



Installation Guide | PUBLIC

Software Provisioning Manager 1.0 SP39

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# Installation of a Standalone Gateway Instance for SAP Systems Based on SAP NetWeaver 7.3 EHP1 to 7.52 on UNIX

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# Document History

## i Note

Before you start reading, make sure you have the latest version of this installation guide, which is available at <https://support.sap.com/sltoolset> > System Provisioning > Install a System using Software Provisioning Manager > Installation Option of Software Provisioning Manager 1.0 > .

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

Version	Date	Description
4.3	2023-10-09	Updated version for software provisioning manager 1.0 SP39 (SL Toolset 1.0 SP39)  Windows operating systems no longer supported for software provisioning manager 1.0 SP39 and higher, according to SAP Note <a href="#">2998013</a> , have been removed.
4.2.1	2023-10-09	Updated version for software provisioning manager 1.0 SP38 (SL Toolset 1.0 SP38): Last version containing information about no longer supported Windows operating systems according to SAP Note <a href="#">3346502</a> .
4.2	2023-05-26	Updated version for software provisioning manager 1.0 SP38 (SL Toolset 1.0 SP38)
4.1	2023-02-13	Updated version for software provisioning manager 1.0 SP37 (SL Toolset 1.0 SP37)
4.0	2022-10-10	Updated version for software provisioning manager 1.0 SP36 (SL Toolset 1.0 SP36)  Operating systems and CPU architectures no longer supported according to SAP Note <a href="#">2998013</a> have been removed.

Version	Date	Description
3.9.1	2022-10-10	Updated version for software provisioning manager 1.0 SP35 (SL Toolset 1.0 SP35): Last version containing information about no longer supported operating systems and CPU architectures according to SAP Note <a href="#">2998013</a>  .
3.9	2022-05-24	Updated version for software provisioning manager 1.0 SP35 (SL Toolset 1.0 SP35)
3.8	2022-02-14	Updated version for software provisioning manager 1.0 SP34 (SL Toolset 1.0 SP34)
3.7	2021-10-11	Updated version for software provisioning manager 1.0 SP33 (SL Toolset 1.0 SP33)
3.6	2021-06-21	Updated version for software provisioning manager 1.0 SP32 (SL Toolset 1.0 SP32)
3.5	2021-02-15	Updated version for software provisioning manager 1.0 SP31 (SL Toolset 1.0 SP31)
3.4	2020-10-05	Updated version for software provisioning manager 1.0 SP30 (SL Toolset 1.0 SP30)
3.3	2020-06-08	Updated version for software provisioning manager 1.0 SP29 (SL Toolset 1.0 SP29)
3.2	2020-01-20	Updated version for software provisioning manager 1.0 SP28 (SL Toolset 1.0 SP28)
3.1	2019-09-16	Updated version for software provisioning manager 1.0 SP27 (SL Toolset 1.0 SP27)
3.0	2019-05-27	Updated version for software provisioning manager 1.0 SP26 (SL Toolset 1.0 SP26)

Version	Date	Description
2.9	2019-01-21	Updated version for software provisioning manager 1.0 SP25 (SL Toolset 1.0 SP25)
2.8	2018-09-17	Updated version for software provisioning manager 1.0 SP24 (SL Toolset 1.0 SP24)
2.7	2018-05-07	Updated version for software provisioning manager 1.0 SP23 (SL Toolset 1.0 SP23)

Version	Date	Description
2.6	2018-01-15	<p>Updated version for software provisioning manager 1.0 SP22 (SL Toolset 1.0 SP22)</p> <ul style="list-style-type: none"> <li>New Features: <ul style="list-style-type: none"> <li>Digital signature check for installation archives, documented in: <i>New Features, Downloading SAP Kernel Archives (Archive-Based Installation) Archive-Based Installation for Diagnostics Agent, Downloading the SAP Kernel Archives Required for the Dual-Stack Split (Without Operating System and Database Migration), Downloading the SAP Kernel Archives Required for Operating System and Database Migration</i></li> <li>Software provisioning manager Log Files Improvements, documented in: <i>New Features, Useful Information about the Software Provisioning Manager, Troubleshooting with the Software Provisioning Manager</i></li> <li>Enabling IPv6, documented in: <i>New Features, Prerequisites for Running the Software Provisioning Manager</i></li> </ul> </li> <li><i>New Features</i> section restructured: As of SP22, a dedicated subsection for each new SP has been created. New features below SP22 remain in a common table.</li> <li>The Java SDT GUI - which was in the SP21 version still available in parallel to the SL-UI - has been deprecated with SP22. As of SP22, SL-UI is the only available GUI of the software provisioning manager: <ul style="list-style-type: none"> <li>The following sections which were explicitly related to Java SDT GUI were completely removed from this documenta-</li> </ul> </li> </ul>

Version	Date	Description
		<p>tion: <i>Performing a Remote Installation Remote Processing of the Software Provisioning Manager ( Java SDT GUI only), Starting the Java SDT GUI Separately, Running the Software Provisioning Manager in Accessibility Mode</i> (general accessibility information was moved to <i>Useful Information About the Software Provisioning Manager</i>).</p> <ul style="list-style-type: none"> <li>• The Java SDT GUI-specific information was removed from the common software provisioning manager sections: <i>Running the Software Provisioning Manager, Useful Information About the Software Provisioning Manager, Interrupted Processing of the Software Provisioning Manager, Troubleshooting with the Software Provisioning Manager</i></li> <li>• New section <i>Using the Step State Editor (SAP Support Experts Only)</i> was added to section <i>Additional Information About the Software Provisioning Manager</i></li> </ul>

Version	Date	Description
2.5	2017-09-11	<p>Updated version for software provisioning manager 1.0 SP21 (SL Toolset 1.0 SP21)</p> <ul style="list-style-type: none"> <li>New Features: <ul style="list-style-type: none"> <li>Media Signature Check, documented in: <i>New Features, Running the Software Provisioning Manager, Preparing the Installation Media</i> . This feature implies that section <i>Creating Kernel Archives from an Existing SAP System</i> has been deleted from this documentation because the related option in the software provisioning manager had to be removed.</li> <li>SAP Host Agent Upgrade , documented in: <i>New Features, SAP System Parameters, Downloading SAP Kernel Archives (Archive-Based Installation)</i></li> </ul> </li> </ul>
2.4	2017-05-22	<p>Updated version for software provisioning manager 1.0 SP20 (SL Toolset 1.0 SP20)</p> <ul style="list-style-type: none"> <li>New Features: <ul style="list-style-type: none"> <li>New SAPUI5-based graphical user interface (GUI) "SL-UI", documented in: <i>Prerequisites for Running the Software Provisioning Manager, Running the Software Provisioning Manager, Useful Information About the Software Provisioning Manager</i></li> <li>Cleanup of operating system users, documented in: <i>SAP System Parameters, Creating Operating System Users and Groups</i></li> </ul> </li> </ul>
2.3	2017-02-06	<p>Updated version for software provisioning manager 1.0 SP19 (SL Toolset 1.0 SP19)</p>



Version	Date	Description
2.2	2016-10-07	Updated version for software provisioning manager 1.0 SP18 (SL Toolset 1.0 SP18)
2.1	2016-06-06	Updated version for software provisioning manager 1.0 SP17 (SL Toolset 1.0 SP17)
2.0	2016-02-15	Updated version for software provisioning manager 1.0 SP10 (SL Toolset 1.0 SP16)
1.9	2015-10-12	Updated version for software provisioning manager 1.0 SP09 (SL Toolset 1.0 SP15)
1.8	2015-09-14	Updated version for software provisioning manager 1.0 SP09 (SL Toolset 1.0 SP14)
1.7	2015-04-27	Updated version for software provisioning manager 1.0 SP08 (SL Toolset 1.0 SP13)
1.6	2014-11-24	Updated version for software provisioning manager 1.0 SP07 (SL Toolset 1.0 SP12)
1.5	2014-07-07	Updated version for software provisioning manager 1.0 SP06 (SL Toolset 1.0 SP11)
1.4	2014-03-17	Updated version for software provisioning manager 1.0 SP09 (SL Toolset 1.0 SP10)
1.3	2013-10-28	Updated version
1.2	2013-07-15	Updated version
1.1	2013-04-12	Updated version
1.0	2012-12-17	Initial version

# 1 About this Document

This documentation describes how to install or rename a **standalone** Gateway instance on UNIX, for SAP system products based on SAP NetWeaver 7.3 EHP1 to 7.52, using the [software provisioning manager 1.0 SP39 \[page 10\]](#), which is part of SL Toolset 1.0 SP39.

You can find a complete list of the SAP system products that are supported by software provisioning manager 1.0 attached to SAP Note [1680045](#).

Each instance of an SAP system with an ABAP application server has a Gateway. The Gateway enables communication between work processes and external programs, as well as communication between work processes from different instances of SAP systems.

You can also install a **standalone** Gateway. With the standalone Gateway, you can install the Gateway service separately from the SAP system. In this case, the SAP system can access each external Gateway under a different RFC connection.

## i Note

There is no difference between a standalone Gateway instance for a Unicode system and a standalone Gateway for a non-Unicode system.

## 1.1 About Software Provisioning Manager 1.0

The software provisioning manager 1.0 is the successor of the product- and release-specific delivery of provisioning tools, such as “SAPinst”. We strongly recommend that you always download the latest version of the software provisioning manager 1.0. The software provisioning manager 1.0 is part of the Software Logistics Toolset 1.0 (“SL Toolset” for short). This way, you automatically get the latest fixes and supported processes. For more information about the software provisioning manager as well as products and releases supported by it, see SAP Note [1680045](#) and <http://scn.sap.com/docs/DOC-30236>.

“SAPinst” has been renamed to “software provisioning manager” in this documentation, but the terms “SAPinst” and “sapinst” are still used in:

- The name of the technical framework of the software provisioning manager. For more information about the SAPinst Framework, see SAP Note [2393060](#).
- Texts and screen elements in the the software provisioning manager GUI (SL Common GUI)
- Names of executables, for example `sapinst`
- Names of command line parameters, for example `SAPINST_HTTPS_PORT`
- Names of operating system user groups, such as the additional group `sapinst`

In the following, we generally refer to the software provisioning manager 1.0 as the “software provisioning manager”. We only use the term “software provisioning manager 1.0” if this is required for technical reasons.





## Related Information

[Preparing the Installation Media \[page 33\]](#)

## 1.2 New Features

This section provides an overview of the new features in software provisioning manager 1.0.

Make sure that you also read the [Release Notes](#) for your SAP product at <https://help.sap.com> > <Search your SAP Product> > <Select your SAP Product Version> > [What's New](#) >.

Feature	Description	Availability
New SAPinst Framework Version 753	The SAPinst framework patch level has been upgraded from version 749 (SAP Note <a href="#">2393060</a>  ) to 753. For more information, see SAP Note <a href="#">3207613</a>  .	software provisioning manager 1.0 SP36 (SL Toolset 1.0 SP36)
Support of AIX 7.3	AIX 7.3 is now supported for all software lifecycle management options from software provisioning manager. For more information, see SAP Note <a href="#">3104875</a>  .	software provisioning manager 1.0 SP34 (SL Toolset 1.0 SP34)
New Look and Feel of SL-UI	As of version 1.0 SP24 Patch Level (PL) 5, the software provisioning manager comes with a new look and feel of the SL-UI. For more information, see <a href="https://blogs.sap.com/2018/11/10/new-look-for-software-provisioning-manager/">https://blogs.sap.com/2018/11/10/new-look-for-software-provisioning-manager/</a>  .	software provisioning manager 1.0 SP24, PL05 (SL Toolset 1.0 SP24)
software provisioning manager Log Files Improvements	software provisioning manager log files are now available immediately after software provisioning manager has been started, that is <b>before</b> a product has been selected on the <i>Welcome</i> screen. For more information, see <a href="#">Useful Information about Software Provisioning Manager [page 48]</a> and <a href="#">Troubleshooting with Software Provisioning Manager [page 53]</a> .	software provisioning manager 1.0 SP22 (SL Toolset 1.0 SP22)
Digital Signature Check of Installation Archives	The digital signature of installation archives is checked <b>automatically</b> by software provisioning manager during the <i>Define Parameters</i> phase while processing the <i>Software Package Browser</i> screens. As of now software provisioning manager only accepts archives whose digital signature has been checked. For more information, see <a href="#">Downloading Installation Archives (Archive-Based Installation) [page 36]</a> .	software provisioning manager 1.0 SP22 (SL Toolset 1.0 SP22)
Enabling IPv6	You can now set up a new SAP system or SAP system instance using Internet Protocol Version 6 (IPv6).  For more information, see <a href="#">Prerequisites for Running Software Provisioning Manager [page 40]</a> .	software provisioning manager 1.0 SP22 (SL Toolset 1.0 SP22)

