

PUBLIC

Installation Guide



SAP NetWeaver 2004s **Standalone Engine** **SAP liveCache** **Technology: UNIX**

Target Audience

- Technology Consultants
- System Administrators

Document version: 1.02 – January 27, 2006



SAP AG
Dietmar-Hopp-Allee 16
69190 Walldorf
Germany
T +49/18 05/34 34 34
F +49/18 05/34 34 20
www.sap.com

© Copyright 2006 SAP AG. All rights reserved.

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

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

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

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

Oracle is a registered trademark of Oracle Corporation.

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

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

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

Java is a registered trademark of Sun Microsystems, Inc.

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

MaxDB is a trademark of MySQL AB, Sweden.

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

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

Disclaimer

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

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

Documentation in the SAP Service Marketplace

You can find this document at the following address:

service.sap.com/instguides

Typographic Conventions

Example	Description
<>	Angle brackets indicate that you replace these words or characters with appropriate entries to make entries in the system, for example, "Enter your <User Name>".
®	Arrows separating the parts of a navigation path, for example, menu options
Example	Emphasized words or expressions
Example	Words or characters that you enter in the system exactly as they appear in the documentation
<u>Example</u>	Textual cross-references to a URL, for example, www.sap.com
/example	Shortcuts added to the URL of a homepage to enable quick access to specific content on the Web
123456	Hyperlink to an SAP Note, for example, SAP Note 123456
<i>Example</i>	<ul style="list-style-type: none"> ■ Words or characters quoted from the screen. These include field labels, screen titles, pushbutton labels, menu names, and menu options. ■ Cross-references to other documentation or published works
Example	<ul style="list-style-type: none"> ■ Output on the screen following a user action, for example, messages ■ Source code or syntax quoted directly from a program ■ File and directory names and their paths, names of variables and parameters, and names of installation, upgrade, and database tools
EXAMPLE	Technical names of system objects. These include report names, program names, transaction codes, database table names, and key concepts of a programming language when they are surrounded by body text, for example, SELECT and INCLUDE
EXAMPLE	Keys on the keyboard

Document History



Caution

Before you start the implementation, make sure you have the latest version of this document.

You can find the latest version in SAP Service Marketplace at the following internet address:

service.sap.com/instguides.

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

Version	Date	Description
1.02	01/27/2006	Initial Version (Minor Changes)

Table of Contents

<i>Chapter 1</i>	Introduction	<u>1</u>
1.1	New Features	<u>1</u>
1.2	Before You Start	<u>1</u>
1.2.1	SAP Notes for the Installation	<u>2</u>
1.2.2	More Information on SAP Service Marketplace	<u>2</u>
1.2.3	Naming Conventions	<u>2</u>
<i>Chapter 2</i>	Planning	<u>3</u>
2.1	Software Requirements Check	<u>3</u>
<i>Chapter 3</i>	Preparation	<u>5</u>
3.1	Configuring the liveCache Run Directory and Related Objects	<u>5</u>
3.2	Choosing a liveCache System Name	<u>5</u>
3.3	Creating liveCache File Systems	<u>6</u>
3.4	Setting Up Security for the Database Software Owner Manually	<u>7</u>
3.5	Preparing the System for SAPinst	<u>8</u>
3.6	Preparing the Installation DVDs	<u>8</u>
3.7	Mounting the Installation Media	<u>10</u>
3.7.1	Mounting a CD /DVD for AIX	<u>10</u>
3.7.2	Mounting a CD /DVD for HP-UX	<u>11</u>
3.7.3	Mounting a CD /DVD for Linux	<u>12</u>
3.7.4	Mounting a CD /DVD for Solaris	<u>13</u>
<i>Chapter 4</i>	Installation	<u>15</u>
4.1	Checking the Prerequisites Before Starting SAPinst	<u>15</u>
4.2	Installing liveCache Using SAPinst	<u>16</u>
4.2.1	Running SAPinst to Install liveCache	<u>16</u>
4.2.2	Using SAPinst GUI	<u>19</u>
4.2.3	Interrupted Installation with SAPinst	<u>19</u>
4.2.4	Starting SAPinst on the Remote Host (Optional)	<u>21</u>
4.2.5	Starting SAPinst GUI Separately (Optional)	<u>22</u>
4.2.6	Troubleshooting with SAPinst	<u>24</u>
<i>Chapter 5</i>	Post-Installation	<u>25</u>
5.1	Common Post-Installation Activities	<u>25</u>
5.1.1	Setting Up the Connection to the liveCache Instance	<u>25</u>
5.1.2	Checking the liveCache Instance	<u>27</u>
5.1.3	Changing Password of Created Users	<u>27</u>
5.1.4	Setting Up a liveCache Super User	<u>28</u>

5.2	SCM-Specific Post-Installation Activities	<u>29</u>
5.3	Post-Installation Activities Specific to Workforce Deployment Server	<u>29</u>
5.4	Installing the Administration Tools	<u>29</u>
5.5	Secure Sockets Layer Protocol for Database Server Communication	<u>30</u>
5.5.1	Installing the SAP Cryptographic Library	<u>31</u>
5.5.2	Generating the Personal Security Environment	<u>32</u>
Chapter 6	Additional Information	<u>35</u>
6.1	Operating Information for liveCache	<u>35</u>
6.2	Uninstalling liveCache	<u>35</u>
Chapter A	Reference	<u>37</u>
A.1	The Main SAP Documentation Types	<u>37</u>

1 Introduction

This documentation explains how to install the server for SAP liveCache Technology. SAP liveCache is used in mySAP Supply Chain Management (SCM) and Workforce Deployment (WFD).

liveCache is SAP's memory-resident object management technology that enables higher levels of performance in business processing for mySAP Supply Chain Management (SCM) and Workforce Deployment (WFD) Server.



Caution

Make sure you have the **latest version of this document**. See the version number on the front page. You can always find the latest version on SAP Service Marketplace:

service.sap.com/installNW2004s [®] *Installation – Standalone Engines & Clients*

For more information on mySAP SCM technology, see SAP Service Marketplace at:

service.sap.com/scm [®] *mySAP SCM Technology*

For more information on Resource Planning, see SAP Service Marketplace at either of the following:

service.sap.com/crm

service.sap.com/cprojects

1.1 New Features

Area	Description
Database	MaxDB Release 7.6.00
Operating systems	See the Product Availability Matrix (PAM) on SAP Service Marketplace at: service.sap.com/pam

1.2 Before You Start

Make sure that you read the following sections before you start the installation:

- *SAP Notes for the Installation* [page 2]
- *Information Available on SAP Service Marketplace* [page 2]
- *Naming Conventions* [page 2]

1.2.1 SAP Notes for the Installation

Read the following SAP Notes, which you can find on SAP Service Marketplace at service.sap.com/notes:

Note Number	Title
863952	liveCache 7.6 Installation
833216	Parameter values as of liveCache version 7.6.00
305634	RFC destination for global working on the liveCache
429215	UNIX Settings for File Systems and Trace Files > 2 GB

1.2.2 More Information on SAP Service Marketplace

You can find more information on SAP Service Marketplace as follows:

Description	Address
liveCache Installation Guide	service.sap.com/installNW2004s [®] <i>Installation</i> [®] <i>Standalone Engines, Clients, and Tools</i>
Product Availability Matrix (PAM)	service.sap.com/pam
SAP Notes	service.sap.com/notes

1.2.3 Naming Conventions

We use the following naming conventions in this documentation:

Variable	Description
INST_DIR	Installation directory
LC_HOST	Domain or server name where the liveCache is installed
LC_NAME	Name of liveCache instance consisting of three capital letters
LC_HOME	Directory where the liveCache software is installed
LC_USER	Operating system user for the liveCache instance

2 Planning

To plan the installation you need to *check the software requirements* [page 3].

