Installation Guide

SAP® R/3 Enterprise on UNIX : Oracle

Using SAP R/3 Enterprise Core 4.70, SAP R/3 Enterprise Extension Set 2.00, Service Release 1

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Typographic Conventions

Type Style	Represents
Example Text	Words or characters that appear on the screen. These include field names, screen titles, pushbuttons as well as menu names, paths and options. Cross-references to other documentation
Example text	Emphasized words or phrases in body text, titles of graphics and tables
EXAMPLE TEXT	Names of elements in the system. These include report names, program names, transaction codes, table names, and individual key words of a programming language, when surrounded by body text, for example, SELECT and INCLUDE.
`Example text`	Screen output. This includes file and directory names and their paths, messages, names of variables and parameters, source code as well as names of installation, upgrade and database tools.
`Example text`	Exact user entry. These are words or characters that you enter in the system exactly as they appear in the documentation.
`<Example text>`	Variable user entry. Pointed brackets indicate that you replace these words and characters with appropriate entries.
`EXAMPLE TEXT`	Keys on the keyboard, for example, function keys (such as F2) or the `Enter` key.

Icons

Icon	Meaning
	Caution
	Example
	Note
	Recommendation
	Syntax

Contents

SAP R/3 Enterprise Core 4.70 Extension Set 2.00 Service Release 1 on UNIX : Oracle

Purpose

This documentation explains how to install SAP R/3 Enterprise Core 4.70 Extension Set 2.00 Service Release 1 (SAP R/3 Enterprise) on UNIX when your database is Oracle.

SAP R/3 Enterprise is based on SAP Web Application Server (SAP Web AS) 6.40 technology, which is the underlying technology of almost all solutions of mySAP Business Suite. For more information on the technology provided by SAP Web AS, see SAP Service Marketplace at **`service.sap.com/NetWeaver`**.

This documentation focuses on the **ABAP** part of the SAP R/3 Enterprise installation. The ABAP part is required for the installation of SAP R/3 Enterprise ABAP and SAP R/3 Enterprise ABAP+Java.

If you want to install the **Java** part of SAP R/3 Enterprise, you have to install SAP Web AS 6.40 Java. This is because the technology of the Java part of SAP R/3 Enterprise is the same as that of Sap Web AS 6.40. The installation of SAP Web AS Java 6.40 is described in the documentation *Installation Guide – SAP Web Application Server Java 6.40 on UNIX: Oracle* on SAP Service Marketplace at:

`service.sap.com/instguidesnw04`

Before you continue reading this documentation, **you must have read** the documentation *Planning Guide – SAP R/3 Enterprise Core 4.70 Extension Set 2.00 Service Release 1* on SAP Service Marketplace at **`service.sap.com/instguides`** → *SAP Components* → *SAP R/3 Enterprise* → *SAP R/3 Enterprise Core 4.70 / Ext. Set 2.00 (SR1)*

The Planning Guide enables you to meet the decisions that are required during the planning phase of the SAP R/3 Enterprise installation, like:

- Choosing a basic system variant of SAP R/3 Enterprise
- Defining the SAP instances you want to install
- Deciding how to distribute those SAP instances to installation hosts
- Deciding which optional installation features you want to use

Also, you will have collected the installation parameters that the installation tool SAPinst prompts you to enter during the installation process.

After you have worked through the Planning Guide, you can continue reading the documentation at hand.

The documentation *SAP R/3 Enterprise Core 4.70 Extension Set 2.00 Service Release 1 on UNIX : Oracle* consists of the following parts:

- General Information [page 11]

  Here, you can find information about new features for the installation and naming conventions used in the documentation.

- Installation Checklists [page 17]

  Before you start your installation, make sure that you read this section. It provides you with a list of all actions that you must perform to install your SAP system successfully.

The actions are listed chronologically in checklists, which you use to navigate through the installation.

- Installation Preparations [page 52]
- Installation Process [page 66]
- Post-Installation Activities [page 81]
- Additional Information [page 102]

Constraints

Before you continue reading this documentation, **you must have read** the documentation *Planning Guide – SAP Supplier Relationship Management Server 5.0 on UNIX: Oracle* on SAP Service Marketplace at **`service.sap.com/instguides`** → *SAP Components* → *SAP R/3 Enterprise* → *SAP R/3 Enterprise Core 4.70 / Ext. Set 2.00 (SR1)*

Before starting the installation, **you must have prepared the installation hosts** as described in the section Hardware and Software Requirements. Particularly you have to check/adapt the **OS kernel parameters on UNIX** as described in the documentation *SAP Software on UNIX: OS Dependencies*, section <*Your OS*>.
If you do not check the UNIX kernel parameters, **there might be unpredictable problems with your system during or after the installation**.

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.

The following constraints should be taken into consideration before you begin the SAP system installation:

- This documentation **only** applies if you are installing an Oracle database with a UNIX operating system.
- SAP system installations should **only** be performed by SAP Technical Consultants, who are certified for your operating system, your database, and the SAP system 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

1.1 SAP R/3 Enterprise Architecture

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 General Information

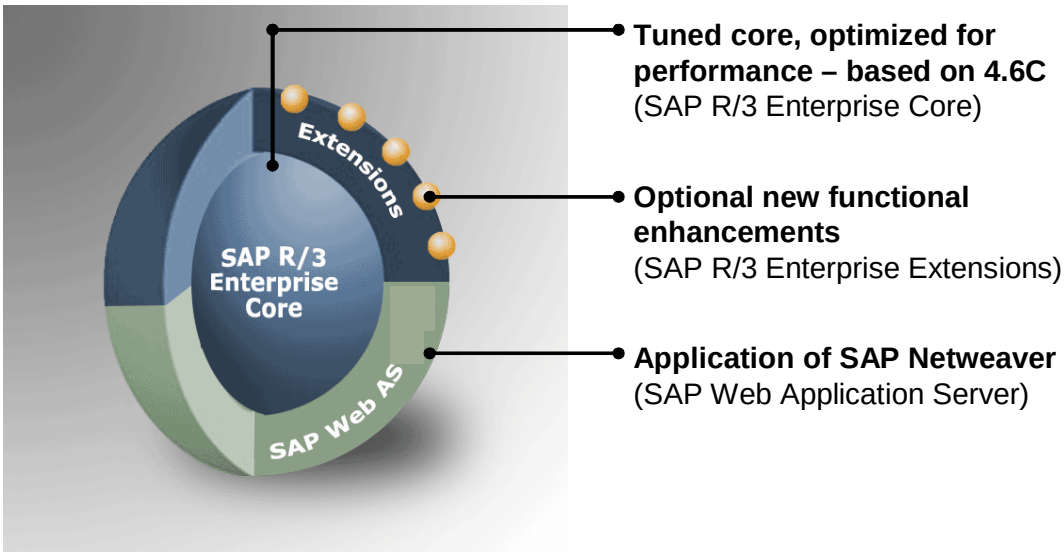
The following sections provide you with general information:

- New Features [page 12]
- Naming Conventions [page 16]

Before you start your SAP system installation, read the Installation Checklists [page 17].

1.1 SAP R/3 Enterprise Architecture

SAP R/3 Enterprise is built on the principle of optimizing the stable and mature core processes and infrastructure and making new enhancements optional and deployable when needed.



This version of SAP R/3 Enterprise consists of:

- SAP R/3 Enterprise Extension Set 2.00 SR 1

  An SAP R/3 Extension Set includes all SAP R/3 Enterprise Extensions with the same release.

- SAP R/3 Enterprise Core (4.70)
- SAP R/3 Plug-In PI 2004_1_470 SP 1 and PI_BASIS 2004_1_620 SP 3
- SAP Web Application Server 6.40 Kernel
- SAP Web Application Server 6.20 ABAP Basis

All SAP R/3 Enterprise Extensions get installed, but to use the functions contained in the SAP R/3 Enterprise Extensions or industry solutions each can be activated separately. This means you can implement only those new developments that you require.

For more information about SAP R/3 Enterprise, see SAP Service Marketplace at **`service.sap.com/enterprise`**

1.2 New Features

New Features for SAP R/3 Enterprise 4.7 Ext. 2.00 SR1

Area	Description
SAP System Installation	
Kernel	SAP R/3 Enterprise 4.70 (Ext. Set 2.00) SR 1 has a downward-compatible kernel (DCK) from SAP Web AS 6.40.
New SAPinst Features	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 (`$TEMP` or `$TMP` or `/tmp`).
Integration of SAP Internet Transaction Server (SAP ITS)	As of Sap Web AS 6.40 the SAP Insternet Transaction Server (SAP ITS) is an integrated part of SAP Web Application Server.
Integration of the installation of SAP Internet Graphic Server (IGS)	As of SAP Web AS 6.40 the installation of the SAP Internet Graphic Server (IGS) is integrated into the installation of SAP Web Application Server 6.40.
Distribution of Components	For SAP Web AS ABAP+Java, the central services instance always gets installed on the central instance host.
Operating Systems	
Support of Operating Systems	See SAP Service Marketplace at **`service.sap.com/platforms`** → *Product Availability Matrix*. (Alias **`/pam`**)
Oracle Installation	
New functions in Oracle 9i	As of the installation of SAP Web AS ABAP or ABAP+Java, new functions of the Oracle 9i database release are used. For more information, see **SAP Note 598678**.

New Features for SAP Web AS 6.30 or lower and for components based on it:

Area	Description
SAP System Installation	

Installation CDs	The installation is started from the *SAP Installation Master CD*.
New Java development environment	The SAP NetWeaver Developer Studio introduces SAP's own environment for developing Java-based, multiple-layered business applications. The new development environment is based on Eclipse, an open source product, whose open plug-in architecture provides a suitable platform for incorporating specific functions. For more information, see the SAP Library [page 41] and choose *Application Platform (SAP Web Application Server)* → *Java Technology in SAP Web Application Server* → *Development Manual* → *Introduction to the SAP NetWeaver Developer Studio*.
New installation tool SAPinst	SAP provides a new installation tool called System Landscape Implementation Manager, also referred to as *SAPinst*. The main advantages compared with the previous installation tool R3SETUP are: • SAPinst does not abort due to errors. Instead, it stops the installation and you can retry the installation after having solved the problem. Alternatively, you can abort the installation manually if you want. • SAPinst continues an aborted installation directly from the point of failure. • SAPinst records installation progress in a single log file, called `sapinst.log`. • SAPinst has a graphical user interface (GUI) called the SAPinst GUI which allows you to watch the progress of the installation and see all messages issued by SAPinst. As the SAPinst GUI is Java based, you need a Java Runtime Environment (JRE) or a Java Development Kit (JDK). A *What's this?* help is integrated in the SAPinst GUI. To use this, choose  and click the field for which you want more information.  You can start the SAPinst GUI on a remote computer if you want.

Area	Description
Support of Unicode	Unicode unifies the encoding systems for characters on computer systems. Without Unicode, there are hundreds of conflicting encoding systems. That is, two encoding systems can use the **same** number for two **different** characters, or use **different** numbers for the **same** character. Any given computer needs to support many different encoding systems. Whenever data is passed between different encoding systems or platforms, there is a risk of corruption. Unicode removes this risk by providing a unique number for every character independent of: • Platform, • Program, • Language. We use the single-source approach for **transparent** Unicode support. That is, ABAP coding runs **identically** on non-Unicode and Unicode SAP systems. • **Non-Unicode SAP system** All characters are represented binary with only one Byte. • **Unicode SAP system** All characters are represented binary with 2 or 4 Byte. For more information about Unicode SAP systems and their availability, see **SAP Notes 79991** and the SAP Service Marketplace at **`service.sap.com/Unicode`**.
Integration of J2EE Engine	A Java 2 Enterprise Edition (J2EE) standards-based engine is provided and supported by SAP as a runtime environment for the Java-based SAP components. It is an optional part of SAP Web Application Server as of release 6.20, which delivers a reliable and scalable e-business environment with native Java support that is fully J2EE compliant. The J2EE Engine integrated into the SAP system provides the following features: • J2EE compliance • Enterprise JavaBeans • Web and Internet enabling • XML support For more information, see *Application Platform(SAP Web Application Server)* → *Java Technology in SAP Web Application Server* in the SAP Library [page 41].

Area	Description
Support of Multiple Components in One Database	SAP offers the installation of Multiple Components in one Database (MCOD) for Oracle 8.1.7 or higher. That is, you can install your new SAP system into an existing SAP system database. For an MCOD installation, you can only combine systems for which the MCOD feature is released by SAP. For more information, see section Installation of Multiple Components in One Database [page 41].
LDAP support for ReliantUNIX	SAP no longer supports LDAP (Lightweight Directory Access Protocol) directory services on ReliantUNIX. See **SAP Note 443003** for more information.
Operating Systems	
HP Tru64 UNIX	The former name of HP Tru64 UNIX is Compaq Tru64 UNIX.
Oracle Installation	
Database schema ID	The database schema ID (<SCHEMA_ID>) can be different from the SAP system ID (<SAPSID>). As a result, the name of SAP<SAPSID> changed to SAP<SCHEMA_ID>.
New backup file system for Oracle offline redo logs	/oracle/<DBSID>/oraarch is the new standard file system for Oracle offline redo logs. The file system /oracle/<SAPSID>/saparch still persists but now only contains brbackup log files.
Oracle sapdata file systems	Only four sapdata file systems (sapdata1 to sapdata4) are required for the Oracle database.
Oracle tablespace implement. method	As of Oracle 8.1.7, a new, effective method of implementing tablespaces is used. With this new tablespace implementation, only the following three database tablespaces are created: • PSAP<SCHEMA_ID> • PSAP<SCHEMA_ID><RELEASE> • PSAP<SCHEMA_ID>USR All three tablespaces are created with AUTOEXTEND ON and EXTENT MANAGEMENT LOCAL AUTOALLOCATE. For more information, see **SAP Note 355771**.
Database system ID	As of SAP Web Application Server 6.10, there is an Oracle database system ID <DBSID> that can be different from the SAP system ID <SAPSID>. As a result, the database *administrator* name (that is, the owner of files) has changed from ora<sapsid> to ora<dbsid>. Furthermore, the database *owner* name (that is, the owner of tables) changed to SAP<SCHEMA_ID>.

	 SAP system ID is `C11`, the corresponding Oracle database system ID is `D11` and the database schema ID is `DS1`. Then, the SAP system administrator is `c11adm`, the Oracle database administrator is `orad11` and the Oracle database owner is `SAPDS1`.

1.2 Naming Conventions

In this documentation, the following naming conventions apply.

Terminology

- The term SAP system is the same as SAP R/3 Enterprise.
- *SAP Web AS Java* is a synonym for *SAP Web AS Java for SAP R/3 Enterprise* .
- *SAP R/3 Enterprise ABAP + Java* is a synonym for *SAP Web AS ABAP+J2EE*.

Variables

Variables	Description
`<CD-DIR>`	Directory on which a CD / DVD is mounted
`<DBSID>`	Database system ID in uppercase letters
`<dbsid>`	Database system ID in lowercase letters
`<host_name>`	Name of the corresponding host
`<INSTDIR>`	Installation directory for the SAP system
`<OS>`	Operating system name within a path
`<SAPinst_INSTDIR>`	Installation directory for the SAP installation tool SAPinst
`<SAPSID>`	SAP system ID in uppercase letters
`<sapsid>`	SAP system ID in lowercase letters
`<SCHEMA_ID>`	Database schema ID

The following examples show how the variables are used:

“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`.

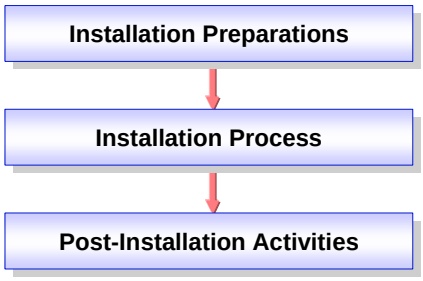
"Change to the directory `<CD-DIR>/IM2/UNIX/<OS>`."

If the CD is mounted on `/sapcd1` and your operating system is Sun Solaris, change to `/sapcd1/IM2/UNIX/SUNOS_64`.

2 Installation Checklists

Purpose

You need to perform the following phases when you install your SAP system:



You use the checklists in the following sections to work through these installation phases.

Prerequisites

Before you start the installation, **you must have planned your installation**. The options for the basic system variants and for the distribution of instances on hosts are described in the documentation *Planning Guide – SAP R/3 Enterprise on UNIX : Oracle - Using SAP R/3 Enterprise Core 4.70, SAP R/3 Enterprise Extension Set 2.00, Service Release 1* on SAP Service Marketplace at **`service.sap.com/instguides`** → *SAP Components* → *SAP R/3 Enterprise* → *SAP R/3 Enterprise Core 4.70 / Ext. Set 2.00 (SR1).*

Using this document, you also specify the parameters you need for the installation process.