Feature	Description	Availability
Media Signature Check	<p>The digital signature of media is checked <b>automatically</b> by the software provisioning manager during the <a href="#">Define Parameters</a> phase while processing the <a href="#">Media Browser</a> screens. The software provisioning manager only accepts media whose digital signature has been checked.</p> <p>For more information, see <a href="#">Preparing the Installation Media [page 33]</a> and <a href="#">Running the software provisioning manager [page 43]</a>.</p>	software provisioning manager 1.0 SP21 (SL Toolset 1.0 SP21)
SAP Host Agent Upgrade During the Installation (Optional)	<p>During the <a href="#">Define Parameters</a> phase of the installation, software provisioning manager prompts you whether you want to upgrade an existing version of the SAP Host Agent on the installation host. If there is no SAP Host Agent on the installation host, it is installed automatically without prompt. For more information, see <a href="#">Basic Installation Parameters [page 22]</a>.</p>	software provisioning manager 1.0 SP21 (SL Toolset 1.0 SP21)
SL-UI with SAPINST 7.49	<p>With the new software provisioning manager framework version SAPINST 7.49, you can now use the new SAPUI5-based graphical user interface (GUI) "SL-UI". For more information, see <a href="#">Useful Information about Software Provisioning Manager [page 48]</a>, <a href="#">Running Software Provisioning Manager [page 43]</a>.</p>	software provisioning manager 1.0 SP20 (SL Toolset 1.0 SP20)
Cleanup of Operating System Users	<p>You can now specify during the <a href="#">Define Parameters</a> phase that the operating system users are to be removed from group <code>sapinst</code> after the execution of software provisioning manager has completed.</p> <p>For more information, see <i>Operating System Users</i> in <a href="#">Basic Installation Parameters [page 22]</a>.</p>	software provisioning manager 1.0 SP20 (SL Toolset 1.0 SP20)
Verification of Integrity of Data Units in software provisioning manager	<p>The integrity of data units extracted from the software provisioning manager archive is verified. For more information, see <a href="#">Downloading and Extracting the Software Provisioning Manager 1.0 Archive [page 34]</a>.</p> <p>In addition, check SAP Note <a href="#">1680045</a> whether additional information is available.</p>	software provisioning manager 1.0 SP19 (SL Toolset 1.0 SP19)
Archive-Based Installation	<p>You can now download the required <b>installation archives</b> for the SAP Gateway installation, instead of using the complete SAP kernel installation media. For more information, see <a href="#">Downloading Installation Archives (Archive-Based Installation) [page 36]</a>.</p>	software provisioning manager 1.0 SP18 (SL Toolset 1.0 SP18)
System Provisioning for SAP NetWeaver 7.5 and SAP NetWeaver 7.5-based Products	<p>All system provisioning tasks (installation, system copy, system rename) are available for the new SAP NetWeaver 7.5 release.</p> <p>The Dual Stack option, which integrates an AS ABAP and AS Java in a single system (common System ID <code>&lt;SAPSID&gt;</code>, common startup framework, common database), is no longer supported in SAP systems based on SAP NetWeaver 7.5.</p>	software provisioning manager 1.0 SP09 (SL Toolset 1.0 SP15)

Feature	Description	Availability
Feedback Evaluation Form	SAP SE's aim is to provide fast and efficient procedures. To evaluate the procedure you just carried out, we need information generated by the tool during process execution and your experience with the tool itself. A new evaluation form contains a simple questionnaire and XML data generated during the procedure.  Port 4239 is used for displaying the feedback evaluation form.	software provisioning manager 1.0 SP07 (SL Toolset 1.0 SP12)
Option <i>Verify Signed Media</i>	The digital signature ensures that the signatory of a digital document can be identified unambiguously and signatory's name is documented together with the signed document, the date, and the time.  For more information, see SAP Note <a href="#">1979965</a> .	software provisioning manager 1.0 SP06 (SL Toolset 1.0 SP11)

## 1.3 SAP Notes for the Installation

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











Make sure that you have the up-to-date version of each SAP Note which you can find at <https://support.sap.com/notes>.

SAP Notes for the Installation

SAP Note Number	Title	Description
<a href="#">1680045</a>	Release Note for Software Provisioning Manager 1.0	Remarks, annotations, and corrections discovered after publication of the documentation Software Provisioning Manager
<a href="#">2378874</a>	Install SAP Solutions on Linux on IBM Power Systems (little endian)	Information about how to install SAP solutions on Linux on IBM Power Systems (little endian)

## 1.4 Accessing the SAP Library

The references to **SAP NetWeaver Library** documentation in this installation guide always refer to the following on SAP Help Portal:

Product and Release	SAP Library Path
SAP systems based on SAP NetWeaver 7.3 EHP1	SAP NetWeaver 7.3 EHP1: <a href="http://help.sap.com/nw731">http://help.sap.com/nw731</a>  <i>Application Help</i> > <i>SAP NetWeaver Library: Function-Oriented View</i> 
SAP systems based on SAP NetWeaver 7.4	<a href="http://help.sap.com/nw74">http://help.sap.com/nw74</a>  <i>Application Help</i> > <i>SAP NetWeaver Library: Function-Oriented View</i> 
SAP systems based on SAP NetWeaver 7.5x	<ul style="list-style-type: none"><li>SAP NetWeaver 7.5: <a href="http://help.sap.com/nw75">http://help.sap.com/nw75</a>  <i>Application Help</i> &gt; <i>SAP NetWeaver Library: Function-Oriented View</i> </li><li>SAP NetWeaver Application Server for ABAP 7.51 innovation package: <a href="https://help.sap.com/nw751abap">https://help.sap.com/nw751abap</a>  <i>Application Help</i> &gt; <i>SAP NetWeaver Library: Function-Oriented View</i> </li><li>SAP NetWeaver AS for ABAP 7.52: <a href="https://help.sap.com/nw752abap">https://help.sap.com/nw752abap</a>  <i>Application Help</i> &gt; <i>SAP NetWeaver Library: Function-Oriented View</i> </li></ul>

## 1.5 Naming Conventions

In this documentation, the following naming conventions apply:

### Note

From a technical point of view, the standalone Gateway is set up like an SAP system with its own SAP system ID (SAPSID), its own operating system users, and its own directory structure.

- “SAP system” refers to the “standalone Gateway” as such.
- “instance” refers to the “standalone Gateway instance”.

## 2 Planning

### 2.1 Hardware and Software Requirements

You check that your hosts meet the hardware and software requirements for your operating system and the Gateway.

#### ⚠ Caution

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

#### Procedure

1. Check the *Product Availability Matrix* at <https://support.sap.com/pam> for supported operating system releases.
2. If you want to use the standalone Gateway for a **production** system, the values provided by the Prerequisite Checker and the hardware and software requirements checklists are not sufficient. In addition, do the following:
  - You use the hardware sizing information available at <https://sap.com/sizing>.
  - You contact your hardware vendor, who can analyze the load and calculate suitable hardware sizing depending on:
    - The set of applications to be deployed
    - How intensively the applications are to be used
    - The number of users

#### 2.1.1 Hardware and Software Requirements Tables

The standalone Gateway host must meet the following requirements:

#### i Note

The information here is **not** intended to replace the operating system documentation. For more information, see your operating system documentation.

## General Installation Information for Your Operating System

Operating System	Information
AIX	<p>Before you start the installation, make sure that you have read SAP Note <a href="#">1972803</a>.</p> <p>In addition, we also recommend that you check the information available in the <i>SAP on AIX</i> space on the SAP Community Network at <a href="https://www.sap.com/community/topic/aix.html">https://www.sap.com/community/topic/aix.html</a>.</p>
HP-UX	<p>Before you start the installation, make sure that you have read SAP Note <a href="#">1075118</a>.</p> <p>In addition, we also recommend that you check the information available in the <i>SAP on HP-UX Best Practices</i> space on the SAP Community Network at <a href="https://www.sap.com/community/topic/hp-ux.html">https://www.sap.com/community/topic/hp-ux.html</a>.</p>
Linux	<p>Before you start the installation, make sure that you have read the SAP Notes for your Linux distribution listed in the central SAP Note <a href="#">171356</a>.</p> <p>In addition, we also recommend that you check the information available in the <i>SAP on Linux</i> space on the SAP Community Network at <a href="https://www.sap.com/community/topic/linux.html">https://www.sap.com/community/topic/linux.html</a>.</p>
Solaris	<p>Before you start the installation, make sure that you have read SAP Note <a href="#">1669684</a>.</p> <p>In addition, we also recommend that you check the information available in the <i>SAP on Oracle Solaris</i> space on the SAP Community Network at <a href="https://www.sap.com/community/topic/oracle-solaris.html">https://www.sap.com/community/topic/oracle-solaris.html</a>.</p>
Linux for System z	Before you start the installation, make sure that you have read SAP Note <a href="#">81737</a> .

## Hardware Requirements

Requirement	Values and Activities
Processing units	<p><b>For application server instances and database instances:</b> The number of physical or virtual processing units usable by the operating system image must be equal to or greater than 2.</p> <p>Examples of processing units are processor cores or hardware threads (multithreading).</p> <p>In a virtualized environment, ensure that adequate processor resources are available to support the workloads of the running SAP systems.</p>
Optical media drive	ISO 9660 compatible



Requirement	Values and Activities
Hard disk space	<ul style="list-style-type: none"> <li> <b>General Requirements:</b> <ul style="list-style-type: none"> <li>2 GB of temporary disk space for each required physical installation media - or alternatively the downloaded SAP kernel archives - that you have to copy to a local hard disk. For more information, see <a href="#">Preparing the Installation Media [page 33]</a>.</li> <li>If you prefer downloading the separate kernel archives instead of using the complete kernel media, you require 1 GB of temporary disk space for the set of archives that you have to copy to a local hard disk. For more information, see <a href="#">Downloading Installation Archives (Archive-Based Installation) [page 36]</a>.</li> <li>2 GB of temporary disk space for the installation.</li> <li>If an advanced disk array is available (for example, RAID), contact your hardware vendor to make sure that the data security requirements are covered by this technology.</li> </ul> </li> <li> <b>Instance-Specific Requirements:</b> <p>The standalone gateway instance requires 1 GB of hard disk space minimum.</p> </li> </ul>
RAM	<div>Only valid for 'Platform': AIX</div> <div> <b>Note</b>  <b>AIX:</b> Keep in mind that the operating system itself requires about 10% of the available RAM.         </div> <div>End of 'Platform': AIX</div> <p>The standalone gateway instance requires 1 GB RAM minimum.</p> <div>Only valid for 'Platform': HP-UX</div> <p><b>HP-UX:</b> Refer to SAP Note <a href="#">1112627</a> for the commands to display the RAM size on HP-UX.</p> <div>End of 'Platform': HP-UX</div> <div>Only valid for 'Platform': Linux</div> <p><b>Linux:</b> For more information about how to evaluate main memory consumption on Linux, see SAP Note <a href="#">1382721</a>.</p> <div>End of 'Platform': Linux</div>
<b>AIX:</b> Paging space	You need hard disk drives with sufficient paging space. You can calculate the required paging space as follows: 2* RAM, at least 20 GB
<b>HP-UX:</b> Swap space	You need hard disk drives with sufficient space for swap. You can calculate the required swap space as follows: 2* RAM, at least 20 GB
<b>Linux:</b> Swap space	You need hard disk drives with sufficient space for swap. You can calculate the required swap space as follows: 2* RAM, at least 20 GB
<b>Oracle Solaris:</b> Swap space	You need hard disk drives with sufficient space for swap. You can calculate the required swap space as follows: 2* RAM, at least 20 GB