2.1 Software Requirements Check

Make sure that your operating system meets the following requirements:

Software Requirements for your Operating System (OS)

OS	Requirements
AIX	<p>C++ RTE version 5.0 is needed. You can check this using the command:</p> <pre>ls1pp -1 -q x1C.rte</pre> <p>The file set <code>x1C.aix<nn>.rte</code> (part of the C++ runtime) must be at level 5.0.0.4 or higher, where <code><nn></code> is the current number of the file set. To find the current number, see SAP Note 720261. This file set is contained in <i>PTF U474305</i>. Check the level with this command: <pre>ls1pp -1 -q x1C.aix<nn>.rte.</pre> <p>You can download this fix from: service.software.ibm.com/rs6k/fixes.html</p> <p>You can download the base level file sets for the C++ runtime, if necessary, from: ftp://ftp.software.ibm.com/aix/products/ccpp/</p> </p>
HP-UX	<p>Set kernel parameter <code>max_thread_proc</code> to a minimum value of 256, otherwise LCSETUP stops with the following error:</p> <pre>INIT CONFIG of database failed</pre> <p>Requirements:</p> <ul style="list-style-type: none"> ■ PHSS_21906 HP aC++ runtime libraries (aCC A.03.26) ■ PHSS_22478 1d, d1d and linker tools cumulative patch ■ PHSS_21950 libcl patch
Solaris	With Solaris 9 no updates are necessary.

For the most up-to-date information on the database and operating system of your product, check the SAP Product Availability Matrix (PAM) on SAP Service Marketplace at:

service.sap.com/pam

Only valid for: AIX

There you can also find additional information on required operating system patch levels for C++ RTE.

End of: AIX

Only valid for: HP Tru64 UNIX

As of SAP liveCache 7.6.00 we no longer support HP Tru64 UNIX.

End of: HP Tru64 UNIX

This page is intentionally left blank.

3 Preparation

Prerequisites

You have completed *planning the installation* [page 3].

Process Flow

You have to complete the following preparations:

1. You *configure the liveCache run directory and related objects* [page 5].
2. You *choose a liveCache system name* [page 5].
3. You *create liveCache file systems* [page 6].
4. If required, you *set up security for the database software owner manually* [page 7].
5. You *prepare the system for SAPinst* [page 8].
6. You *prepare the installation DVDs* [page 8].
7. You *mount the installation media* [page 10].

3.1 Configuring the liveCache Run Directory and Related Objects

For support reasons, we strongly recommend you to perform this preparation.

Procedure

1. Configure the liveCache run directory, `/sapdb/data/wrk/<lcname>`, and the corresponding file system to have at least the same size and free space as the available liveCache main memory size.



Note

By default, liveCache trace and core files are written to the liveCache run directory.

2. Set the size for all related file, core, stack, and trace parameters to "unlimited".

For more information, see [SAP Note 429215](#).

3.2 Choosing a liveCache System Name

Choose a liveCache name, `<LC_NAME>`, noting the following restrictions.

- The liveCache system name must be unique throughout your organization and must consist of exactly three alphanumeric characters.
- Only uppercase letters are allowed.
- The first character must be a letter (not a digit).
- Since the following names are reserved for SAP systems, you **cannot** use them for your liveCache system:

ADD ALL AND ANY ASC B20 B30 BCO BIN COM DBA END EPS FOR GID
 IBM INT KEY LOG MON NOT OFF OMS P30 RAW ROW SAP SET SGA SHG
 SID SQL SYS TMP UID VAR



Note

Choose your liveCache system name carefully. Renaming is complicated and requires you to re-install liveCache.

3.3 Creating liveCache File Systems

You need to set up file systems on your liveCache host.



Recommendation

We recommend using **raw devices** as volumes. Raw devices are faster and more secure than files.

Prerequisites

To find out how to create raw devices or file systems for your operating system, see section *Preparation* in the relevant installation documentation, which you can find on SAP Service Marketplace at:

service.sap.com/instguidesNW04 [®] *Installation*

Creating File Systems for Raw Devices

If you are using raw devices you need to create the following file system:

File System Name	Description	Recommendation
/sapdb	liveCache software + LCA objects	300 MB
	Additional trace files for problem analysis	3 GB

Creating Normal File Systems

1. If you do not want to use raw devices, you need to create the following file systems:

File System Name	Description	Recommendation
/sapdb	liveCache software + LCA objects	300 MB
	Additional trace files for problem analysis	3 GB
/sapdb/<LC_NAME>/sapdata[1-n]	Data Volumes	2 x RAM, minimum 3 GB
/sapdb/<LC_NAME>/saplog	Log Volume	2 GB

2. Enter the following command to set permission mode 777 for the directories `sapdata` and `saplog`:
`chmod 777 sapdata* saplog`
3. Make sure that there is sufficient space available in the default run directory, `/sapdb/data/wrk/<LC_NAME>`, because the database management system might write trace files to this directory.

3.4 Setting Up Security for the Database Software Owner Manually

You might need to setup security for the database software owner manually.

As of MaxDB version 7.5.0 we are introducing a new security concept. Authorization to access directories and files is restricted, and a new user and user group is required:

- User is `sdb` (MaxDB default)
- User group is `sdba` (MaxDB default)

This user and group are the only software owners on the host. For security reasons, the user does not have a logon for the system, which guarantees the physical integrity of the database files. Database processes run under the user, which makes sure that several different users cannot manipulate the database system.

Prerequisites

If you are managing users and user groups in a network or if you want to create the MaxDB account for the database software owner manually, you can set up this user and user group manually as described in the procedure below.

For local user management, the upgrade program does this if the user and user group do not already exist.

Procedure

1. Lock the user as follows:

Only valid for: AIX ■ chuser account_locked=true sdb End of: AIX
Only valid for: HP-UX ■ <i>sum</i> ® <i>Accounts for Users and Groups</i> ® <i>Users</i> ® <i>sdb</i> ® <i>Actions</i> ® <i>Deactivate</i> End of: HP-UX
Only valid for: Linux ■ usermod -L sdb End of: Linux
Only valid for: Solaris ■ passwd -l sdb End of: Solaris
Only valid for: HP Tru64 UNIX ■ usermod -x administrative_lock_applied=1 sdb End of: HP Tru64 UNIX

2. Assign the user `sdb` as primary group to the group `sdba`.
3. To avoid restrictions in database administration for the user `<sid>adm`, you can also assign this user to the group `sdba`. The update program automatically assigns the database owner user, `sqd<sid>`, to the group `sdba`.
4. If your system contains database instances from older versions – that is, lower than version 7.5.0 – you must assign the process owners of these instances to the group `sdba`. The process owners are generally `sqd<sid>` or `<sid>adm`.

3.5 Preparing the System for SAPInst

You need to prepare your system for SAPInst. This includes the installation of a Java Runtime Environment (JRE), which is required both for SAPInst and the SAPInst GUI.



Note

If required, you can perform a **remote** installation using a standalone SAPInst GUI on a separate Windows or UNIX host. This lets you perform the installation on a remote host, controlling it with the SAPInst GUI from a local host. If you want to perform a remote installation, see *Starting SAPInst on the Remote Host* [page 21]. In this case, you need at least a JRE on the local host to start the SAPInst GUI there.

Procedure

1. Check the JRE versions that are released for SAP systems on SAP Service Marketplace at: service.sap.com/pam [®] *SAP NetWeaver* [®] *SAP NetWeaver 2004s* [®] *JSE Platforms*
For additional information on the recommended JRE version, see **SAP Note 709140**.
2. Make sure a valid JRE version is installed, as follows:
 - If JRE is not already installed
Since JRE is not part of the SAP shipment, you need to download and install it. JRE is part of JDK (Java Development Kit).
 - If JRE is already installed
Check the installed version of JRE by entering:
java -version



Note

SAPInst checks environment variable `SAPINST_JRE_HOME` for a valid Java runtime environment.
If `SAPINST_JRE_HOME` is not found, SAPInst also checks `JAVA_HOME`.