Process Flow

1. You choose and print out the relevant installation checklist(s) for one of the following system variants:
   - **SAP R/3 Enterprise ABAP**:

Installation Option	Installation Checklist
SAP R/3 Enterprise as a **central system**: Central instance and database instance of SAP R/3 Enterprise are installed on a **single** host	Installation Checklist for SAP R/3 Enterprise (Central System) [page 20]

SAP R/3 Enterprise as a **distributed system**: Central instance and database instance of SAP R/3 Enterprise are installed on **two** hosts	Installation Checklist for SAP R/3 Enterprise (Distributed System) [page 25]
Dialog Instance(s) for SAP R/3 Enterprise	Installation Checklist for a Dialog Instance [page 32]
Gateway Instance(s)	Installation Checklist for a Gateway Instance [page 34]
Additional Components	Installation Checklist for Additional Components [page 37]

- **SAP R/3 Enterprise ABAP+Java**:

For the installation of SAP R/3 Enterprise ABAP+Java, also installation checklists in the documentation *Installation Guide – SAP Web Application Server Java 6.40 on UNIX: Oracle* are required.

Installation Option	Installation Checklist
SAP R/3 Enterprise as a **central system**: Central instance, central services instance and database instance of the SAP R/3 Enterprise are installed on a **single** host	1. Installation Checklist for SAP R/3 Enterprise (Central System) [page 20] 2. *Installation Checklist for SAP R/3 Enterprise – J2EE Add-In (Central System)* available in the documentation *Installation Guide – SAP Web Application Server Java on UNIX: Oracle*.

SAP R/3 Enterprise as a **distributed system**: Central instance, central services instance and database instance of the SAP R/3 Enterprise are installed on **two** hosts	1. Installation Checklist for SAP R/3 Enterprise (Distributed System) [page 25] 2. *Installation Checklist for SAP R/3 Enterprise – J2EE Add-In (Distributed System)* available in the documentation *Installation Guide – SAP Web Application Server Java on UNIX: Oracle*.

Installation Option	Installation Checklist
Dialog Instance(s) for SAP R/3 Enterprise	1. Installation Checklist for a Dialog Instance [page 32] 2. *Installation Checklist for a Dialog Instance for SAP R/3 Enterprise – J2EE Add-In* available in the documentation *Installation Guide – SAP Web Application Server Java on UNIX: Oracle*.
Gateway Instance(s)	Installation Checklist for a Gateway Instance [page 34]
Additional Components	Installation Checklist for Additional Components [page 37]

- **SAP Web AS Java for SAP R/3 Enterprise**:

  The installation of the system variant *SAP Web AS Java* is **not** described in this installation guide. Instead, see the documentation *Installation Guide – SAP Web Application Server Java 6.40 on UNIX: Oracle* (in that guide, perform the installation option *SAP Web AS – J2EE system*).

You might need to refer to the sections listed under Additional Information [page 102] when installing your SAP system.

3. You follow the installation sequence exactly as shown in the checklists:
   a. If a step is required for your installation, follow the link for that step to the corresponding section.
   b. Perform the procedure described there.
   c. After successfully completing the installation step, mark the corresponding entry in the printed table with ✓ to log the progress of your installation.
   d. Proceed with the next step in the checklist.

2.1 Installation Checklist for SAP R/3 Enterprise (Central System)

Purpose

You use the following checklist when you want to install a central system (that is, you install a central instance and a database instance on the **central system host**).

Process Flow

✔	Action
Installation Preparation	
	Make sure that you have planned the system configuration of your installation as described in the documentation *Planning Guide SAP R/3 Enterprise on UNIX : Oracle - Using SAP R/3 Enterprise Core 4.70, SAP R/3 Enterprise Extension Set 2.00, Service Release 1* on SAP Service Marketplace at **`service.sap.com/instguides`** → *SAP Components* → *SAP R/3 Enterprise* → *SAP R/3 Enterprise Core 4.70 / Ext. Set 2.00 (SR1).*
	You obtain the required documentation [page 38] for the SAP system installation. Particularly, request the current SAP Notes for the installation.  If you want to install a Unicode SAP system, make sure to read **SAP Note 544623** and to perform the additional installation steps described there.
	If you decided to perform an installation of multiple components in one database (MCOD), see Installation of Multiple Components in One Database [page 41].
	You check the Hardware and Software Requirements [page 43]. For the distribution of the Oracle database on hard disks, also check the Oracle System Configuration [page 48].
	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. For more information on installing the front end software, see the separate documentation: • *SAP Front End Installation Guide* (English version) • *SAP Frontend-Installationsleitfaden* (German version)
	You can optionally create the operating system users [page 52] `<sapsid>adm` and/or `ora<dbsid>` manually before the installation.  If you do not create these users manually, they get created automatically by SAPinst during the installation.

✔	Action
	You modify UNIX kernel parameters and swap space. For more information, see the following sections in the documentation *SAP Software on UNIX: OS Dependencies*: • *<Your OS>: Checking and Modifying the UNIX Kernel* • For AIX: *AIX: Checking and Modifying the UNIX Kernel* and *Creating UNIX Groups and Users* • For Linux: *Linux: Checking the UNIX Kernel*  If you do not check the UNIX kernel parameters, there might be unpredictable problems with your system during or after the installation.
	You check **SAP Note 306408** if 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.
	You set up file systems or raw devices [page 53] listed under *SAP File Systems* and *Oracle File Systems*.
	You prepare the system for SAPinst [page 58].
	You prepare installation CDs / DVDs [page 61].
	If you decided to use LDAP for SAP Logon or Microsoft Management Console (MMC): • Make sure that an LDAP directory is available on the network. The Active Directory is part of a Windows 2000 installation and is automatically available on all Domain Controllers. A generic LDAP directory is an additional component that has to be installed separately on a UNIX or Windows Server. • *Active Directory:* Prepare the Active Directory for use with the SAP system [page 64]. • *Generic LDAP Directory:* Make sure that the generic LDAP directory is prepared so that it can store SAP data. The preparation involves extending the directory schema and creating a container for the SAP data.
Installation Process	
	You set the library path environment variable as described in section Prerequisites before Starting SAPinst [page 66].
	You make sure that `umask` is set to `022` for user `root`. As user `root`, enter the following command: **`umask 022`**

✔	Action
	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.
	You run SAPinst [page 69] and select *SAP R3E 4.7x200 SR1* → *ABAP System* → *<Unicode or non-Unicode>* → *Install a Central Instance*.
	You run SAPinst [page 69] and select *SAP R3E 4.7x200 SR1* → *ABAP System* → *<Unicode or non-Unicode>* → *Install a Database Instance*.  If you install a system into an existing database (MCOD), see section Installation of Multiple Components in One Database [page 41] for more information. SAPinst stops the installation and prompts you for the Oracle database installation.
	You start the Script rootpre.sh (AIX only) [page 74].  This action is **not** required if you install a system into an existing database (MCOD).
	You install the Oracle database software [page 76].  This action is **not** required if you install a system into an existing database (MCOD).
	You continue the database instance installation by choosing *Ok* in the SAPinst GUI of the database instance installation.
	You check settings for OS users [page 79] (AIX only).
	If you decided to use a generic LDAP directory, you create an user for LDAP directory access [page 79].

✔	Action
Post-Installation Activities To complete the installation, you have to perform a number of actions. Some of these actions are mandatory, others are optional and serve to activate features that might be useful.	
	HP Tru64 UNIX only: Edit shell scripts [page 81].
	You check that you can start and stop the SAP system [page 82].
	You check that you can log on to the SAP system [page 85].
	You check that the SAP system services [page 86] are present.
	You install the SAP Online Documentation [page 87].
	You install the SAP License [page 87].
	You configure SAProuter and SAPNet – R/3 Frontend [page 88].
	You complete and check the Oracle installation [page 89].
	You configure the domain controller in the Transport Management System [page 90] (TMS).
	You perform basic operations [page 91] in your SAP system.
	You check and, if required, adapt the configured number of work processes [page 91].
	You activate or deactivate the integrated Internet Transaction Server (ITS) [page 93].
	If required, you install additional languages [page 92].
	If required, you import Support Packages [page 93].
	You perform operating system adjustments [page 94].
	You perform file and directory adjustments [page 94].
	For the installation, you have set permissions of directory `/usr/sap/trans` to `775` on the central instance host (see section Setting up File Systems and Raw Devices [page 53]). For security reasons, set the permissions of `/usr/sap/trans` to **771** after the installation.
	If the Oracle security setup defined by the standard installation is not restrictive enough for your purposes, see **SAP Note 186119** to configure the Oracle listener to accept only connections from specific hosts.

✔	Action
	Unicode SAP system installation only: Make sure to perform the post-installation steps described in **SAP Note 544623**.
	If you install SAP R/3 Enterprise as basis for an SAP component that uses the Knowledge Provider (KPRO) component (for example, SAP BW or SAP KW), you schedule asynchronous indexing and deindexing [page 96] using the report RSTIRIDX).
	You perform the client copy [page 99].
	You perform a full installation backup [page 99].  If you install SAP R/3 Enterprise ABAP+Java, you could perform the full installation backup after the installation of the J2EE Engine.
	When the newly installed SAP system goes into production, we recommend that you **immediately** change passwords of created users [page 101] according to the *SAP Security Guide*.
Additional Steps	
	If you want to install SAP R/3 Enterprise ABAP+Java, perform the steps in the *Installation Checklist for SAP Web AS – J2EE Add-In (Central System)* available in the documentation *Installation Guide – SAP Web Application Server Java 6.40 on UNIX: Oracle*.  SAP_BAS_620 and SAP_ABA_620 SP41 are prerequisites for the J2EE Add-In installation.
	After central system installation you can install the following if required: • Dialog Instance [page 32] • Gateway Instance [page 34] • Additional Components [page 37]
	Once you have completed and checked the SAP system installation, you need to prepare the SAP system for using business applications. This process includes customizing the basis system and the various business components. For more information, see the SAP Library [page 41] and choose *Solution Life Cycle Management → Customizing.*

2.2 Installation Checklist for SAP R/3 Enterprise (Distributed System)

Purpose

You use the following checklist when you want to install a distributed SAP system (that is, you install a central instance on the **central instance host** and the database instance on the **database instance host**).

Process Flow

1. You perform the following steps on the **central instance host**:

✔	Action
Installation Preparation	
	Make sure that you have planned the system configuration of your installation as described in the documentation *Planning Guide – SAP R/3 Enterprise on UNIX : Oracle - Using SAP R/3 Enterprise Core 4.70, SAP R/3 Enterprise Extension Set 2.00, Service Release 1* on SAP Service Marketplace at **`service.sap.com/instguides`** → *SAP Components* → *SAP R/3 Enterprise* → *SAP R/3 Enterprise Core 4.70 / Ext. Set 2.00 (SR1).*
	You obtain the required documentation [page 38] for the SAP system installation. Particularly, request the current SAP Notes for the installation.  If you want to install a Unicode SAP system, make sure to read **SAP Note 544623** and to perform the additional installation steps described there.
	If you decided to perform an installation of multiple components in one database (MCOD), see Installation of Multiple Components in One Database [page 41].
	If you decided to use LDAP (Lightweight Directory Access Protocol) for SAP Logon or the Microsoft Management Console (MMC), see Integration of LDAP Directory Services [page 42].
	You check the hardware and software requirements [page 43].
	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. For more information on installing the front end software, see the separate documentation: • *SAP Front End Installation Guide* (English version) • *SAP Frontend-Installationsleitfaden* (German version)

✔	Action
	You can optionally create the operating system users [page 52] `<sapsid>adm` and/or `ora<dbsid>` manually before the installation.  If you do not create these users manually, they get created automatically by SAPinst during the installation.
	You modify UNIX kernel parameters and swap space. For more information, see the following sections in the documentation *SAP Software on UNIX: OS Dependencies*: • *<Your OS>: Checking and Modifying the UNIX Kernel* • For AIX: *AIX: Checking and Modifying the UNIX Kernel* and *Creating UNIX Groups and Users* • For Linux: *Linux: Checking the UNIX Kernel*  If you do not check the UNIX kernel parameters, there might be unpredictable problems with your system during or after the installation.
	You set up file systems or raw devices [page 53] listed under *SAP File Systems* and the directory for the Oracle client software listed under *Oracle File Systems*.
	You prepare the system for SAPinst [page 58].
	You prepare installation CDs / DVDs [page 61].
	If you decided to use LDAP for SAP Logon or Microsoft Management Console (MMC): • Make sure that an LDAP directory is available on the network. The Active directory is part of a Windows 2000 installation and is automatically available on all Domain Controllers. A generic LDAP directory is an additional component that has to be installed separately on a UNIX or Windows Server. • *Active Directory:* You prepare the Active Directory for use with the SAP system [page 64]. • *Generic LDAP Directory:* Make sure that the generic LDAP directory is prepared so that it can store SAP data. The preparation involves extending the directory schema and creating a container for the SAP data.
Installation Process	
	You make sure that `umask` is set to `022` for user `root`. As user `root`, enter the following command: **`umask 022`**
	You run SAPinst [page 69] and select *SAP R3E 4.7x200 SR1* → *ABAP System* → *<Unicode or non-Unicode>* → *Install a Central Instance*.

✔	Action
	You check Settings for OS Users [page 79] (AIX only).
	If you decided to use a generic LDAP directory, you create an user for LDAP directory access [page 79].

2. You perform the following steps on the **database instance host**:

If you install a system into an existing database (MCOD), see section Installation of Multiple Components in One Database [page 41] for more information.

✔	Action
Installation Preparation	
	You check the hardware and software requirements [page 43]. For the distribution of the Oracle database on hard disks, also check the Oracle System Configuration [page 48].
	You can optionally create the operating system users [page 52] `<sapsid>adm` and/or `ora<dbsid>` manually before the installation.  If you do not create these users manually, they get created automatically by SAPinst during the installation.
	You modify UNIX kernel parameters and swap space. For more information, see the following sections in the documentation *SAP Software on UNIX: OS Dependencies*: • *<Your OS>: Checking and Modifying the UNIX Kernel* • For AIX: *AIX: Checking and Modifying the UNIX Kernel* and *Creating UNIX Groups and Users* • For Linux: *Linux: Checking the UNIX Kernel*  If you do not check the UNIX kernel parameters, there might be unpredictable problems with your system during or after the installation.
	You check **SAP Note 306408** if 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.
	You set up file systems or raw devices [page 53] listed under *Oracle File Systems*. Also mount the global transport directory `/usr/sap/trans` as listed under *SAP File Systems*.

✔	Action
Installation Process	
	You make sure that the prerequisites before starting SAPinst [page 66] are met: • Set the library path environment variable as described in section *For Database Instance only*. • Mount directories from the central instance as described in section *For Distributed Instances only*.
	You make sure that `umask` is set to `022` for user `root`. As user `root`, enter the following command: **`umask 022`**
	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.
	You run SAPinst [page 69] and select *SAP R3E 4.7x200 SR1* → *ABAP System* → *<Unicode or non-Unicode>* → *Install a Database Instance*.  If you install a system into an existing database (MCOD), see section Installation of Multiple Components in One Database [page 41] for more information. SAPinst stops the installation and prompts you for the Oracle database installation.
	You start the Script rootpre.sh (AIX only) [page 74].  This action is **not** required if you install a system into an existing database (MCOD).
	You install the Oracle database software [page 76].  This action is **not** required if you install a system into an existing database (MCOD).
	You continue the database instance installation by choosing *Ok* in the SAPinst GUI.
	You prepare the system for SAPinst [page 58].
	You prepare installation CDs / DVDs [page 61].

✔	Action
Post-Installation Activities To complete the installation, you have to perform a number of actions. Some of these actions are mandatory, others are optional and serve to activate features that might be useful.	
	HP Tru64 UNIX only: Edit shell scripts [page 81].
	You complete and check the Oracle installation [page 89].
	You perform file and directory adjustments [page 94].
	You enable remote monitoring [page 94].
	If the Oracle security setup defined by the standard installation is not restrictive enough for your purposes, see **SAP Note 186119** to configure the Oracle listener to accept only connections from specific hosts.

3. You perform the following steps on the **central instance host**:

✔	Action
Post-Installation Activities To complete the installation, you have to perform a number of actions. Some of these actions are mandatory, others are optional and serve to activate features that might be useful.	
	HP Tru64 UNIX only: Edit shell scripts [page 81].
	You check that you can start and stop the SAP system [page 82].
	You check that you can log on to the SAP system [page 85].
	You check that the SAP system services [page 86] are present.
	You install the SAP Online Documentation [page 87].
	You install the SAP License [page 87].
	You configure SAProuter and SAPNet – R/3 Frontend [page 88].
	You configure the domain controller in the Transport Management System [page 90] (TMS).
	You perform basic operations [page 91] in your SAP system.

✔	Action
	You activate or deactivate the integrated Internet Transaction Server (ITS) [page 93].
	You check and, if required, adapt the configured number of work processes [page 91].
	If required, you install additional languages [page 92].
	If required, you import Support Packages [page 93].
	You perform operating system adjustments [page 94].
	You perform file and directory adjustments [page 94].
	For the installation, you have set permissions of directory `/usr/sap/trans` to `775` on the central instance host (see section Setting up File Systems and Raw Devices [page 53]). For security reasons, set the permissions of `/usr/sap/trans` to **771** after the installation.

