Installation of Diagnostics Agent on UNIX and Linux

THE BEST RUN **SAP**

Content

1 Introduction

This guide explains how to install a Diagnostics Agent for **SAP Solution Manager**.

This guide is part of a global installation and configuration procedure which is described in the document *How to Use SAP Solution Manager Configuration (SOLMAN_SETUP)* (reference is provided at Online Information from SAP [page 86]).

> ⚠ **Caution**
>
> Before you start the implementation:
>
> - Make sure you have the latest version of this document, which can be downloaded from: http://support.sap.com/sltoolset▶ *Installation Option of Software Provisioning Manager* ❯ *Installation Guides - Standalone Engines and Clients* ❯ *Diagnostics Agent* ❯ `<Select your operating system>` ❯
> - Check **SAP Note** 1858920▶: Diagnostics Agent installation with the software provisioning manager, for issues that may exist with this version of the installer, and for corresponding solutions.

Naming Conventions

- *Diagnostics Agent*
  SAP Solution Manager *Diagnostics Agent* is the remote component of End-to-End Root Cause Analysis. It allows having a connection between SAP Solution Manager and the Managed System(s), and then to collect information from the Managed Systems for reporting purposes.
- *FQN*
  Abbreviation for Fully Qualified Name (for example `host.domain.corp` and not the short host name `host`).
- *Managed System*
  Term for a satellite system (for example, an AS ABAP or SAP NetWeaver AS for Java system) managed by SAP Solution Manager.

Variables

Variables	Description
`<DASID>`	Diagnostics Agent system ID in uppercase letters.
`<dasid>`	Diagnostics Agent system ID in lowercase letters.
`<fqn>`	Fully Qualified Name (`host.domain.corp` and not the short host name `host`).
`<Instance_Number>`	Instance Number of a Diagnostics Agent.

Variables	Description
`<OS>`	Operating System name.
`<SAPSID>`	The system ID of an arbitrary SAP system in uppercase letters, possibly, but not necessarily a Diagnostics Agent system ID. In this guide `<SAPSID>` is only used in situations where also non Diagnostics Agent system IDs are meant, for example in section Diagnostics Agent System ID and Instance Number [page 16].
`<sapsid>`	The system ID of an arbitrary SAP system in lowercase letters, possibly, but not necessarily a Diagnostics Agent system ID. In this guide `<sapsid>` is only used in situations where also non Diagnostics Agent system IDs are meant.

Constraints

- Effective immediately, the software provisioning manager no longer supports the deprecated CPU architectures and/or operating system versions listed in SAP Note 2998013 .

> ⓘ Note
>
> - If your current operating system is listed as deprecated in SAP Note 2998013 , we strongly recommend that you migrate to a supported platform.
> - If you continue to run Software Provisioning Manager on the deprecated CPU architectures and/or operating system versions listed in SAP Note 2998013 , you do so at your own risk and without support from SAP. The software provisioning manager 1.0 SP36 and higher will still run on the deprecated CPU architectures and/or operating system versions listed in SAP Note 2998013 but it may run into an error. When you start the software provisioning manager, you will see a warning like the following: *"Platform Support : Support for SAP JVM on PPC64 big endian for Linux ends June 30 th, 2022. See SAP note 2998013."* If you run into an issue, you must use the "frozen" software provisioning manager **1.0 SP35** software and the related installation guide. For more information, see SAP Note 3220901 .

1.1　New Features

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

SP-specific changes for Diagnostics Agent installations are documented in SAP Note 1858920 .

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 2393060 *SAPinst Framework 749 Central Note*) to 753. For more information, see SAP Note 3207613 *SAPinst Framework 753 Central Note*.	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 3104875.	software provisioning manager 1.0 SP34 (SL Toolset 1.0 SP34)
SAP Host Agent Upgrade During the Installation (Optional)	During the *Define Parameters* 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 General Installation Parameters [page 14].	software provisioning manager 1.0 SP31 (SL Toolset 1.0 SP31)
SAP HANA, Db2 for z/OS only: Support of Linux on IBM Power Systems (little endian)	Software provisioning manager supports as of now Linux on IBM Power Systems (little endian) as operating system platform for SAP systems based on **SAP NetWeaver 7.4** and higher. For more information, see SAP Note 2378874.	software provisioning manager 1.0 SP27 (SL Toolset 1.0 SP27)
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 https://blogs.sap.com/2018/11/10/new-look-for-software-provisioning-manager/.	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 **before** a product has been selected on the *Welcome* screen. For more information, see Useful Information about Software Provisioning Manager [page 45] and Troubleshooting with Software Provisioning Manager [page 50].	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 **automatically** by software provisioning manager during the *Define Parameters* phase while processing the *Software Package Browser* screens. As of now software provisioning manager only accepts archives whose digital signature has been checked. For more information, see Archive-Based Diagnostics Agent Installation [page 31] .	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 Prerequisites for Running Software Provisioning Manager [page 37].	software provisioning manager 1.0 SP22 (SL Toolset 1.0 SP22)
Media Signature Check	The digital signature of media is checked **automatically** by the software provisioning manager during the *Define Parameters* phase while processing the *Media Browser* screens. The software provisioning manager only accepts media whose digital signature has been checked. For more information, see Preparing the Installation Media [page 28] and Running the software provisioning manager [page 40].	software provisioning manager 1.0 SP21 (SL Toolset 1.0 SP21)

