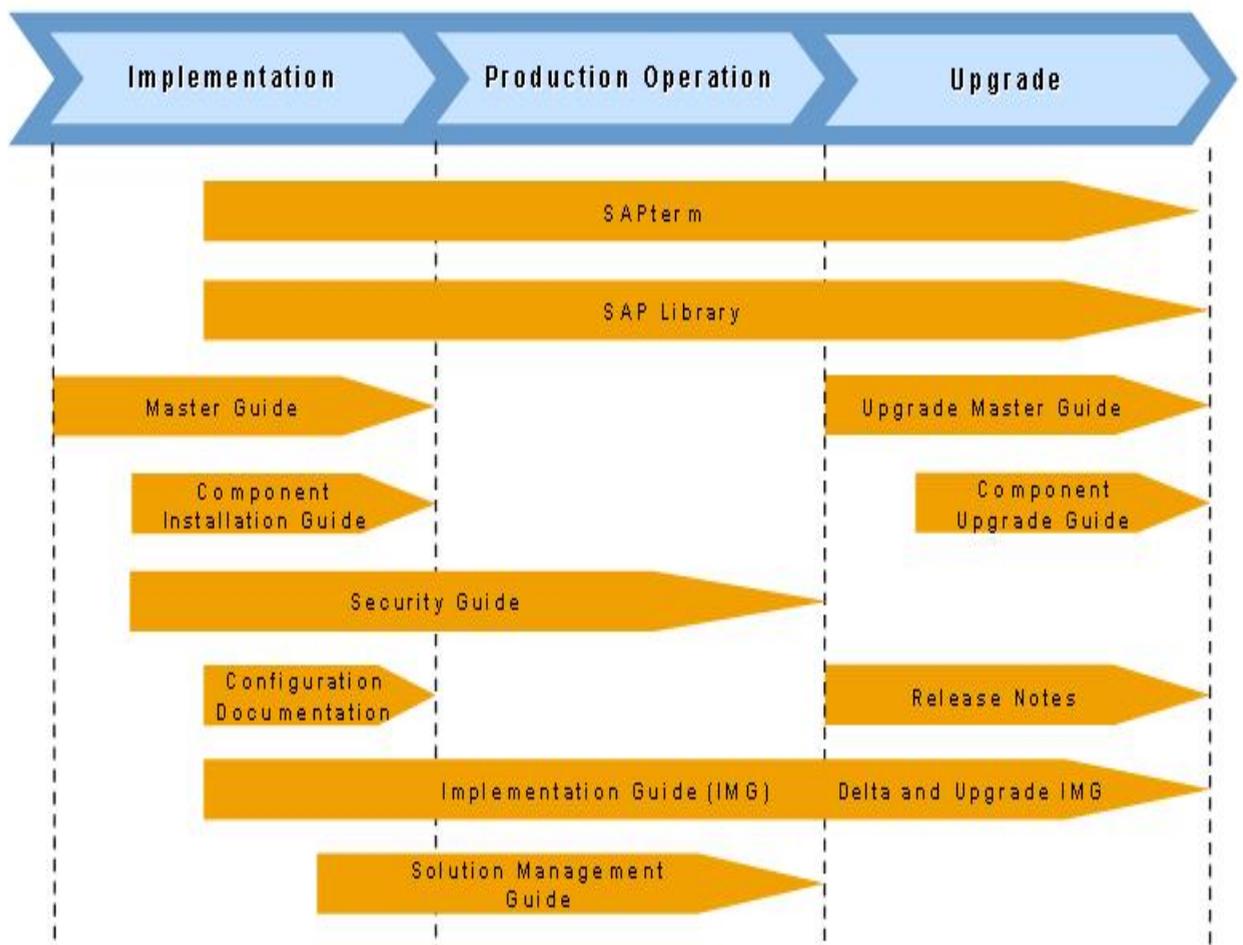
1. Log on as the same user that installed the R3SETUP tool.
2. Choose *Start* → *Programs* → *SAP system Setup for <SAPSID>* → *Configure Active Directory for SAP*.
3. When you are prompted:
  - Confirm the name of the domain where the SAP\_LDAP group is to be created. This is the domain that you are logged on to.
  - Enter the password of the sapldap user.
 When you have made these entries, the R3SETUP tool automatically configures the Active Directory.

# A Reference

## A.1 The Main SAP Documentation Types

The following is an overview of the **most important** documentation types that you need in the various phases in the life cycle of an SAP solution.

**Figure a:** Documentation types in the software life cycle



### Cross-Phase Documentation

**SAPterm**—SAPterm is SAP's terminology database. It contains SAP-specific vocabulary in over 30 languages, as well as many glossary entries in English and German.

- Target group:
  - Relevant for all target groups

- Current version:
  - Located in the SAP Service Marketplace at [service.sap.com/sapterm](http://service.sap.com/sapterm)

**SAP Library**—The SAP Library is a collection of function- and process-oriented documentation for SAP components. The SAP Library also contains the Business Scenario Descriptions.