✔	Action
	Unicode SAP system installation only: Make sure to perform the post-installation steps described in **SAP Note 544623**.
	If you install SAP R/3 Enterprise as basis for an SAP component that uses the Knowledge Provider (KPRO) component (for example, SAP BW or SAP KW), you schedule asynchronous indexing and deindexing [page 96] using the report RSTIRIDX).
	You perform the client copy [page 99].
	You perform a full installation backup [page 99] of both the central instance (on the central instance host) and the database instance (on the **database instance host**).  If you install SAP R/3 Enterprise ABAP+Java, you could perform the full installation backup after the installation of the J2EE Engine.
	When the newly installed SAP system goes into production, we recommend that you **immediately** change passwords of created users [page 101] according to the *SAP Security Guide*.
Additional Steps	
	If you want to install SAP R/3 Enterprise ABAP+Java, perform the steps in the *Installation Checklist for SAP Web AS – J2EE Add-In (Distributed System)* available in the documentation *Installation Guide – SAP Web Application Server Java 6.40 on UNIX: Oracle*.  SAP_BAS_620 and SAP_ABA_620 SP41 are prerequisites for the J2EE Add-In installation.
	After the central instance installation, you can install the following if required: • Dialog Instance [page 32]. • Gateway Instance [page 34] • Additional Components [page 37]
	Once you have completed and checked the SAP system installation, you need to prepare the SAP system for using business applications. This process includes customizing the basis system and the various business components. For more information, see the SAP Library [page 41] and choose *Solution Life Cycle Management → Customizing.*

2.3 Installation Checklist for a Dialog Instance

Purpose

You use the following checklist when you want to install a dialog instance on the **dialog instance host**.

Process Flow

✔	Action
Installation Preparation	
	Make sure that you have planned the system configuration of your installation as described in the documentation *Planning Guide SAP R/3 Enterprise on UNIX : Oracle - Using SAP R/3 Enterprise Core 4.70, SAP R/3 Enterprise Extension Set 2.00, Service Release 1* on SAP Service Marketplace at **`service.sap.com/instguides`** → *SAP Components* → *SAP R/3 Enterprise* → *SAP R/3 Enterprise Core 4.70 / Ext. Set 2.00 (SR1).*
	You obtain the required documentation [page 38] for the SAP system installation. Particularly, request the current SAP Notes for the installation.
	You check the hardware and software requirements [page 43].
	You can optionally create the operating system users [page 52] `<sapsid>adm` and/or `ora<dbsid>` manually before the installation.  if you do not create these users manually, they get created automatically by SAPinst during the installation.
	If you install the dialog instance on a standalone host, you modify UNIX kernel parameters and swap space. For more information, see the following sections in the documentation *SAP Software on UNIX: OS Dependencies*: • *<Your OS>: Checking and Modifying the UNIX Kernel* • For AIX: *<Your OS>: Checking and Modifying the UNIX Kernel* and *Creating UNIX Groups and Users* • For Linux: *Linux: Checking the UNIX Kernel*  If you do not check the UNIX kernel parameters, there might be unpredictable problems with your system during or after the installation.
	You set up file systems or raw devices [53] listed under *SAP File Systems* and the directory for the Oracle client software listed under *Oracle File Systems*.
	You prepare the system for SAPinst [page 58].

✔	Action
	You prepare installation CDs / DVDs [page 61].
Installation Process	
	You make sure that `umask` is set to `022` for user `root`. As user `root`, enter the following command: **`umask 022`**
	You make sure that the prerequisites before starting SAPinst [page 66] are met: • Set the library path environment variable as described in section *For Database Instance only*. • Mount directories from the central instance as described in section *For Distributed Instances only*.
	You run SAPinst [page 69] and select *SAP R3E 4.7x200 SR1* → *ABAP System* → *<Unicode or non-Unicode>* → *Install a Dialog Instance*.
	You check settings for OS users [page 79] (AIX only).
	You activate sapcpe if required [page 80].
Post-Installation Activities	
	HP Tru64 UNIX only: Edit shell scripts [page 81].
	You check that you can start and stop the SAP system [page 82].
	You check that you can log on to the SAP system [page 85].
	If required, you import Support Packages [page 93].
	You activate or deactivate the integrated Internet Transaction Server (ITS) [page 93].
	You perform file and directory adjustments [page 94].
	You perform a full installation backup [page 99].
	When the newly installed SAP system goes into production, we recommend that you **immediately** change passwords of created users [page 101] according to the *SAP Security Guide*.
Additional Steps	
	If you want to install a dialog instance for SAP R/3 Enterprise ABAP+Java, perform the steps in the *Installation Checklist for a Dialog Instance for SAP Web AS – J2EE Add-In* available in the documentation *Installation Guide – SAP Web Application Server Java 6.40 on UNIX: Oracle*.  SAP_BAS_620 and SAP_ABA_620 SP41 are prerequisites for the J2EE Add-In installation.

	After dialog instance installation, you can install the following if required: • Install another dialog instance, see Installation Checklist for a Dialog Instance [page 32]. • Gateway Instance [page 34] • Additional Components [page 37]

2.4 Installation Checklist for a Gateway Instance

Purpose

You use the following checklist when you want to install a gateway instance on the **gateway instance host**.

Process Flow

✔	Action
Installation Preparation	
	Make sure that you have planned the system configuration of your installation as described in the documentation *Planning Guide SAP R/3 Enterprise on UNIX : Oracle - Using SAP R/3 Enterprise Core 4.70, SAP R/3 Enterprise Extension Set 2.00, Service Release 1* on SAP Service Marketplace at **`service.sap.com/instguides`** → *SAP Components* → *SAP R/3 Enterprise* → *SAP R/3 Enterprise Core 4.70 / Ext. Set 2.00 (SR1).*
	You obtain the required documentation [page 38] for the SAP system installation. Particularly, request the current SAP Notes for the installation.
	You check the hardware and software requirements [page 43].
	You can optionally create the operating system users [page 52] `<sapsid>adm` and/or `ora<dbsid>` manually before the installation.  If you do not create these users manually, they get created automatically by SAPinst during the installation.
	You set up file systems or raw devices [page 53] listed under *SAP File Systems*.
	You prepare the system for SAPinst [page 58].
	You prepare installation CDs / DVDs [page 61].
Installation Process	
	You make sure that `umask` is set to `022` for user `root`. As user `root`, enter the following command: **`umask 022`**
	You perform the steps listed in section Prerequisites before starting SAPinst [page 66] → *For Distributed Instances Only*.

2.4 Installation Checklist for a Gateway Instance

	You run SAPinst [page 69] and select *Install SAP Gateway*.
	You check settings for OS users [page 79] (AIX only).
	If you decided to use a generic LDAP directory, you create a user for LDAP directory access [page 79].

✔	Action
Post-Installation Activities To complete the installation, you have to perform a number of actions. Some of these actions are mandatory, others are optional and serve to activate features that might be useful.	
	HP Tru64 UNIX only: Edit shell scripts [page 81].
	You check that you can start and stop the SAP system [page 82].
	You check that you can log on to the SAP system [page 85].
	If required, you import Support Packages [page 93].
	You activate or deactivate the integrated Internet Transaction Server (ITS) [page 93].
	You perform file and directory adjustments [page 94].
	You perform a full installation backup [page 99].
	When the newly installed SAP system goes into production, we recommend that you **immediately** change passwords of created users [page 101] according to the *SAP Security Guide*.
Additional Steps	
	After the gateway instance installation, you can install the following if required: • Dialog Instance [page 32] • Additional Components [page 37]

2.5 Installation Checklist for Additional Components

Purpose

You use the following checklist when you want to install one or more SAP software development kits (additional components) on the **central instance host**.

Before you install additional components, you must have successfully performed the installation of the central instance and of the database.

Process Flow

✔	Action
Installation Preparation	
	Make sure that you have planned the system configuration of your installation as described in the documentation *Planning Guide SAP R/3 Enterprise on UNIX : Oracle - Using SAP R/3 Enterprise Core 4.70, SAP R/3 Enterprise Extension Set 2.00, Service Release 1* on SAP Service Marketplace at **`service.sap.com/instguides`** → *SAP Components* → *SAP R/3 Enterprise* → *SAP R/3 Enterprise Core 4.70 / Ext. Set 2.00 (SR1).*
	You check the required documentation [page 38] for the SAP system installation. Particularly, request the current SAP Notes for the installation.
	You prepare the system for SAPinst [page 58].
	You prepare installation CDs / DVDs [page 61].
Installation Process	
	You make sure that `umask` is set to `022` for user `root`. As user `root`, enter the following command: **`umask 022`**
	You run SAPinst [page 69] on the central instance host and select *SAP System Additional Components*. The optional components can only be installed on the central instance host. (The directory `<sapmnt>/<SAPSID>` must be located on a local file system.)
	You perform file and directory adjustments [page 94].
Additional Steps	
	After the installation of additional components, you can install the following if required: • Dialog Instance [page 32] • Gateway Instance [page 34].

3 Installation Preparations

Make sure that you read the Installation Checklists [page 17] before you start installation preparations.

3.1 Required Documentation

The following sections describe the documentation you require for the installation.

- SAP Installation Notes [page 38]
- Information in the SAP Service Marketplace [page 39]
- Accessing the SAP Library [page 41]

3.1.1 SAP Installation Notes

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

Make sure that you have the most recent version of each SAP Note. They are located on SAP Service Marketplace at **`service.sap.com/notes`**.

SAP Note Number	Title	Description
750984	SAP R/3 Enterprise 4.7 Ext. 2.00 Service Release 1 Installation on UNIX	Information about the SAP system installation and corrections to this documentation.
668604	SAP Web AS 6.40 ABAP / Java Installation on UNIX : Oracle	Oracle-specific information about the SAP system installation.
668603	SAP Web AS 6.40 ABAP Installation on UNIX	UNIX-specific information about the SAP system installation.
668602	SAP Software on UNIX - OS Dependencies	Operating-system-specific information about the SAP system installation and corrections to this documentation.
611361	Hostnames of SAP servers	Requirements concerning host name length and allowed characters for SAP server hosts.
598678	Composite SAP note: New functions in Oracle 9i	Information about new functions in Oracle 9i that are used as off the installation of SAP Web AS ABAP or ABAP+Java 6.40.

544623	New Installation of Unicode SAP systems	This SAP Note contains supplementary information about Unicode-specific installation steps.
171356	Linux only: SAP software on Linux: Essential comments	This SAP Note is only required for installations on Linux. It contains Linux-specific information about the SAP system installation.
98252	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.
79991	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.
73606	R/3 language combinations (non-Unicode)	Information about multiple languages on one SAP system.
42305	RSCPINST (NLS installation tool)	Information about language and code page settings in your SAP system.

3.1.2 Information in the SAP Service Marketplace

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

Description	Internet Address	Title
SAP Notes	**service.sap.com/notes**	–
Released platforms	**service.sap.com/platforms**	–
Operating system dependencies	**service.sap.com/instguidesNW04** → *Installation*	*SAP Software on UNIX: OS Dependencies*
Media Information for Installation or Upgrade of SAP R/3 Enterprise	**service.sap.com/instguides** → *SAP Components* → *SAP R/3 Enterprise* → *SAP R/3 Enterprise Core 4.70 / Ext. Set 2.00 (SR1)*	*Media Information for SAP R/3 Enterprise*
Planning the Installation of a SAP R/3 Enterprise system	**service.sap.com/instguides** → *SAP Components* → *SAP R/3 Enterprise* → *SAP R/3 Enterprise Core 4.70 / Ext. Set 2.00 (SR1)*	*Planning Guide – SAP R/3 Enterprise on UNIX : Oracle - Using SAP R/3 Enterprise Core 4.70, SAP R/3 Enterprise Extension Set 2.00, Service Release 1*
Installation of the Java system for an SAP R/3 Enterprise system	**service.sap.com/instguidesNW04** → *Installation*	*Installation Guide – SAP SAP Web Application Server Java on UNIX: Oracle*
Patching of SAP NetWeaver'04 scenarios	**service.sap.com/instguidesNW04** → *Operations*	*Support Package Stack Guide – SAP NetWeaver'04 Support*

		Package Stack <current version>
Upgrade to R/3 Enterprise	**service.sap.com/instguides** → *SAP Components* → *SAP R/3 Enterprise* → *SAP R/3 Enterprise Core 4.70 / Ext. Set 2.00 (SR1)*	*Component Upgrade Guide : SAP R/3 Enterprise UNIX*
Installation of a dialog instance (ABAP) or a gateway instance as part of an SAP system upgrade	**service.sap.com/instguidesNW04** → *Installation*	*Installation Guide – Additional Instances on <Platform>*
Installation of SAP Net Weaver Developer Workplace	**service.sap.com/instguidesNW04** → *Installation*	*Installation Guide – SAP NetWeaver Developer Workplace*
Installation of SAP NetWeaver Developer Studio	**service.sap.com/instguidesNW04** → *Installation*	*Installation Guide – SAP NetWeaver Developer Studio*
Installation of the SAP System Landscape Directory (SLD)	**service.sap.com/instguidesNW04** → *Installation*	*Post-Installation Guide – SAP System Landscape Directory on SAP Web AS Java 6.40*
Homogeneous and heterogeneous system copy	**service.sap.com/instguidesNW04** → *Installation*	*Homogeneous and Heterogeneous System Copy for SAP Systems based on SAP Web Application Server 6.40*
Unicode SAP systems and their availability	**service.sap.com/unicode** See also **SAP Note 79991**.	–
Technical infrastructure – configuration scenarios and related aspects such as security, load balancing, availability, and caching	**service.sap.com/ti**	–
Network infrastructure	**service.sap.com/network**	–
System sizing	**service.sap.com/sizing**	*Quick Sizer* tool
Front-end installation	**service.sap.com/instguidesNW04** → *Installation*	*Front End Installation Guide* (also contained on the respective *Presentation CD*)
High availability	**service.sap.com/ha**	–
Security	**service.sap.com/security**	–
Information on SAP Support Package Stacks	**Service.sap.com/sp-stacks**	–

3.1.3 Accessing the SAP Library

For more information on the SAP Web Application Server, access the SAP Library from the **SAP Help Portal** at **`help.sap.com/nw4`**

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

In the SAP Help Portal at **`help.sap.com`** you can also find online documentation for all SAP Solutions.

3.2 Installation of Multiple Components in One Database

You decided to install **multiple** SAP components in a **single** database (MCOD).

For more information, see the documentation *Planning Guide for SAP Web Application Server on UNIX: Oracle → Installation of Multiple Components in One Database.*

Here you get instruction how to perform the MCOD installation.

All differences in the installation procedure for MCOD are marked in the corresponding sections of this documentation.

Installing the First SAP System into a New Database

1. Perform the central instance installation as usual.

   For example, you install the central instance with SAP system ID `C11`.
2. Start the database instance installation.
3. When SAPinst prompts for *Database Instance Type*, choose *Install (first) SAP System into a new database*.

   For example, you install the database instance `C11`.

   On some platforms, you can choose a database instance ID that is different from the SAP system ID, for example `D11`.
4. Finish the installation.

Installing an Additional SAP System into an Existing Database

1. Perform the central instance installation as usual.

For example, you install the central instance with SAP system ID C12.

2. When SAPinst prompts for the *Name of the database instance*, enter **exactly** the database instance <DBSID> of the existing – that is, the **first** – database.
3. Start the database instance installation.
4. When you are prompted for *Database Instance Type*, choose *Install (additional) SAP System into an existing database*.
5. When SAPinst prompts you for the *Name of the database instance*, enter **exactly** the database instance <DBSID> of the existing (that is, first) database.

When SAPinst prompts for the database instance name, for example enter C11.

6. Finish the installation.

Due to the MCOD installation, some installation steps are not required and therefore do not appear. These steps are marked in the Parameter Tables (see *Planning Guide for SAP Web Application Server on UNIX Oracle → Installation Overview; <your installation option> → Parameter Table: <your installation option>*)

3.3 Hardware and Software Requirements

Purpose

You check the hardware and software requirements using the requirements checklists in the following sections. They give the **minimum** requirements for small SAP system installations and do not take customer data into account. Depending on the amount of data involved, the requirements might change. For a more precise sizing definition that reflects your particular system load:

- Use the *SAP Quick Sizer* tool 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`**.

- Contact a hardware vendor. The vendor analyzes the load and calculates suitable hardware sizing.
- Contact the person in charge of installation or your Competence Center.

Process Flow

1. You see the checklists of the SAP system instances you want to install:
   - Central instance [page 44]
   - If you want to install SAP R/3 Enterprise ABAP+Java, also take into account the requirements of the central services instance listed in the documentation *Installation Guide – SAP Web Application Server Java on UNIX: Oracle*, section *Requirements Checklist for Central Services Instance*.
   - Database instance [page 46]
   - Dialog or gateway instance [page 50], if you want to install additional dialog instances or a gateway instance

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

2. 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`.

   For more information on SAP software in PC networks, see **SAP Note 5324**.