Feature	Description	Availability
SL-UI with SAPINST 7.49	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 Useful Information about Software Provisioning Manager [page 45], Running Software Provisioning Manager [page 40] .	software provisioning manager 1.0 SP20 (SL Toolset 1.0 SP20)
Cleanup of Operating System Users	You can now specify during the *Define Parameters* phase that the operating system users are to be removed from group sapinst after the execution of software provisioning manager has completed. For more information, see *Operating System Users* in .	software provisioning manager 1.0 SP20 (SL Toolset 1.0 SP20)
Verification of Integrity of Data Units in software provisioning manager	The integrity of data units extracted from the software provisioning manager archive is verified. For more information, see Downloading and Extracting the Software Provisioning Manager 1.0 Archive [page 28] . In addition, check SAP Note 1680045 whether additional information is available.	software provisioning manager 1.0 SP19 (SL Toolset 1.0 SP19)
SAP HANA, Db2 for z/OS only: Support of Linux on IBM Power Systems (little endian)	software provisioning manager supports as of now Linux on IBM Power Systems (little endian) as operating system platform for SAP systems based on **SAP NetWeaver 7.5** and higher on SAP HANA. For more information, see SAP Note 2378874 .	software provisioning manager 1.0 SP19 (SL Toolset 1.0 SP19)
System Provisioning for SAP NetWeaver 7.5 and SAP NetWeaver 7.5-based Products	All system provisioning tasks (installation, system copy, system rename) are available for the new SAP NetWeaver 7.5 release. The Dual Stack option, which integrates an AS ABAP and AS Java in a single system (common System ID `<SAPSID>`, common startup framework, common database), is no longer supported in SAP systems based on SAP NetWeaver 7.5.	software provisioning manager 1.0 SP09 (SL Toolset 1.0 SP15)
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 *Verify Signed Media*	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 1979965 .	software provisioning manager 1.0 SP06 (SL Toolset 1.0 SP11)

1.2 Service Pack Specific Documentation

This guide is updated with each software provisioning manager 1.0 service pack (SP). The following sections hold Diagnostics Agent related, SP specific details, and should be read carefully.

- Kernel for the Diagnostics Agent [page 12]
- JVM for the Diagnostics Agent [page 13]
- Patching the Installation Media [page 34]
- Diagnostics Agent Download Paths [page 35]
- Installing the Diagnostics Agent Optionally with the SAP System [page 66]
- Software Provisioning Manager and Diagnostics Agent Version Information [page 82]
- Unsupported Features [page 84]

1.3 SAP Notes for the Installation

This section lists the most important SAP Notes relevant for an installation using Software Provisioning Manager

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
1680045	Release Note for software provisioning manager 1.0	software provisioning manager 1.0 with installation and system copy for SAP NetWeaver-based systems
1365123	Installation of Diagnostics Agents	Overview of the Diagnostics Agent installation strategies
1833501	Diagnostics Agent – Software Provisioning Manager Versions	More information about available Diagnostics Agent software provisioning manager versions
1858920	Diagnostics Agent installation with software provisioning manager	Installation and Post-installation steps for software provisioning manager 1.0
1972803	SAP on AIX: Recommendations	This SAP Note contains recommendations and clarifications for many topics relevant for SAP on AIX.

SAP Note Number	Title	Description
1075118	SAP on HP-UX: FAQ	This SAP Note contains information that is specific to the SAP system installation on HP-UX
2369910	SAP Software on Linux: General information	This SAP Note contains Linux-specific information about the SAP system installation
1669684	SAP on Oracle Solaris 11	This SAP Note contains information and references to SAP Notes relevant for Solaris 11
886535	Downloading multispanning archives	Downloading multispanning archives

1.4 Components for Reporting an Incident

In case of problems, contact SAP Support by reporting an incident on one of the following components:

Components	Description
SV-SMG-INS	Issues related to Installation, Configuration and Upgrade of SAP Solution Manager
SV-SMG-INS-AGT	Issues related to Diagnostics Agent Installation
BC-INS-SWPM	Issues related to the installation with Software Provisioning Manager
BC-INS-*	Other issues related to the installation tooling. For more information about using subcomponents of BC-INS, see **SAP Note** 1669327
BC-OP-AIX	OS specific issues related to Diagnostics Agent Installations on IBM AIX
BC-OP-AS4	OS specific issues related to Diagnostics Agent Installations on IBM i
BC-OP-LNX	OS specific issues related to Diagnostics Agent Installations on Linux
BC-OP-NT	OS specific issues related to Diagnostics Agent Installations on Windows
BC-OP-SUN	OS specific issues related to Diagnostics Agent Installations on Solaris

Components	Description
BC-OP-S390	OS specific issues related to Diagnostics Agent Installations on z/OS
SV-SMG-DIA	Issues related to SAP Solution Manager Diagnostics
SV-SMG-DIA-SRV-AGT	Issues related to Diagnostics Agent
BC-CCM-HAG	Issues related to SAP Host Agent
BC-JVM	Issues related to SAP Java Virtual Machine
XX-PART-WILY	Issues related to Introscope

1.5   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: http://help.sap.com/nw731 *Application Help* > *SAP NetWeaver Library: Function-Oriented View*
SAP systems based on SAP NetWeaver 7.4	http://help.sap.com/nw74 *Application Help* > *SAP NetWeaver Library: Function-Oriented View*
SAP systems based on SAP NetWeaver 7.5x	• SAP NetWeaver 7.5: http://help.sap.com/nw75 *Application Help* > *SAP NetWeaver Library: Function-Oriented View* • SAP NetWeaver Application Server for ABAP 7.51 innovation package: https://help.sap.com/nw751abap *Application Help* > *SAP NetWeaver Library: Function-Oriented View* • SAP NetWeaver AS for ABAP 7.52: https://help.sap.com/nw752abap *Application Help* > *SAP NetWeaver Library: Function-Oriented View*

2   Planning

2.1   Planning Checklist

Before starting the installation you must perform the following planning steps:

1. Follow the *Pre-Installation Guidance* in section Complying with SAP Solution Manager Security Guidelines [page 63].
2. Make sure you have understood the terminology with regard to Logical Host Names [page 27] and Virtual Host Names [page 27].
3. Select your Installation Strategy [page 11].
4. Check the Product Availability Matrix [page 12] and ensure that your operating system release is supported.
5. Make sure the Hardware Requirements [page 12] for the Diagnostics Agent are met.
6. Make sure you have read the sections listed in Service Pack Specific Documentation [page 8].
7. Select a Kernel for the Diagnostics Agent [page 12].
8. Understand the situation with regard to the JVM for the Diagnostics Agent [page 13].
9. Decide on the Connection Selection [page 13] for the Diagnostics Agent.
10. Collect the Basic Installation Parameters [page 14].
11. Continue with the Preparation [page 21] section.

2.2   Installation Strategy

Follow the Diagnostics Agent installation guidance in the documentation attached to **SAP Note** 1365123 . It is important that you decide if you want to install one or more Diagnostics Agents on your system, or if you want to use the **Agents On-the-fly** feature.

In general, you will need one Diagnostics Agent on each host to be managed. In case the SAP or third party systems to be managed have been set up using logical host names, it is essential to have one Diagnostics Agent instance per logical host. For further details refer to section Using Logical Host Names [page 27].