Only valid for: Linux



Note

If you use a Sun Java VM, you have to perform the following:
Edit the configuration file `$JAVA_HOME/jre/lib/security/java.security` and replace entry `securerandom.source=file:/dev/random` with **`securerandom.source=file:/dev/urandom`**.

End of: Linux

3.6 Preparing the Installation DVDs

You use this procedure to prepare the installation DVDs.

**Note**

You can also download installation DVDs from SAP Service Marketplace at: service.sap.com/swdc® *Downloads*® *Installations and Upgrades*® *Entry by Application Group*® <your solution>® <release of your solution>.

If you download the installation DVDs, keep in mind that DVDs might be split into several downloadable files. In this case you have to manually put back together the files that are required for your installation after downloading them.

**Recommendation**

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

Procedure

1. Identify the required DVDs:
 - Installation Master DVD
 - liveCache 7.6 DVD
2. Use one of the following methods to make DVDs available in parallel:
 - Before the installation:
 - Have sufficient DVD drives
 - Copy DVDs manually to local hard disks
 - During the installation:

Use the SAPinst DVD / CD Browser dialog. You can check the entered location and then copy the entire DVD to the path you entered in column *Copy Package to*.

For more information on mounting the installation media, see:

Only valid for: AIX

- *Mounting a CD / DVD for AIX* [page [10](#)]

End of: AIX

Only valid for: HP-UX

- *Mounting a CD / DVD for HP-UX* [page [11](#)]

End of: HP-UX

Only valid for: Linux

- *Mounting a CD / DVD for Linux* [page [12](#)]

End of: Linux

Only valid for: Solaris

- *Mounting a CD / DVD for Solaris* [page [13](#)]

End of: Solaris

3.7 Mounting the Installation Media

Only valid for: AIX

3.7.1 Mounting a CD / DVD for AIX



Note

<medium-mountdir> refers to either <cd-mountdir> or <dvd-mountdir>.

Procedure

Log on as user root.

Add a CD / DVD file system.

1. Enter the command **smitty**.
2. Choose *Physical & Logical Storage* ® *File Systems* ® *Add / Change / Show / Delete File Systems* ® *CDROM File Systems* ® *Add a CDROM File System*.
3. To get a list of device names, choose **F4**.
Select a device name.
4. Enter the mount point **<medium-mountdir>**.



Example

<medium-mountdir> is /sapcd

5. Choose ENTER.
6. To exit smitty, choose **F10**.



Note

Alternatively, you can mount the CD manually with the following command: **mount -v cdrfs -r /dev/cd0 /sapcd**.

7. Enter the command **smitty**.
8. Choose *Physical & Logical Storage* ® *File Systems* ® *Mount a File System*.
9. Place the cursor on *File System Name* and choose **F4**.
10. Select the CD / DVD device */dev/cd0*.
11. Place the cursor on field *Directory over which to mount* and choose **F4**.
12. Select */sapcd*.
13. Place the cursor on field *Type of File System* and choose **F4**.
14. Select *cdrfs*.
15. Change *Mount as Read Only system* to *YES*
16. Choose **ENTER**.
17. To exit **smitty**, choose **F10**.

| End of: AIX

| Only valid for: HP-UX

3.7.2 Mounting a CD / DVD for HP-UX



Note

The placeholder `<medium-mountdir>` is used for either `<cd-mountdir>` or `<dvd-mountdir>`.

Mounting a CD / DVD Manually

1. Log on as user `root`.
2. To create a mount point for CD / DVD, enter the following command:

```
mkdir /<medium-mountdir>
```



Example

```
<medium-mountdir> is /sapcd
```

3. To check that the driver is part of the kernel (skip this step if the CD / DVD drive is already working), enter the following command:


```
grep cdrfs /stand/system
```

 If the driver is not configured, you have to add the string `cdrfs` to the file `/stand/system` and rebuild the kernel. After rebuilding the kernel, reboot the system.
4. To mount the CD / DVD, enter the following :


```
mount -r -F cdrfs -o rr /dev/dsk/<diskdevice> <medium-mountdir>
```



Note

For this command the following operating system patches are required:

■ **PA_RISC**

- HP-UX 11.11: Dec 2004 Quality Pack needs to be installed.
- HP-UX 11.23: No Quality Packs are required because this is an upgraded version from HP-UX 11.11.

■ **HPIA64**

HP-UX 11.23: March 2004 Quality Pack needs to be installed.

You can download Quality Packs from:

<http://www.itrc.hp.com>



Example

<diskdevice> is c0t4d0, a CD / DVD drive with hardware address 4.

Mounting a CD / DVD Using SAM

1. Enter the command:
/usr/sbin/sam
2. Choose *Disks and Filesystems* ® *Disk Devices* ® *Actions* ® *Mount*
3. Enter the mount directory:
<medium-mountdir>



Example

For example, <medium-mountdir> is /sapcd

4. Perform task.
5. Exit SAM.

End of: HP-UX

Only valid for: Linux

3.7.3 Mounting a CD / DVD for Linux



Note

The placeholder <medium-mountdir> is used for either <cd-mountdir> or <dvd-mountdir>.

Procedure

1. Log on as user root.
2. To create a mount point for the CD / DVD, enter the following command:
mkdir <medium-mountdir>



Example

<medium-mountdir> is /sapcd

- To mount the first CD /DVD device, enter the following command:

```
mount -t iso9660 -r <device> <medium-mountdir>
```

where `<device>` is `/dev/cdrom` for non-SCSI CD devices and `/dev/scd<n>` for SCSI drives with the device number `<n>`.

If the file names on the mounted CD /DVD are written in lowercase letters, remount the CD /DVD with the following commands:

```
umount <device>
```

```
mount -t iso9660 -r -o map=off <device> <medium-mountdir>
```

End of: Linux

Only valid for: Solaris

3.7.4 Mounting a CD / DVD for Solaris

In the Solaris operating system, a layer of software manages CDs /DVDs and other media. This is the volume manager, which automates the interaction between you and your CDs /DVDs. Do **not** use this volume manager to mount CDs /DVDs needed for the installation, as the manager does not use the normal case option. Without this option, some files on CDs /DVDs cannot be found. Mount CDs /DVDs for the installation manually as described in the following procedure.

For more information about configuring the volume management, see the SunOS Routine System Administration Guide.



Note

The placeholder `<medium-mountdir>` is used for either `<cd-mountdir>` or `<dvd-mountdir>`.

Procedure

- Log on as user root.
- To check if `vold` (volume daemon) is running, enter the following command:

```
ps -ef | grep vold
```

- If it is running, kill `vold`.
- Insert the CD /DVD into your disk drive.
- To create a mount point, enter the following command:

```
mkdir /<medium-mountdir>
```



Example

for example, `<medium-mountdir>` is `/sapcd`

- To mount the CD /DVD, enter the following command:

```
mount -F hsfs -o nomap1case,ro /dev/dsk/c0t6d0s2 /<medium-mountdir>
```

After the installation, you can start `vold` using the following command:

```
/usr/sbin/vold.
```

End of: Solaris

This page is intentionally left blank.

4 Installation

To install liveCache:

1. You *check the prerequisites before starting SAPinst* [page 15].
2. You *install liveCache using SAPinst* [page 16].

4.1 Checking the Prerequisites Before Starting SAPinst

This section provides background information about running SAPinst.

Procedure

1. Make sure that your operating system does not delete the contents of the temporary directory `/tmp` or the contents of the directories to which the variables `TEMP`, `TMP`, or `TMPDIR` point, when the system is rebooted.