- Target group:
  - Consultants
  - System administrators
  - Project teams for implementations or upgrades
- Current version:
  - Located in the SAP Help Portal at [help.sap.com](http://help.sap.com) (also available as documentation CD)
  - Located in the SAP Service Marketplace at [service.sap.com/ibc](http://service.sap.com/ibc) (only the Business Scenario Descriptions)

**Implementation Guide (IMG)**—The Implementation Guide is a tool for configuring the SAP system to meet customer requirements. Its structure and documentation are component-oriented.

- Target group:
  - Solution consultants
  - Project teams for implementations or upgrades
- Current version:
  - In the SAP menu of the SAP system under *Tools* → *Customizing* → *IMG*

**Security Guide**—The Security Guide describes the settings for a medium security level and offers suggestions for raising security levels. A collective security guide is available for the SAP NetWeaver technologies, such as the SAP Web Application Server (SAP Web AS). This document contains general guidelines and suggestions about system security. Other technologies and individual applications have a Security Guide of their own.

- Target group:
  - Technology consultants
  - Solution consultants
  - Project teams for implementations or upgrades
- Current version:
  - Located in the SAP Service Marketplace at [service.sap.com/securityguide](http://service.sap.com/securityguide)

### Implementation

**Master Guide**—The Master Guide is the starting point for implementing an SAP solution. It lists the required SAP components, and third-party applications that are required for each Business Scenario. It provides scenario-specific descriptions of preparation, execution, and follow-up of an implementation. It also offers references to other documents, such as Component Installation Guides and SAP Notes.

- Target group:
  - Technology consultants
  - System administrators
  - Project teams for implementations
- Current version:
  - Located in the SAP Service Marketplace at [service.sap.com/instguides](http://service.sap.com/instguides)

**Component Installation Guide**—The Component Installation Guide describes the technical implementation of an SAP component, taking into account the combinations of operating systems and databases. It does not describe any business-related configuration.

- Target group:
  - Technology consultants
  - Project teams for implementations
- Current version:
  - Located in the SAP Service Marketplace at [service.sap.com/instguides](http://service.sap.com/instguides)

**Configuration Documentation in SAP Solution Manager**—SAP Solution Manager is a tool with various functions, one of its main functions being the configuration of SAP solutions and Business Scenarios. It contains IMG activities, transactions, and so on, as well as documentation. Instead of the configuration documentation in SAP Solution Manager, there may be separate Business Scenario Configuration Guides in the SAP Service Marketplace for previous shipments of the Business Scenarios.

- Target group:
  - Solution consultants
  - Project teams for implementations
- Current version:
  - In SAP Solution Manager
  - Located in the SAP Service Marketplace at [service.sap.com/ibc](http://service.sap.com/ibc)

#### **Production Operation**

**Solution Management Guide**—The Solution Management Guide is the starting point for operating an SAP solution. The guide refers users to the tools and documentation that are needed to carry out various tasks, such as monitoring, backup / restore, master data maintenance, transports, and tests. It also refers users to other documents, for example the SAP Library, the Master Guide, and the Component Management Guides.

- Target group:
  - System administrators
  - Technology consultants
  - Solution consultants
  - Project teams for implementations or upgrades
- Current version:
  - Located in the SAP Service Marketplace at [service.sap.com/instguides](http://service.sap.com/instguides)

#### **Upgrade**

**Upgrade Master Guide**—The Upgrade Master Guide is the starting point for upgrading the Business Scenarios of an SAP solution. It provides scenario-specific descriptions of preparation, execution, and follow-up of an upgrade. It also refers to other documents, such as the Component Upgrade Guides and SAP Notes. Instead of an Upgrade Master Guide, there may be several Business Scenario Upgrade Guides or a Solution Upgrade Guide for previous shipments of the Business Scenarios of an SAP solution.

- Target group:
  - Technology consultants
  - Project teams for upgrades
- Current version:
  - Located in the SAP Service Marketplace at [service.sap.com/instguides](http://service.sap.com/instguides)

**Component Upgrade Guide**—The Component Upgrade Guide describes the technical upgrade of an SAP component, taking into account the combinations of operating systems and databases. It does not describe any business-related configuration.

- Target group:
  - Technology consultants
  - Project teams for upgrades
- Current version:
  - Located in the SAP Service Marketplace at [service.sap.com/instguides](http://service.sap.com/instguides)

**Release Notes**—Release Notes are documents that contain short descriptions of new features or changes in an SAP component since the previous release. Release Notes about ABAP developments enable the SAP system to generate delta and upgrade IMGs

- Target group:
  - Consultants
  - Project teams for upgrades
- Current version:
  - Located in the SAP Service Marketplace at [service.sap.com/releasenotes](http://service.sap.com/releasenotes)
  - In the SAP menu of the SAP system under *Help* → *Release Notes* (only ABAP developments)