If a Diagnostics Agent is already installed on your system, the folder `/usr/sap/<DASID>/SMDA<Instance_Number>/SMDAgent` should exist. For further details refer to sections Diagnostics Agent System ID and Instance Number [page 16] and SAP Directories [page 25].

2.3   Product Availability Matrix

Product Availability Matrix (PAM) information for installing a Diagnostics Agent with software provisioning manager 1.0 based installers can be found at:

http://support.sap.com/sltoolset📌▶ *Product Availability Matrix* ❯ `<Follow the instructions>` ❯

Then open the provided PDF file and search for "Diagnostics Agent".

General PAM Information

The central PAM entry page for all SAP products can be found at: http://support.sap.com/pam📌

Platform Compatibility Matrix for EEM Robots

For a Platform Compatibility Matrix for EEM Robots (that require a Diagnostics Agent installation) refer to following SCN Wiki page: http://wiki.scn.sap.com/wiki/x/goCKEw📌

2.4   Hardware Requirements

Diagnostics Agent Hardware Requirements

Category	Requirement
Minimum disk space	Depending on your platform: • Up to 6 GB for installation media (packed and unpacked versions of the software provisioning manager SAR-file and kernel ZIP-file) • Up to 1.5 GB for the installed Diagnostics Agent • Up to 1 GB of free space in the installation directory
Minimum RAM	256 MB

2.5   Kernel for the Diagnostics Agent

Dependency to Kernel of Managed System

The Diagnostics Agent is an SAP System just like any other SAP System (AS ABAP, SAP NetWeaver AS for Java, etc.). The Diagnostics Agent has its own kernel, that is completely independent of the kernel of the

Managed System(s) available on the host where the Diagnostics Agent is installed. It is also possible and supported, that a Diagnostics Agent and a Managed System have the same kernel version, but have different patch levels.

General Information

Diagnostics Agent installations are supported with one of the below listed kernels. The Product Availability Matrix (PAM) [page 12] provides information on which kernel versions are supported on which platform versions.

For download instructions refer to Diagnostics Agent Download Paths [page 35].

Install – Diagnostics Agent

The installation option *Install - Diagnostics Agent* can be used to perform installations using a supported Unicode Kernel. For information about kernel versions supported with the current Software Provisioning Manager release, see SAP Note 2253383.

2.6 JVM for the Diagnostics Agent

Only valid for 'Platform': AIX, HP-UX, Linux, Oracle Solaris

For information about JVM versions supported with the current Software Provisioning Manager release, see SAP Note 2253383.

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

2.7 Connection Selection

Before starting the installation make sure that you have identified which installation strategy you want to use.

> → Recommendation
>
> We recommend that you choose **Direct SAP Solution Manager Connection**.

Direct SAP Solution Manager Connection: In this scenario, the Diagnostics Agent establishes a direct connection to the SAP Solution Manager system. If you select *Do not configure connection* the Diagnostics Agent is not connected to the SAP Solution Manager system. For details see section Direct SAP Solution Manager Connection [page 14].

2.8 Direct SAP Solution Manager Connection

Connect the Diagnostics Agent directly to the SAP Solution Manager system. The below connection types are available.

See also SAP Solution Manager Connectivity Parameters [page 19].

- *P4 connection via Java SCS Message Server*: the Diagnostics Agent connects to the *Java SCS Message Server* and is redirected to one of the dispatcher nodes of the J2EE engine.
- *P4 SSL connection via Java SCS Message Server*: the same as *P4 connection via Java SCS Message Server*, but with SSL support.

2.9 Basic Installation Parameters

2.9.1 General Installation Parameters

The parameters in the below table must be provided when installing a Diagnostics Agent via *Generic Installation Options*.

General Installation Parameters

Parameters	Description
Host Name	Change *Host Name* if you plan to manage systems running on a logical host. This scenario lets the Diagnostics Agent take part in a switchover environment. ⚠ **Caution** The *Host Name* is the short host name and not the FQN.
Package Location of the kernel medium	Refer to Preparing the Installation Media [page 28] and Kernel for the Diagnostics Agent [page 12] for guidance.
SAP Host Agent Upgrade (Optional)	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 `SAPHOSTAGENT<Version>.SAR` archive. For more information, see Archive-Based Diagnostics Agent Installation [page 31]

Parameters	Description
Master Password	Common password for all users that are created during the installation:

- Operating system users (for example `<sapsid>adm`)

> ⚠ Caution
>
> If you did not create the operating system users manually before the installation, the installer creates them with the common master password (see *Operating System Users*). In this case, make sure that the master password meets the requirements of your operating system.

- Secure Store key phrase

Basic Password policy

The master password must meet the following requirements:

- It must be 8 to 14 characters long
- It must contain at least one letter (a-z, A-Z)
- It must contain at least one digit (0-9)
- It must not contain `\` (backslash) or `"` (double quote).

> → 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.
>
> For more information, see Ensuring User Security [page 62].

2.9.2 Diagnostics Agent System ID and Instance Number

Diagnostics Agent System ID and Instance Number

Parameters	Description
Diagnostics Agent System ID (DASID)	By default the software provisioning manager sets the *Diagnostics Agent System ID (DASID)* to `DAA`.
	If a Diagnostics Agent with the same kernel version as the one you are currently installing is already present on the local installation host, the software provisioning manager sets `<DASID>` to the system ID of this already installed agent.
	If the kernel version you have selected for your installation is different from the kernel versions of already installed Diagnostics Agents, the software provisioning manager assigns another default system ID, starting from `DA1` to `DA9`.
	You can overwrite the proposed system ID as required.
	Diagnostics Agents installed on different logical hosts (but on the same physical or virtual host) can use the same `<DASID>`.
	⚠ Caution Choose the `<DASID>` carefully. Renaming is difficult and requires you to reinstall the Diagnostics Agent.
	Make sure that the `<DASID>`: ● Either does not yet exist on the local installation host, or does already exist but was only used for a Diagnostics Agent installation in the exact same version ● Consists of exactly three alphanumeric characters ● Contains only uppercase letters ● Has a letter for the first character ● Is allowed according to **SAP Note** 1979280

Parameters	Description
Instance Number of the Diagnostics Agent	Technical identifier for internal processes for the Diagnostics Agent. It consists of a two-digit number from 98 to 00. Default is 98.
	If instance number 98 is already used, the Diagnostics Agent instance number is automatically set to the next free, lower, valid instance number.
	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.
	The instance number is used to specify the name of the Diagnostics Agent instance directory that the software provisioning manager automatically creates during the installation. The directory of the Diagnostics Agent instance is called SMDA`<Instance_Number>`.
	For more information, see SAP Directories [page 25].
	To find out the instance numbers of SAP systems that already exist on the installation host, look for subdirectories ending with `<nn>` of local (not mounted) `/usr/sap/<SAPSID>` directories.
	The value `<nn>` is the number assigned to the instance.