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

3.3.1 Requirements Checklist for a Central Instance

The central instance host must meet the following requirements:

Requirement Type	Requirement

Hardware Requirements	• DVD drive
	• Hard disk drives with sufficient space for the central instance (see Setting Up File Systems and Raw Devices [page 53] → *SAP File Systems*).
	• Hard disk drives with sufficient space for swap:
	  ○ 32-bit SAP Kernel: 3 * RAM, minimum 3 GB
	  
	  Linux only: As a rule, if your system has 4 GB RAM or more, 2 GB of swap space suffice, as the system is then mainly occupied with memory paging.
	  ○ 64-bit SAP Kernel: At least 20 GB is recommended for standard installations (for more information, see **SAP Note 153641**). If you want to install only a small system, contact your hardware partner for appropriate swap space values.
	• 4.3 GB of temporary disk space for every required installation CD / DVD you have to copy to a local hard disk (see Preparing the Installation CDs / DVDs [page 61]).
	• 1.2 GB of temporary disk space on separate hard disks for SAP system.
	• Minimum RAM:
	  ○ Central instance of SAP R/3 Enterprise ABAP:
	  ▪ Non-Unicode SAP system: At least 512 MB
	  ▪ Unicode SAP system: At least 768 MB
	  ○ Central instance of SAP R/3 Enterprise ABAP+Java:
	  ▪ Non-Unicode SAP system: At least 768 MB
	  ▪ Unicode SAP system: At least 1152 MB
	• RAM for the J2EE Engine (if required):
	  Between 64 MB and 4096 MB RAM are required, depending on the load of your SAP system.
	  
	  Make sure not to enter a value larger than the maximum Java heap size of your platform (see the corresponding documentation of your Java Development Kit - JDK).

Requirement Type	Requirement

Software Requirements	• Operating system (OS):
	  ○ For supported OS releases, see SAP Service Marketplace at **`service.sap.com/platforms`** → *Product Availability Matrix*
	  ○ For more information on OS requirements, see the documentation *SAP Software on UNIX: OS Dependencies*, section *<Your OS>: Requirements Checklist* on SAP Service Marketplace at **`service.sap.com/instguidesNW04`** → *Installation*.
	 
	Before you start the installation, make sure that you check the UNIX kernel parameters, as described in the documentation above. Otherwise there might be unpredictable problems with your system during and after the installation.
	  ○ Contact your OS vendor for the latest OS patches.
	• If application servers are installed decentralized, Network File System (NFS) must be installed.
	• Make sure that the required fonts/code pages are installed.
	• Make sure that NLS and corresponding saplocales are installed.

Other Requirements	• Make sure that the host name fulfills the requirements listed in **SAP Note 611361** (for example, the host name must not be longer than 13 characters). • Check your keyboard definitions. • 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.

3.3.2 Requirements Checklist for a Database Instance

The database instance host must meet the following requirements:

Requirement Type	Requirement

Hardware Requirements	• DVD drive
	• For security reasons (system failure), the file systems must be distributed physically over at least 3 (recommended: 5) hard disks For more information, see Oracle System Configuration [page 48].
	• Hard disk drives with sufficient space for the database instance (see Setting Up File Systems and Raw Devices [page 53] → *Oracle File Systems*).
	• Hard disk drives with sufficient space for swap: 3 * RAM + 500 MB
	• 4.3 GB of temporary disk space for every required installation CD / DVD you have to copy to a local hard disk (see Preparing the Installation CDs / DVDs [page 61]).
	• 1.2 GB of temporary disk space on separate hard disks for SAP system.
	• Minimum RAM:
	  ○ Database instance for non-Unicode SAP system: At least 256 MB
	  ○ Database instance for Unicode SAP system: At least 384 MB

Requirement Type	Requirement

Software Requirements	• Operating system (OS):
	  ○ For supported OS releases, see SAP Service Marketplace at **`service.sap.com/platforms`** → *Product Availability Matrix*.
	  ○ For more information on OS requirements, see the documentation *SAP Software on UNIX: OS Dependencies*, section *<Your OS>: Requirements Checklist* on SAP Service Marketplace at **`service.sap.com/instguidesNW04`** → *Installation*.
	 
	Before you start the installation, make sure that you check the UNIX kernel parameters, as described in the documentation above. Otherwise there might be unpredictable problems with your system during and after the installation.
	  ○ Contact your OS vendor for the latest OS patches.
	• If application servers are installed decentralized, Network File System (NFS) must be installed.
	• Make sure that the required fonts/code pages are installed.
	• Make sure that NLS and corresponding saplocales are installed.
	• On the database host, a graphical user interface (GUI) is required for the Oracle database software installation with runInstaller.
	• For the Oracle installation and importing Oracle patches, a C compiler and the `make` utility must be installed. *(Does not apply to Solaris.)*

Other Requirements	• Make sure that the host name fulfills the requirements listed in **SAP Note 611361** (for example, the host name must not be longer than 13 characters). • Check your keyboard definitions. • 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.

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, the redo logs should be distributed 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.

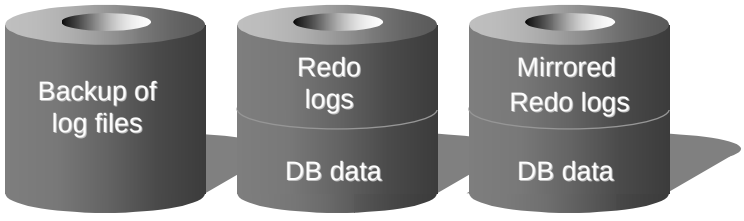
Performance Issues

- 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

This configuration should only be used 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



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.

3.3.3 Requirements Checklist for a Dialog or Gateway Instance

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

Requirement Type	Requirement

Hardware Requirements	• DVD drive
	• Hard disk drives with sufficient space for the dialog instance (see Setting Up File Systems and Raw Devices [page 53] → *SAP File Systems*).
	• Hard disk drives with sufficient space for swap: 3 * RAM + 500 MB
	• 4.3 GB of temporary disk space for every required installation CD / DVD you have to copy to a local hard disk (see Preparing the Installation CDs / DVDs [page 61]).
	• Minimum RAM:
	  ○ Dialog instance for SAP R/3 Enterprise ABAP:
	  ▪ Non-Unicode SAP system: At least 256 MB
	  ▪ Unicode SAP system: At least 384 MB
	  ○ Dialog instance for SAP R/3 Enterprise ABAP+Java:
	  ▪ Non-Unicode SAP system: At least 512 MB
	  ▪ Unicode SAP system: At least 768 MB
	  ○ Gateway instance:
	  ▪ 256 MB
	• RAM for the J2EE Engine (if required):
	Between 64 MB and 4096 MB RAM are required, depending on the load of your SAP system.

Requirement Type	Requirement
Software Requirements	• Operating system (OS): o For supported OS releases, see SAP Service Marketplace at **`service.sap.com/platforms`** → *Product Availability Matrix*. o For more information on OS requirements, see the documentation *SAP Software on UNIX: OS Dependencies*, section *<Your OS>: Requirements Checklist* on SAP Service Marketplace at **`service.sap.com/instguidesNW04`** → *Installation*.  Before you start the installation, make sure that you check the UNIX kernel parameters, as described in the documentation above. Otherwise there might be unpredictable problems with your system during and after the installation. o Contact your OS vendor for the latest OS patches. • Network File System (NFS) must be installed.

Requirement Type	Requirement
Other Requirements	• Ensure that the host name fulfills the requirements listed in **SAP Note 611361** (for example, the host name must not be longer than 13 characters). • Check your keyboard definitions. • If you want to install a printer on a decentralized host for the SAP system, ensure that the printer can be accessed under UNIX.

3.4 Creating Operating System Users Manually

Use

You can optionally create the operating system users `<sapsid>adm` and/or `ora<dbsid>` manually before the installation.

If you do not create them manually, they get created automatically by SAPinst during the installation.

Procedure

Create the users according to the documentation *SAP Software on UNIX: OS Dependencies*, section *<Your OS>: Creating UNIX Groups and Users* (for Linux, this section is called *Linux: Creating Linux Groups and Users*). Take account of the following requirements for the user creation:

- The user ID must be the same on all hosts.
- The group IDs must be the same on all hosts.
- `<sapsid>adm` must be a member of the groups `sapsys` (primary group), `oper` and `dba`.

  On HP Tru64 UNIX, it must also be a member of the group `mem`.
- `ora<dbsid>` must be a member of the groups `dba` (primary group) and `oper`.

3.5 Setting Up File Systems and Raw Devices

Use

You need to set up the following file systems and/or raw devices:

For SAP R/3 Enterprise ABAP+Java or Java 6.40, the central services instance always gets installed on the central instance host.

Required File Systems for each Installation Host

Installation Host	Required File Systems
Central system: Central system host	Set up the file systems listed under *SAP File Systems* and *Oracle File Systems*.
Distributed system: Central instance host	• Set up the file systems listed under *SAP File Systems*. • Set up the directory for the Oracle client software and the home directory for Oracle instance `<DBSID>` listed under *Oracle File Systems*.
Distributed system: Database host	• Mount the global transport directory `/usr/sap/trans` listed under *SAP File Systems*. • Set up the file systems listed under *Oracle File Systems*.
Dialog instance host	• Set up the file systems listed under *SAP File Systems*. • Set up the directory for the Oracle client software and the home directory for Oracle instance `<DBSID>` listed under *Oracle File Systems*.
Gateway instance host	Set up the file systems listed under *SAP File Systems*.
Additional components: Central instance host	No additional file systems are required.

The creation and mounting of file systems and the creation of raw devices are described in the documentation *SAP Software on UNIX: OS Dependencies*, section *<Your OS>: File Systems, Raw Devices and Swap Space*.

The listed file system sizes are initial SAP requirements.

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

Procedure

SAP File Systems

Set up file systems for the SAP system before the installation. The file systems are global; that is, they are accessed by all hosts in the SAP system.

File System Name	Description	Space Required
`<sapmnt>/<SAPSID>`	Software and data for one SAP system	• Central instance and gateway instance: 400 MB • Dialog instance (same platform as central instance): no file system required • Dialog instance (different platform) or central services instance: 340 MB
`/usr/sap/<SAPSID>`	Instance-specific data, symbolic links to the data for one system	• Dialog instance with sapcpe in use: 680 MB • Other instances: 1100 MB
`/usr/sap/trans`	Global transport directory for all SAP systems	This value heavily depends on the use of your SAP system. For production systems, it is recommended to use as much free space as available (at least 2 GB) as the space requirement normally grows dynamically. For the installation, you can also just use 200 MB for each SAP instance and enlarge this file system afterwards.

In your mySAP.com system landscape, a global transport directory for all SAP systems is required.

- If this global transport directory already exists (if in doubt, ask your system administrator):
  a. Make sure that it is exported on the global transport directory host.
  b. Mount it on the SAP instance installation host.
- Otherwise:
  a. Create the transport directory (either on the central instance host or on a file server).
  b. Export it on the global transport directory host.
  c. If you didn't create the transport directory on your SAP instance installation host, mount it there.

Exporting the Transport Directory

1. Log on as user root to the host on which 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). For more information, see documentation *SAP Software on UNIX: OS Dependencies*, section *<Your OS>: Mounting Directories via NFS*.

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

Mounting the Transport Directory

You do not need to mount the directory if it resides on your local SAP instance installation host.

1. Log on as user root to the central or dialog instance host on which `/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. For more information, see documentation *SAP Software on UNIX: OS Dependencies*, section *<Your OS>: Mounting Directories via NFS*.
4. Check that the user root has write permissions:

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

Oracle File Systems

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**.

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

File System Name	Description	Space Required
/oracle	Oracle Base directory	50 MB for Oracle software
Oracle 9.2.x: /oracle/client/92x_32 or /oracle/client/92x_64	Directory for Oracle client software. The used Oracle client software version is contained in the name of the file <Kernel CD>/K*/UNIX/<OS>/OCL<Client_Version>.SAR.	100 MB
/oracle/stage/920_32 or /oracle/stage/920_64	Installation and upgrade directory for database software (staging area). This directory is also used for Oracle upgrades and should **not** be deleted after the installation.	1600 MB
/oracle/<DBSID>	Home directory of user ora<dbsid>. /oracle/<DBSID> should not reside 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 *SAP Software on UNIX: OS Dependencies*). Therefore, either create /oracle/<DBSID> as separate file system with support of large files or create /oracle as file system with support of large files and create /oracle/<DBSID> as directory in /oracle.	100 MB for files of user ora<dbsid> (for example, log files)

/oracle/<DBSID>/920_32 or /oracle/<DBSID>/920_64	Home directory <ORACLE_HOME> for Oracle instance <DBSID>. \<ORACLE_HOME\> must reside on a local disk. It **cannot** be a softlink.	• Database instance : 2 GB • All other instances: 140 MB Make sure that this file system has permissions 777.
/oracle/<DBSID>/origlogA	Original set A of redo logs	120 MB
/oracle/<DBSID>/origlogB	Original set B of redo logs	120 MB
/oracle/<DBSID>/mirrlogA	Mirrored set A of redo logs	120 MB
/oracle/<DBSID>/mirrlogB	Mirrored set B of redo logs	120 MB
/oracle/<DBSID>/oraarch	New standard backup file system for Oracle offline redo logs. Use a separate disk for the file system /oracle/<DBSID>/oraarch. The file system /oracle/<SAPSID>/saparch still persists but now only contains brbackup log files. /oracle/<SAPSID>/saparch gets automatically created by SAPinst.	For the installation, the archive directory /oracle/<DBSID>/oraarch requires at least 350 MB of free disk space. For the operation of your SAP system, it should provide enough space for archives between two backups. In a production system, between 300 MB and 1 GB data is archived daily.
/oracle/<DBSID>/sapreorg	Work directory for database administration	1500 MB
/oracle/<DBSID>/sapdata1	SAP data	For space requirements of the SAP data file systems, see **SAP Note 750984**.
/oracle/<DBSID>/sapdata2	SAP data	
/oracle/<DBSID>/sapdata3	SAP data	
/oracle/<DBSID>/sapdata4	SAP data	

3.6 Preparing the System for SAPinst

Use

You use this procedure to prepare your installation host for SAPinst.

The installation tool SAPinst uses the Java-based graphical user interface SAPinst GUI.

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 [page 102]. In this case, prepare both the local and the remote host for SAPinst.

To prepare the system for SAPinst and SAPinst GUI you need to do the following:

- Check your Java Runtime Environment (JRE) on the host where SAPinst GUI runs, because the JRE cannot be integrated into the SAPinst GUI executable for all platforms due to licensing issues.
- Set the `DISPLAY` environment variable if you are installing on UNIX.

Procedure

1. Check that a released Java Runtime Environment (JRE) exists on the host where the SAPinst GUI is to run :

<table>
<tr><th>Platform</th><th>Required JRE for the SAPinst GUI</th></tr>
<tr><td>Windows 64 bit (ia64), Linux (ia64), Linux for zSeries (s390x),
z/OS (OS390 resp. z/OS)</td><td>The required JRE version is the same as for SAP R/3 Enterprise. For the current required JRE version see SAP Service Marketplace at
<tt>service.sap.com/platforms</tt> → Product Availability Matrix → SAP NetWeaver → SAP NetWeaver 04 → JSE Platforms
 
• JRE is not part of the SAP shipment. If necessary, you need to download and install it.
• To check the version of an already installed JRE, enter: <tt>java –version</tt>
• If you have more than one Java Virtual Machine (JVM) installed on your system (for example, you have two JREs with different versions installed), make sure that the <tt>SAPINST_JRE_HOME</tt> environment variable (on UNIX: for user <tt>root</tt>) is set to the valid <tt><JAVA_HOME></tt> directory.

UNIX only:
You must include the path to a valid <tt><JAVA_HOME>/bin</tt> directory in the path for user <tt>root</tt> or set the <tt>SAPINST_JRE_HOME</tt> environment variable for the user <tt>root</tt> to the valid <tt><JAVA_HOME></tt> directory as follows:
<table><tr><th>Shell Used</th><th>Command</th></tr><tr><td>Bourne shell (sh)</td><td><tt>SAPINST_JRE_HOME=<path_to_JAVA_HOME></tt>
<tt>export SAPINST_JRE_HOME</tt></td></tr><tr><td>C shell (csh)</td><td><tt>setenv SAPINST_JRE_HOME <path_to_ JAVA_HOME></tt></td></tr><tr><td>Korn shell (ksh)</td><td><tt>export SAPINST_JRE_HOME=<path_to_ JAVA_HOME></tt></td></tr></table></td></tr>
<tr><td>Windows 32 bit (x86),
HP-UX (PA-Risc),
HP-UX (ia64),
Solaris (sun4u)</td><td>No special JRE is required for the SAPinst GUI, because the JRE is integrated in the SAPinst GUI executable.
 
As the JRE is temporary extracted on your host, you need at least about 40 – 80 MB of free disk space for that purpose.
After the installation, SAPinst removes this JRE from your host automatically.</td></tr>
</table>

Other platforms	The required JRE is 1.3.0 or higher.  • JRE is not part of the SAP shipment. If necessary you need to download and install it. • To check the version of an already installed JRE, enter: java –version • If you have more than one Java Virtual Machine (JVM) installed on your system (for example, you have two JREs with different versions installed), make sure that the SAPINST_JRE_HOME environment variable (on UNIX: for user root) is set to the valid <JAVA_HOME> directory. **UNIX only:** You must include the path to a valid <JAVA_HOME>/bin directory in the path for user root or set the SAPINST_JRE_HOME environment variable for the user root to the valid <JAVA_HOME> directory as follows:

Shell Used	Command
Bourne shell (sh)	SAPINST_JRE_HOME=<path_to_JAVA_HOME> export SAPINST_JRE_HOME
C shell (csh)	setenv SAPINST_JRE_HOME <path_to_JAVA_HOME>
Korn shell (ksh)	export SAPINST_JRE_HOME=<path_to_JAVA_HOME>

2. **UNIX only:**
Make sure that your DISPLAY environment variable is set to **<host_name>:0.0**, where <host_name> is the host on which the SAPinst GUI is to be displayed.