Note

SAPinst normally creates the installation directory `sapinst_instdir` directly below the temporary directory. SAPinst finds the temporary directory by checking the value of the environment variables `TEMP`, `TMP`, or `TMPDIR`. If no value is set for these variables, SAPinst uses `/tmp` as default installation directory. The SAPinst Self-Extractor extracts the SAPinst executables to the temporary directory. These executables are deleted again after SAPinst has stopped running.



Caution

If SAPinst cannot find a temporary directory, the installation terminates with the error `FC0-00058`.

2. Make sure that you have at least 50 MB of free space in the installation directory for each ABAP installation service. In addition, you need 60 – 200 MB free space for the SAPinst executables. If you cannot 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.



Note

Each SAP instance requires a separate installation directory.

3. Make sure that `umask` is set to `022` for user `root`. As user `root`, enter the following command:
`umask 022`
4. 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.
5. You must have a valid `java` executable in your executable search path or you must set the `SAPINST_JRE_HOME` environment variable for the installation user to the valid `<JAVA_HOME>` directory.

**Note**

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 is set to the valid `<JAVA_HOME>` directory.

6. 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 will be displayed.
7. If required, you can terminate SAPinst and the SAPinst Self-Extractor by pressing `Ctrl+C`.
8. If required, delete directories with the name `sapinst_exe.xxxxxx.xxxx` after SAPinst has finished. Sometimes these remain in the temporary directory.

**Note**

If there are errors with SAPinst Self-Extractor, you can find the Self-Extractor log file `dev_selfex.out` in the temporary directory.

**Recommendation**

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

4.2 Installing liveCache Using SAPinst

To install liveCache using SAPinst you need to *run SAPinst* [page 16].

You might need to refer to the following information:

- *Using SAPinst GUI* [page 19]
- *Interrupted Installation with SAPinst* [page 19]
- *Starting SAPinst on the Remote Host (Optional)* [page 21]
- *Starting SAPinst GUI Separately (Optional)* [page 22].
- *Troubleshooting with SAPinst* [page 24].

4.2.1 Running SAPinst to Install liveCache

This procedure tells you how to install liveCache with SAPinst. SAPinst includes a SAPinst GUI and a GUI server, which both use Java.

This section describes an installation where SAPinst, SAPinst GUI, and the GUI server are running on the same host. If required, you can instead perform a *remote installation with SAPinst* [page 21], where SAPinst GUI is running on a **separate** host from SAPinst and the GUI server.

When you start SAPinst, SAPinst GUI and the GUI server also start. SAPinst GUI connects via a secure SSL connection to the GUI server and the GUI server connects to SAPinst.

Procedure

1. Log on to your host as user `root`.



Caution

Make sure that the root user has not set any environment variables for a different SAP system or database.

2. Mount the Installation Master DVD

Mount the DVDs **locally**. We do **not** recommend that you use Network File System (NFS), because reading from DVDs that were mounted using NFS might fail.

Only valid for: AIX

For more information about mounting DVDs, see *Mounting a CD / DVD for AIX* [page 10].

End of: AIX

Only valid for: HP-UX

For more information about mounting DVDs, see *Mounting a CD / DVD for HP-UX* [page 11].

End of: HP-UX

Only valid for: Linux

For more information about mounting DVDs, see *Mounting a CD / DVD for Linux* [page 12].

End of: Linux

Only valid for: Solaris

For more information about mounting DVDs, see *Mounting a CD / DVD for Solaris* [page 13].

End of: Solaris

3. Start SAPinst from the Installation Master DVD in one of the following ways:

- Using the **default** installation directory (recommended)

Enter the following commands:

```
cd <Installation Master_DVD>/IM_<OS>  
./sapinst
```



Caution

Make sure that your operating system does not delete the contents of the temporary directory /tmp or the contents of the directories to which the variables TEMP, TMP, or TMPDIR point, for example by using a crontab entry.



Caution

Make sure that your current working directory is not an IM_<OS> directory belonging to another operating system.

For example, the following constellation causes an error:

```
$ cd /sapcd2/IM_HPUX_IA64  
$ /sapcd2/IM_HPUX_PARISC/sapinst
```

The right constellation is as follows:

```
$ cd /sapcd2/IM_HPUX_PARISC  
$ /sapcd2/IM_HPUX_PARISC/sapinst
```

- Using an **alternative** installation directory

If you want to use an alternative installation directory, set the environment variable TEMP, TMP, or TMPDIR.

For more information, see *Checking the Prerequisites Before Starting SAPinst* [page 15].



Note

- During the installation, the default ports 21200 and 21212 are used for communication between SAPinst, GUI server, and SAPinst GUI. SAPinst uses port 21200 to communicate with the GUI server. The GUI server uses port 21212 to communicate with SAPinst GUI. You get an error message if one of these ports is already in use by another service.

In this case, you must execute `sapinst` using the following parameters:

`SAPINST_DIALOG_PORT=<free_port_number_sapinst_gui_to_gui_server>`

`GUISERVER_DIALOG_PORT=<free_port_number_gui_server_to_sapinst_gui>`.

- For a list of all available SAPinst properties, enter the following command:

`sapinst -p.`

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, install the liveCache server or client:

- **liveCache server**

Choose *SAP NetWeaver 2004s* ® *Standalone Engines* ® *liveCache Server* ® *liveCache Server Instance* ® *Next*.

SAPinst creates a subdirectory for the chosen installation service below the current working directory.

- **liveCache client**

If you intend to use liveCache with a server other than SCM, you need to install the liveCache client software for the host where the SAP central or dialog instance runs. Otherwise, this is not necessary.

Choose *SAP NetWeaver 2004s* ® *Standalone Engines* ® *liveCache Server* ® *liveCache Client* ® *Next*.

5. If SAPinst prompts you to log off from your system, log off and log on again.

SAPinst restarts automatically.

6. Follow the instructions in the SAPinst input dialogs and enter the required parameters.



Note

To find more information on each parameter during the input phase of the installation, position the cursor on the field of the respective parameter and press **F1**.

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 successfully* is displayed.


7. If required, delete directories with the name `sapinst_exe.xxxxxx.xxxx` after SAPinst has finished.

Sometimes these remain in the temporary directory.



Note

If there are errors with SAPinst Self-Extractor, you can find the Self-Extractor log file `dev_selfex.out` in the temporary directory.

 Recommendation


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

8. We recommend you to delete all files in the directory `<user_home>/ .sdtgui /`.
9. If you have copied installation DVDs to your hard disk , you can delete these files when the installation has successfully completed.

4.2.2 Using SAPinst GUI

The following table shows the most important functions that are available in SAPinst GUI:

SAPinst GUI Functions

Button / Function Key / Menu Entries	Description
F1	Displays detailed information about each input parameter.
<i>Exit</i>	Cancels the installation with the following options: <ul style="list-style-type: none"> ■ <i>Stop</i> Stops the installation without further changing the installation files. You can restart SAPinst to continue the installation later from this point. ■ <i>Continue</i> Continues the installation.
<i>Log off</i>	Stops the SAPinst GUI, but SAPinst and the GUI server continue running.  Note If 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 reconnect to the same SAPinst installation from the same or another host. For more information, see <i>Starting SAPinst GUI Separately</i> [page 22].
<i>Retry</i>	Performs the installation step again (if an error has occurred).
<i>Stop</i>	Stops the installation without further changing the installation files. You can continue the installation later from this point.
<i>Continue</i>	Continues with the option you have chosen before.

4.2.3 Interrupted Installation with SAPinst

The SAP system installation might be interrupted for one of the following reasons:

- An error occurred during the dialog or processing phase:
SAPinst does not abort the installation in error situations. If an error occurs, the installation pauses and a dialog box appears. The dialog box contains a short description about the choices listed in the table below as well as a path to a log file that contains detailed information about the error.
- You interrupted the installation by choosing *Exit* in the SAPinst menu.