Only valid for 'Platform': AIX

> ⚠ Caution
>
> **AIX:** If you are using NIM Service Handler (NIMSH), do **not** use 01 or 02 for the instance number. The software provisioning manager uses the instance number for the internal message server port 39`<Instance_Number>`. The NIM client daemon uses reserved ports 3901 and 3902.

End of 'Platform': AIX

Only valid for 'Platform': HP-UX

> ⚠ Caution
>
> **HP-UX** Do **not** use:
>
> * 75 for the instance number because this number is already used by the operating system. For more information, see **SAP Note** 29972.
> * 02 as the instance number because this number is used to determine the port number for report RSLGCOLL, which is 14`<Instance_Number>` by default. However, port 1402 is already used by the OS process rstlisten. If you still decide to use 02 as the instance number, the instance fails to start during the installation process. You then have to manually change the port number for report RSLGCOLL to continue with the installation. For more information, see Running Software Provisioning Manager [page 40].

End of 'Platform': HP-UX

2.9.3 Operating System Users

Operating System Users

Parameters	Description
SAP System Administrator: `<dasid>adm`	Administrator for the Diagnostics Agent. This user is dedicated to the Diagnostics Agent installation and has the authorization to manage the Diagnostics Agent. If you did not create user `<dasid>adm` manually before the installation, the installer creates it automatically on every application server instance host during the installation. Make sure that the user ID and group ID of `<dasid>adm` are unique and the same on each application server instance host. Make sure to respect the password guidance at the end of this table.
SAP System Administrator: `sapadm`	SAP Host Agent administrator is the user for central monitoring services. This user is created only if the SAP Host Agent is automatically installed during the installation of the Diagnostics Agent. Make sure to respect the password guidance at the end of this table.
Password guidance	Make sure that the password that you choose for a user meets the requirements of your operating system. In addition the password must meet the following requirements: • It must be 8 to 14 characters long • It must not contain \ (backslash) and " (double quote) • It must contain at least one digit (0-9) • It must contain at least one letter (a-z, A-Z)

Related Sections

This guide holds several sections that are closely related to the above described operating system users. You may want to read these sections before performing the installation:

• Creating Operating System Users and Groups [page 21]
• Ensuring User Security [page 62]

2.9.4 SAP Solution Manager Connectivity Parameters

SAP Solution Manager Connectivity Parameters

Parameters	Description
Connection of the Diagnostics Agent to SAP Solution Manager	You can choose between the following options: • *Configure connection via Java SCS Message Server* The Diagnostics Agent will be connected to the SAP Solution Manager system. If you choose this option you will be able to select *Use SSL connectivity*. The software provisioning manager will prompt you for the SAP Solution Manager connection parameters listed below. • *Do not configure connection* If you choose this option, the software provisioning manager does not prompt you for any SAP Solution Manager connection parameters. You may configure the SAP Solution Manager connection for the Diagnostics Agent via the `smdsetup` script after the installation has finished. For more information, see Using the SMD Setup Script [page 66].
Host (FQN)	The fully qualified host name of the SAP Solution Manager system, for example **`host.domain.corp`** → Recommendation The host name will be checked. It is recommended to input the fully qualified host name.
Port	Depending on the *Connection Type*, you have to specify one of the following ports of the Java Stack of your SAP Solution Manager system: • *Java SCS Message Server HTTP Port* • *Java SCS Message Server HTTPS Port* To determine the HTTP(S) port of the SAP Solution Manager Java SCS message server, see SAP Note 3169661 .
User and *Password*	User must be assigned with the SAP_RCA_AGT_CONN group. For more information, see SAP Note 2385361 .

Parameters	Description
SAP Router (optional) Route and *Password*	The route string describes the stations of a connection required between the Diagnostics Agent and SAP Solution Manager. The route string contains a substring for each SAP router without the target server such as: `/H/host/S/service/W/pass` • `/H/` indicates the host name • `/S/` is used for specifying the service (port); it is an optional entry, the default value is `3299` • `/W/` indicates the password for the connection between the predecessor and successor on the route and is also optional (default is `""`, no password) ⚙ Example The route between the Diagnostics Agent and SAP Solution Manager can look like: `/H/host.domain.corp/S/3299`

3 Preparation

3.1 Preparation Checklist

Before starting the installation you must perform the following preparation steps:

1. Prepare the Installation Media [page 28].
2.
   If applicable, Create Operating System Users and Groups [page 21].
3. Continue with the Installation [page 37] or the Unattended Installation [page 53] section.

3.2 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).

> ⚠ 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.

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

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 40].

- 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 `csh` 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 `<dasid>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 `/` or `/usr/sap`.

- Only valid for 'Platform': HP-UX

  HP-UX: To prevent terminal query errors in the `<dasid>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 want to specify them or to change the home directory, you have to create the users and groups before the installation.

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.

User and Groups of the Diagnostics Agent

User	Primary Group	Additional Group	Comment
`<dasid>adm`	`sapsys`	`sapinst`	Administrator for the Diagnostics Agent.