Shell Used	Command
Bourne shell (sh)	DISPLAY=<host_name>:0.0 export DISPLAY
C shell (csh)	setenv DISPLAY <host_name>:0.0
Korn shell (ksh)	export DISPLAY=<host_name>:0.0

3.7 Preparing the Installation CDs / DVDs

Use

You use this procedure to prepare the installation CDs / DVDs.

Procedure

1. Using Media Information for SAP R/3 Enterprise 4.7 Ext. 2.0 SR 1, identify the required CDs / DVDs for your installation and keep them separate from the rest of the installation package. This avoids mistakes between CDs / DVDs with similar names, so that you use the correct CDs / DVDs for your installation.

The CD / DVD names in the table below are **abbreviated**.

You can find the **full names** in *Media Information for SAP R/3 Enterprise 4.7 Ext. 2.00 SR 1* on SAP Service Marketplace at:

`service.sap.com/instguides` → *SAP Components* → *SAP R/3 Enterprise* → *SAP R/3 Enterprise Core 4.70 / Ext. Set 2.00 (SR1)*

The following table summarizes the required CDs:

SAP Instance Installation	Required CDs
Central Instance	SAP Installation Master CD
	SAP Kernel CD
	SAP Web AS Java CDs (includes CD IGS folder IGS_SOFT for the installation of IGS)
Oracle database instance for a **non-MCOD** installation	SAP Installation Master CD
	SAP Kernel CD
	Export CDs
	Database DVD

SAP Instance Installation	Required CDs / DVDs
Database instance for an **MCOD** installation	SAP Installation Master CD
	SAP Kernel CD
	Export CDs
Dialog Instance Installation	SAP Installation Master CD
	SAP Kernel CD
	SAP Web AS Java CDs (includes CD IGS folder IGS_SOFT for the installation of IGS)
Gateway Instance	SAP Presentation CDs
Additional Components	SAP Presentation CDs

For the installation of a Unicode SAP system, the Unicode *SAP Kernel CD* is required. For the installation of a non-Unicode SAP system, the non-Unicode *SAP Kernel CD* is required.

We recommend that you make all required CDs / DVDs available **in parallel**.

The *Export CDs* and *the Database DVD* (if relevant) **must** be available in parallel.

2. Use one of the following methods to make CDs / DVDs available in parallel:
   - **Before** the installation:
     - Have sufficient DVD drives
     - Copy CDs / DVDs manually to local hard disks
   - **During** the installation:

     Use the SAPinst CD Browser dialog [page 63], that is, you can check the entered location and then copy the entire CD / DVD to the path you entered in column *Copy Package to*.

3.7.1 Using the CD Browser Dialog

Use

During the installation procedure SAPinst **first checks** and **finally verifies** the availability and location of the required installation CDs / DVDs. SAPinst does this by displaying a *CD Browser* dialog, which prompts you for the file `LABEL.ASC`, which contains information about the software package to be installed.

To find the correct location of the file `LABEL.ASC`, look in the file `README.TXT` located in the root directory of the relevant CD / DVD.

Procedure

SAPinst displays the *CD Browser* dialog in the following situations:

- SAPinst wants to check the availability of the software package in advance.

  In this case, you see *Check Location* displayed in the *CD Browser* window.

  Choose one of the following actions:

Situation	Action	Result
You are not yet sure where to set up the software package.	Do not enter any *Package Location* and do not select *Check Location*.	SAPinst skips the check and you can continue the installation procedure. However, SAPinst asks later for the missing `LABEL.ASC` (see final bullet point below).
You know where the software package will be but have not yet set it up.	Enter the path in *Package Location* but do not select *Check Location*.	SAPinst skips checking the label location, but your entered package locations are used later for the installation. SAPinst only asks again for a missing `LABEL.ASC` if the package location is incorrect (see final bullet point below).
You have already set up the software package at a specific location.	Enter the path in *Package Location* and select *Check Location.*	SAPinst checks the label location and displays an error message if the location is incorrect. If all locations are correct, SAPinst does not ask again for the `LABEL.ASC` files.

- SAPinst cannot find the correct `LABEL.ASC` but needs the location of the software to process the installation now.

  You can recognize this situation because *Check Location* in the *CD Browser* window is empty. You must now enter the path to the correct `LABEL.ASC`. Otherwise, the installation cannot continue.

When SAPinst prompts for a folder <FOLDER_NAME> on a CD / DVD, make sure that you enter the path to the corresponding directory on this CD / DVD.

In addition, you can copy the installation package by entering a location in the column *Copy Package to*.

3.8 Preparing the Active Directory

Use

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 `sapldap`.
- 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

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` → *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.

If you do not have an *SAP Kernel CD* with R3SETUP, you can download one from SAP Service Marketplace at

`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* → *NT/I386* → *<your_database>*

Procedure

Installing the R3SETUP Tool

3.8 Preparing the Active Directory

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.

4 Installation Process

Make sure that you read the Installation Checklists [page 17] before you start the installation.

4.1 Prerequisites before Starting SAPinst

For Database Instance only

As user `root`, set the library path environment variable on your installation host depending on the used shell:

`<ORACLE_HOME>` is the home directory for the oracle instance `<DBSID>` which you set up during the step Setting up File Systems and Raw Devices [page 53] `/oracle/<DBSID>/920_32` if your operating system is of 32 bit, or `/oracle/<DBSID>/920_64` if your operating system is of 64 bit.

- If you are using the Bourne shell (`sh`):

Operating System	Command
AIX	`LIBPATH=<sapmnt>/<SAPSID>/exe` `export LIBPATH`

HP Tru64 UNIX	`LD_LIBRARY_PATH=<sapmnt>/<SAPSID>/exe: \`
	`/<ORACLE_HOME>/lib:/oracle/client/ \`
	`92x_64/lib`
	`export LD_LIBRARY_PATH`

Linux	`LD_LIBRARY_PATH=<sapmnt>/<SAPSID>/exe: \`
	`<ORACLE_HOME>/lib`
	`export LD_LIBRARY_PATH`

HP-UX	`SHLIB_PATH=<sapmnt>/<SAPSID>/exe` `export SHLIB_PATH`
All other UNIX operating systems	`LD_LIBRARY_PATH=<sapmnt>/<SAPSID>/exe` `export LD_LIBRARY_PATH`

- If you are using the C shell (`csh`):

Operating System	Command
AIX	`setenv LIBPATH <sapmnt>/<SAPSID>/exe`

HP Tru64 UNIX	`setenv LIBPATH <sapmnt>/<SAPSID>/exe: \`
	`/<ORACLE_HOME>/lib:/oracle/client/ \`
	`92x_64/lib`

Linux	`setenv LD_LIBRARY_PATH \ <sapmnt>/<SAPSID>/exe:<ORACLE_HOME>/lib`
HP-UX	`setenv SHLIB_PATH <sapmnt>/<SAPSID>/exe`
All other UNIX operating systems	`setenv LD_LIBRARY_PATH \ <sapmnt>/<SAPSID>/exe`

- If you are using the Korn shell (`ksh`):

Operating System	Command
AIX	`export LIBPATH=<sapmnt>/<SAPSID>/exe`
HP Tru64 UNIX	`export LIBPATH <sapmnt>/<SAPSID>/exe: \ /<ORACLE_HOME>/lib:/oracle/client/ \ 92x_64/lib`
Linux	`export LD_LIBRARY_PATH=<sapmnt>/ \ <SAPSID>/exe:<ORACLE_HOME>/lib`
HP-UX	`export SHLIB_PATH=<sapmnt>/<SAPSID>/exe`
All other UNIX operating systems	`export LD_LIBRARY_PATH=<sapmnt>/<SAPSID>/exe`

If you restart SAPinst at a later time, make sure the variable is still set.

For Distributed Instances only

If you install an instance on another host than the central instance (for example, a database or a dialog instance), mount directories from the central instance.

- If you want to install the executables locally instead of sharing them, do not mount the `exe` directory via NFS. Instead, create `<sapmnt>/<SAPSID>/exe` as a local directory (not a link) with at least 340 MB free space.
- If you are installing a heterogeneous SAP system (that is, the instances are installed on different UNIX operating-system platforms), do not mount the `exe` directory. See documentation *SAP Software on UNIX: OS Dependencies*, section *Heterogeneous SAP System Installations.*

1. Log on to the central instance host as user `root` and export the following directories with `root` access (see documentation *SAP Software on UNIX: OS Dependencies*, section <*Your OS*>*: Mounting Directories via NFS*) to the dialog instance host:

   `<sapmnt>/<SAPSID>/exe`
   `<sapmnt>/<SAPSID>/profile`
   `<sapmnt>/<SAPSID>/global`

2. Log on to the distributed instance host as user `root`.

3. Create the mount points:

   ```
   <sapmnt>/<SAPSID>/exe
   <sapmnt>/<SAPSID>/profile
   <sapmnt>/<SAPSID>/global
   ```

   Mount these directories from the central instance host.

4. Make sure that the user `root` of the distributed instance host has write access to the directories `exe`, `profile` and `global`:

   ```
   touch <sapmnt>/<SAPSID>/<directory>/nfs_test
   rm <sapmnt>/<SAPSID>/<directory>/nfs_test
   ```

4.2 Running SAPinst

Use

This procedure tells you how to run SAPinst to install an SAP instance.

It describes an installation where SAPinst GUI and SAPinst server are running on the same host. If you want to perform a remote installation, where SAPinst GUI is running on another host, see Remote Installation with SAPinst [page 102].

SAPinst normally creates the installation directory `sapinst_instdir` directly below the temporary directory (`$TEMP`, `$TMP`, or `/tmp`). Therefore, make sure that your operating system does **not** delete the temporary directory and its subdirectories when the system is rebooted.

Each SAP instance requires a separate installation directory.

The SAPinst Self-Extractor extracts the SAPinst executables to the temporary directory (`$TEMP, $TMP, $TMPDIR` or `/tmp`). These executables are deleted again after SAPinst has stopped running. Directories with the name `sapinst_exe.xxxxxx.xxxx` sometimes remain in the temporary directory. You can safely delete them. You can terminate SAPinst and the SAPinst Self-Extractor by pressing `Ctrl+C`. In the temporary directory, you also find the Self Extractor log file `dev_selfex.out`, which might be useful if an error occurs.

Prerequisites

- If you are installing a second or subsequent SAP system into an existing database, make sure that the database is **up and running before** starting the installation. For more information, see Installation of Multiple Components in One Database [page 41].
- You need at least 50 MB of free space in the installation directory for each ABAP installation service. In addition, you need 60-200MB free space for the SAPinst executables. If you are not able to provide 200 MB free space in the temporary directory, you can set one of the environment variables `TEMP, TMP` or `TMPDIR` to another directory with 200 MB free space for the SAPinst executables.

We recommend that you keep all installation directories until you are fully satisfied that the system is completely and correctly installed.

If SAPinst cannot find a temporary directory, the installation terminates with the error `FCO-00058`.

SAPinst GUI Handling

The following push buttons are available on the different SAPinst GUI dialogs (input screens, installation progress screen, message boxes):

Push Button	Meaning
Back	Displays the previous dialog for editing.
Next	Displays the next dialog for editing.
Cancel	Cancels the installation with the following options: – *Stop* Stops the installation without further changing the installation files. You can continue the installation later from this point. – *Reset* Resets all installation input files. All files in the installation directory are removed from the system. No backup is available. You must restart the installation from the beginning.
Log Off	Cancels the connection to the SAPinst GUI only. The SAPinst server keeps on running.  Typical case: For some reason you need to log off during the installation from the host where you control the installation with SAPinst GUI. The installation continues while you are logged off. You can later connect with SAPinst GUI from another host to the same installation. For this you need the *SAP Installation Master CD*. For more information on running SAPinst GUI in standalone mode for a remote installation, see Starting SAPinst GUI on the Local Host [page 103].
View Log	Displays the content of the `sapinst.log` file during the installation.
Retry	Performs the installation step again (if an error has occurred).
Stop	Stops the installation without further changing the installation files. You can continue the installation later from this point.
Reset	Resets all installation input files. All files in the installation directory are removed from the system. No backup is available. You must restart the installation from the beginning.
Continue	Continues with the option you have chosen before.  If a message box comes up and you choose *Cancel*, SAPinst then offers you the options *Continue, Stop, Reset*. Do **not** choose *Continue*, but choose *Stop* or *Reset*. If you choose *Continue* an error occurs.

Procedure

1. Log on to your host as user `root`.
2. If you want to install:
   - A central instance, a database instance, or a dialog instance, mount the *SAP Installation Master CD*.
   - A gateway instance or additional components, mount the respective *SAP Presentation CD*. In this case, replace “SAP Installation Master CD” with ”SAP Presentation CD” in this section.

     Mount CDs **locally**. We do **not** recommend that you use Network File System (NFS), as reading from NFS-mounted CDs might fail.

     For more information on mounting CDs / DVDs, see the documentation *SAP Software on UNIX: OS Dependencies*, section “<Your OS>: Mounting a CD / DVD.”
3. Start SAPinst from the *SAP Installation Master CD* in one of the following ways:
   - Using the **default** installation directory

     Enter the following commands:

     ```
     cd <SAP_Installation_Master_CD>/SAPINST/UNIX/<OS>
     ./sapinst
     ```

     SAPinst creates a directory called `sapinst_instdir`, which is the current working directory for your installation, below the temporary directory of your operating system.

- Using an **alternative** installation directory

  If you want SAPinst to use a directory other than the default, do the following:

  i. Create an installation directory of your choice for SAPinst with sufficient free space (at least 300 MB for each installation service) and permissions `777`.

  ii. Change to this installation directory.

  iii. Enter the following command to start SAPinst from the *SAP Installation Master CD*:

  `<SAP_Installation_Master_CD>/SAPINST/UNIX/<OS>/sapinst`

  SAPinst uses your installation directory as the current working directory for the installation. It does **not** create an installation directory called `sapinst_instdir`.

SAPinst uses the port 21212 during the installation for communication with the SAPinst GUI. If this port is already used by another service you must add the parameter `SAPINST_DIALOG_PORT=<free_port_number>` to the relevant `sapinst` command above. For example:

`./sapinst SAPINST_DIALOG_PORT=<free_port_number>`

SAPinst GUI normally starts automatically by displaying the *Welcome* screen.

However, if there is only one component to install, SAPinst directly displays the first input dialog without the *Welcome* screen.

4. In the *Welcome* screen, select the corresponding installation service as shown in the table below and then choose *Next*:

Installation Procedure	Installation Service in SAPinst
Installing a central instance	*SAP R3E 4.7x200 SR1 → ABAP System → Install a Central Instance*
Installing a database instance	*SAP R3E 4.7x200 SR1 → ABAP System → Install a Database Instance*
Installing a dialog instance	*SAP R3E 4.7x200 SR1 → ABAP System → Install a Dialog Instance*
Installing additional components	*SAP System Additional Components*
Installing a gateway instance	*Install SAP Gateway*

SAPinst creates a subdirectory for the chosen installation service below the current working directory. If you started SAPinst using the default installation directory, the directory structure is:

`<sapinst_instdir>/<installation_service>`

5. Follow the instructions in the SAPinst dialogs using the parameters you specified during installation planning (for more information, see *Planning Guide for SAP Web Application Server on UNIX Oracle → Installation Overview: <Your Installation Option> → Parameter Table: <Your Installation Option>*).

   After you have entered all required input parameters, SAPinst starts the installation and displays the progress of the installation.

When the installation has successfully completed, the screen *Finished installation* is displayed.

Troubleshooting

- If an error occurs during the **input phase**, SAPinst:

  Stops the installation

  Displays a dialog informing you about the error

  - You can now directly view the log file by choosing *View Logs*
  - You must abort the installation with *O.K.* and try to solve the problem.
- If an error occurs during the **processing phase**, SAPinst:
  - Stops the installation
  - Displays a dialog informing you about the error

  You can now:
  - Directly view the log file by choosing *View Logs*
    - Try to solve the problem
  - Retry the installation by choosing *Retry.*
    - Abort the installation by choosing *O.K.*

  For more information, see Interrupted Installation with SAPinst [Page 106].

4.3 Starting the Script rootpre.sh (AIX only)

Use

This section is **not** valid if you install a system into an existing database (MCOD).

The script `rootpre.sh` must be executed in order to install and activate AIX specific kernel extensions for asynchronous I/O.

Prerequisites

This section only applies if your operating system is AIX.

Procedure

1. Log on as user `root`.
2. Enter (`<bit>` is either 32 or 64):
   `cd /oracle/stage/920_<bit>/Disk1`
3. Using a `cshell`, set the language environment variable:
   `setenv LANG En_US`

4. Run the pre-installation script
   `sh ./rootpre.sh`

Check if the Asynchronous I/O is installed and activated on the database and the application server. Enter
`lsdev -C -l aio0` which should put out
`aio0 Available Asynchronous I/O`

Otherwise install and activate the Asynchronous I/O using `smit` (*Devices* → *Asynchronous I/O*) and reboot your machine.