## Software Requirements


Requirement	Values and Activities
<b>AIX:</b> Operating system version	<p>Your operating system platform must be 64-bit.</p> <p>Check the Product Availability Matrix (PAM) at <a href="http://support.sap.com/pam">http://support.sap.com/pam</a> for supported operating system versions.</p> <p>Contact your OS vendor for the latest OS patches.</p> <p>Minimal OS requirements for the specific SAP Kernel releases are listed in SAP Note <a href="#">1780629</a>.</p> <p>You require at least AIX 7.1 TL1 SP1 to be able to run the software provisioning manager.</p>
<b>HP-UX:</b> Operating system version	<p>Your operating system platform must be 64-bit.</p> <p>Check the Product Availability Matrix (PAM) at <a href="http://support.sap.com/pam">http://support.sap.com/pam</a> for supported operating system versions.</p> <p>To check the operating system version on your installation hosts, use the following command:</p> <pre>uname -r</pre> <p>See SAP Note <a href="#">939891</a> for information about support time frames of HP-UX.</p>
<b>Linux:</b> Operating system version	<p>Your operating system platform must be 64-bit.</p> <p>Check the Product Availability Matrix (PAM) at <a href="http://support.sap.com/pam">http://support.sap.com/pam</a> for supported operating system versions.</p> <p>Contact your OS vendor for the latest OS patches.</p> <p>To check the operating system version on your installation hosts, use the following command:</p> <pre>cat /etc/*-release</pre> <div>Only valid for 'Platform': Linux</div> <p>If you are installing on SUSE Linux Enterprise Server (SLES), see SAP Note <a href="#">1275776</a> to prepare SLES for SAP environments.</p> <div>End of 'Platform': Linux</div>
<b>Linux Secure Enabled Linux (SELinux) Mode</b>	<p>Set Linux Secure Enabled Linux (SELinux)   SELinux mode to <i>Permissive</i> or <i>Disabled</i> on all SAP System hosts for the installation procedure. For more information, see SAP Note <a href="#">3247790</a>.</p>
<b>Oracle Solaris:</b> Operating system version	<p>Your operating system platform must be 64-bit.</p> <p>Check the Product Availability Matrix (PAM) at <a href="http://support.sap.com/pam">http://support.sap.com/pam</a> for supported operating system versions.</p> <p>To check the operating system version on your installation hosts, use the following command:</p> <pre>/bin/uname -r</pre>

Requirement	Values and Activities
SAP Kernel Releases and Versions	To use regular software provisioning manager (SWPM10<Version>.SAR) with SAP kernel up to 7.53 on RHEL 6 or SLES 11 or Oracle Linux 6, you must install the required <code>libstdc++</code> RPM packages. For more information, see SAP Note <a href="#">2195019</a> .
AIX: Kernel parameters	
HP-UX: Kernel parameters	<p>To run an SAP system, make sure that you check and, if necessary, modify the HP-UX kernel.</p> <div> <p><b>Caution</b></p> <p>We recommend that a UNIX system administrator performs all kernel modifications.</p> </div> <p>Proceed as follows:</p> <ol style="list-style-type: none"> <li>Check SAP Note <a href="#">172747</a> for recommendations on current HP-UX kernel parameters.</li> </ol> <div> <p><b>Caution</b></p> <p>If a kernel value is already larger than the one suggested in the SAP Note, do not <b>automatically</b> reduce it to match the SAP requirement.</p> <p>You have to analyze the exact meaning of such a parameter and, if required, to reduce the parameter value. In some cases this might improve the performance of your SAP applications.</p> </div> <ol style="list-style-type: none"> <li>If necessary, modify the kernel parameters in one of the following ways: <ul style="list-style-type: none"> <li>Manually, as described in SAP Note <a href="#">172747</a>.</li> <li>Interactively, using the HP-UX System Administrator Manager (SAM) or System Management Homepage (SMH).</li> </ul> </li> </ol>
Linux: Kernel parameters	<p>Check SAP Note <a href="#">2369910</a> for Linux kernel versions certified by SAP.</p> <p>To check the Linux kernel parameters for your Linux distribution, see one of the following SAP Notes:</p> <ul style="list-style-type: none"> <li>SLES 15: SAP Note <a href="#">2578899</a></li> <li>SLES 12: SAP Note <a href="#">1984787</a></li> <li>RHEL8: SAP Note <a href="#">2772999</a></li> <li>RHEL7: SAP Note <a href="#">2002167</a></li> <li>RHEL6: SAP Note <a href="#">1496410</a></li> </ul>
Oracle Solaris: Kernel parameters	<p>To run an SAP system, you must check and, if necessary, modify the Oracle Solaris kernel parameters or resource controls.</p> <ul style="list-style-type: none"> <li>Oracle Solaris 10: SAP Note <a href="#">724713</a></li> <li>Oracle Solaris 11: SAP Note <a href="#">1797712</a></li> </ul>

Requirement	Values and Activities
HP-UX: OS patches	To check the minimum required OS patches, see SAP Note <a href="#">837670</a> .
Oracle Solaris: OS patches	<p>Check the relevant SAP Note for required Oracle Solaris patches:</p> <ul style="list-style-type: none"> <li>Sun Solaris 10 on SPARC: SAP Note <a href="#">832871</a></li> <li>Oracle Solaris 11: SAP Note <a href="#">1797712</a></li> </ul>
AIX: National Language Support (NLS)	Make sure that National Language Support (NLS) and corresponding locales are installed.
HP-UX: National Language Support (NLS)	<p>Make sure that National Language Support (NLS) and corresponding locales are installed.</p> <p>You can check this as follows:</p> <ul style="list-style-type: none"> <li>Enter the following commands to check whether National Language Support (NLS) is installed:  <code>swlist -v   grep -i nls</code>  The output should contain the string NLS-AUX . . .</li> <li>Enter the following commands to check which locales are available:  <code>locale -a</code>  The following files must be available: de_DE.iso88591, en_US.iso88591.</li> </ul>
Linux: National Language Support (NLS)	<p>Make sure that National Language Support (NLS) and corresponding locales are installed.</p> <p>You can check this as follows:</p> <ul style="list-style-type: none"> <li>Ensure that the required locales such as the following are available:  de_DE, en_US</li> <li>Check SAP Note <a href="#">187864</a> for information about corrected operating system locales and SAP blended Code Pages.</li> </ul>
Oracle Solaris: National Language Support (NLS)	<p>Make sure that National Language Support (NLS) and corresponding locales are installed.</p> <p>Enter the following command to check which locales are available:</p> <code>locale -a</code> <p>The following locale must be available: en_US.ISO8859-1</p>
System language	For the installation, you must choose English as the operating system language on all hosts that run SAP software.




## Other Requirements

Requirement	Values and Activities
Minimum Web Browser	<p>Make sure that you have at least one of the following web browsers installed on the host where you run the software provisioning manager's SL-UI:</p> <ul style="list-style-type: none"> <li>• Microsoft Internet Explorer 11 or higher</li> <li>• Microsoft Edge</li> <li>• Mozilla Firefox</li> <li>• Google Chrome</li> </ul> <p>Always use the latest version of these web browsers.</p> <p>You need a web browser to be able to run the SL-UI, and to display the Evaluation Form and send it to SAP.</p>
AIX: Additional software	<p>Make sure that the following additional file sets are installed:</p> <ul style="list-style-type: none"> <li>• <code>bos.adt.*</code> – Base Application Development</li> <li>• <code>bos.perf.*</code> – performance and diagnostics tools</li> <li>• <code>perfagent.tools</code> – performance monitoring tools</li> </ul>
Host name	<p>To find out <b>physical</b> host names, open a command prompt and enter <b>hostname</b>.</p> <p>For more information about the allowed host name length and characters allowed for SAP system instance hosts, see SAP Note <a href="#">611361</a>.</p> <div>Only valid for 'Platform': HP-UX</div> <p>For HP-UX, see SAP Note <a href="#">1503149</a> in addition.</p> <div>End of 'Platform': HP-UX</div> <p>If you want to use <b>virtual</b> host names, see SAP Note <a href="#">962955</a>.</p>
Login shell	<p>The software provisioning manager only prompts you for this parameter if you use a login shell other than C shell (csh).</p> <p>For more information, see SAP Note <a href="#">202227</a>.</p> <div>Only valid for 'Platform': HP-UX</div> <p>For HP-UX, see SAP Note <a href="#">1038842</a> in addition.</p> <div>End of 'Platform': HP-UX</div> <p><b>SAP Host Agent installation:</b></p> <ul style="list-style-type: none"> <li>• Make sure that <code>/bin/false</code> can be used as a login shell.</li> <li>• <div>Only valid for 'Platform': AIX</div> <p><b>AIX only:</b> Add <code>/bin/false</code> to the list of valid login shells (attribute <code>shells</code>) in <code>/etc/security/login.cfg</code>.</p> <div>End of 'Platform': AIX</div> </li> </ul>
HP-UX: Mount and file system configuration	<p>For recommendations about block size and mount option configuration, see SAP Note <a href="#">1077887</a>.</p>

Requirement	Values and Activities
Shared file systems for decentralized systems	If application servers are installed decentralized, a “shared” file system must be installed, for example Network File System (NFS).
<b>AIX:</b> C++ Runtime environment	Minimal C++ runtime requirements for the specific SAP Kernel releases are listed in SAP Note <a href="#">1780629</a>  .

## 2.2 Basic Installation Parameters

The table below lists the basic input parameters that are prompted by the software provisioning manager. For all remaining input parameters, use the tool help or the descriptions on the software provisioning manager screens.

Parameters	Description
SAP System ID <a href="#">&lt;SAPSID&gt;</a>	<p>The SAP System ID <a href="#">&lt;SAPSID&gt;</a> identifies the standalone Gateway system.</p> <div>  <b>Caution</b>  Choose your SAP system ID carefully. You <b>cannot</b> change the SAP system ID after the installation. </div> <p>Make sure that your SAP system ID:</p> <ul style="list-style-type: none"> <li>• Is unique throughout your organization</li> <li>• Consists of exactly three alphanumeric characters</li> <li>• Contains only uppercase letters</li> <li>• Has a letter for the first character</li> <li>• Does not include any of the reserved IDs listed in SAP Note <a href="#">1979280</a> .</li> </ul> <div>  <b>Caution</b>  You must choose an SAP system ID that is different from the SAP system ID of the central instance of the SAP system the Gateway belongs to. </div>

Parameters	Description
Instance Number for the standalone Gateway	<p><b>Instance Number:</b></p> <p>Technical identifier for internal processes. Consists of a two-digit number from 00 to 97. The instance number must be unique on a host. That is, if more than one SAP instance is running on the same host, these instances must be assigned different numbers.</p> <p>Only valid for 'Platform': HP-UX</p> <div> <p><b>Caution</b></p> <p>Do not use 75 for the instance number of the standalone Gateway because this number is already used by the operating system. For more information, see SAP Note <a href="#">29972</a>.</p> </div> <p>End of 'Platform': HP-UX</p>
Virtual Host Name	<p>Virtual host name (network name) of the SAP&lt;SAPS ID&gt; cluster group</p> <p>You can assign a virtual host name for the instance to be installed, by specifying it in the <i>Host Name</i> field of the <i>Gateway Instance</i> screen. Then this instance is installed with this virtual host name.</p> <p>After the installation has completed, all application servers can use this virtual host name to connect to the instance. The virtual host name is also a global host name. If you do not provide the virtual host name, the instance is installed automatically using its physical host name.</p> <p>You must have already reserved the virtual host name (network name) and its IP address on a DNS server before you run the software provisioning manager. For more information, see <a href="#">Using Virtual Host Names [page 33]</a>.</p> <div> <p><b>Note</b></p> <p>Fully qualified host names, IPv4, IPv6 are not accepted as virtual host names.</p> </div> <p>Alternatively you can assign virtual host names also by starting the software provisioning manager with the <code>SAPINST_USE_HOSTNAME</code> command line parameter. For more information, see <a href="#">Running Software Provisioning Manager [page 43]</a>.</p>

Parameters	Description
Master Password	<p>Common password for all users that are created during the installation:</p> <ul style="list-style-type: none"> <li>Operating system users (for example <code>&lt;sapsid&gt;adm</code>)</li> </ul> <div> <p><b>⚠ Caution</b></p> <p>If you did not create the operating system users manually before the installation, the software provisioning manager creates them with the common master password (see <i>Operating System Users</i>). In this case, make sure that the master password meets the requirements of your operating system.</p> </div> <ul style="list-style-type: none"> <li>Secure Store key phrase</li> </ul> <p><b>Basic Password policy</b></p> <p>The master password must meet the following requirements:</p> <ul style="list-style-type: none"> <li>It can be 8 to 30 characters long</li> <li>It must contain at least one letter (a-z, A-Z)</li> <li>It must contain at least one digit (0-9)</li> <li>It must not contain \ (backslash) or " (double quote).</li> </ul> <div> <p><b>→ Recommendation</b></p> <p>The Master Password feature can be used as a simple method to obtain customer-specific passwords for all newly created users. A basic security rule is not to have identical passwords for different users. Following this rule, we strongly recommend individualizing the values of these passwords after the installation is complete.</p> <p>For more information, see <a href="#">Ensuring User Security [page 56]</a>.</p> </div>