The following table describes the options in the dialog box:

Option	Definition
<i>Retry</i>	SAPinst retries the installation from the point of failure without repeating any of the previous steps. This is possible because SAPinst records the installation progress in the <code>keydb.xml</code> file. We recommend that you view the entries in the log files, try to solve the problem and then choose <i>Retry</i> . If the same or a different error occurs again, SAPinst displays the same dialog box again.
<i>Stop</i>	SAPinst stops the installation, closing the dialog box, the SAPinst GUI, and the GUI server. SAPinst records the installation progress in the <code>keydb.xml</code> file. Therefore, you can continue the installation from the point of failure without repeating any of the previous steps. See the procedure below.
<i>Continue</i>	SAPinst continues the installation from the current point.



Note

You can also terminate SAPinst by choosing **Ctrl+C**. However, we do not recommend that you use **Ctrl+C**, because this kills the process immediately.

Procedure

This procedure describes the steps to restart an installation, which you stopped by choosing *Stop*, or to continue an interrupted installation after an error situation.

1. Log on to your local UNIX host as user `root`.



Caution

Make sure that the `root` user has not set any environment variables for a different SAP system or database.

2. Mount your Installation Master DVD.



Note

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

3. Enter the following commands:

```
cd <Installation_Master_DVD>/IM_<OS>
./sapinst
```

- From the tree structure in the *Welcome* screen, select the installation service that you want to continue and choose *Next*.

**Note**

If there is only one component to install, the *Welcome* screen does not appear.

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

- In the *What do you want to do?* screen, decide between the following alternatives and confirm with *OK*.

Alternative	Behavior
<i>Run a new Installation</i>	SAPinst does not continue the interrupted installation. Instead, it moves the content of the old installation directory and all installation-specific files to the backup directory. Afterwards, you can no longer continue the old installation. For the backup directory, the following naming convention is used: <code><log_day_month_year_hours_minutes_seconds></code> (for example, <code>log_01_Oct_2003_13_47_56</code>).
<i>Continue old installation</i>	SAPinst continues the interrupted installation from the point of failure.

4.2.4 Starting SAPinst on the Remote Host (Optional)

You use this procedure to install your SAP system on a **remote** host. In this case, SAPinst and the GUI server run on the remote host, and SAPinst GUI runs on the local host. The local host is the host from which you control the installation with SAPinst GUI.

Prerequisites

- You have *prepared your system for SAPinst* [page 8].
- 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>`.

Starting SAPinst on a Remote UNIX Host

- Log on to your remote host as user `root`.

**Caution**

Make sure that the root user has not set any environment variables for a different SAP system or database.

- Mount the Installation Master DVD.
- Enter the following commands:


```
cd <Installation_Master_DVD>/IM_<OS>
./sapinst -nogui
```

 For more information, see *Running SAPinst on UNIX* [page 16].

SAPinst now starts and waits for the connection to the SAPinst GUI. 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 SAPinst GUI on your **local** host, as described in *Starting SAPinst GUI Separately* [page 22].

4.2.5 Starting SAPinst GUI Separately (Optional)

You use this procedure to start SAPinst GUI separately. You might need to start SAPinst GUI separately in the following cases:

- You have logged off from SAPinst.
If you logged off during the installation and you later want to reconnect to the installation while it is still running, you can start SAPinst GUI separately.
- You want to *perform a remote installation* [page 21].
If SAPinst GUI runs on a **different** host from SAPinst and the GUI server, you have to start SAPinst GUI separately.

Prerequisites

You have *prepared your system for SAPinst* [page 8].

Starting SAPinst GUI on a Windows Platform

1. Log on as a member of the local administrators group.
2. Insert the SAP Installation Master DVD into your DVD drive.
3. To change to the relevant directory enter the following command:
cd <DVD drive>:\IM_WINDOWS<platform>
4. Start SAPinst GUI in one of the following ways:
 - If SAPinst GUI runs on the same host as SAPinst and the GUI server, enter the following command:
startinstgui.bat
SAPinst GUI uses the local host as default.
 - If SAPinst and the GUI server runs on a different host from SAPinst GUI (remote installation), enter the following command:
startinstgui.bat -host <host_name>
<host_name> is the host name of the installation host.

**Note**

- If you enter the command without additional parameters, SAPinst GUI uses the local host as default. SAPinst GUI starts and tries to connect to the GUI server and SAPinst. As SAPinst and the GUI server are running on another host, SAPinst GUI cannot connect and the *SAP Installation GUI Connection* dialog appears.

In this case, enter the name of the host on which SAPinst is running and choose *Log on*.

The first dialog of the installation appears and you can perform the remote installation from your local host.

- For a list of options to start SAPinst GUI, change to the same directory as your SAPinst executable and enter the command **startinstgui.bat -h**.

Starting SAPinst GUI on a UNIX Platform

1. Log on as user root.

**Caution**

Make sure that the root user has not set any environment variables for a different SAP system or database.

2. Mount your installation DVD.

**Note**

Mount the DVD locally. We do **not** recommend that you use Network File System (NFS).

3. To change to the mount directory enter the following command:

```
cd <Installation_Master_DVD>/IM_<OS>
```

4. Start the SAPinst GUI in one of the following ways:

- If SAPinst GUI runs on the same host as SAPinst and the GUI server, enter the following command **without** additional parameters:

```
./startInstGui.sh
```

SAPinst GUI uses as default the local host.

- If SAPinst and the GUI server run on a different host from SAPinst GUI (remote installation), enter the following command **with** additional parameters:

```
./startInstGui.sh -host <host_name>
```

<host_name> is the host name of the installation host

**Note**

- If you enter the command without additional parameters, SAPinst GUI uses the local host as default. SAPinst GUI starts and tries to connect to the GUI server and SAPinst. As SAPinst and GUI server are running on another host, SAPinst GUI cannot connect and the *SAP Installation GUI Connection* dialog appears.

In this case, enter the name of host on which SAPinst is running and choose *Log on*.

The first dialog of the installation appears and you can perform the remote installation from your local host.

- For a list of options to start SAPinst GUI, change to the same directory as your SAPinst executable and enter the command `./startInstGui.sh -h`.

4.2.6 Troubleshooting with SAPinst

This section tells you how to proceed when errors occur during the installation with SAPinst.

If an error occurs, SAPinst:

- Stops the installation
- Displays a dialog informing you about the error

Procedure

1. To view the log file, choose *View Logs*.
2. If an error occurs during the dialog or processing phase, do either of the following:
 - Try to solve the problem
 - Abort the installation with *Exit*
For more information, see *Interrupted Installation with SAPinst* [page 19].
 - Continue the installation by choosing *Retry*.
3. Check the log and trace files of the GUI server and SAPinst GUI in the directory `<user_home>/ .sdtgui /` for errors.
4. Ignore error messages such as the following in the SDM logs:
Error: `<SCA name>: Location of software component '<SCA name>' / <SCA vendor>' / '<SCA location>' / '<SCA counter>' unknown./ Error: <SCA name> : system component version store not updated.`
For more information, see [SAP Note 828978](#).

5 Post-Installation

You perform the following post-installation steps:



Caution

If you are performing a new installation of liveCache during an SCM 5.0 upgrade, in order to change from an unsupported operating system for liveCache – such as Windows 32-bit or Tru64 – to a supported operating system, do **not** perform the steps listed below.

The exception to this is the step *Installing the Administration Tools* [page 29], which you can still perform if required.