4.4 Installing the Oracle 9.2.0 Database Software

Use

This section is **not** valid if you install a system into an existing database (MCOD).

The Oracle database software is installed with the Oracle Universal Installer (OUI).

Although the installation procedure for several Oracle database versions may be contained in this documentation, not all of these Oracle database versions are released for every operating system.

Prerequisites

A graphical user interface (GUI) is required for the database installation with Oracle Universal Installer.

AIX only:
For AIX 5L release 5.1 ML01+ you need the following operating system fixes:
`IY22854, IY26778, IY28766, IY28949, IY29965, IY30150`.

If you are using a later maintenance level of AIX version 5, make sure you have installed the required operating system fixes.

To check whether a fix has been installed, use the following command:
`instfix -ik <fixname>`

Procedure

1. Make sure 400 MB of hard disk space is available in the directory `/tmp`.
2. The user `ora<dbsid>` must have a write authorization for the directory `/oracle`. To check if this authorization exists, proceed as follows:
   a. Log on to your system with the user `ora<dbsid>`.

b. Enter the following commands:

```
touch /oracle/write_test
rm /oracle/write_test
```

If the user ora<dbsid> does not have write authorization, log on to your system with the user root and enter the following commands:

```
chown ora<dbsid> /oracle
chgrp dba /oracle
chmod 775 /oracle
```

3. Enter the following commands as user ora<dbsid>:
umask

If umask does not return the value 022, set umask:
umask 022

4. Set the DISPLAY environment variable to **<host_name>:0.0**, where <host_name> is the host on which the Oracle Universal Installer will be displayed.

Shell Used	Command
Bourne shell (sh)	DISPLAY=<host_name>:0.0 export DISPLAY
C shell (csh)	setenv DISPLAY <host_name>:0.0
Korn shell (ksh)	export DISPLAY=<host_name>:0.0

5. Start the Oracle Universal Installer as user ora<dbsid>:

```
cd /oracle/stage/920_32/Disk1/SAP or
cd /oracle/stage/920_64/Disk1/SAP
```

```
./RUNINSTALLER
```

6. When you start the Oracle Universal Installer, a series of windows appears:

Prompt or Condition	Action
File Locations Destination...	Check that the variable $ORACLE_HOME is correctly set (that is, it points to the new ORACLE_HOME). Make sure that the relevant directory is empty. Continue by choosing *Next*.
When you run the OUI for the first time on this host, a dialog box appears.	Execute the file /tmp/orainstRoot.sh as user root, and confirm the dialog box.
Available Product Components	Confirm the default selections by choosing *Next*.
Java Development Kit (JDK)	Enter the location of the JDK.
When the Install step has been completed, a dialog box appears.	Execute the file $ORACLE_HOME/root.sh with the user root, and confirm the dialog box by choosing *OK*. Then continue by choosing *Next*.

If the installer asks you if you want to migrate existing databases or create a database, choose *No*.

The Installer finishes, reporting that the Oracle installation was successful.

Due to an error in the Oracle installer you cannot choose *EXIT* at this point.

7. Instead of choosing *EXIT*, close the installer window using its window menu or by other operating system means.
8. Confirm the dialog box that appears.

You can now access the Oracle 9.2 online documentation, which was installed during the last step. You can find the entry point to the Oracle online documentation at `$ORACLE_BASE/doc/index.htm`.

9. Install the current Oracle 9i patchset:
   a. See **SAP Note 539921** for the number of the current patchset and **SAP Note 355776** for extra information on installing the current patchset.

You need only install the **latest** Oracle patchset.

   b. Log on at the operating system level as the `ora<dbsid>` user.
   c. Follow the instructions in **SAP Note 539921** to download the current patchset.
   d. Install this patchset using the Oracle Universal Installer. You do **not** have to run any SQL scripts at this time.
10. Install required interim patches using the Oracle tool OPatch. You might need interim patches **in addition to** the current patchset.
    a. Check **SAP Note 540021** to find the required patches.
    b. Log on at the operating system level as the `ora<dbsid>` user.
    c. Install the patch, following the instructions in **SAP Note 306408**.

Due to an Oracle error in the Oracle Universal Installer 2.2.0.12.0, the Oracle inventory may be corrupted when installing patches using the Oracle Patch Utility OPatch. To prevent this error, proceed as described in **SAP Note 601965**.

11. Check that `ora<dbsid>` can connect to the database:

```
sqlplus /nolog
SQLPLUS> connect / as sysdba
SQLPLUS> exit
```

If the connect succeeds without error messages, the database software installation was successful.

4.5 Checking Settings for OS Users (AIX only)

Check and, if required, modify the settings for the OS user `root` and users `<sapsid>adm` and `ora<dbsid>` that were created by SAPinst. For more information, see the documentation *SAP Software on UNIX: OS Dependencies*, section *AIX: Creating UNIX Groups and Users.*

4.6 Creating a User for LDAP Directory Access

Use

If you use LDAP directory services [page 64] on UNIX, you have to set up a user with a password on the machine where the SAP system is running. This permits the SAP system to access and modify the LDAP directory.

This section is **not** valid for ReliantUNIX.

Prerequisites

During the SAP instance installation you chose to configure the SAP system to integrate LDAP services.

Procedure

1. Log on as user `<sapsid>adm`.
2. Enter:

   `ldappasswd pf=<path_and_name_of_instance_profile>`
3. Enter the required data.

The following is an example of an entry to create an *LDAP Directory User*:

`CN=sapldap,CN=Users,DC=nt5,DC=sap-ag,DC=de`

4.7 Activating sapcpe

Use

This section only applies when you install a dialog instance that uses the **same operating system** as the central instance.

Procedure

1. Log on to the dialog instance host as user `<sapsid>adm.`
2. Enter:

   `mv /usr/sap/<SAPSID>/SYS/exe/run /usr/sap/<SAPSID>/SYS/exe/ctrun`
   `mkdir /usr/sap/<SAPSID>/SYS/exe/run`

   Provide at least 30 MB of additional disk space for the directory `/usr/sap/<SAPSID>/SYS/exe/run`.
3. Only perform the following steps **once before the first startup** of the dialog instance:
   a. Log on to the dialog instance host as user `<sapsid>adm`.
   b. Execute one of the following commands to set `DIR_LIBRARY` variable:
      i. When using a `csh`:

         `setenv DIR_LIBRARY /usr/sap/<SAPSID>/SYS/exe/ctrun`

      ii. When using a `sh`:

         `DIR_LIBRARY=/usr/sap/<SAPSID>/SYS/exe/ctrun`
         `export DIR_LIBRARY`

   c. Execute the following command:

      `cp /usr/sap/<SAPSID>/SYS/exe/ctrun/startsap \`
      `/usr/sap/<SAPSID>/SYS/exe/run/startsap`

   d. Start the dialog instance with the command **`startsap`**.

      If there are multiple SAP instances on the dialog instance host, start the dialog instance with:

      `startsap <instanceID>`

   e. Log off from the dialog instance.
   f. Log on again for the old environment to become active.

5 Post-Installation Activities

Make sure that you read the Installation Checklists [page 17] before you perform post-installation activities.

5.1 Editing Shell Scripts (HP Tru64 UNIX only)

On HP Tru64 UNIX only, perform the following steps after the installation:

1. Login as user `<sapsid>adm`.
2. Edit the file `dbenv_<host_name>.csh` located in the home directory of user `<sapsid>adm` as follows:

The used Oracle client software version is contained in the name of the file `<Kernel CD>/K*/UNIX/<OS>/OCL<Client_Version>.SAR`.

```
...
if ( ! $?LD_LIBRARY_PATH ) then
     setenv LD_LIBRARY_PATH /usr/sap/<sapsid>/SYS/exe/run:
     \
     /oracle/client/<Client_Version>_64/lib:$ORACLE_HOME/li
     b
else
     foreach d ( /usr/sap/<sapsid>/SYS/exe/run   \
        /oracle/client/<Client_Version>_64/lib
     $ORACLE_HOME/lib )
     set i=0
...
```

3. Edit the file `dbenv_<host_name>.sh` located in the home directory of user `<sapsid>adm` as follows:

```
...
if [ -z "$LD_LIBRARY_PATH" ]; then
     LD_LIBRARY_PATH=/usr/sap/<sapsid>/SYS/exe/run:   \
        /oracle/client/<Client_Version>_64/lib:   \
        $ORACLE_HOME/lib
else
     for d in /usr/sap/<sapsid>/SYS/exe/run
     /oracle/client/<Client_Version>_64/lib
     $ORACLE_HOME/lib; do
     i=0
...
```

5.2 Starting and Stopping the SAP System

Use

You need to check that you can start and stop the SAP system after the installation using the scripts `startsap` and `stopsap` in the `exe` directory.

Prerequisites

- You have signed on to the SAP system hosts as user `<sapsid>adm`.
- For more information on how to start or stop database-specific tools, see the database-specific information in this documentation and the documentation from the database manufacturer.
- If you want to use `startsap` or `stopsap` (for example, in a script) and require the fully qualified name of these SAP scripts, create a link to `startsap` or `stopsap` in the home directory of the corresponding user.

If there are **multiple** SAP instances on one host – for example, a central instance and a dialog instance – you must add an extra parameter to the scripts:

```
startsap <instanceID>
```

```
stopsap <instanceID>
```

For example, enter:

```
startsap DVEBMGS00
```

SAP Web AS Java for SAP R/3 Enterprise only

The instance name (instance ID) of the central instance is `JC<Instance_Number>`, the instance name of a J2EE dialog instance is `J<Instance_Number>`.

Procedure

Starting the SAP System

1. To start the central instance and database instance:
   - If you have a central system – that is, central instance, central services instance and database instance on the **same** host – enter the following on the central system host:

     `startsap`

     This checks if the database is already running. If not, it starts the database before starting the central services instance and the central instance.

You can start the database and SAP system separately by entering the following commands:

```
startsap DB
startsap R3 <instanceID of central services instance>
startsap R3 <instanceID of central instance>
```

Make sure that you always start the database first because otherwise the central services instance and the central instance cannot be started.

There is also the parameter **J2EE** that is a synonym for the parameter **R3**. For SAP systems based on SAP R/3 Enterprise ABAP+Java, you can enter either the command **`startsap R3`** or **`startsap J2EE`** to start the SAP instance comprising both ABAP and J2EE.

- If you have a distributed system – that is, central instance, central services instance and database instance on **different** hosts – do the following:
  i. On the database host, enter:
     `startdb`
  ii. If you want to start an SAP system with the J2EE Engine, enter the following command on the central services instance host:
     `startsap R3`
  iii. On the central instance host, enter:
     `startsap R3`

2. Enter the following to start dialog instances, if there are any:
   `startsap`

Stopping the SAP System

When you use `stopsap` in an MCOD [page 41] 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.

1. Enter the following to stop dialog instances:
   `stopsap`
2. To stop the central instance, the central services instance and the database instance:
   - If you have a central system – that is, central instance, central services instance and database instance on the **same** host – enter the following on the central system host:
     `stopsap`
     This stops the central instance, the central services instance and then the database.

You can stop the SAP system and the database separately by entering the command **`stopsap R3 <instanceID of central instance>`**, then **`stopsap R3 <instanceID of central services instance>`** and then **`stopsap <instanceID>`** .

Make sure that you always stop the central instance first and the central services instance second because otherwise the database cannot be stopped.

There is also the parameter **J2EE** that is a synonym for the parameter **R3**. For SAP systems based on an SAP R/3 Enterprise ABAP+Java, you can enter either the command **`stopsap R3`** or **`stopsap J2EE`** to stop the SAP instance comprising both ABAP and J2EE.

- If you have a distributed system – that is, central instance, central services instance and database instance on **different** hosts – do the following:

  i. On the central instance host, enter:

     `stopsap R3`

  ii. If you want to stop an SAP system with the J2EE Engine, enter the following command on the central services instance host:

     `stopsap R3`

  iii. On the database host, enter:

     `stopdb`

Make sure that no SAP instance is running before you enter `stopdb` on a standalone database server. No automatic check is made.

5.3 Logging On to the SAP System

Use

You need to check that you can log on to the SAP system using the standard users.

Prerequisites

You have already started the SAP system and installed a front end.

There are two standard users in the SAP system after the installation:

User	Initial Password	Client
SAP*	06071992	000, 066
DDIC	19920706	000

During the installation, SAPinst prompts you to change the passwords for these standard users in client 000.

If for any reason the SAP* and DDIC users still have initial passwords, you **must** change their passwords. Otherwise, there is a serious security risk because it is possible for anyone to log on to your SAP system using the initial passwords.

Procedure

1. Start *SAP Logon* on the central instance host:
   - SAP GUI for **Windows**:

     On the machine, where you have installed the front end, choose:

     Start → *Programs* → *SAP Front End<Release>* → *SAPlogon*
   - SAP GUI for **Java**:

     Enter the following command from the GUI installation directory:

     `guilogon`

     The *SAP Logon* dialog box appears.
2. Create a logon entry for the newly installed system:

Field	Your Entry
Description of system	Give a meaningful description, for example, the host name of the central instance or the SAP system ID.
Application Server	Specify the name of the central instance host
System number	Specify the number you entered for the central instance during the installation.

   When you choose *OK*, the *SAP Logon* dialog box reappears and now includes an entry for the new system.
3. Double-click the new system entry.

   The logon screen for the SAP system appears.
4. Log on as user SAP*.

5.4 Checking SAP System Services

Use

You need to check that the SAP system services are correctly installed.

Make sure that you perform this procedure after you log on to the SAP system for the **first time** after installation.

Prerequisites

You have logged onto the SAP system [page 85].

Procedure

1. Call transaction SM50.

   The services available for this instance are displayed:

   - Dialog
   - Update
   - Enqueue
   - Batch
   - Spool.

   If the display is empty, check whether the message server is running. The process name is ms.sap<SAPSID>_DVEBMGS<nr>. If the process is not running, look at the following file for more information:

   /usr/sap/<SAPSID>/DVEBMGS<nr>/work/dev_ms

2. Call transaction SM21 to check the system log.
3. Call transaction SM28 to perform the SAP initial consistency check.

5.5 Installing the SAP Online Documentation

Use

SAP currently provides an HTML-based solution for the online documentation, the SAP Library. The Application Help, Glossary, Implementation Guide (IMG), and Release Notes are delivered in HTML format. You can display the documentation with a Java-compatible Web browser on all front-end platforms supported by SAP.

Procedure

Install the SAP online documentation (SAP Library) in your SAP system as described in the `README.TXT` file contained in the root directory of the online documentation CDs, delivered as part of the installation package.

To access the SAP Library from your SAP system, choose *Help → SAP Library*

5.6 Installing the SAP License

Use

When you install your SAP system, a temporary license is automatically installed. This temporary license allows you to use the system for four weeks from the date of installation. Before the temporary license expires, you must apply for a permanent license key from SAP. SAP recommends that you do so as soon as possible after you install your system.

Procedure

The procedure to install the SAP license depends on the installation you have performed:

- If you installed an SAP system based on SAP R/3 Enterprise ABAP or ABAP+Java, see:
  - *Solution Life Cycle Management → SAP Licenses → SAP License Key → SAP License* in the SAP Library [page 41]
  - **SAP Note 94998**

    When you install the SAP system license, a license for the J2EE Engine gets installed automatically.

    You can install several licenses, one for each host running a message server.

    For example, on Windows, this applies if you have an installation with Microsoft Cluster Server (MSCS). The SAP system then searches for the current license.

- If you installed an SAP Web AS Java for SAP R/3 Enterprise, see *Solution Life Cycle Management → SAP Licenses → SAP License Key → SAP License → Licensing of the SAP J2EE Engine* in the SAP Library [page 41].

5.7 Configuring SAProuter and SAPNet – R/3 Frontend

Use

SAProuter increases network security and simplifies network configuration. SAProuter allows you to make indirect network connections. The SAProuter software is included in the standard SAP system. No additional installation is required. The network administrator normally configures SAProuter.

You require SAProuter if you are using any of the following:

- SAPNet – R/3 Frontend

  SAPNet – R/3 Frontend is the SAP-based service system and provides the technical link between SAP customers and SAP. SAPNet – R/3 Frontend was formerly known as the Online Service System (OSS).

  For more information on setting up and using SAPNet – R/3 Frontend, see the following:

  - SAP Service Marketplace at **`service.sap.com/remoteconnection`**
  - SAP Library [page 41]

- EarlyWatch

  For more information on Early Watch, see SAP Service Marketplace at **`service.sap.com/earlywatch`**.

Procedure

For a complete list of SAProuter parameters, enter the following at the command line:

`saprouter`

For more information, choose *Application Platform (SAP Web Application Server)* → *ABAP Technology* → *Client/Server Technology* → *SAProuter* in the SAP Library [page 41].

For information on installing SAProuter as a Microsoft Windows service, see **SAP Note 41054**.

5.8 Completing and Checking the Oracle Installation

Use

An Oracle SAP database has to be run in archive log mode. Only this mode guarantees recovery after system failure. The database archive logs are written to the directory `/oracle/<DBSID>/oraarch`. If the file system containing the archive directory is full, all database transactions are stopped (`archiver stuck`). Use the tool **`brarchive`** to save the archives on tape. For more information, see the documentation *SAP Database Administration: Oracle* that is part of the Online Documentation.