Parameters	Description
Operating System Users and Groups	<p>The software provisioning manager processes the operating system users as follows:</p> <ul style="list-style-type: none"> <li>If the operating system users do not exist, the software provisioning manager creates the following users: <ul style="list-style-type: none"> <li>The SAP system administrator user <code>&lt;sapsid&gt;adm</code></li> <li>Database administrator users</li> </ul> <p>The software provisioning manager sets the master password for these users by default. You can overwrite and change the passwords either by using the parameter mode Custom or by changing them on the parameter summary screen.</p> </li> <li>If the operating system users already exist, the software provisioning manager prompts you for the existing password, except if the password of these users is the same as the master password.</li> <li>Make sure that the user ID and group ID of these operating system users are unique and the same on each relevant application server instance host.</li> </ul> <p>During the <a href="#">Define Parameters</a> phase of the software provisioning manager you can specify that the <code>sapinst</code> group is to be removed from the group set of the operating system users <b>after</b> the execution of the software provisioning manager has completed.</p> <p>The <code>sapinst_instdir</code> directory belongs to a group named <code>sapinst</code>. If this group is not available, it is created automatically as a local group. For security reasons, SAP recommends removing the <code>sapinst</code> group from the operating system user groups after the execution of the software provisioning manager has completed.</p> <p>For more information about the <code>sapinst</code> group, see <a href="#">Creating Operating System Users and Groups [page 26]</a>.</p> <p>For more information about the <code>sapinst_instdir</code> directory, see <a href="#">Useful Information about Software Provisioning Manager [page 48]</a>.</p>
SAP Host Agent Upgrade (Optional)	<p>If there already exists an SAP Host Agent on the installation host, the software provisioning manager asks you if you want to upgrade it to a newer patch level version. If you want the existing version to be upgraded, you must provide the new target version of the <code>SAPHOSTAGENT&lt;Version&gt;.SAR</code> archive.</p> <p>For more information, see <a href="#">Downloading Installation Archives (Archive-Based Installation) [page 36]</a></p>

## 3 Preparation

This section describes in detail the steps you need to take before installing your .

### 3.1 Creating Operating System Users and Groups

During the installation, the software provisioning manager checks all required accounts (users, groups) and services on the local machine. The software provisioning manager checks whether the required users and groups already exist. If not, it creates new users and groups as necessary.

The `sapinst_instdir` directory belongs to a group named `sapinst`. If this group is not available, it is created automatically as a local group.

If you do not want the software provisioning manager to create operating system users, groups, and services automatically, you can optionally create them **before** the installation is started. This might be the case if you use central user management such as Network Information System (NIS).

For distributed installations, unless you are using global accounts or NIS, you must create the target users automatically using the software provisioning manager or manually on the operating system, before starting the installation :

#### ⚠ Caution

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

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

Only valid for 'Platform': z/OS

On z/OS, instead of NIS, RACF may be used. For more information, see section *Security Settings for z/OS* in the *Security Guide for SAP on IBM Db2 for z/OS*, which is available on the SAP Help Portal at [http://help.sap.com/viewer/db2\\_security\\_guide](http://help.sap.com/viewer/db2_security_guide).

End of 'Platform': z/OS

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

The software provisioning manager checks the NIS users, groups, and services using NIS commands. However, the software provisioning manager does **not** change NIS configurations.





#### → Recommendation

For a distributed or a high-availability system, we recommend that you distribute account information (operating system users and groups) over the network, for example by using Network Information Service (NIS).

If you want to use global accounts that are configured on a separate host, you can do this in one of the following ways:

- You start the software provisioning manager and choose ► [Generic Installation Options](#) ► [<Database>](#) ► [Preparation](#) ► [Operating System Users and Groups](#) ►. For more information, see [Running Software Provisioning Manager \[page 43\]](#).
- You create operating system users and groups manually. Check the settings for these operating system users.

## User Settings

- Only valid for 'Platform': Oracle Solaris  
**Oracle Solaris:** If your operating system is Oracle Solaris 10 or higher, follow the parameter recommendations for SAP applications in SAP Note [724713](#)   
End of 'Platform': Oracle Solaris
- Only valid for 'Platform': AIX  
**AIX:** Make sure that you have set the limits for operating system users as described in SAP Note [323816](#)   
End of 'Platform': AIX
- Only valid for 'Platform': HP-UX, Linux, Oracle Solaris  
**HP-UX, Oracle Solaris:** Make sure that you have set the limits listed below for operating system users root, [<sapsid>adm](#), and your database-specific operating system users .  
**Linux:** Starting with SUSE Linux Enterprise Server 15, Red Hat Enterprise Linux 8, and Oracle Linux 8, and the respective SAP kernel patch levels, native support for the software suite systemd for Linux is available for SAP systems. If you use Linux with systemd, ignore the following procedures for setting limits because there's no need to change the limits. Make sure that polkit is installed. systemd requires polkit for authorization checks for the [<sapsid>adm](#) user. For more information about Linux with systemd, see SAP Note [3139184](#)   
 If you are still using a Linux version or an SAP kernel patch that is not released for native systemd support with SAP systems (see [3139184](#) ) , proceed as follows: Make sure that you have set the limits as outlined below for operating system users root, [<sapsid>adm](#), and your database-specific operating system users .

### ⚠ Caution

Caution: the `limit` mechanism supports hard and soft limits. The soft limit cannot be bigger than the hard limit. The hard limit can be set/increased by the root user like: `limit -h <limit> <new_value>`, for example `limit -h datasize unlimited` .

- Using `ssh` shell, the output of command `limit` needs to be at least as follows:

### ❖ Example

The following table lists example output taken from SUSE Linux Enterprise Server 11 (x86\_64).

Output	Properties
cputime	unlimited
filesize	unlimited
datasize	unlimited
stacksize	8192 KB
coredumpsize	unlimited
descriptors	8192
memoryuse	unlimited

- Using `sh` or `ksh` shell, the output of command `ulimit -a` needs to be at least as follows:

#### ❖ Example

The following table lists example output taken from SUSE Linux Enterprise Server 11 (x86\_64).

Output sh	Output ksh	Properties
cpu time (seconds)	cpu time (seconds)	unlimited
file size (blocks)	file size (blocks)	unlimited
data seg size (kbytes)	data size (Kibytes)	unlimited
stack size (kbytes)	stack size (Kibytes)	8192 KB
core file size (blocks)	core file size (blocks)	unlimited
open files	nofile	8192
max memory size (kbytes)	max memory size (Kibytes)	unlimited

End of 'Platform': HP-UX, Linux, Oracle Solaris

- All users **must** have identical environment settings. Any change to the environment – such as variables, or paths – is at your own responsibility.
- If you have multiple operating system users with user ID (UID) 0, you must assign the `sapinst` group to all of them.
- Do **not** delete any shell initialization scripts in the home directory of the operating system users. This applies even if you do not intend to use the shells that these scripts are for.
- If you create operating system users manually or use already existing operating system users, make sure that the home directory for each of these users is **not** the root directory ( / ).
- Make sure that the home directory of user `<sapsid>adm` is not critical for recursive changes on permissions.

When operating system users are created by the software provisioning manager, the permissions on the home directories of these users are changed recursively. This can cause unpredictable errors if you define a critical home directory.

For example, the home directory must **not** be `/usr/sap`.

- Only valid for 'Platform': HP-UX  
**HP-UX:** To prevent terminal query errors in the `<sapsid>adm` environment, comment out the line `eval 'tset -s -Q -m ':?hp'` in the `/etc/skel/.login` script. For more information, see SAP Note [1038842](#).  
 End of 'Platform': HP-UX

## Operating System Users and Groups

The software provisioning manager chooses available operating system user IDs and group IDs.

If you have multiple operating system users with user ID (UID) 0, you must assign the `sapinst` group to all of them.

### → Recommendation

For security reasons, we recommend that you remove the operating system users from the group `sapinst` **after** the software provisioning manager has completed.

We recommend that you specify this “cleanup” already during the *Define Parameters* phase on the *Cleanup Operating System Users* screen. Then, the removal of the operating system users from the group `sapinst` is done automatically.

#### Users and Their Primary Groups

User	Primary Group	Additional Groups	Comment
<code>root</code>	No primary group is assigned by the software provisioning manager.	<code>sapinst</code>	Superuser of the UNIX Operating system
<code>&lt;sapsid&gt;adm</code>	<code>sapsys</code>	<code>sapinst</code>	SAP system administrator

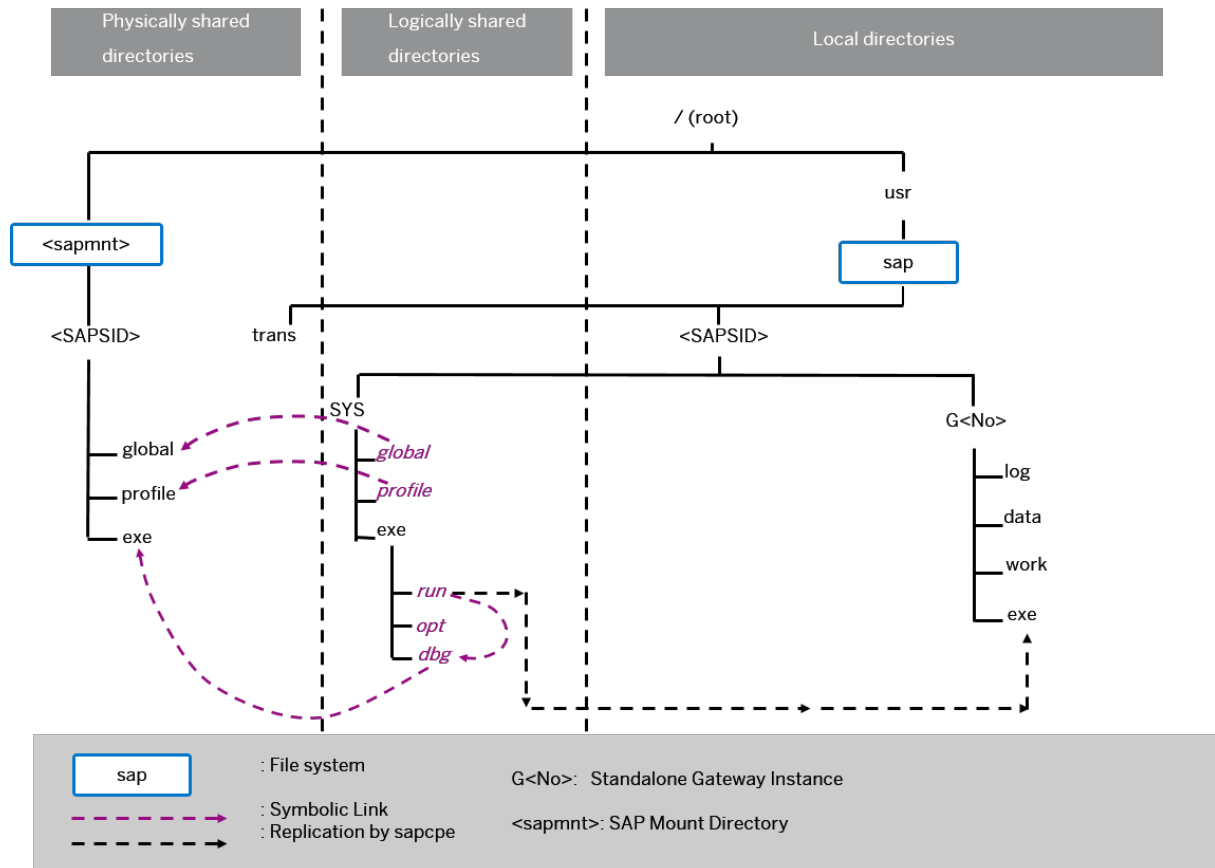
#### Groups and Members

Groups	Members
<code>sapsys</code>	<code>&lt;sapsid&gt;adm</code>
<code>sapinst</code>	<code>root</code> , <code>&lt;sapsid&gt;adm</code>