The required liveCache post-installation activities— setup of the logical database connection with transaction LC10 and the loading of the master and transaction data – occur in phase REQ_LCUPG of the SCM upgrade. For more information, see *SAP Supply Chain Management 5.0 ABAP: <Your Operating System and Database>*, which you can find on SAP Service Marketplace as follows:

service.sap.com/instguides® *mySAP Business Suite Solutions*® *mySAP SCM*® *Using SAP SCM 5.0 Server*® *Upgrade Documentation - SAP SCM 5.0*

1. You perform common post-installation activities [page 25].

Only valid for: SAP SCM

2. You perform SCM-specific installation activities [page 29].

End of: SAP SCM

3. You perform post-installation activities specific to workforce deployment server [page 29].
4. If required, you install Secure Sockets Layer (SSL) protocol for database server communication [page 30].

5.1 Common Post-Installation Activities

You **always** need to perform the common post-installation activities listed below, regardless of the server with which you intend to use liveCache.

5.1.1 Setting Up the Connection to the liveCache Instance

Before checking the connection, you must initialize the liveCache instance using transaction LC10.

Procedure

1. Start the SAP instances:
 - Windows application server
 - a) Start service SAP<SID>_<instno>.

b) Start the SAP central instance using Microsoft Management Console (if not already running).

■ UNIX application server

Restart all SAP central and dialog instances running on UNIX.

2. Log on to the SAP System as user DDIC (production client).
3. Execute the program SLCA_NON_LC_RELEVANT_CLIENT to maintain your relevant clients for liveCache.
4. Apply **SAP Note 305634** *RFC destination for global working on the liveCache* for all liveCache-relevant clients.
5. Switch liveCache to state “offline” for the steps below by running the following command on the liveCache server:

```
dbmcli -d <SID> -u <controluser>,<password> db_offline
```

6. Call transaction LC10.

The *liveCache: Initial Screen* appears.

7. In the *Name of database connection* field, enter LCA and choose *Integration*.
8. If not already entered, enter values for the following fields:
 - The *Name of database connection* field is used for a NATIVE SQL connection to liveCache.
 - The *liveCache name* field is the name of the liveCache database. It can be different from the name of the database connection.
 - The server name in the *liveCache server name* is case-sensitive. It must be the same as the output from the command `hostname` in Windows or UNIX.



Note

During the installation, SAPinst prompted you to specify the DBM operator and the standard liveCache user. The DBM operator is `control`. The standard liveCache user is `SAP<SID>` by default but you can change this during the liveCache installation if required. The standard liveCache user is created by the `lcinit` script, which is automatically executed when the liveCache is initialized.

This makes sure that the SAP system connects to the correct liveCache instance.

9. Choose the *Administration Report* tab.
10. If you have installed the Add-on LCAPPS_2005_700, enter `/SAPAPO/DELETE_LC_ANCHORS` in field *Follow-up Procedures* of section *Initialize liveCache* and choose *Enter*, otherwise enter `SLCA_INIT_FOLLOW_UP`.
11. Enter the report `SLCA_LCK_SYNCHOWNERS` as a follow-up report of the liveCache start on the *Administration Report* tab.
12. Save your entries.
13. Repeat steps 6 to 8 and 12 for the database connections LDA and LEA.



Note

As of liveCache 7.6, you need the database connection LEA in addition to LCA and LDA.

14. To initialize the liveCache instance LCA:
 - a) Choose *Back* (F3).
The *liveCache: Initial Screen* re-appears.
 - b) Enter **LCA** in the *Name of database connection* field.

- c) Choose *liveCache: Monitoring*.




Note

Apply [SAP Note 446896](#) if one of the following messages appears:

- Relative node for insert not found LastError node key ...
- Cannot use node of type leaf as parent LastError node key

The screen *Properties* appears with a tree structure `<LC_NAME>(<host name-LC_Name>)` in the left frame.

- d) In the tree structure select `<LC_NAME>(<host name-LC_Name>)`  *Administration* and double-click on *Operating*.

The liveCache *Administration* menu appears.

- e) From the menu, choose *Administration*  *Initialize liveCache*




Several dialog boxes appear.

- f) Confirm with *Yes*.

After initializing liveCache, initial application data is loaded as configured under *Integration*.

15. Create a backup.

For more information about how to create a backup, see:

service.sap.com/scm  *mySAP SCM Technology*  *Information on SCM 4.1 and Prior Releases*  *Backup and Recovery*



Caution

For LDA and LEA you must **not** use an administration report. Also, do **not** use alert monitoring for LDA and LEA.

5.1.2 Checking the liveCache Instance

Call transaction LCA03 in a liveCache-relevant client. For more information, see *Setting Up the Connection to the liveCache Instance* [page 25], step 3.

This transaction performs a liveCache check, consisting of a configuration check and a functional check. This also checks whether all required periodic jobs are scheduled. If there are open issues during the configuration check, the transaction guides you to fix them immediately.

If you get errors during the functional check, open an OSS message for the component BC-DB-LCA.

5.1.3 Changing Password of Created Users

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 might represent a security risk.



Caution

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

Procedure

1. Change the passwords of these users.

For more information, see SAP Service Marketplace at:

service.sap.com/securityguide

User Type	User	Comment
Operating System user	<lcid>adm	UNIX Only: live Cache instance administrator

For more information on how to change the passwords for the following MaxDB database users, see **SAP Note 25591**. SAPinst sets the initial passwords for the user CONTROL to CONTROL and for the user SUPERDBA to ADMIN.

User Type	User	Comment
MaxDB database users	SAP<SAPSID>	liveCache database owner (that is, the owner of the database tables)
	CONTROL	liveCache database manager operator
	SUPERDBA	liveCache administration user

2. Remove the contents of the installation directory and store them securely.

5.1.4 Setting Up a liveCache Super User

Process

You need to create a liveCache and liveCache applications super user for liveCache administration. Assign the roles SAP_APO_LC_ALL or SAP_LCA_ALL and SAP_BC_LVC_SUPERUSER to the user, as these roles already contain all required privileges.

If you want to create users with limited privileges for transaction LC10 see **SAP Note 452745** for more information about the authorization concept for transaction LC10.

Only valid for: SAP SCM

5.2 SCM-Specific Post-Installation Activities

If you are using SAP liveCache with an SAP SCM Server see [SAP Note 816726](#) for more information.

End of: SAP SCM

5.3 Post-Installation Activities Specific to Workforce Deployment Server

If you are using SAP liveCache with an SAP WFD Server (Software component WFMCORE 200) see [SAP Note 816727](#) for more information.

5.4 Installing the Administration Tools

This section describes how to install the following administration tools for MaxDB and SAP liveCache on Windows systems:

- Database Manager GUI and Web DBM
You can use Database Manager GUI and Web DBM to administer databases, including remote ones.
- SQL Studio and Web SQL Studio
You can use SQL Studio and Web SQL Studio to send SQL statements to the database and evaluate the results.



Note

The use of these tools for the SAP liveCache is optional. If you do not want to use them, skip this section.

For more information on these tools, see the following documentation:

- *Database Manager GUI and Web DBM*
- *SQL Studio and Web SQL Studio*
You can find these at:
www.mysql.com/maxdb [®] *Documentation* [®] *MaxDB Online Library* [®] *Tools*

Prerequisites

- You can install these administration tools on any Windows PC in your network, even if your database runs on UNIX. From the PC with the installed administration tool, you can then administer the database or send queries to it.
- Your PC must meet the following minimum operating system requirements:

Operating System	Version
Windows NT	4.0 SP 4
Windows 2000	Any
Windows Server 2003	Any
Windows XP	Any

- Your PC must meet the following minimum hardware requirements

- Pentium II
- 64 MB RAM
- 100 MB disk space

- You need the MaxDB or SAP liveCache DVD.