Groups and Members of the Diagnostics Agent User

Groups	Members
`sapsys`	`<dasid>adm`
`sapinst`	`<dasid>adm`

User and Groups of the SAP Host Agent

User	Primary Group	Additional Group	Comment
sapadm	sapsys	–	SAP Host Agent administrator
			ⓘ Note If sapadm does not exist, it is created during the SAP Host Agent installation using /bin/false shell. Make sure that /bin/false can be used as a login shell. Only valid for 'Platform': AIX **AIX:** Add /bin/false to the list of valid login shells (attribute shells) in /etc/security/login.cfg. End of 'Platform': AIX

Groups and Members of the SAP Host Agent User

Groups	Members
sapsys	sapadm
sapinst	sapadm

3.3 SAP Directories

Directories of the Diagnostics Agent

For the Diagnostics Agent the installer creates the following types of directories:

- Logically shared directories
- Local directories

Details are shown in the following figure.
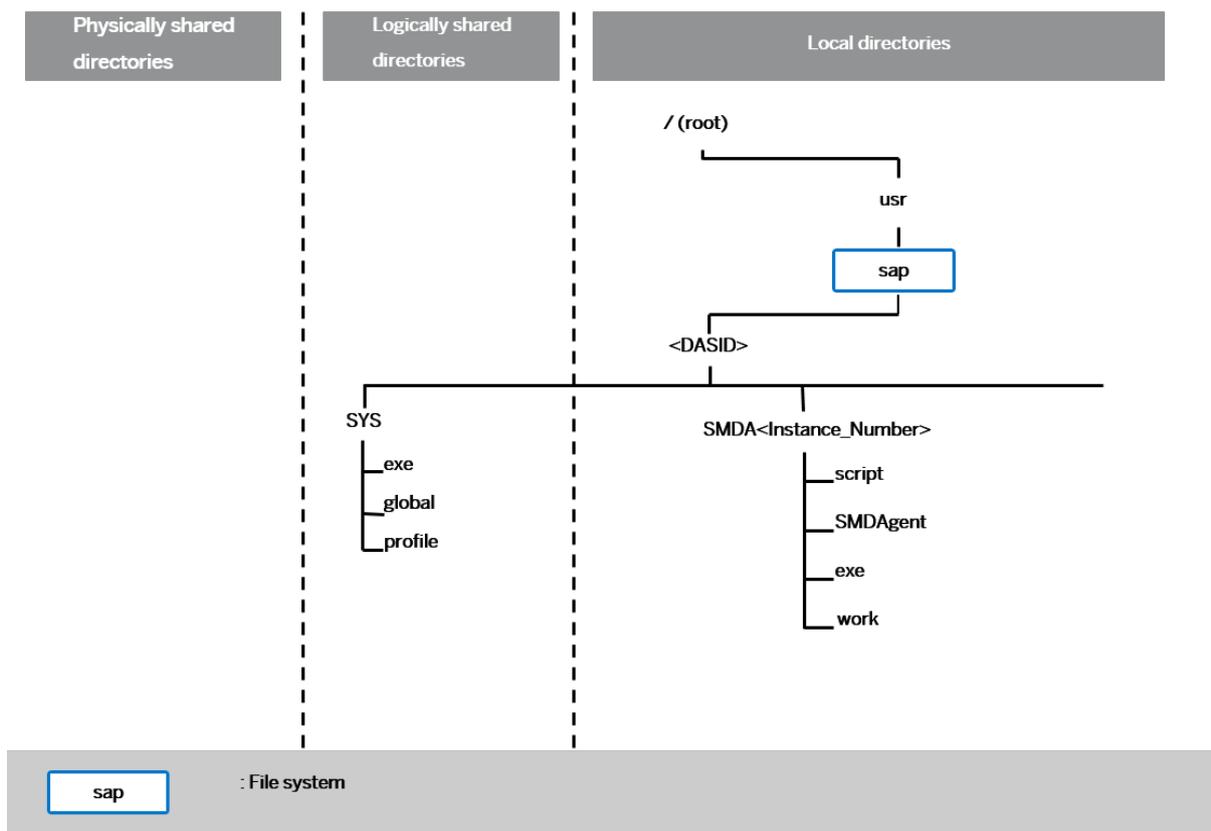
Directory Structure for the Diagnostics Agent

The Diagnostics Agent directory `/usr/sap/<DASID>` contains the following subdirectories:

- `SYS`, which is a logically shared directory
- `SMDA<Instance_Number>`, which is a local directory

> ⚠ **Caution**
>
> Since traces for the instance are created in this directory, sufficient space must be available in this directory.

Logically Shared Directories

The logically shared directory `SYS` contains the following subdirectories:

- `exe`
  Contains executable kernel programs
- `global`
  Contains globally shared data
- `profile`
  Contains the profiles of the Diagnostics Agent instance

Local Directories

The (local) instance directory of the Diagnostics Agent instance is called `SMDA<Instance_Number>`. It contains the instance-specific data of the Diagnostics Agent and has the following subdirectories:

- `script`
  Contains the `smdsetup` script
- `SMDAgent`
  Contains the Diagnostics Agent software and properties files
- `exe`
  Contains executable kernel programs
- `work`
  Contains log files

3.4 Using Logical Host Names

SAP Solution Manager has introduced the term logical host name, as an alternative to the term virtual host name which is generally used in the context of software provisioning manager and SAP NetWeaver based installations. Refer to section Using Virtual Host Names [page 27] from the standard software provisioning manager and SAP NetWeaver based installation guides (section is included below) for details.

For a detailed description on logical hosts, logical host names, virtual hosts, virtual host names, physical hosts and physical host names, and how they are defined in the context of SAP Solution Manager and Diagnostics Agent installations, refer to the *Terminology* section in the SCN Wiki page http://wiki.scn.sap.com/wiki/x/DgRgE , or to **SAP Note** 1365123 - Installation of Diagnostics Agents.

3.4.1 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

> ⚠ Caution
>
> Make sure that you first read the section on Using Logical Host Names [page 27].

Procedure

3.5 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 28].
- Required kernel media (see also Kernel for the Diagnostics Agent [page 12]) or dedicated installation archives (see Archive-Based Diagnostics Agent Installation [page 31]).

3.5.1 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.

  > ⓘ 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://me.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://me.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 `SWPM10SP<Support_Package_Number>_<Version_Number>.SAR` from:

   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 `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://me.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 `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>/
   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>/
   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.

3.5.2 Media Required for the Installation

This section provides a list of the media required for the installation.

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 40]). The software provisioning manager only accepts media whose
digital signature has been checked.

Proceed as follows to make the media available:

1. Identify the required media as listed below.

Installation	Installation Media
Diagnostics Agent	- Software Provisioning Manager 1.0 archive - UC Kernel (folder `K_<Version>_U_<OS>`) where `U` means Unicode. ⓘ Note For information about supported kernel versions see Kernel for the Diagnostics Agent [page 12]. ⓘ Note Every new Diagnostics Agent installation must be Unicode.