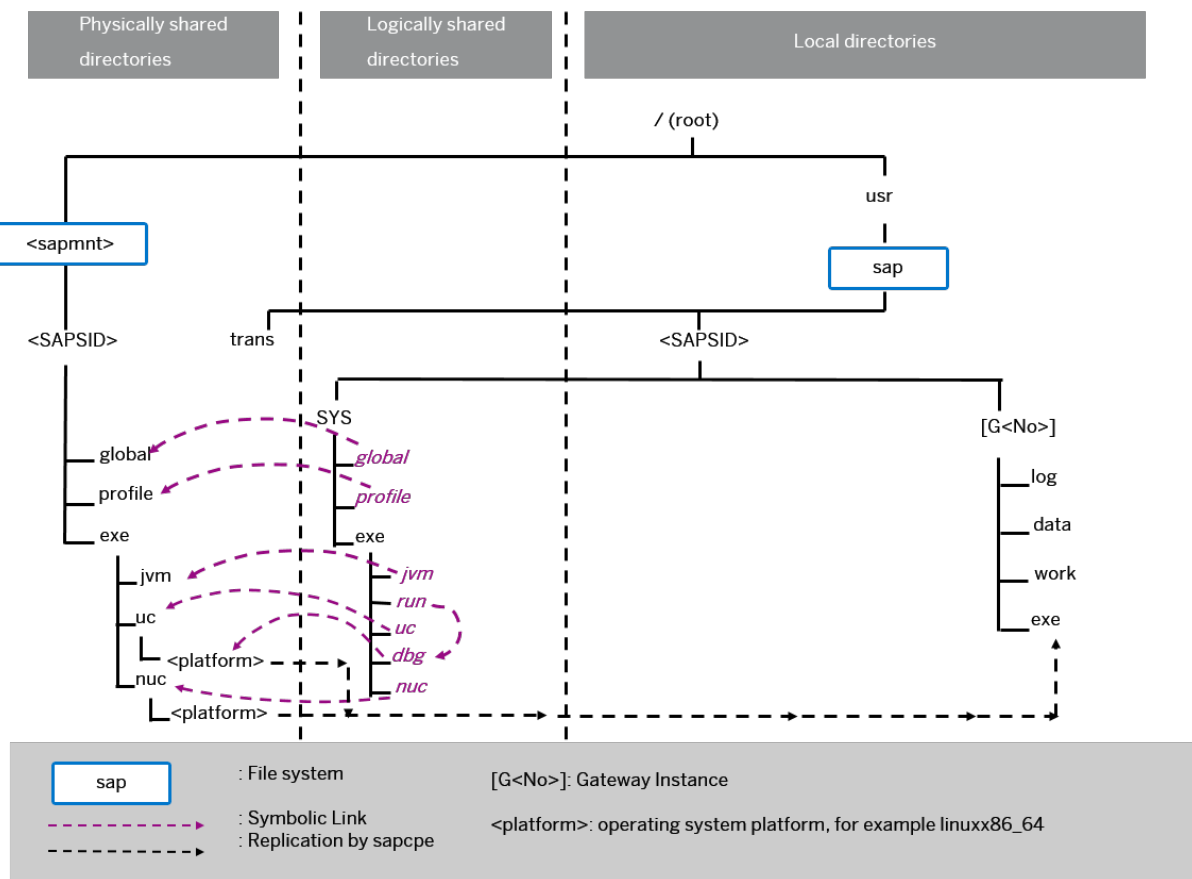
## 3.2 SAP Directories

The software provisioning manager automatically creates the directories listed in the following figures and tables. Before running the installation, you have to set up the required file systems manually. In addition, you

have to make sure that the required disk space for the directories to be installed is available on the relevant hard disks. The figure below assumes that you have set up one file system for the SAP system mount directory `<sapmnt>` and one file system for the `/usr/sap` directory. However, you have to decide for which directories you want to set up separate file systems. If you do not set up any file system on your installation host, the software provisioning manager creates all directories in the `root` directory `/`. The software provisioning manager prompts you only for the `<sapmnt>` directory during the installation.



SAP Directories of a Standalone Gateway for SAP Systems based on SAP NetWeaver 7.0 to SAP NetWeaver 7.0 EHP3



SAP Directories of a Standalone Gateway for SAP Systems based on SAP NetWeaver 7.1 and Higher

The directory of the Gateway instance is G<Instance\_Number>, for example G00.

## SAP Directories in Detail

### i Note

The listed file system sizes are initial SAP requirements.

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

File System Name	Description	Space Required
<code>/&lt;sapmnt&gt;/&lt;SAPSID&gt;</code>	<p>The default name for the SAP system mount directory is <code>sapmnt</code>.</p> <ul style="list-style-type: none"> <li><code>exe</code> Contains executable kernel programs</li> <li><code>global</code> Contains log files</li> <li><code>profile</code> Contains the start and operations profiles of the Gateway instance</li> </ul>	500 MB
<code>/usr/sap/&lt;SAPSID&gt;</code>	<p>This directory contains the following subdirectories:</p> <ul style="list-style-type: none"> <li><code>SYS</code></li> </ul> <div data-bbox="517 824 1102 1010" data-label="Text"> <p><b>Note</b></p> <p>The subdirectories of <code>/usr/sap/&lt;SAPSID&gt;/SYS</code> have symbolic links to the corresponding subdirectories of <code>/&lt;sapmnt&gt;/&lt;SAPSID&gt;</code>, as shown in the figure above.</p> </div> <ul style="list-style-type: none"> <li><code>&lt;INSTANCE&gt;</code> The instance name (instance ID) of the Gateway instance is <code>G&lt;Instance_Number&gt;</code>, for example <code>G00</code>.</li> </ul> <p>There are subdirectories of <code>/usr/sap/&lt;SAPSID&gt;/SYS</code> with symbolic links to subdirectories of <code>/&lt;sapmnt&gt;/&lt;SAPSID&gt;</code>:</p>	500 MB
<code>/usr/sap/trans</code>	This directory contains SAP software for the transport of objects between SAP systems .	<p>This value heavily depends on the use of your SAP system.</p> <p>For the installation, it is sufficient to use 200 MB. You can enlarge the file system afterwards if required.</p>



## 3.3 Using Virtual Host Names

You can use one or more virtual `TCP/IP` host names for SAP servers within an SAP server landscape to hide their physical network identities from each other. This can be useful when quickly moving SAP servers or complete server landscapes to alternative hardware since you do not need to reinstall or reconfigure.

### Prerequisites

Make sure that the virtual host name can be correctly resolved in your Domain Name System (DNS) setup.

### Context

### Procedure

## 3.4 Preparing the Installation Media

This section describes how to prepare the installation media.

Installation media are available as follows:

- The software provisioning manager 1.0 archive containing the software provisioning manager software. You always have to download the latest version of the software provisioning manager 1.0 archive. For more information, see [Downloading and Extracting the Software Provisioning Manager 1.0 Archive \[page 34\]](#).
- Kernel Media.

#### Installation

Media	Description
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SAP Kernel	Non-Unicode (NUC) Kernel (folder <code>K_&lt;Version&gt;_N_&lt;OS&gt;</code> ) where <code>N</code> means non-Unicode.
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You can provide them in one of the following ways:

- Download the **SAP Kernel Archives** (SAR files) from the SAP Software Download Center - this is the recommended way.  
For more information, see [Downloading Installation Archives \(Archive-Based Installation\) \[page 36\]](#).

- Use the physical installation media as part of the installation package:
- Download the complete kernel media from the SAP Software Download Center.  
For more information, see [Downloading Complete Installation Media \[page 37\]](#).

#### i Note

The digital signature of **installation media** is checked **automatically** by the software provisioning manager during the *Define Parameters* phase while the *Media Browser* screens are processed (see also [Running Software Provisioning Manager \[page 43\]](#)). The software provisioning manager only accepts media whose digital signature has been checked.

### 3.4.1 Downloading and Extracting the Software Provisioning Manager 1.0 Archive

You must always download and extract the software provisioning manager 1.0 archive from the SAP Software Download Center because you must use the latest version.







#### Prerequisites

- Make sure that you are logged on as a user with `root` authorizations, and that the download directory has at least the permissions 755.
- Make sure that you use the **latest** version of the `SAPCAR` tool when manually extracting the software provisioning manager archive. You need the `SAPCAR` tool to be able to unpack and verify software component archives (\*.SAR files). \*.SAR is the format of software lifecycle media and tools that you can download from the SAP Software Download Center.

#### i Note

An older `SAPCAR` version might extract archive files in a wrong way and this could prevent the software provisioning manager from working consistently.

Proceed as follows to get the latest version of the `SAPCAR` tool:

1. Go to <https://launchpad.support.sap.com/#/softwarecenter>  **SUPPORT PACKAGES & PATCHES**  **By Category**  **SAP TECHNOLOGY COMPONENTS**  **SAPCAR** .
2. Select the `SAPCAR` for your operating system and download it to an empty directory.
3. Even if you have the latest `SAPCAR` already available, we strongly recommend that you verify its digital signature anyway, unless you downloaded it directly from <https://launchpad.support.sap.com/#/softwarecenter>  yourself. You can do this by verifying the checksum of the downloaded `SAPCAR` tool:
  1. Depending on what operating system you are using, compute a hash of the downloaded `SAPCAR` tool, using the SHA-256 algorithm used by SAP.
  2. Now verify the digital signature of the downloaded `SAPCAR` tool by comparing the hash with the checksum (generated by SAP using the SHA-256 algorithm) from the *Content Info* button in the *Related Info* column on the right-hand side of the place where you downloaded the `SAPCAR` tool.

4. To improve usability, we recommend that you rename the executable to **sapcar**.  
For more information about SAPCAR, see SAP Note [212876](#).

## Procedure

1. Download the latest version of the Software Provisioning Manager 1.0 archive  
[ 70 ] SWPM10SP<Support\_Package\_Number>\_<Version\_Number>.SAR :  
<https://support.sap.com/sltoolset> > System Provisioning > Download Software Provisioning Manager
2. Using the latest version of SAPCAR, you can verify the digital signature of the downloaded [ 70 ] SWPM10SP<Support\_Package\_Number>\_<Version\_Number>.SAR archive as follows:
  - a. Get the latest version of the SAPCRYPTOLIB archive to your installation host as follows:
    1. Go to <https://launchpad.support.sap.com/#/softwarecenter> SUPPORT PACKAGES & PATCHES and search for "sapcryptolib".
    2. Select the archive file for your operating system and download it to the same directory where you have put the SAPCAR executable.
    3. Use the following command to extract the SAPCRYPTOLIB archive to the same directory where you have put the SAPCAR executable:  
**SAPCAR -xvf sapcryptolibp\_84...sar -R <target directory>**
    4. Download the Certificate Revocation List from <https://tcs.mysap.com/crl/crlbag.p7s> and move it to the same directory.
  - b. Verify the digital signature of the downloaded [ 70 ] SWPM10SP<Support\_Package\_Number>\_<Version\_Number>.SAR archive by executing the following command:

### Note

Check SAP Notes [2178665](#) and [1680045](#) whether additional information is available.

```
<Path to SAPCAR>/SAPCAR -tvVf <Path to Download Directory>/  
[70]SWPM10SP<Support_Package_Number>_<Version_Number>.SAR -crl<file name of  
revocation list>
```

3. Unpack the Software Provisioning Manager archive to a local directory using the following command:

```
<Path to SAPCAR>/sapcar -xvf <Path to Download Directory>/  
[70]SWPM10SP<Support_Package_Number>_<Version_Number>.SAR -R <Path to Unpack  
Directory>
```

### Note

Make sure that all users have at least read permissions for the directory to which you unpack the Software Provisioning Manager archive.

### Caution

Make sure that you unpack the Software Provisioning Manager archive to a dedicated folder. Do not unpack it to the same folder as other installation media.

## 3.4.2 Downloading Installation Archives (Archive-Based Installation)

As an alternative to downloading the complete installation media, you can also download exactly the archives that are required for your installation.

### Context

You must download - apart from the Software Provisioning Manager 1.0 archive which is always required for an installation - the `SAPPEXE <Version>.SAR` and `SAPHOSTAGENT<Version>.SAR` archive files.

#### i Note












The `SAPHOSTAGENT<Version>.SAR` archive is only prompted if there is either no SAP Host Agent available on the installation host or you specified during the Define Parameters phase that you want to upgrade an existing version of the SAP Host Agent already available on the installation host. In the latter case, you must specify a higher version of the `SAPHOSTAGENT<Version>.SAR`. Otherwise, the existing SAP Host Agent is not upgraded.

During the installation, you can either specify the path to each archive separately, or provide the path to a download basket with all downloaded archives.

#### i Note

The digital signature of **installation archives** is checked **automatically** by the [software provisioning manager \[page 43\]](#) during the *Define Parameters* phase while processing the *Software Package Browser* screens. The software provisioning manager only accepts archives whose digital signature has been checked. After scanning the archives and verifying the digital signature, an info file is written where you can find detailed information about matching and non-matching archive files. You can access this info file by choosing the *info file* link in the Archive Scanning Result section of the *Software Package Browser* screen. The info file contains only the results of the latest archive scan.