Caution

If MaxDB or SAP liveCache is installed on the PC, you must **not** install the administration tools in the same directory. You can check the directories used by MaxDB or SAP liveCache as follows:

```
dbmcli -d <SID> -u <controluser>,<password> dbm_getpath IndepDataPath
dbmcli -d <SID> -u <controluser>,<password> dbm_getpath IndepProgPath
```

Process

1. Start the installation as follows:

- DBMGUI
<DVD>: \<LC760_x>\NT\SETUPS\DBM76.EXE
- SQL Studio
<DVD>: \<LC760_x>\NT\SETUPS\SQLSTD76.EXE



Note

An installation shield guides you through the installation. If you already have an older version of the administration tools installed on the PC, the installation shield offers to upgrade it for you.

2. If you are prompted to restart the PC after the installation, bring down any databases that are running as follows:

```
dbmcli -d <SID> -u <controluser>,<password> db_offline
```

5.5 Secure Sockets Layer Protocol for Database Server Communication

The MaxDB database server supports the Secure Sockets Layer (SSL) protocol. You can use this protocol to communicate between the database server and its client, here the Application Server (AS). SSL guarantees encrypted data transfer between the MaxDB database server and its client applications. In addition, the server authenticates itself to the client.

**Caution**

There is a performance cost for SSL since the data has to be encrypted, which requires time and processing power.

To use SSL you need to:

1. *Install the SAP cryptographic library* [page 31] on the client host and on the server host machines
2. *Generate the Personal Security Environment* [page 32] (PSE) on the server (SSL Server PSE) and on the client (SSL Client PSE).

5.5.1 Installing the SAP Cryptographic Library

The cryptographic functions required to build a database server-client connection using Secure Sockets Layer (SSL) protocol are supplied by the SAP Cryptographic Library. Therefore, you need to install the SAP Cryptographic Library on the host machine of the MaxDB database server and the SAP Application Server (AS).

The installation package `sapcrypto.car` consists of the following:

- SAP Cryptographic Library `libsapcrypto.so/s1`
- License ticket `ticket`
- Configuration tool `sapgenpse.exe`

You use the configuration tool to generate key pairs and PSEs.

**Caution**

The SAP Cryptographic Library is subject to German export regulations and might not be available to some customers. In addition, the library might be subject to the local regulations of your country. These regulations might further restrict import, use, and export or re-export of cryptographic software.

For more information, contact your local SAP representative.

Prerequisites

Download the appropriate SAP Cryptographic Library installation package for your operating system from SAP Service Marketplace at service.sap.com/swcenter.

Procedure

1. Unpack the installation package for the SAP Cryptographic Library using `sapcar.exe`, which you can find for example on your Installation Master DVD, using the following command:

```
car -xvf SAPCRYPTO.CAR
```

**Note**

The remainder of the procedure, as described below, does **not** apply to client applications such as SQL Studio, which do not recognize an “independent” directory. In this case, you must copy the `SAPCRYPTO` installation package to the installation directory of the application. In this directory you need to create a directory `sec`, into which you copy the `ticket` file.

2. Copy the `sapcrypto` library to the `lib` subdirectory of the “independent program” directory.

You can find the value of the independent program directory by entering the following command:

```
dbmc1i dbm_getpath IndepProgPath
```



Example

The independent program directory might be called the following:

```
/sapdb/programs/lib
```

3. Copy the configuration tool `sapgenpse.exe` to the directory `<independent program>\lib`.
4. Create a subdirectory called `sec` under the “independent data” directory and copy the `ticket` file into it.



Example

The result might look like the following:

```
/sapdb/data/sec/ticket
```

5. Make sure that the directory and the files that the `sec` directory contains — including the `ticket` file and the SSL Server PSE — belong to the user `lcown` and the group `lcam`, and that the rights are restricted to `0600`.

Result

The SAP Cryptographic Library is copied to the application server and the environment is correctly configured so that the server can find the library at run time.

5.5.2 Generating the Personal Security Environment

The information required by the database server or client application to communicate using Secure Sockets Layer are stored in the Personal Security Environment (PSE). The required information differs according to whether SSL PSE is for the server or client:

- **SSL Server PSE**
This PSE contains the security information from the database server, for example, the public-private cryptographic key pair and certificate chain. To install the SSL Server PSE you need to generate the PSE. You can either do this for a single database server or system-wide. The SSL Server PSE is called `SDBSSLS.exe`.
- **SSL Client PSE**
The client requires an anonymous certificate called `SDBSSLA.exe`, which contains the list of the public keys of trustworthy database servers.

Procedure

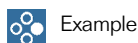
To generate the SSL Server PSE, proceed as follows:



Note

You need to know the naming convention for the distinguished name of the database server. The syntax of the distinguished name, which you enter in the procedure below, depends on the Certification Authority (CA) that you are using.

1. Change to the `<independent programs>\lib` directory.
2. Set up the following environment variable:
`SECUDIR=<independent data>\sec`
3. Create a SSL Server PSE, `SDBSSLS.pse`, and generate a certificate request file, `certreq`, in the directory defined by `SECUDIR` (see previous step):
`sapgenpse gen_pse -v -r <SECUDIR>\certreq -p SDBSSLS.pse "<your distinguished name>"`
 For each database server that uses a server-specific PSE, you must set up a unique certificate request. If you are using a valid system-wide SSL Server PSE, you only need to set up a single certificate request for all servers.
4. Send the certificate request to the CA for signing. You can either send it to the SAP CA or to another CA. You must make sure that the CA offers a certificate corresponding to the PKCS#7 certificate chain format. Thawte CA at www.thawte.com offers a suitable certificate, either SSL Chained CA Cert or PKCS#7 certificate chain format.
 The CA validates the information contained in the certificate request, according to its own guidelines, and sends a reply containing the public key certificate.
5. After you have received the reply from the CA, make sure that the contents of the certificate request have not been destroyed during download.
 For example, if you requested the certificate on a UNIX system and stored it on a Windows front end, the formatting (that is, line indents and line breaks) is affected.
 To check the contents, open the certificate request with a text editor (such as Notepad) and repair the line indents and the line breaks.



Example

This is an example of a certificate request:

```
-----BEGIN CERTIFICATE REQUEST-----
MIIBPzCBqQIBADAAMIGfMA0GCSqGSIb3DQEBAQUAA4GNADCBiQKBgQD/302IT+/Y
wpignSw7U9FWneyWz3Wi10S18aFCYkRo00wCpD8UwcaC4dds4uGT6h12W1J0/F0t
Ug+EQxonZbaRrk9sTaln1mqx3YAUe/gEaGdf1wvuYkb0gjMk81iM/jb9BJd8srM
PyoBy9jMC7v5u7+TZWmWa6RjnvC1vYGgMwIDAQABoAAwdQYJKoZIhvcNAQEFBQAD
gYEAx2zuaTAOKPdGmxUKY1WdasUpim4vhfaHa7ZDBwipvKJ8akYCT+dpmVjhcpH9
E7cUjL80/6Rup5cnLAA05Fhvt5MS6zNJa9YYSN9XP+5/MPF6Q4ayJ0VryTkSpbbP
rWLBkh1Dds97LQVuQ/myKIAHECwyW6t7sAFJWn4P0fdxmKo=
-----END CERTIFICATE REQUEST-----
```

6. Import the reply to the SSL Server PSE:
 - a) Copy the text to a temporary file called `srcert`.
 - b) Enter the following command:
`sapgenpse import_own_cert -c srcert -p SDBSSLS.pse`
 You have generated the SSL Server PSE. You can now start the XServer as usual (if it is already running, you must stop and restart it).
7. To check whether the SSL functionality is working correctly, view the trace file `niserver_<local computer name>.trace` in the `<independent data>\wrk` directory.