2. Make the installation media available on the installation host as follows:
   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 28].

      > → Recommendation
      >
      > For Diagnostics Agent installations you only require a Software Provisioning Manager archive and a
      > kernel archive. Alternative download paths that you may be more familiar with are documented in
      > Diagnostics Agent Download Paths [page 35].

2. Download and unpack the kernel ZIP file to a dedicated directory. For details see Diagnostics Agent Download Paths [page 35]. The unpacked kernel can be made available on a local drive or on a network drive.

> ⚠ Caution
>
> If you copy the media to disk, make sure that the paths to the destination location of the copied media do not contain any blanks.

Related Information

3.5.3 Archive-Based Diagnostics Agent Installation

As an alternative to providing the complete SAP Kernel media, you can also download just the required installation archives for your Diagnostics Agent installation.

Context

We recommend to store the downloaded archives in a dedicated directory. During the installation procedure, on step *Define Parameters*, you can either specify the relevant directory, or you select the individual archives that must be used for the installation.

For a Diagnostics Agent installation, you only need to download - apart from the Software Provisioning Manager 1.0 archive which is always required for an installation - the `SAPEXE.SAR`, `SAPHOSTAGENT.SAR`, SAP JVM SAR-file, and the Diagnostics Agent SAR-file. (See also section Solution in SAP Note 2253383).

> ⓘ Note
>
> The digital signature of **installation archives** is checked **automatically** by the software provisioning manager [page 40] 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.

> ⓘ 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.

> ⚠ Caution
>
> Make sure that you always use the highest available patch level unless special patch levels are specified for the relevant package in SAP Note 1680045🔗 .

Procedure

- Download and extract the latest version of Software Provisioning Manager as described in Downloading and Extracting the Software Provisioning Manager 1.0 Archive [page 28].
- Download and extract the required version of the `SAPEXE.SAR` archive from a path like the one below:

  - If you want to apply installation option *Install - Diagnostics Agent*, download the latest patch level of `SAPEXE.SAR` from: https://me.sap.com/softwarecenter/🔗 ⮞ *Software Downloads* ⮞ *SUPPORT PACKAGES & PATCHES* ⮞ *By Category* ⮞ *Additional Components* ⮞ *SAP KERNEL* ⮞ *SAP KERNEL 64-BIT UNICODE* ⮞ *SAP KERNEL 7.54 64-BIT UNICODE* ⮞ `<Select your operating system>` ⮞ *#Database independent* ⮞

- Download the latest patch level of `SAPHOSTAGENT.SAR` from: https://me.sap.com/softwarecenter/🔗 ⮞ *Software Downloads* ⮞ *SUPPORT PACKAGES & PATCHES* ⮞ *By Category* ⮞ *SAP Technology Components* ⮞ *SAP HOST AGENT* ⮞ *SAP HOST AGENT 7.22* ⮞ `<Select your operating system>` ⮞

  > ⓘ 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.

- Download the latest patch level of the SAP JVM SAR-file, according to section Solution in SAP Note 2253383🔗).
- Download the latest patch level of the Diagnostics Agent SAR-file, according to section Solution in SAP Note 2253383🔗).

3.5.4 Downloading Complete Installation Media

This section describes how you can download complete 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 28].
2. You identify the required media as listed in Media Required for the Installation [page 30] .
3. Identify **all** download objects that belong to one medium according to one of the following:

> ⓘ 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://me.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://me.sap.com/softwarecenter 🔗 ▏▶ *INSTALLATIONS & UPGRADES* ❯ *By Category* ❯ *SAP NETWEAVER AND COMPLEMENTARY PRODUCTS* ❯ `<Product>` ❯ `<Product Release>` ▌
    - https://me.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.

3.6 Patching the Installation Media

SAR-Files

As of Diagnostics Agent 7.49 there are operating system independent `SMDA710*.SAR` and `SMDA720*.SAR` *Download Objects* available on the SAP Service Marketplace.

The SAR-files are required for the Archive-Based Diagnostics Agent Installation [page 31].

The SAR-files can also be used for patching Diagnostics Agents that are initially shipped via standard kernel media. The SAR-files are named like:

`SMDA<Release_Number>_SP<Support_Package_Number>_<Patch_Number>-<Number>.SAR`

Downloading

The SAR-files can be downloaded from:

https://me.sap.com/softwarecenter/ 📂▶ *Software Downloads* ▶ *SUPPORT PACKAGES & PATCHES* ▶ *By Alphabetical Index (A-Z)* ▶ *S* ▶ *SAP SOLUTION MANAGER* ▶ *SAP SOLUTION MANAGER 7.2* ▶ *AGENTS FOR MANAGED SYSTEMS* ▶ *DIAGNOSTICS AGENT 7.53* ▶ *# OS independent* ▶

For a mapping of software provisioning manager version to Diagnostics Agent version refer to Software Provisioning Manager and Diagnostics Agent Version Information [page 82].

Patching

Once you have downloaded and unpacked the software provisioning manager 1.0 archive and the kernel media that you have selected, you must replace the `SAPDIAGNOSTICSAGENT.SAR` file on the unpacked kernel media with the `SMDA<Release_Number>*.SAR` file that you have downloaded.

The `SAPDIAGNOSTICSAGENT.SAR` file can be found at the following location on the unpacked kernel media:

`<Path_To_Unpack_Directory>/DBINDEP/SAPDIAGNOSTICSAGENT.SAR`

3.7   Diagnostics Agent Download Paths

More general download instructions are provided in Preparing the Installation Media [page 28]. Alternatively the below download paths can be used to download installer and kernel archives that are needed for Diagnostics Agent installations. All of the below download paths lead to the same installer and kernel archives.

Download Path via SL Toolset Pages

SL Toolset download path for the **Software Provisioning Manager 1.0 archive**: http://support.sap.com/sltoolset 📂▶ *System Provisioning* ▶ *Software Provisioning Manager 1.0 SP*`<current SP>` ▶ *Download Software Provisioning Manager* ▶.

Download Path for SAP Kernels

https://me.sap.com/softwarecenter/ 🔁 ▶ *Software Downloads* ❯ *Support Packages & Patches* ❯ *By Alphabetical Index (A-Z)* ❯ *K* ❯ *SAP KERNEL 64-BIT UNICODE* ❯ `<Supported_Kernel_Version>` ❯ `<OS>` ❯.