### Procedure

1. Go to <https://launchpad.support.sap.com/#/softwarecenter>   **SUPPORT PACKAGES & PATCHES**  
 *By Category* 
2. Download the latest patch level of the following software component archives (\*.SAR files) from the following paths:
  - `SAPPEXE <Version>.SAR`: from the following path:  
 *Additional Components*  *SAP Kernel*  *SAP KERNEL 64-BIT*  `<SAP KERNEL <7.21 or Higher> 64-BIT>`  `<Operating System>`  *#DATABASE INDEPENDENT* 
  - `SAPHOSTAGENT <Version>.SAR`:

#### **i Note**

The SAPHOSTAGENT<Version>.SAR archive is only prompted if there is either no SAP Host Agent available on the installation host or you specified during the Define Parameters phase that you want to upgrade an existing version of the SAP Host Agent already available on the installation host. In the latter case, you must specify a higher version of the SAPHOSTAGENT<Version>.SAR. Otherwise, the existing SAP Host Agent is not upgraded.

## 3.4.3 Downloading Complete Installation Media

This section describes how you can download media from the SAP Software Download Center.

### Procedure

1. Download and unpack the latest version of Software Provisioning Manager as described in [Downloading and Extracting the Software Provisioning Manager 1.0 Archive \[page 34\]](#).
2. You identify the required media as listed in [Preparing the Installation Media \[page 33\]](#).
3. Identify **all** download objects that belong to one medium according to one of the following:

#### **i Note**

Installation media might be split into several files. In this case, you have to reassemble the required files after the download.

- Download path or location:
  - To download the complete kernel media, go to <https://launchpad.support.sap.com/#/softwarecenter/> ► ► SUPPORT PACKAGES & PATCHES ► By Category ► ADDITIONAL COMPONENTS ► SAP KERNEL ► SAP KERNEL 64-BIT UNICODE ► SAP KERNEL <Version> 64-BIT UNICODE ► <Select your OS> ►.
  - Select ► #DATABASE INDEPENDENT ► to download the database-independent parts of the kernel.

#### **❖ Example**



SAPEXE\_1110-80002623.SAR  
Kernel Part I (753) (\*)

SAPEXE\_1118-80002612.SAR

- Select ► <Your DB> ► to download the database-independent parts of the kernel.

### ❖ Example

```
SAPEXEDB_1110-80002623.SAR
Kernel Part II (753) (*)
```


- To download the remaining media required for your SAP product, you can use one of the following navigation paths:
  - <https://launchpad.support.sap.com/#/softwarecenter>  INSTALLATIONS & UPGRADES  
    > By Category > SAP NETWEAVER AND COMPLEMENTARY PRODUCTS > <Product>  
    > <Product Release> >
  - <https://launchpad.support.sap.com/#/softwarecenter>  INSTALLATIONS & UPGRADES  
    > By Alphabetical Index (A-Z) > <First Letter of Product> > <Product> > <Product Release> >
- Material number  
All download objects that are part of an installation medium have the same material number and an individual sequence number:  
<Kernelpart>\_<Sequence Number>-<Material Number>

### ❖ Example

```
SAPEXE_1110-80002623.SAR
Kernel Part I (753) (*)
SAPEXE_1111-80002623.SAR
Kernel Part I (753) (*)
SAPEXE_1112-80002623.SAR
Kernel Part I (753) (*)
```

### ❖ Example

```
SAPEXEDB_1110-80002623.SAR
Kernel Part II (753) (*)
SAPEXEDB_1111-80002623.SAR
Kernel Part II (753) (*)
SAPEXEDB_1112-80002623.SAR
Kernel Part II (753) (*)
```

- Title  
All objects that are part of an installation medium have the same title, such as  
<Solution><Media\_Name><OS> or <Database>RDBMS<OS> for database media.
4. Download the objects to the download directory.
  5. To correctly re-combine the media that are split into small parts, unpack all parts into the same directory.
- In the unpacking directory, the system creates a subdirectory with a short text describing the medium and copies the data into it. The data is now all in the correct directory, the same as on the medium that was physically produced. For more information, see SAP Note [1258173](#) .

### ⚠ Caution

Make sure that you unpack each installation media to a separate folder. Do not unpack installation media to the same folder where you unpack the Software Provisioning Manager archive.

Do not unpack installation media to the same folder where you unpack the SAP kernel archives for archive-based installation.

# 4 Installation

[Prerequisites for Running Software Provisioning Manager \[page 40\]](#)

Make sure you fulfil the following prerequisites before running the software provisioning manager.

[Running Software Provisioning Manager \[page 43\]](#)

This section describes how to run the software provisioning manager.

[Additional Information about Software Provisioning Manager \[page 47\]](#)

The following sections provide additional information about the software provisioning manager.

## 4.1 Prerequisites for Running Software Provisioning Manager

Make sure you fulfil the following prerequisites before running the software provisioning manager.

- For the SL-UI, make sure that the following web browser requirements are met:
  - You have one of the following supported browsers on the device where you want to run the SL-UI:
    - Google Chrome (recommended)
    - Mozilla Firefox
    - Microsoft Edge
    - Microsoft Internet Explorer 11 or higher.Always use the latest version of these web browsers.
- If you copy the SL-UI URL manually in the browser window, make sure that you open a new Web browser window in private browsing mode (Internet Explorer), incognito mode (Chrome) or private browsing mode (Firefox). This is to prevent Web browser plugins and settings from interfering with the SL-UI.

### ⚠ Caution

The software provisioning manager uses a self-signed certificate, which is used temporarily only while the software provisioning manager is running. This certificate is not trusted by the browser unless it is imported manually by the user running the software provisioning manager. This behavior is intentionally designed in this way because - unlike ordinary public web servers - the software provisioning manager has different usage patterns. You must configure your browser to trust the self-issued certificate of the software provisioning manager after carefully performing the “thumbprint” verification described in [Running Software Provisioning Manager \[page 43\]](#). For more information about adding trusted certificates, see the documentation of your browser.

For more information about the SL-UI, see [Useful Information about Software Provisioning Manager \[page 48\]](#).

- If you want to enable Internet Protocol Version 6 (IPv6), make sure that you set `SAP_IPv6_ACTIVE=1` in the environment of the user with `root` authorization which you use to start the software provisioning



manager. While running the software provisioning manager, this setting is then also added to the environment of the `<sapsid>adm` user.

### Note

By applying this setting the SAP system administrator is responsible for configuring the IP version on each host of the system landscape, before installing any additional instance to it.

- The software provisioning manager uses shell scripts to obtain the environment for user `<sapsid>adm`.
  - If user `<sapsid>adm` does not yet exist, a working `/bin/csh` must be available on the host where you run the software provisioning manager. For more information about recommended login shells, see SAP Note [202227](#).
  - If `<sapsid>` already exists and uses `csh`, before you start the software provisioning manager, execute the following command as user `<sapsid>` to make sure that the `csh` scripts are up-to-date, depending on your UNIX OS platform:  

```
/bin/csh -c "source /home/<sapsid>adm/.cshrc;env" or /bin/csh -c "source /home/<sapsid>adm/.login;env"
```
- 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.  
Make sure that the temporary directory has the permissions `755`.
- Make sure that you have at least 700 MB of free space in the installation directory for each installation option. In addition, you need 700 MB free space for the software provisioning manager executables. If you cannot provide 700 MB free space in the temporary directory, you can set one of the environment variables `TEMP`, `TMP`, or `TMPDIR` to another directory with 700 MB free space for the software provisioning manager executables.  
You can set values for the `TEMP`, `TMP`, or `TMPDIR` environment variable to an alternative installation directory as described in section [Useful Information about Software Provisioning Manager \[page 48\]](#).
- Make sure that `umask` is set to `022` for the user with `root` permissions that you want to use for running the software provisioning manager.  
As the user with `root` permissions that you want to use for running the software provisioning manager, enter the following command: `umask 022`
- Only valid for 'Platform': AIX  
**AIX:** Make sure that you have set the limits for operating system users as described in SAP Note [323816](#).  
End of 'Platform': AIX
- Only valid for 'Platform': HP-UX, Linux, Oracle Solaris  
**Linux:** On Linux, starting with SLES 15, RHEL 8 and Oracle Linux 8, and respective recent SAP kernel patch levels, there is native integration into `systemd`. In this case, limits for operating system users `root`, `<sapsid>adm`, and your database-specific operating system users do not need to be set any longer. Make sure that `polkit` is installed. `systemd` requires `polkit` for authorization checks for the `<sapsid>adm` user. For older Linux versions and SAP kernel patch levels, however, you must still set these limits. For more information about how to proceed for older Linux versions, see the following instructions. For more information about Linux with `systemd` and the relevant SAP kernel patch levels, see SAP Note [3139184](#).  
**HP-UX, Oracle-Solaris, Linux (versions lower than SLES 15, RHEL 8 and Oracle Linux 8 or lower SAP kernel patch levels):** Make sure that you have set the limits for operating system users `root`, `<sapsid>adm`, and your database-specific operating system users (see also sections [Creating Operating System Users and Groups \[page 26\]](#) and [Running Software Provisioning Manager \[page 43\]](#)).

### ⚠ Caution

Caution: the `limit` mechanism supports hard- and soft-limits. The soft-limit cannot be bigger than the hard-limit. The hard-limit can be set/increased by the root user like: `limit -h <limit> <new_value>`, for example `limit -h datasize unlimited`.

- Using `cs` shell, the output of command `limit` needs to be at least as follows:

#### ❖ Example

The following table lists example output taken from SUSE Linux Enterprise Server 15 (x86\_64).

Output	Properties
cputime	unlimited
filesize	unlimited
datasize	unlimited
stacksize	8192 KB
coredumpsize	unlimited
descriptors	8192
memoryuse	unlimited

- Using `sh` or `ksh` shell, the output of command `ulimit -a` needs to be at least as follows:

#### ❖ Example

The following table lists example output taken from SUSE Linux Enterprise Server 15 (x86\_64).

Output sh	Output ksh	Properties
cpu time (seconds)	cpu time (seconds)	unlimited
file size (blocks)	file size (blocks)	unlimited
data seg size (kbytes)	data size (Kibytes)	unlimited
stack size (kbytes)	stack size (Kibytes)	8192 KB
core file size (blocks)	core file size (blocks)	unlimited
open files	nofile	8192
max memory size (kbytes)	max memory size (Kibytes)	unlimited

End of 'Platform': HP-UX, Linux, Oracle Solaris

- Make sure that you have defined the most important SAP system parameters as described in [Basic Installation Parameters \[page 22\]](#) **before** you start the installation.
- Make sure that the following ports are not used by other processes:
  - Port 4237 is used by default as HTTPS port for communication between the software provisioning manager and the SL-UI.  
If this port cannot be used, you can assign a free port number by executing `sapinst` with the following command line parameter:  
`SAPINST_HTTPS_PORT=<Free Port Number>`
  - Port 4239 is used by default for displaying the feedback evaluation form at the end of the software provisioning manager processing.  
The filled-out evaluation form is then sent to SAP using HTTPS.  
If this port cannot be used, you can assign a free port number by executing `sapinst` with the following command line parameter:  
`SAPINST_HTTP_PORT=<Free Port Number>`

## 4.2 Running Software Provisioning Manager

This section describes how to run the software provisioning manager.

### Prerequisites

For more information, see [Prerequisites for Running Software Provisioning Manager \[page 40\]](#).

### Context

The software provisioning manager has a web browser-based GUI named “SL-UI of the software provisioning manager” - “SL-UI” for short.

This procedure describes an installation where you run the software provisioning manager and use the SL-UI, that is you can control the processing of the software provisioning manager from a browser running on any device.

For more information about the SL-UI, see [Useful Information about Software Provisioning Manager \[page 48\]](#).

### Procedure

1. Log on to the installation host as a user with `root` permissions.

### ⚠ Caution

Make sure that the user with `root` permissions that you want to use for running the software provisioning manager has not set any environment variables for a different SAP system or database.

If your security policy requires that the person running the software provisioning manager is not allowed to know the credentials of a user with `root` permissions on the installation host, you can specify another operating system user for authentication purposes. You do this using the `SAPINST_REMOTE_ACCESS_USER` parameter when starting the `sapinst` executable from the command line. You must confirm that the user is a trusted one. For more information, see SAP Note [1745524](#).