To generate the SSL **Client** PSE, proceed as follows:

1. Change to the `<independent programs>\lib` directory.
2. Set up the following environment variable:
`SECUDIR=<independent data>\sec`
3. Enter `<independent program>/lib` in the environment variable `LD_LIBRARY_PATH`.
4. Create an anonymous client SSL Client PSE, `SDBSSLA.pse` in the directory defined by `SECUDIR` (see previous step):
`sapgenpse gen_pse -v -noreq -p SDBSSLA.pse`
You can leave the distinguished name empty.
Before you can establish an SSL connection to a database server, the server certificate must be entered in the PK list of the anonymous client certificate.
5. To see the database server certificate, enter the following command:
`„x_ping -n <servermode> -c[apture]`
You can check whether to trust the database server certificate. The client certificate is not affected by this.
6. Start the import with this command:
`„x_ping -n <servermode> -i[import]`
7. To administer the PSE, use the configuration tool `sapgenpse`. For more information enter the following command:
`sapgenpse -h`

**Note**

For applications such as SQL Studio replace the independent data or independent program in the above description with the installation directory.

6 Additional Information

6.1 Operating Information for liveCache

If you manually re-initialize liveCache with transaction LC10, make sure that you **first delete all administration reports**, especially `/SAPAPO/DELETE_LC_ANCHORS` and `SLCA_INIT_FOLLOW_UP`, from the definition of the logical liveCache LCA connection.

6.2 Uninstalling liveCache

Prerequisites

Stop the liveCache with transaction LC10 in the SAP system.

Procedure

1. Log on to the liveCache server as user `<lc_name>adm`.
2. Drop the database instance:

```
dbmcli -d <database_name> -n <liveCache_server> -u
<dbm_user>, <password> db_drop
```
3. As UNIX user root delete user `<lc_name>adm` along with the home directory and all sub-directories:
 - a) Delete the following files and directories:
 - `/sapdb/data/config/<LC_NAME>*`
 - `/sapdb/data/wrk/<LC_NAME>`
 - b) Delete the user `<lc_name>adm` using the steps appropriate for your operating system.
 - c) If the user's home directory was not deleted automatically as part of the previous step, delete it with the following command:


```
rm -rf /users/<lc_name>adm (/home/<lc_name>adm)
```



Example

```
rm -rf /users/e20adm (/home/e20adm)
```

- d) Delete the data volumes and log volumes belonging to the liveCache instance.
4. Delete user `<lc_name>adm` from group `sapsys` if it has not already been deleted automatically. If group `sapsys` is now empty, delete the complete group using the steps appropriate for your operating system.
5. Delete the SAP entries from the services file by editing `/etc/services`. liveCache software uses services `sq16`, `sapdbni72`, `sq130`, `sapdbni72`. Delete these entries **only** if there is no other liveCache or MaxDB installation on this host.
6. Delete integration entries on the SAP server:
 - a) Log on to the SAP System as user DDIC.

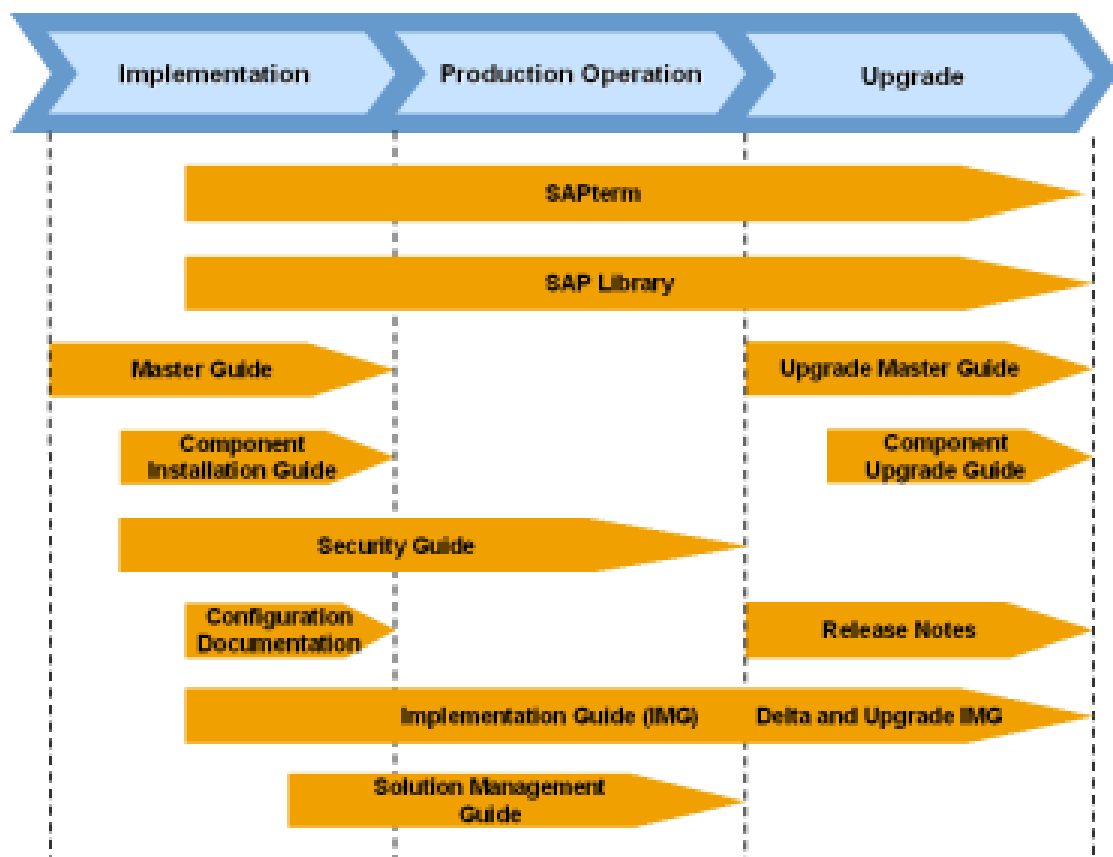
- b) Call transaction LC10.
The *liveCache: Initial Screen* appears.
 - c) In the *Name of database connection field*, enter **LCA** and then choose *Integration*.
 - d) Choose *Display*  *Change*.
 - e) Choose *Delete the logical link* and confirm the deletion.
 - f) Save your entries.
Repeat steps b to f for database connections **LDA** and **LDE**.
You have now removed the liveCache instance.
7. Delete the database software (dependent package) using the SDBUNINST tool, as described in **SAP Note [599129](#)**.

A Reference

A.1 The Main SAP Documentation Types

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

Figure 1: Documentation types in the software life cycle



Cross-Phase Documentation

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

- Target group:
 - Relevant for all target groups
- Current version:
 - Located in the SAP Help Portal at help.sap.com® *Additional Information*® *Glossary* or *Terminology* (also available as terminology CD)

- In the SAP-System in transaction **STERM**

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

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

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

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

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

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

Implementation

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

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

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

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

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

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

Production Operation

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

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

Upgrade

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

- Target group:
 - Technology consultants
 - Project teams for upgrades

■ **Current version:**

- Located in the SAP Service Marketplace at service.sap.com/instguides

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

■ **Target group:**

- Technology consultants
- Project teams for upgrades

■ **Current version:**

- Located in the SAP Service Marketplace at service.sap.com/instguides

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

■ **Target group:**

- Consultants
- Project teams for upgrades

■ **Current version:**

- Located in the SAP Service Marketplace at service.sap.com/releasenotes
- In the SAP menu of the SAP system under *Help*® *Release Notes* (only ABAP developments)

This page is intentionally left blank.

THE BEST-RUN BUSINESSES RUN SAP



SAP AG

Dietmar-Hopp-Allee 16
69190 Walldorf

Germany

T +49/18 05/34 34 34

F +49/18 05/34 34 20

www.sap.com