Related Documentation

The following sections contain information to support you in your decision on which installer and kernel archive to download:

- Product Availability Matrix [page 12]
- Kernel for the Diagnostics Agent [page 12]

4   Installation

4.1   Installation Checklist

In order to execute the installation you have to perform the following steps:

1. Only valid for 'Platform': AIX, HP-UX, Linux, Oracle Solaris
   Make sure to fulfill the Prerequisites for Running Software Provisioning Manager [page 37].
   End of 'Platform': AIX, HP-UX, Linux, Oracle Solaris
2. Only valid for 'Platform': AIX, HP-UX, Linux, Oracle Solaris
   Follow the instructions in Running Software Provisioning Manager [page 40].
   End of 'Platform': AIX, HP-UX, Linux, Oracle Solaris
3. For alternative installation scenarios refer to Additional Information about Software Provisioning Manager [page 44].
4. Continue with the Post-Installation [page 62] section.

4.2   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 do trust the self-issued certificate of the software provisioning manager after carefully performing the "thumbprint"

> verification described in Running Software Provisioning Manager [page 40] . 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 45].

- 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 `<dasid>adm`.
  - If user `<dasid>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 `<dasid>` already exists and uses `csh`, before you start the software provisioning manager, execute the following command as user `<dasid>` to make sure that the `csh` scripts are up-to-date, depending on your UNIX OS platform:
    /bin/csh -c "source /home/<dasid>adm/.cshrc;env" or **/bin/csh -c "source /home/<dasid>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 45].

- 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 21] and Running Software Provisioning Manager [page 40].

> ⚠ 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 `csh` 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 |

Output sh	Output ksh	Properties
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 14] **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>

4.3   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 37].

Context

> ⚠ Caution
>
> The Diagnostics Agent Platform Availability Matrix supports a wide range of operating systems, operating system versions, hardware architectures, and kernel versions. The prerequisites checker integrated in

> the software provisioning manager may generate warnings for the operating system version that you are installing on, or for the kernel version that you are installing with. As long as you comply with the Diagnostics Agent Product Availability Matrix [page 12] you can ignore these prerequisites checker warnings.

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 45].

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.

   > ⚠ Caution
   >
   > Do not use an existing `<dasid>` user for performing an uninstallation.

   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 28] .

   > → 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

   > ⓘ Note
   >
   > **Oracle Solaris:** If you mount installation media, make sure that you do this with option **nomaplcase**.