2. Make the installation media available.

For more information, see [Preparing the Installation Media \[page 33\]](#).

### → Recommendation

Make the installation media available **locally**. For example: The software provisioning manager might require a certain PL. For example, if you use Network File System (NFS), reading from media mounted with NFS might fail.

Only valid for 'Platform': Oracle Solaris

### i Note

**Oracle Solaris:** If you mount installation media, make sure that you do this with option `nomaplace`.

End of 'Platform': Oracle Solaris

3. Start the software provisioning manager from the directory to which you unpacked the Software Provisioning Manager archive by entering the following command:

```
<Path_To_Unpack_Directory>/sapinst
```

### i Note

If you need to assign a virtual host name to the instance to be installed and you do not want to assign it by entering it as a parameter using the software provisioning manager screens (see [Basic Installation Parameters \[page 22\]](#)), you can alternatively assign it as follows:

```
<Path_To_Unpack_Directory>/sapinst SAPINST_USE_HOSTNAME=<Virtual_Host_Name>
```

4. The software provisioning manager now starts and waits for the connection with the SL-UI.

You can find the URL you require to access the SL-UI at the bottom of the shell from which you are running the software provisioning manager.

```
...
*****
Open your browser and paste the following URL address to access the GUI
https://[<hostname>]:4237/sapinst/docs/index.html
Logon users: [<users>]
*****
...
```

## i Note

If the host specified by `<hostname>` cannot be reached due to a special network configuration, proceed as follows:

1. Terminate the software provisioning manager as described in [Useful Information about Software Provisioning Manager \[page 48\]](#).
2. Restart the software provisioning manager from the command line with the `SAPINST_GUI_HOSTNAME=<hostname>` property.  
You can use a fully-qualified host name.

If you have a supported web browser (see [Prerequisites for Running Software Provisioning Manager \[page 40\]](#)) installed on the host where you run the software provisioning manager, you can open this URL directly in the shell. Otherwise, open the URL in a supported web browser that runs on another device.

## ⚠ Caution

After opening the browser URL, make sure that the URL in the browser starts with “https://” to avoid security risks such as SSL stripping .

Before you reach the [Welcome](#) screen, your browser warns you that the certificate of the `sapinst` process on this computer could not be verified.

Proceed as follows to avoid security risks such as a man-in-the-middle attack:

1. Click on the certificate area on the left hand side in the address bar of your browser, and view the certificate.
2. Open the certificate fingerprint or thumbprint, and compare all hexadecimal numbers to the ones displayed in the console output of the software provisioning manager.  
Proceed as follows to get the certificate fingerprint or thumbprint from the server certificate printed in the software provisioning manager console:
  1. Go to the `sapinst_exe.xxxxxx.xxxx` directory in the temporary directory to which the software provisioning manager has extracted itself:  
`<User_Home>/.sapinst/`
  2. In the `sapinst_exe.xxxxxx.xxxx` directory, execute the `sapgenpse` tool with the command line option `get_my_name -p`.  
As a result, you get the server fingerprint or thumbprint from the server certificate.
3. Accept the warning to inform your browser that it can trust this site, even if the certificate could not be verified.

The SL-UI opens in the browser by displaying the [Welcome](#) screen.

5. On the [Welcome](#) screen, choose the required option:
  - To install a new standalone Gateway instance, choose ► `<Product>` ► `<Database>` ► [Installation](#) ► [Standalone Engines](#) ► [Gateway](#) .
  - To rename an existing standalone Gateway instance, go to [System Rename](#) and choose ► [Distributed System](#) ► [System Rename for Gateway Instance](#) .
  - To uninstall an existing standalone Gateway instance, go to ► [Generic Options](#) ► `<Database>` ► [Uninstall](#) . and choose ► [Uninstall - SAP Systems or Single Instances](#) .
6. Choose [Next](#).

### i Note

If there are errors during the self-extraction process of the software provisioning manager, you can find the log file `dev_selfex.out` in the temporary directory.

7. Follow the instructions on the software provisioning manager screens and enter the required parameters.

### i Note

To find more information on each parameter during the [Define Parameters](#) phase, position the cursor on the required parameter input field, and choose either `F1` or the [HELP](#) tab. Then the available help text is displayed in the [HELP](#) tab.

### ⚠ Caution

The digital signature of installation media and installation archives is checked **automatically** during the [Define Parameters](#) phase while processing the [Media Browser](#) and - if you perform an archive-based installation - the [Software Package Browser](#) screens.

Note that this automatic check is only committed once and **not** repeated if you modify artifacts such as SAR archives or files on the media **after** the initial check has been done. This means that - if you modify artefacts later on either during the remaining [Define Parameters](#) phase or later on during the [Execute Service](#) phase - the digital signature is not checked again.

For more information, see SAP Note [2393060](#).

After you have entered all requested input parameters, the software provisioning manager displays the [Parameter Summary](#) screen. This screen shows both the parameters that you entered and those that the software provisioning manager set by default. If required, you can revise the parameters before starting the installation.

8. To start the installation, choose [Next](#).

The software provisioning manager starts the installation and displays the progress of the installation. When the installation has finished, the software provisioning manager shows the message: Execution of `<Option_Name>` has completed.

Only valid for 'Platform': HP-UX

### ⚠ Caution

**HP-UX only:** If you decided to use 02 as the instance number, the instance fails to start during the installation process. For more information about the cause, see [Basic Installation Parameters \[page 22\]](#). You must manually change the port number for report `RSLGCOLL` to continue with the installation.

Proceed as follows:

1. Go to directory `<sapmnt>/<SAPSID>/profile`.
2. Edit `DEFAULT.PFL`.
3. Set the parameter `rslg/collect_daemon/listen_port` to a free port number.

End of 'Platform': HP-UX

9. If required, delete directories with the name `sapinst_exe.xxxxxx.xxxx` after the software provisioning manager has finished. Sometimes these directories remain in the temporary directory.

10. If you copied the software provisioning manager software to your hard disk, you can delete these files when the installation has successfully completed.
11. For security reasons, we recommend that you remove the operating system users from the group `sapinst` **after** you have completed the installation.

#### **i** Note

This step is only required, if you did **not** specify during the [Define Parameters](#) phase that the operating system users are to be removed from the group `sapinst` **after** the execution of the software provisioning manager has completed.

12. For security reasons, we recommend that you delete the `.sapinst` directory within the home directory of the user with which you ran the software provisioning manager:

```
<User_Home>/ .sapinst/
```

13. The software provisioning manager log files contain IP addresses and User IDs such as the ID of your S-User. For security, data protection, and privacy-related reasons we strongly recommend that you delete these log files once you do not need them any longer.

You find the software provisioning manager log files in the `sapinst_instdir` directory. For more information, see [Useful Information about Software Provisioning Manager \[page 48\]](#).

## 4.3 Additional Information about Software Provisioning Manager

The following sections provide additional information about the software provisioning manager.

### [Useful Information about Software Provisioning Manager \[page 48\]](#)

This section contains some useful technical background information about the software provisioning manager and the software provisioning manager's SL-UI.

### [Restarting Interrupted Processing of Software Provisioning Manager \[page 50\]](#)

Here you find information about how to restart the software provisioning manager if its processing has been interrupted.

### [Troubleshooting with Software Provisioning Manager \[page 53\]](#)

This section tells you how to proceed when errors occur while the software provisioning manager is running.

### [Using the Step State Editor \(SAP Support Experts Only\) \[page 54\]](#)

This section describes how to use the `Step State Editor` available in the software provisioning manager.

## 4.3.1 Useful Information about Software Provisioning Manager

This section contains some useful technical background information about the software provisioning manager and the software provisioning manager's SL-UI.

- The software provisioning manager has a framework named "SAPinst". For more information about the current SAPinst Framework version and its features, see SAP Note [3207613](#) (SAPinst Framework 753 Central Note).
- The software provisioning manager has the web browser-based "SL-UI of the software provisioning manager" - "SL-UI" for short.

The SL-UI uses the SAP UI Development Toolkit for HTML5 - also known as SAPUI5 - a client-side HTML5 rendering library based on JavaScript. The benefits of this new user interface technology for the user are:

- Zero foot print, since only a web browser is required on the client
- New controls and functionality, for example, view logs in web browser.

As of version 1.0 SP24 Patch Level (PL) 5, the software provisioning manager comes with a new look and feel of the SL-UI. For more information, see <https://blogs.sap.com/2018/11/10/new-look-for-software-provisioning-manager/>.

The SL-UI connects the web browser on a client with the `sapinst` executable - which is part of software provisioning manager - running on the installation host using the standard protocol HTTPS.

For the SL-UI the software provisioning manager provides a pre-generated URL at the bottom of the shell from which you are running the software provisioning manager. If you have a supported web browser installed on the host where you run the software provisioning manager, you can start the SL-UI directly from this URL. Otherwise, open a web browser supported by the SL-UI on any device and run the URL from there.

For more information about supported web browsers see [Prerequisites for Running Software Provisioning Manager \[page 40\]](#).

If you need to run the **SL-UI in accessibility mode**, apply the standard accessibility functions of your web browser.

- As soon as you have started the `sapinst` executable, the software provisioning manager creates a `.sapinst` directory underneath the `/home/<User>` directory where it keeps its log files. `<User>` is the user with which you have started the software provisioning manager.  
After you have reached the [Welcome](#) screen and selected the relevant software provisioning manager option for the SAP system or instance to be installed, the software provisioning manager creates a directory `sapinst_instdir` where it keeps its log files, and which is located directly below the temporary directory. The software provisioning manager finds the temporary directory by checking the value of the `TEMP`, `TMP`, or `TMPDIR` environment variable. If no value is set for these variables, the software provisioning manager uses `/tmp` by **default**.  
All log files which have been stored so far in the `.sapinst` folder are moved to the `sapinst_instdir` directory as soon as the latter has been created.  
If you want the `sapinst_instdir` directory to be created in another directory than `/tmp`, set the environment variable `TEMP`, `TMP`, or `TMPDIR` to this directory before you start the software provisioning manager.



Shell Used	Command
Bourne shell (sh)	<code>TEMP=&lt;Directory&gt;</code> <code>export TEMP</code>
C shell (csh)	<code>setenv TEMP &lt;Directory&gt;</code>
Korn shell (ksh)	<code>export TEMP=&lt;Directory&gt;</code>

### ⚠ Caution

Make sure that the installation directory is not mounted with NFS, or there might be problems when the Java Virtual Machine is started.

The software provisioning manager records its progress in the `keydb.xml` file located in the `sapinst_instdir` directory. Therefore, if required, you can continue with the software provisioning manager from any point of failure, without having to repeat the already completed steps and without having to reenter the already processed input parameters. For security reasons, a variable encryption key is generated as soon as the `sapinst_instdir` directory is created by the software provisioning manager. This key is used to encrypt the values written to the `keydb.xml` file.

### → Recommendation

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

- The software provisioning manager extracts itself to the temporary directory. These executables are deleted again after the software provisioning manager has stopped running. Directories called `sapinst_exe.xxxxxx.xxxx` sometimes remain in the temporary directory after the software provisioning manager has finished. You can safely delete them. The temporary directory also contains the log file `dev_selfex.out` from the self-extraction process of the software provisioning manager, which might be useful if an error occurs.

### ⚠ Caution

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

- To see a list of all available software provisioning manager properties (command line options) and related documentation, start the software provisioning manager as described above with command line parameter `-p`:  
`./sapinst -p`
- If required, stop the software provisioning manager by choosing the [Cancel](#) button.

### i Note

If you need to terminate the software provisioning manager, press `Ctrl` + `C`.

## 4.3.2 Restarting Interrupted Processing of Software Provisioning Manager

Here you find information about how to restart the software provisioning manager if its processing has been interrupted.

### Context

The processing of the software provisioning manager might be interrupted for one of the following reasons:

- An error occurred during the [Define Parameters](#) or [Execute](#) phase:  
The software provisioning manager 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 of 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 processing of the software provisioning manager by choosing [Cancel](#) in the SL-UI.

#### ⚠ Caution

If you stop an option in the [Execute](#) phase, any system or component **installed** by this option is incomplete and not ready to be used. Any system or component **uninstalled** by this option is not completely uninstalled.