The following tasks need to be executed to ensure the availability of important database tools and to complete the Oracle database installation.

Procedure

Checking Database Utilities brbackup and brarchive

Execute the following steps in order to check whether the database utilities `brbackup` and `brarchive` are installed correctly:

1. Log on as UNIX user `ora<dbsid>`.
2. Verify that the database is running.
3. Load a scratch/new tape in the tape station.
4. Initialize all tapes defined in the `volume_backup` and `volume_archive` `init<DBSID>.sap` profile parameters, if enough scratch tapes are available (default 60):

   ```
   brbackup -i force
   brarchive -i force
   ```

   If only one scratch tape is available, enter:

   ```
   brbackup -i force -n 1
   brarchive -i force -n 1
   ```

5. Start an online backup of a single database file:

   ```
   brbackup –d tape –t online –m 1 -c
   ```

6. One of the following messages appears:
   - `BRBACKUP terminated successfully`
   - `BRBACKUP terminated successfully with warnings`
7. Start a dummy backup (query mode) of offline redo log files:

   ```
   brarchive –d tape –v scratch –q -c
   ```

8. One of the following messages appears:
   - `BRARCHIVE terminated successfully`
   - `No offline redo log files found for processing`

```
BRARCHIVE terminated successfully with warnings
```

If `brarchive` or `brbackup` did not terminate successfully, refer to the documentation *SAP Database Administration: Oracle* (supplied on the *Online Documentation CD*) to analyze error messages and to obtain information on how to solve the problems.

Installing the SAP Backup Library or the Legato Storage Manager

This is an **optional** post-installation step for Oracle 9.2.x only.

If you want to extend the backup functionality to include, for example, incremental backup, you must use one of the following backup libraries:

- SAP backup library
- Legato Storage Manager
- Backup tool of a third-party vendor that implements the backup interface of the Oracle Recovery Manager

The use of a backup library is optional. You can install a backup library any time after the Oracle installation.

For more information on how to install and use the SAP backup library and the Legato Storage Manager, see **SAP Note 142635**.

When installing third-party backup software, follow the vendor's instructions.

5.9 Configuring the Transport Management System

Use

You configure the domain controller in the Transport Management System (TMS) by calling transaction STMS.

Procedure

1. In your SAP system, call transaction STMS.
2. Enter the required information to configure the domain controller.

If you are not sure how to configure the domain controller, choose *Save* and configure the controller later or choose *Information* to display the TMS online documentation.

5.10 Performing Basic Operations

Use

You need to perform some basic operations that are described in the SAP Library.

Prerequisites

Open the SAP Library [page 41].

Procedure

Choose the relevant section to perform the following operations:

✔	Operation	Section in SAP Help Library
	Set up operation modes – transaction RZ04	*Solution Life Cycle Management → System Management → Configuration → Operation Modes*
	Set up logon groups – transaction SMLG	*Solution Life Cycle Management → System Management → Configuration → Dynamic Logon Load Distribution → The SAP Logon*
	Set up administrators	*Solution Life Cycle Management → System Management → Background Processing → Authorizations for Background Processing*
	Schedule background jobs	*Solution Life Cycle Management → System Management → Background Processing*
	Install a printer	*Solution Life Cycle Management → System Management → SAP Printing Guide*
	Configure the system log	*Solution Life Cycle Management → System Management → Tools for Monitoring the System → System log → Configuring the System Log*

5.11 Configured Number of Work Processes

Definition

SAPinst installs SAP systems with a minimum number of work processes calculated using the following formula:

```
#dialog_WP = RAM / 256 (min 2, max 18)
#update_WP = RAM / 768 (min 1, max 6)
#update2_WP = RAM / 1024 (min 1, max 3)
#batch_WP = RAM / 1024 (min 2, max 3)
#enqueue_WP = 1
#spool_WP = 1
```

Use

This is only an initial configuration to get you started after the installation. It is not detailed enough for a production system because the optimal number of each type of work process depends on the system resources and on the number of users working in each SAP system application.

For a detailed configuration contact SAP Technical Consulting.

5.12 Installing Additional Languages

Use

To install an additional language, you need to perform the following steps:

- Classify the language
- Schedule the language transport
- Schedule the language supplementation

You can also install additional languages later, but if you install any Support Packages in the meantime, you have to do one of the following:

- Install the Support Packages again
- Use the report `RSTLAN_IMPORT_OCS` to extract the language-relevant information from each Support Package

Procedure

For more information on how to transport an additional language, see *Language Transport*, which you can find in either of the following:

- SAP Service Marketplace at **`service.sap.com/instguidesNW04`** → *Installation*.
- SAP Library [page 41] by choosing *Solution Life Cycle Management* → *Software Change Management* → *Change and Transport System* → *Language Transport.*

5.13 Activating the integrated Internet Transaction Server

Use

The integrated Internet Transaction Server (ITS) was installed automatically with the SAP kernel.

To be able to use the integrated ITS you have to configure and activate the Internet Communication Manager (ICM) and make sure that the `webgui` service is activated in the Internet Communication Framework (ICF).

For more information, see the SAP Library [page 41] and choose *Application Platform (SAP Web Application Server)* → *ABAP Technology* → *UI Technology* → *Web UI Technology* → *ITS/SAP@Web Studio* → *SAP ITS in the SAP Web Application Server*

There you can also find the necessary information if you do **not** want to use the integrated ITS.

5.14 Importing Support Packages

Use

You use this procedure to import Support Packages for your SAP system.

Procedure

1. See **SAP Note 737696** for more information about Support Packages for SAP R/3 Enterprise 4.7 Ext. 2.00 SR 1.
2. For up-to-date information on currently recommended combinations of Support Packages and patches, see **`service.sap.com/sp-stacks`**.
3. To import a Support Package, download it from *SAP Service Marketplace* at:

   `service.sap.com/patches`
4. Apply Support Packages to your SAP system with the help of the Support Package Manager (formerly called SAP Patch Manager, transaction SPAM).

For more information on the availability of Support Packages, see the *SAP Service Marketplace* at:

`service.sap.com/ocs-schedules`

The SAP Note Assistant lets you load, implement, and organize individual SAP Notes efficiently. It also recognizes dependencies between SAP Notes, Support Packages, and modifications.

For more information, see the *SAP Service Marketplace* at:

`service.sap.com/noteassistant`

5.15 Performing Operating System Adjustments

Use

The following adjustment is recommended if your operating system is AIX on IBM/RS6000 or HP-UX on HP/HPPA.

Procedure

You can improve performance by reducing the number of shared memories. To do this, group shared memories together as shared memory pools.

For more information, see **SAP Note 37537**.

5.16 Performing File and Directory Adjustments

1. If you have copied installation CDs / DVDs to your hard disk for an unattached installation, you can delete these files when the installation has successfully completed.
2. For security reasons, set the permissions of the transport directory `/usr/sap/trans` to `771`:
   a. Log on as user **`root`** on the host that exports the transport directory.
   b. Enter:
      `chmod 771 /usr/sap/trans`

5.17 Enabling Remote Monitoring

To enable remote monitoring of the DB server from the SAP System, include the host name of each application server in the `.rhosts` file of user `<sapsid>adm` on the database host. If you use network domains, use `nslookup` on your database host to determine the 'long name' of a host.

Database server host is `host1`, central instance host is `host2`. The network domain is `subdomain1.my_company.com`. Then the file `~<sapsid>adm/.rhosts` on host `host1` must contain at least the line: `host2.subdomain1.my_company.com`

Check the connectivity from the central instance host to the database server. Try to open a remote shell without being asked for a password.

5.18 Editing sapmsg.ini for LDAP

Use

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 get up-to-date information on available SAP systems.

Prerequisites

You decided to integrate LDAP directory services for SAP Logon (for more information, see *Planning Guide for SAP Web Application Server on UNIX Oracle → Integration of LDAP Directory Services*).

Procedure

To use the LDAP operation mode, the `sapmsg.ini` file must contain the following *Address* section:

```
[Address]
Mode=LDAPdirectory
LDAPserver=
LDAPnode=
LDAPoptions=
```

Distinguish the following cases:

- If you use Active Directory, you must set `LDAPoptions=“DirType=NT5ADS”`. For more information, see the SAP system profile parameter `ldap/options`.
- If the client is not located in the same domain forest as the Active Directory, or the operating system does not have a directory service client (Windows NT4.0 and Windows 9X without installed *dsclient*), you must specify the directory servers (for example `LDAPserver=pcintel6 p24709`). 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`.

5.19 Scheduling Asynchronous Indexing and Deindexing

Use

This step is only needed if you use the Knowledge Provider (KPRO) component. For more information on KPRO see SAP Library [page 41] and choose *Application Platform (SAP Web Application Server)* → *Business Services* → *Knowledge Provider (BC-SRV-KPR)*.

Asynchronous indexing and deindexing is triggered using the report *RSTIRIDX*. You should schedule this report as a daily background process.

The report RSTIRIDX starts the indexing and deindexing of scheduled documents, and logs indexing errors in the productive system. The chosen recipient can view the contents of the report using the transaction SO01. If an error occurs, check in IMS Monitoring (see Checking for Problems in IMS Monitoring [page 98]).

Prerequisites

To use a report, you need *Batch Administrator* authorization for the authorization object *Batch Processing*.

Procedure

1. In the SAP system, call transaction SM36 or choose *System* → *Services* → *Jobs* → *Define Jobs* from the menu.

   The *Define Background Job* screen appears.

2. In the field *Job name*, enter `INDEXING`.
3. In the field *Job class*, choose *B*.
4. In the field *Target Server*, enter the name of the host on which the background process is to be performed.
5. Choose *Spool list Recipient.*

   The *Recipient Determination* dialog box appears .

6. In the field *Recipient*, enter the name of the desired recipient. Then select the required *General Attributes*, and choose *Copy*.
7. From the application toolbar on the Define Background Job screen, choose *Start condition*.

   The *Start Time* dialog box appears.

8. Choose *Date/Time*.
9. Enter the required start date and time.
10. Select the option *Periodic Job* anf choose *Period Values*

    The *Period Values* dialog box appears.

11. Choose *Daily*.
12. Choose *Save.*
13. On the *Start Time* dialog box, choose *Save* again.
14. From the application toolbar, choose *Step*.

    The *Create Step* dialog box appears.

15. Choose *ABAP program*.
16. In the *ABAP Program* group box, enter the name `RSTIRIDX` in the *Name* field.
17. Choose *Print specifications*.

    The *Background Print Parameters* dialog box appears.

18. Enter the name of the output device and choose *Properties.*

    The *Spool Request Attributes* dialog box appears

19. On the *Overview* tab, select *General Properties* and double-click *Time of Printing.*
20. In the group box *Other Properties "Time of Printing"*, choose the option *Print out immediately* from the listbox.
21. Confirm your entries with *O.K*.

5.19.1 Checking for Problems in IMS Monitoring

This step is only needed if you use the Knowledge Provider (KPRO) component. For more information on KPRO see SAP Library [page 41] and choose *Application Platform (SAP Web Application Server)* → *Business Services* → *Knowledge Provider (BC-SRV-KPR)*.

Procedure

1. In the SAP system, choose transaction SKPR07.
2. In the *Extras* area, choose *Scheduled Documents.*

   The system displays a list of documents to be indexed or deindexed. The following information is available:

   - Client
   - Name of index category (32-place GUID)
   - Document class
   - Document language
   - Processing type (I = indexing, D = deindexing)
   - The number of scheduled documents for this index category
3. To see details on the scheduled documents, select the required list entry and choose *View*.
4. To see the number of attempts to index or deindex individual documents, select the required documents and choose *View.*

   If an error has occurred whilst a document was being indexed or deindexed, it is scheduled for the process again. If the number of retries is large, there is probably an error that is preventing the indexing or deindexing of the document in general. Select such documents in the list of scheduled documents, and delete them.

   Documents that could not be indexed or deindexed at the first attempt (including those documents that you have deleted from the list of scheduled documents manually) are treated by the system as problem cases.
5. To see a list of problem cases, call transaction SKRPR07 and choose *Problems.*

   You can filter this list by document class and by the number of attempts to index or deindex a document.

You can delete the listed documents, or you can mark them to be indexed or deindexed again.

5.20 Performing the Client Copy

Use

You use this procedure to perform the client copy, which consists of the following steps:

- Maintain the client with transaction SCC4
- Copy the client with local transaction SCCL
- Copy the log files with transaction SCC3

Procedure

For more detailed information on how to perform the client copy, see the separate documentation in the SAP Library [page 41]:

Solution Life Cycle Management → Software Change Management → Change and Transport System → Client Copy and Transport

5.21 Performing a Full Installation Backup

Use

You must perform a **full offline backup** at the end of the installation. This procedure also describes how to use the backed-up data for a restore.

You need to back up the following directories and files:

- All database-specific directories
- All SAP-specific directories:
  - `/usr/sap/<SAPSID>`
  - `/usr/sap/trans`
  - `<sapmnt>/<SAPSID>`
  - Home directory of the user `<sapsid>adm`
- The root file system

  This saves the structure of the system and all configuration files, such as file system size, logical volume manager configuration, and database configuration data.

  This list is only valid for a standard installation.

  The directory `/usr/sap/trans` is only required for SAP systems that have the ABAP engine installed.

Prerequisites

- You have completed client maintenance, such as the client copy [page 99].
- You have logged on as user `<sapsid>adm` and stopped the SAP system and database [page 82].
- This procedure works on all hardware platforms. For more information on operating system-specific backup procedures, see your operating system documentation.

Procedure

Backing Up the Installation

1. Log on as user `root`.
2. Manually create a compressed tar archive containing all installed files:
   a. Create the archive:
      `tar -cf <ARCHIVNAME> <filesystem / filename>`
      `tar -uf <ARCHIVNAME> <filesystem / filename> ....`
   b. Compress the archive:
      `compress <ARCHIVNAME>`
   c. Store the archive on tape:
      `tar -cf <tape_device> <ARCHIVNAME>.Z`

Restoring Your Backup

Check for modifications in the existing parameter files before you overwrite them when restoring the backup.

1. Log on as user `root`.
2. Restore the data that you previously backed up:
   a. Restore the data from tape:
      `tar -xf <tape_device> <ARCHIVNAME>.Z`
   b. Uncompress the data:
      `uncompress <ARCHIVNAME>.Z`
   c. Restore the data to the file system:
      `tar -xf <ARCHIVNAME>`

5.22 Changing Passwords of Created Users

Use

You need to change the passwords of the users that SAPinst creates during the installation. The table below lists these users. You also need to remove the contents of the installation directory and store them securely because otherwise they represent a security risk.

Make sure that you perform this procedure **before** the newly installed SAP system goes into production.

Procedure

Change the passwords of these users according to the *SAP Security Guide*.

For more information, see SAP Service Marketplace at **`service.sap.com/securityguide`**.

- SAP system users might exist in more SAP system clients than listed below (for example, if a user was copied as part of the client copy [page 99]).
- We strongly recommend that you change the initial passwords even if SAPinst prompted for a new password during the installation procedure.

User Type	User	Comment
SAP system user	SAP*	User exists at least in SAP system client 000
	DDIC	User exists at least in SAP system clients 000 and 066
	EARLYWATCH	User exists at least in SAP system client 066
	SAPCPIC	User exists at least in SAP system client 000
Operating system user	<sapsid>adm	SAP system administrator
	ora<dbsid>	Oracle database administrator (that is, the owner of the database files)
Oracle database user	SAP<SCHEMA_ID>	Oracle database owner (that is, the owner of the database tables)
	SYSTEM	–
	SYS	–
	OUTLN	–
	DBSNMP	–

6 Additional Information

6.1 Remote Installation with SAPinst

Purpose

You can run the SAPinst GUI in standalone mode to perform a remote installation.

This enables you to install an SAP system on another host (the remote host) while monitoring the installation with the SAPinst GUI on your local Windows or UNIX computer (the local host).

Prerequisites

- Make sure that you have performed the preparation activities for your local host (SAPinst GUI host) and your remote host.

  For more information, see *Installation Preparations* in this documentation.
- Both computers are in the same network and can ping each other.

  To test this:
  - Log on to your remote host and enter the command **`ping <local host>`**.
  - Log on to the local host and enter the command **`ping <remote host>`**.

Process Flow

1. You start SAPinst on the remote host [page 102].
2. You start SAPinst GUI on the local host [page 103].
3. You perform the installation using the SAPinst GUI.

6.1.1 Starting SAPinst on the Remote Host

Use

You use this procedure to run SAPinst on the **remote** host when you to perform a remote installation [page 102]. The remote host is the host where you want to install the SAP system.

Prerequisites

You have prepared your system for SAPinst [page 58].

Concerning the Handling of the SAP Installation Master CD see section Running SAPinst [page 69].

Procedure

Your Remote Host Runs on a Windows Platform

1. Log on to your remote host as a user who is a member of the local administration group.
2. Insert the installation CD in your DVD drive.

3. Enter the following commands from the Windows command prompt:

   `cd <DVD drive>:\IM<x>\SAPinst\NT\<OS>`

   `sapinst.exe SAPINST_START_GUI=false`

   SAPinst now starts and waits for the connection to the SAPinst GUI. That is, you see the following at the command prompt:

   ```
   guiengine: no GUI connected; waiting for a connection on host
   <host_name>, port <port_number> to continue with the
   installation
   ```

4. Start the SAPinst GUI on your local host, as described in Starting SAPinst GUI on the Local Host [page 103].

Your Remote Host Runs on a UNIX Platform

1. Log on to your remote host as user `root`.
2. Mount the installation CD.

   Mount the CD locally. We do **not** recommend using Network File System (NFS).

3. Enter the following commands:

   `cd <SAP_Installation_CD>/IM<x>/SAPINST/UNIX/<OS>`

   `sapinst SAPINST_START_GUI=false`

   SAPinst now starts and waits for the connection to the SAPinst GUI. That is, you see the following at the command prompt:

   ```
   guiengine: no GUI connected; waiting for a connection on host
   <host_name>, port <port_number> to continue with the
   installation
   ```

4. Start the SAPinst GUI on your local host, as described in Starting SAPinst GUI on the Local Host [page 103].

6.1.2 Starting SAPinst GUI on the Local Host

Use

You use this procedure to run SAPinst GUI on the **local** host when you want to perform a remote installation [page 102]. The local host is the host where you want to control the installation with the SAPinst GUI.

Prerequisites

You have prepared your system for SAPinst [page 58].

Concerning the Handling of the SAP Installation Master CD see section Running SAPinst [page 69].

Procedure

Your Local Host Runs on a Windows Platform

1. Log on to your remote host as a user who is a member of the local administration group.
2. Insert the installation CD into your CD drive.
3. Enter the following commands from the Windows command prompt:

   `cd <CD drive>:\IM<x>\SAPinst\NT\<OS>`

   `startinstgui.bat`

   If you enter this command without any parameters, the SAPinst GUI starts and connects automatically to the host that is waiting for a connection. The *SAP Installation GUI Connection* dialog appears.

   Alternatively, you can also enter the host name and the port number of the remote host using the options **`-host <host_name>`** and **`-port <port_number>`** respectively. If the connection is successful, then the *SAP Installation GUI Connection* dialog does not appear.
4. If the *SAP Installation GUI Connection* dialog appears, you enter the host name of the *Installation Host* and the same *Port* as SAPinst uses on the remote host and choose *OK*.

   SAPinst GUI now connects to the SAPinst server and the first dialog of the installation appears.
5. Perform the installation from your local host.

Your Local Host Runs on a UNIX Platform

1. Log on to your local UNIX host as user `root`.
2. Mount your installation CD.

   Mount the CD locally. We do **not** recommend using Network File System (NFS).

3. Enter the following command:

   `cd <SAP_Installation_CD>/IM<x>/SAPINST/UNIX/<OS>`

   `./startInstGui.sh`

   If you enter this command without any parameters, the SAPinst GUI now gets started and connects automatically to the host that is waiting for a connection. The *SAP Installation GUI Connection* dialog appears.

   Alternatively you can also enter the host name and the port number of the remote host using the options **`-host <host_name>`** and **`-port <port_number>`** respectively. If the connection is successful, then the *SAP Installation GUI Connection* dialog does not appear.
4. If the *SAP Installation GUI Connection* dialog appears, you enter the host name of the *Installation Host* and the same *Port* as SAPinst uses on the remote host and choose *OK*.

SAPinst GUI now connects to the SAPinst server and the first dialog of the installation appears.

5. Perform the installation from your local host.

6.2 Interrupted Installation with SAPinst

Use

SAPinst does not abort the installation in error situations. Therefore, you can continue an interrupted installation when you have:

- **Not** canceled the installation

  That is, the error dialog box is still displayed and SAPinst is waiting for your input. You proceed by choosing *Retry* in the error dialog box.

  SAPinst now retries the installation step.

- **Already** canceled the installation

  That is, the installation was aborted. There are the following situations:

If you have canceled with…	Meaning
Stop	Since SAPinst records the installation progress in the `keydb.xml` file, you can continue the installation from the failed step without repeating previous steps. During this procedure, you can *Reset* the installation, too, if required.
Reset	You must restart from the beginning, that is, with the default `keydb.xml` file as delivered.  In some cases, you must uninstall already installed components, before repeating the installation from the beginning. For example, this applies to an SAP system installation. For more information, see the description on how to de-install a component in the corresponding installation guide.

If you do not want to continue the installation, you can terminate SAPinst completely by pressing `Ctrl+C` (see section Running SAPinst [page 69]).

Prerequisites

You have solved the problem that caused the error situation.

Concerning the Handling of the SAP Installation Master CD see section Running SAPinst [page 69].

Procedure

6.2 Interrupted Installation with SAPinst

Windows

1. Log on to your remote host as a user who is a member of the local administration group.
2. Insert the installation CD in your DVD drive.
3. Enter the following commands from the Windows command prompt:

   `cd <CD drive>:\IM<x>\SAPinst\NT\<OS>`

   `sapinst.exe`
4. From the tree structure in the *Welcome* screen, select the installation task that you want to continue and choose *Next.*

   If there is only one component to install, SAPinst directly displays the dialog *What do you want to do?* without presenting the *Welcome* screen.

   The *What do you want to do?* screen appears.
5. In the *What do you want to do?* screen, decide between the following alternatives and choose *OK.*

Alternative	Behavior
Run a new Installation	The installation **will not be continued**. Instead, SAPinst deletes the mentioned installation directory for the chosen installation service and starts the installation from the beginning. The log files from the old installation are put into a backup directory with the following naming convention: `<log_day_month_year_hours_minutes_seconds>` (for example, `log_01_Oct_2003_13_47_56`).
Continue old installation	The installation of the mentioned installation service **will be continued** from the point of failure.

UNIX

1. Log on to your local UNIX host as user `root`.
2. Mount your installation CD.

   Mount the CD locally. We do **not** recommend using Network File System (NFS).
3. Enter the following commands:

   `cd <SAP_Installation_CD>/IM<x>/SAPINST/UNIX/<OS>`

   `./sapinst`
4. From the tree structure in the *Welcome* screen, select the installation task that you want to continue and choose *Next.*

If there is only one component to install, SAPinst directly displays the dialog *What do you want to do?* without presenting the *Welcome* screen.

The *What do you want to do?* screen appears.

5. In the *What do you want to do?* screen, decide between the following alternatives and choose *OK.*

Alternative	Behavior
Run a new Installation	The installation **will not be continued**. Instead, SAPinst deletes the mentioned installation directory for the chosen installation service and starts the installation from the beginning. The log files from the old installation are put into a backup directory with the following naming convention: `<log_day_month_year_hours_minutes_seconds>` (for example, `log_01_Oct_2003_13_47_56`).
Continue old installation	The installation of the mentioned installation service **will be continued** from the point of failure.

6.3 Deletion of an SAP System Installation (ABAP)

Purpose

This section describes how to delete a dialog instance or how to completely delete an SAP system.

This description assumes that the installation of your SAP system has been performed using SAP standard tools according to the installation documentation.

Process Flow

If you delete network-wide users, groups or service entries in an environment with Network Information System (NIS), other SAP installations might also be affected. Make sure that the users, groups, and service entries to be deleted are no longer required.

Deleting a Dialog Instance

You delete the dialog instance [page 110].

Deleting a J2EE Add-In Installation

If you have an SAP system based on SAP R/3 Enterprise ABAP+Java and you only want to delete the J2EE Add-In installation (that is, the SAP system (ABAP) is not deleted), see the documentation *Installation Guide – SAP Web Application Server Java on UNIX: Oracle*, section *Deletion of an SAP System Installation (J2EE)*.

Deleting a Complete SAP System

1. You delete all dialog instances [page 110], if there are any.
2. If you want to delete an SAP system with the J2EE Engine, you delete the central services instances. For more information, see the documentation *Installation Guide – SAP Web Application Server Java on UNIX: Oracle*, section *Deleting a Central Services Instance*.
3. You delete the central instance [page 112].
4. You delete the database instance [page 114].

6.3.1 Deleting a (J2EE) Dialog Instance

Use

You use this procedure to delete a dialog or J2EE dialog instance. You need to delete (J2EE) dialog instances when you delete an SAP system installation [page 109].

Prerequisites

There are no files or directories located on the (J2EE) dialog instance host that are exported as Network File System (NFS) mounts.

If you are deleting a single SAP instance without deleting the entire SAP system, make sure that you do not delete files or directories used by other SAP instances by means of NFS mounts.

Procedure

1. Stop the SAP instance to be deleted:
   a. Log on as user `<sapsid>adm`.
   b. Execute this command:

      `stopsap`

      If there are multiple SAP instances on the dialog instance host, you must stop them with the following command (where `<Dxx>` or `<Jxx>` is the name of the dialog or J2EE dialog instance):

      - SAP systems based on SAP R/3 Enterprise ABAP+Java or SAP R/3 Enterprise ABAP:
        `stopsap <Dxx>`
      - SAP Web AS Java for SAP R/3 Enterprise:
        `stopsap <Jxx>`
2. If the instance to be deleted is the only SAP instance running on this host, stop the `saposcol` process with the following command:

   `saposcol -k`
3. To delete all (J2EE) dialog instances with the same instance ID `<ID>` belonging to the SAP system, remove their profiles as follows:
   - SAP systems based on SAP R/3 Enterprise ABAP+Java or SAP R/3 Enterprise ABAP:

     `rm /usr/sap/<SAPSID>/SYS/profile/<SAPSID>_D<ID>_<host_name>`

     `rm /usr/sap/<SAPSID>/SYS/profile/START_D<ID>_<host_name>`
   - SAP Web AS Java for SAP R/3 Enterprise:

     `rm /usr/sap/<SAPSID>/SYS/profile/<SAPSID>_J<ID>_<host_name>`

     `rm /usr/sap/<SAPSID>/SYS/profile/START_J<ID>_<host_name>`

For example, enter the following commands:

```
rm /usr/sap/C11/SYS/profile/START_D00_h0001
rm /usr/sap/C11/SYS/profile/C11_D00_h0001
```

4. Log on as UNIX user `root` and delete the local instance directory:
   - SAP systems based on SAP R/3 Enterprise ABAP+Java or SAP R/3 Enterprise ABAP:

     `rm -rf /usr/sap/<SAPSID>/D<ID>`
   - SAP Web AS Java for SAP R/3 Enterprise:

     `rm -rf /usr/sap/<SAPSID>/J<ID>`

Perform the remaining steps **only** if there are no other instances belonging to this <SAPSID> running on this host. Otherwise, you have completed the deletion of dialog instances.

5. If the file system for the executables `<sapmnt>/<SAPSID>/exe` is located on the (J2EE) dialog instance host, delete it:

   `rm -rf <sapmnt>/<SAPSID>/exe`
6. Remove the softlinks:

   `rm /usr/sap/<SAPSID>/SYS/exe/dbg`

   `rm /usr/sap/<SAPSID>/SYS/profile`

   `rm /usr/sap/<SAPSID>/SYS/global`
7. Delete user `<sapsid>adm` , its home directory, and all subdirectories of the home directory:

To delete users, use the administration tools of your operating system if possible.

   a. Delete the UNIX user `<sapsid>adm` as described in your operating system documentation.
   b. If the home directory of the user was not deleted automatically in the previous step, delete this directory:

      `rm -rf <sapsid_adm_home>`

For example, enter the following command:

```
rm -rf /home/c11adm
```

8. Delete the user `<sapsid>adm` from the groups `sapsys`, `oper` and `dba`, if this was not done automatically in the previous step. If one of these groups is now empty, delete the complete group as described in your operating system documentation.
9. Check whether you need to delete entries from the file `/etc/services`:
   a. Search for entries starting with `sap`.

b. Check whether these entries are still required by other instances with the same or a different <SAPSID> on any server.

c. If not, start by generating a backup copy of the `services` file. You can do this as follows:

`cp /etc/services /etc/services.sap`

d. Delete superfluous entries from `/etc/services`.

If you use Network Information System (NIS) for the `services` file, see your operating system documentation for more information on how to delete entries from network-wide service entries.

10. If there are no other SAP instances running on this host, delete the following files if they exist:
    - `/etc/sapconf`
    - `/usr/sap/trans/.sapconf`

The directory `/usr/sap/trans` is only required for SAP systems that have the ABAP engine installed.

6.3.2 Deleting a Central Instance

Use

You use this procedure to delete a central instance. You need to delete a central instance when you delete an SAP system installation [page 109].

Prerequisites

- You have deleted all (J2EE) dialog instances [page 110] in the SAP system.
- If you delete an SAP system with the J2EE Engine, you have deleted the central services.
- The file systems `/usr/sap/<SAPSID>` and `<sapmnt>/<SAPSID>` are physically located on the central instance host.

Procedure

1. Stop the central instance by entering the following as user `<sapsid>adm`:

`stopsap`

If there are multiple SAP instances on one host (for example, a central instance and a dialog instance), the `stopsap` script requires an additional parameter:

`stopsap <instanceID>`

2. If the instance to be deleted is the only SAP instance running on this host, stop the `saposcol` process with the following command:

`saposcol -k`

3. Delete the following directories:

   rm -rf /usr/sap/<SAPSID>

   rm -rf /<sapmnt>/<SAPSID>

   rm -rf <INSTDIR>

4. Delete the following file:

   rm /usr/sap/trans/bin/tpparam_inst<SAPSID>

   The directory /usr/sap/trans is only required for SAP systems that have the ABAP engine installed.

5. Log on as user root.
6. Delete user <sapsid>adm, its home directory, and all sub-directories of this directory:
   a. Delete <sapsid>adm as described in your operating system documentation.
   b. If the user's home directory was not deleted automatically as part of the previous step, delete it:

      rm -rf <sapsid_adm_home>
7. Check whether you need to delete entries from the file /etc/services:
   a. Search for entries starting with sap.
   b. Check whether these entries are still required by other instances with the same or a different <SAPSID> on any server.
   c. If not, generate a backup copy of the services file:

      cp /etc/services /etc/services.sap
   d. Delete superfluous entries from /etc/services.

      If you use Network Information System (NIS) for the services file, see your operating system documentation for information on how to delete entries from network-wide service entries.
8. If not done automatically in the previous step, delete the user <sapsid>adm from the groups sapsys, oper, and dba. If one of these groups is now empty, delete the complete group, as described in your operating system documentation.
9. If there are no other SAP instances running on this host and the /etc/sapconf file exists, delete this file.
10. If there are no other SAP systems running network-wide, delete the directory /usr/sap/trans with all its sub-directories.

    Otherwise, adapt the SAP system configuration description.

    The directory /usr/sap/trans is only required for SAP systems that have the ABAP engine installed.

6.3.3 Deleting an Oracle Database Installation

Use

If you have multiple components installed in one database (MCOD), delete the database only if you want to delete all contained components as well. Otherwise, delete components on a selective basis (see **SAP Note 399910**).

This section describes how to delete an Oracle database that you have installed.

Prerequisites

- Before deleting the database, stop all SAP instances belonging to this database or to this J2EE database schema.
- We recommend you to delete the SAP instances before deleting the database instance.

Procedure

1. Log on as user `ora<dbsid>`.
2. Start `sqlplus` and shutdown the database. Enter:

   ```
   sqlplus /nolog
   SQLPLUS>connect / as sysdba
   SQLPLUS>shutdown immediate
   SQLPLUS>exit
   ```

3. Kill the `orasrv` process if it is running:

   `ps -ef | grep orasrv` (note the process ID `<PID>`)
   `kill -9 <PID>`

4. Stop the listener process:
   `lsnrctl stop`
5. Use the uninstall functionality of the Oracle Universal Installer (OUI):
   a. Start the Oracle Universal Installer:

      `cd /oracle/stage/920_32/Disk1` or
      `cd /oracle/stage/920_64/Disk1`

      `./runInstaller`

   b. Choose *Installed Products* or *Deinstall Products.*
   c. Select the database schema you want to uninstall (`<DBSID>_920_32` or `<DBSID>_920_64`).
   d. Mark the Oracle 9i database within the selected schema.
   e. Choose *Remove*.
   f. Confirm your selection with *Yes*.
   g. Choose *EXIT*.
6. Log on as user **`root`**.

7. Delete user `ora<dbsid>`along with its home directory and all subdirectories of this directory:
   a. Delete the UNIX user `ora<dbsid>` using the steps appropriate for your operating system.
   b. If the home directory of the user was not deleted automatically in the previous step, delete this directory:
      `rm -rf <sapsid_adm_home>`

      For example, enter:

      `rm -rf /home/orac11`

8. Delete user `ora<dbsid>` from group `dba`, if this was not done automatically in the previous step. If the group `dba` is now empty, delete the complete group using the steps appropriate for your operating system.
9. Remove the directory `/oracle/<DBSID>` and sub-directories
   `rm -rf /oracle/<DBSID>`
10. If there are no other database instances with the same Oracle release installed on this host, remove the staging area directory:
    - 32-bit Oracle 9.2.0: **`rm -rf /oracle/stage/920_32`**
    - 64-bit Oracle 9.2.0: **`rm -rf /oracle/stage/920_64`**
11. If there are no other Oracle instances on this host, remove the Oracle client software directory with one of the following commands:

Oracle Software Version	Command
32-bit Oracle 9.2.x	**`rm -r /oracle/client/92x_32`**
64-bit Oracle 9.2.x	**`rm -r /oracle/client/92x_64`**