The following table describes the options in the dialog box:

Option	Definition
<a href="#">Retry</a>	<p>The software provisioning manager retries the installation from the point of failure without repeating any of the previous steps.</p> <p>This is possible because the software provisioning manager records its progress in the <code>keydb.xml</code> file.</p> <p>We recommend that you view the entries in the log files, try to solve the problem, and then choose <a href="#">Retry</a>.</p> <p>If the same or a different error occurs, the software provisioning manager displays the same dialog box again.</p>
<a href="#">Stop</a>	<p>The software provisioning manager stops the installation, closing the dialog box and the software provisioning manager's SL-UI.</p> <p>The software provisioning manager records its progress in the <code>keydb.xml</code> file. Therefore, you can continue with the software provisioning manager from the point of failure without repeating any of the previous steps. See the procedure below.</p>
<a href="#">Continue</a>	<p>The software provisioning manager continues the installation from the current point.</p>
<a href="#">View Log</a>	<p>Access installation log files.</p>

### i Note

You can also terminate the software provisioning manager by choosing `Ctrl` + `C` but we do **not** recommend this because it kills the process immediately.

The following procedure describes the steps to restart an installation, which you stopped by choosing [Stop](#), or to continue an interrupted installation after an error situation.

## Procedure

1. Log on to the installation host as a user with the required permissions as described in [Running Software Provisioning Manager \[page 43\]](#).
2. Make sure that the installation media are still available.

For more information, see [Preparing the Installation Media \[page 33\]](#).

### → Recommendation

Make the installation media available **locally**. For example, if you use remote file shares on other Windows hosts, CIFS shares on third-party SMB-servers, or Network File System (NFS), reading from media mounted with NFS might fail.

Only valid for 'Platform': Oracle Solaris

### i Note

**Oracle Solaris:** If you mount installation media, make sure that you do this with option `nomaplace`.

End of 'Platform': Oracle Solaris

3. Make sure that the installation media are still available.

For more information, see [Preparing the Installation Media \[page 33\]](#).

### → Recommendation

Make the installation media available **locally**. For example, if you use remote file shares on other Windows hosts, CIFS shares on third-party SMB-servers, or Network File System (NFS), reading from media mounted with NFS might fail.

Only valid for 'Platform': Oracle Solaris

### i Note

**Oracle Solaris:** If you mount installation media, make sure that you do this with option `nomaplace`.

End of 'Platform': Oracle Solaris

4. Restart the software provisioning manager from the directory to which you unpacked the Software Provisioning Manager archive by executing the following command:

`<Path_To_Unpack_Directory>/sapinst`

5. The software provisioning manager is restarting.

You can find the URL you require to access the SL-UI at the bottom of the shell from which you are running the software provisioning manager.

```
...
*****
Open your browser and paste the following URL address to access the GUI
https://[<hostname>]:4237/sapinst/docs/index.html
Logon users: [<users>]
*****
...
```

### Note

If the host specified by `<hostname>` cannot be reached due to a special network configuration, proceed as follows:

1. Terminate the software provisioning manager as described in [Useful Information about Software Provisioning Manager \[page 48\]](#).
2. Restart the software provisioning manager from the command line with the `SAPINST_GUI_HOSTNAME=<hostname>` property.  
You can use a fully-qualified host name.

If you have a supported web browser (see [Prerequisites for Running Software Provisioning Manager \[page 40\]](#)) installed on the host where you run the software provisioning manager, you can open this URL directly in the shell. Otherwise, open the URL in a supported web browser that runs on another device.

### Caution

After opening the browser URL, make sure that the URL in the browser starts with “https://” to avoid security risks such as SSL stripping.

Before you reach the [Welcome](#) screen, your browser warns you that the certificate of the `sapinst` process on this computer could not be verified.

Proceed as follows to avoid security risks such as a man-in-the-middle attack:

1. Click on the certificate area on the left hand side in the address bar of your browser, and view the certificate.
2. Open the certificate fingerprint or thumbprint, and compare all hexadecimal numbers to the ones displayed in the console output of the software provisioning manager.  
Proceed as follows to get the certificate fingerprint or thumbprint from the server certificate printed in the software provisioning manager console:
  1. Go to the `sapinst_exe.xxxxxx.xxxx` directory in the temporary directory to which the software provisioning manager has extracted itself:  
`<User_Home>/.sapinst/`
  2. In the `sapinst_exe.xxxxxx.xxxx` directory, execute the `sapgenpse` tool with the command line option `get_my_name -p`.  
As a result, you get the server fingerprint or thumbprint from the server certificate.
3. Accept the warning to inform your browser that it can trust this site, even if the certificate could not be verified.

The SL-UI opens in the browser by displaying the [Welcome](#) screen.

6. From the tree structure on the [Welcome](#) screen, select the installation option that you want to continue and choose [Next](#).

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

7. On the *What do you want to do?* screen, decide between the following alternatives and continue with *Next*:

Alternative	Behavior
<i>Perform a new run</i>	<p>The software provisioning manager does not continue the interrupted installation option. Instead, it moves the content of the old software provisioning manager directory and all software provisioning manager-specific files to a backup directory. Afterwards, you can no longer continue the old option.</p> <p>The following naming convention is used for the backup directory:</p> <pre>log_&lt;Day&gt;_&lt;Month&gt;_&lt;Year&gt;_&lt;Hours&gt;_&lt;Minutes&gt;_&lt;Seconds&gt;</pre> <div><p>❖ Example</p><pre>log_01_Oct_2016_13_47_56</pre></div> <div><p>i Note</p><p>All actions taken by the installation before you stopped it (such as creating directories or users) are not revoked.</p></div> <div><p>⚠ Caution</p><p>The software provisioning manager moves all the files and folders to a new log directory, even if these files and folders are owned by other users. If there are any processes currently running on these files and folders, they might no longer function properly.</p></div>
<i>Continue with the existing one</i>	<p>The software provisioning manager continues the interrupted installation from the point of failure.</p>

## 4.3.3 Troubleshooting with Software Provisioning Manager

This section tells you how to proceed when errors occur while the software provisioning manager is running.

### Context

If an error occurs, the software provisioning manager:

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

## Procedure

1. Check SAP Note [SAP Note 3207613](#) (SAPinst Framework 753 Central Note) for known software provisioning manager issues.
2. If an error occurs during the *Define Parameters* or the *Execute Service* phase, do one of the following:
  - Try to solve the problem:
    - To check the software provisioning manager log files (`sapinst.log` and `sapinst_dev.log`) for errors, choose the *LOG FILES* tab.

### i Note

The *LOG FILES* tab is only available if you have selected on the *Welcome* screen the relevant software provisioning manager option for the SAP product to be installed .

If you need to access the log files before you have done this selection, you can find them in the `.sapinst` directory underneath the `/home/<User>` directory, where `<User>` is the user that you used to start the software provisioning manager.

For more information, see [Useful Information about Software Provisioning Manager \[page 48\]](#).

- To check the log and trace files of the software provisioning manager's SL-UI for errors, go to the directory `<User_Home>/ .sapinst /`
  - Then continue by choosing *Retry*.
  - If required, abort the software provisioning manager by choosing *Cancel* in the tool menu and restart the software provisioning manager. For more information, see [Restarting Interrupted Processing of Software Provisioning Manager \[page 50\]](#).
3. If you cannot resolve the problem, report an incident using the appropriate subcomponent of BC-INS\*.  
For more information about using subcomponents of BC-INS\*, see SAP Note [1669327](#).

## 4.3.4 Using the Step State Editor (SAP Support Experts Only)

This section describes how to use the `Step State Editor` available in the software provisioning manager.

### i Note

Only use the `Step State Editor` if the SAP Support requests you to do so, for example to resolve a customer incident.

## Prerequisites

- SAP Support requests you to use the `Step State Editor`.
- Make sure that the host where you run the software provisioning manager meets the requirements listed in [Prerequisites for Running Software Provisioning Manager \[page 40\]](#).

## Procedure

1. Start the software provisioning manager from the command line as described in [Running Software Provisioning Manager \[page 43\]](#) with the additional command line parameter `SAPINST_SET_STEPSTATE=true`
2. Follow the instructions on the software provisioning manager screens and fill in the parameters prompted during the [Define Parameters](#) phase until you reach the [Parameter Summary](#) screen.
3. Choose [Next](#).

The `Step State Editor` opens as an additional dialog. Within this dialog you see a list of all steps to be executed by the software provisioning manager during the [Execute Service](#) phase. By default all steps are in an initial state. Underneath each step, you see the assigned software provisioning manager component. For each step you have a [Skip](#) and a [Break](#) option.

- Mark the checkbox in front of the [Break](#) option of the steps where you want the software provisioning manager to pause.
  - Mark the checkbox in front of the [Skip](#) option of the steps which you want the software provisioning manager to skip.
4. After you have marked all required steps with either the [Break](#) or the [Skip](#) option, choose [OK](#) on the [Step State Editor](#) dialog.

The software provisioning manager starts processing the [Execute Service](#) phase and pauses one after another when reaching each step whose [Break](#) option you have marked. You can now choose one of the following:

- Choose [OK](#) to continue with this step.
  - Choose [Step State Editor](#) to return to the `Step State Editor` and make changes, for example you can repeat the step by marking the checkbox in front of the [Repeat](#) option.
  - Choose [Cancel](#) to abort the software provisioning manager.
5. Continue until you have run through all the steps of the [Execute Service](#) phase of the software provisioning manager.

# 5 Post-Installation Activities

## 5.1 Ensuring User Security

You need to ensure the security of the users that the software provisioning manager created during the installation.

### → Recommendation

The Master Password feature can be used as a simple method to obtain customer-specific passwords for all newly created users. A basic security rule is not to have identical passwords for different users. Following this rule, we strongly recommend individualizing the values of these passwords after the installation is complete.

### → Recommendation

In all cases, the user ID and password are encoded only when transported across the network. Therefore, we recommend using encryption at the network layer, either by using the Secure Sockets Layer (SSL) protocol for HTTP connections, or Secure Network Communications (SNC) for the SAP protocols dialog and RFC.

### ⚠ Caution

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

## Operating System Users

### → Recommendation

For security reasons, we recommend that you remove the operating system users from the group `sapinst` **after** you have completed the installation of your SAP system.

You do not have to do this if you specified this “cleanup” already during the *Define Parameters* phase on the *Cleanup Operating System Users* screen. Then the removal had already been done automatically when the processing of the software provisioning manager had completed.

Operating System Users

User Type	User	Comment
Operating system user	<sapsid>adm	Administrator for the Standalone Gateway.



## SAP Host Agent User

User Type	User	Comment
Operating system user	sapadm	<p>SAP Host Agent administrator is the user for central monitoring services.</p> <p>You do not need to change the password of this user after the installation.</p> <p>This user is for administration purposes only.</p> <p>You are not able to log on as sapadm as this user is locked.</p>

## 5.2 Gateway Configuration

You have to configure the gateway to be able to use it.

You can find the configuration documentation in the [SAP Library \[page 14\]](#) at: ► [SAP NetWeaver Library: Function-Oriented View](#) ► [Application Server Infrastructure](#) ► [Connectivity](#) ► [Gateway](#) ►

## 6 Additional Information

### 6.1 Using Virtual Host Names

You can use one or more virtual `TCP/IP` host names for SAP servers within an SAP server landscape to hide their physical network identities from each other. This can be useful when quickly moving SAP servers or complete server landscapes to alternative hardware since you do not need to reinstall or reconfigure.

#### Prerequisites

Make sure that the virtual host name can be correctly resolved in your Domain Name System (DNS) setup.

#### Context

#### Procedure

### 6.2 Starting and Stopping with Commands

#### Use

You check that you can start and stop the standalone Gateway by running the `startsap` and `stopsap` commands.

#### Procedure

##### Starting the Instance

1. Log on as user `<sapsid>adm` to the standalone Gateway host.
2. Execute the command `startsap all G<XX>`, where `<XX>` is the instance number of the standalone Gateway.

#### ❖ Example

If the instance number is 00, then the command is **startsap all G00**.

The startup log is written to `/home/<sapsid>adm/startsap_GXX.log`.

#### Stopping the Instance

1. Log on as user `<sapsid>adm` to the standalone Gateway host.
2. Execute the command **stopsap all G<XX>**, where `<XX>` is the instance number of the Gateway.

#### ❖ Example

If the instance number is 00, then the command is **stopsap all G00**.

The shutdown log is written to `/home/<sapsid>adm/stopsap_G<XX>.log`.

## 6.3 Uninstalling the Gateway Instance

The following procedure describes how to uninstall a standalone Gateway using the software provisioning manager.

### Procedure



1. [Start the software provisioning manager \[page 43\]](#).
2. On the Welcome screen, choose ► *Generic Options* ► *<Database>* ► *Uninstall* ► *Uninstall SAP Systems or Single Instances* ►.
3. Follow the instructions in the software provisioning manager screens.

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