   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
```

> ⓘ Note
>
> If you need to assign a logical host name 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 14]), you
> can alternatively assign it as follows:
>
> ```
> <Path_To_Unpack_Directory>/sapinst SAPINST_USE_HOSTNAME=<Virtual_Host_Name>
> ```

> ⓘ Note
>
> If you need to assign a logical host name 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 14]), you can alternatively assign it by starting the software provisioning manager with the
> SAPINST_USE_HOSTNAME property:
>
> ```
> <Path_To_Unpack_Directory>/sapinst SAPINST_USE_HOSTNAME=<Logical_Host_Name>
> ```
>
> Before using this option, you should have read and understood the sections Installation Strategy [page
> 11] (especially the **Agents On-the-fly** feature) and Using Logical Host Names [page 27].

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>]
    *********************************************************************
    ...
    ```

    > ⓘ 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 45].
    > 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
    37]) 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:

   Go to ▎ *Generic Options* ❭ *Diagnostics in SAP Solution Manager* ▎ and choose one of:

Diagnostics in SAP Solution Manager	Remarks
Install - Diagnostics Agent	Choose this option to install a Diagnostics Agent instance.
Uninstall - Diagnostics Agent	Choose this option to uninstall a Diagnostics Agent instance.
	For more information, see Deleting an SAP System or Single Instances [page 77].

6. Choose *Next*.

   > ⓘ 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.

   > ⓘ 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`.

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.

   > ⓘ 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 45].

4.4   Additional Information about Software Provisioning Manager

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

Useful Information about Software Provisioning Manager [page 45]
   This section contains some useful technical background information about the software provisioning manager and the software provisioning manager's SL-UI.

4.4.1 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 37].
  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)	**TEMP=<Directory>** **export TEMP**
C shell (csh)	**setenv TEMP <Directory>**
Korn shell (ksh)	**export TEMP=<Directory>**

> ⚠ 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 you want to install or uninstall a Diagnostics Agent in unattended mode, see section Unattended Installation [page 53].

- If required, stop the software provisioning manager by choosing the *Cancel* button.

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

4.4.2 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
Retry	The software provisioning manager retries the installation from the point of failure without repeating any of the previous steps.
	This is possible because the software provisioning manager records its progress in the keydb.xml file.
	We recommend that you view the entries in the log files, try to solve the problem, and then choose *Retry*.
	If the same or a different error occurs, the software provisioning manager displays the same dialog box again.

Option	Definition
Stop	The software provisioning manager stops the installation, closing the dialog box and the software provisioning manager's SL-UI.
	The software provisioning manager records its progress in the `keydb.xml` 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.
Continue	The software provisioning manager continues the installation from the current point.
View Log	Access installation log files.

> ⓘ 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 40] .

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

   For more information, see Preparing the Installation Media [page 28] .

   > → 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

   > ⓘ Note
   >
   > **Oracle Solaris:** If you mount installation media, make sure that you do this with option `nomaplcase`.

   End of 'Platform': Oracle Solaris

3. 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`

4. 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 45].
> 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 37]) 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. 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.

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

Alternative	Behavior
Perform a new run	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.
	The following naming convention is used for the backup directory:
	`log_<Day>_<Month>_<Year>_<Hours>_<Minutes>_<Seconds>`
	⚙ **Example**
	`log_01_Oct_2016_13_47_56`
	ⓘ **Note**
	All actions taken by the installation before you stopped it (such as creating directories or users) are not revoked.
	⚠ **Caution**
	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.
Continue with the existing one	The software provisioning manager continues the interrupted installation from the point of failure.

4.4.3 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.

       > ⓘ 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 45].

     - 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 47].

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🡒.

4.4.4 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.

> ⓘ 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 37].

Procedure

1. Start the software provisioning manager from the command line as described in Running Software Provisioning Manager [page 40] 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 Unattended Installation

The unattended installation and uninstallation mechanism, described in this section, is available per software provisioning manager 1.0 SP7. This new unattended installation mechanism is "properties file" based.

This mechanism can be used to run unattended installations (or uninstallations) of Diagnostics Agents on one, some, or a larger number of hosts, while providing the same or similar installation parameter sets for those installations. You specify the input parameters for the installation scenario in a properties file that you can then use for the unattended installations. Unattended installations are sometimes referred to as silent or dark mode installations.

5.1 Unattended Installation Checklist

Unattended Installation

In order to execute an unattended **installation** you have to perform the following steps:

1. Follow the instructions in the Planning Checklist [page 11].
2. Follow the instructions in the Preparation Checklist [page 21].
3. Execute Preparing an Unattended Installation [page 54].
4. Execute Running an Unattended Installation [page 55].
5. Follow the instructions in the Post-Installation Checklist [page 62].

Unattended Uninstallation

In order to execute an unattended **uninstallation** you have to perform the following steps:

1. Follow the instructions in the Preparation Checklist [page 21].
2. Execute Preparing an Unattended Installation [page 54].
3. Execute Running an Unattended Uninstallation [page 58].

5.2 Unattended Archive-Based Diagnostics Agent Installation

Refer to **SAP Note** 2253383 ⬧ if you want to perform an unattended archive-based Diagnostics Agent installation.

5.3   Preparing an Unattended Installation

The described preparation steps must be executed on each host on which you want to run the software provisioning manager in unattended mode.

Create an Installation Directory

Create an installation directory `<Installation_Directory>`.

> ⛣ Example
>
> Create an `<Installation_Directory>` like `/unattended/install`

> ⚠ Caution
>
> Make sure that:
>
> 1. A user group `sapinst` is available.
> 2. `sapinst` is assigned as an additional user group to user `root`.
> 3. The `<Installation_Directory>` is owned by user group `sapinst` and has at least permissions `775`.
>   Change permissions: **chmod -R 775 <Installation_Directory>**
>   Change user group: **chgrp -R sapinst <Installation_Directory>**
> 4. The software provisioning manager executable must at least have permissions `775`.
>   Change permissions: **chmod 775 <Installer_Media_Directory>\sapinst**

Create a start_dir.cd File

1. In the `<Installation_Directory>` create a file named `start_dir.cd`
2. In the file `start_dir.cd` you must specify the paths of the `<Installer_Media_Directory>` and the `<Kernel_Media_Directory>` that must be used for the unattended **installation**. For an unattended **uninstallation** the `<Kernel_Media_Directory>` does **not** have to be specified.

   > ⚠ Caution
   >
   > In the file `start_dir.cd` a separate line is required for each media directory path.
   >
   > The media directory paths that must be added to the `start_dir.cd` file, are the paths that you get when browsing until the main `LABEL.ASC` file, in the respective media directories.

5.4 Running an Unattended Installation

Creating a Properties File

1. Create an `<Installation_Properties_File>` in the `<Installation_Directory>`, for example:
   `<Installation_Directory>/installation.properties`
   In this `<Installation_Properties_File>` you will specify the properties (name/value pairs) for the unattended installation.
2. The Diagnostics Agent related properties available for an unattended installation are:

Property Name	Parameter in Related Documentation Section	Property Value Guidance
`DiagnosticsAgent.LogicalHostName`	*Host Name* in General Installation Parameters [page 14]	Optional property. See mentioned section. If this property is omitted, the Diagnostics Agent will be installed on the physical host. This is recommended when using the **Agents On-the-fly** feature.
`DiagnosticsAgent.SID`	*Diagnostics Agent System ID (DASID)* in Diagnostics Agent System ID and Instance Number [page 16]	See mentioned section.
`DiagnosticsAgent.InstanceNumber`	*Instance Number* of the Diagnostics Agent in Diagnostics Agent System ID and Instance Number [page 16]	See mentioned section.
`DiagnosticsAgent.dasidAdmPassword`	*SAP System Administrator*: `dasid<adm>`, including the password guidance, in Operating System Users [page 18]	See mentioned section.
`hostAgent.sapAdmPassword`	*SAP System Administrator*: `sapadm`, including the password guidance, in Operating System Users [page 18]	Optional property. See mentioned section. If an SAP Host Agent is not yet installed on the host, this property must be specified. If an SAP Host Agent is already installed on the host, this property must be omitted.

3. The SAP Solution Manager related properties available for an unattended installation are:

Property Name	Parameter in Related Documentation Section	Property Value Guidance
DiagnosticsAgent.SolMan.Connection	*Connection of the Diagnostics Agent to SAP Solution Manager* in SAP Solution Manager Connectivity Parameters [page 19]	Specify solman or none. If you specify solman, the Diagnostics Agent will be connected to the specified SAP Solution Manager system. If you specify none, the values further below in this table, and the SAP Router related ones in next table will be ignored and can be omitted.
DiagnosticsAgent.SolMan.UseSSL	*Use SSL connectivity* in SAP Solution Manager Connectivity Parameters [page 19]	Specify true or false.
DiagnosticsAgent.SolMan.HostName	*Host (FQN)* in SAP Solution Manager Connectivity Parameters [page 19]	See mentioned section.
DiagnosticsAgent.SolMan.PortNumber	Port in SAP Solution Manager Connectivity Parameters [page 19]	See mentioned section.
DiagnosticsAgent.SAPJVMVersion	The JVM according to JVM for the Diagnostics Agent [page 13]	See mentioned section. Provide the version of the SAP JVM. The value is SAPJVM8. For more information, see SAP Note 3388754.
DiagnosticsAgent.SolMan.UserName	User and Password in SAP Solution Manager Connectivity Parameters [page 19]	See SAP Solution Manager Connectivity Parameters [page 19]
DiagnosticsAgent.SolMan.Password	User and Password in SAP Solution Manager Connectivity Parameters [page 19]	See SAP Solution Manager Connectivity Parameters [page 19]

4. The SAP Router related properties available for an unattended installation are:

Property Name	Parameter in Related Documentation Section	Property Value Guidance
DiagnosticsAgent.SAProuter.Route String	*SAP Router (optional) Route* and *Password* in SAP Solution Manager Connectivity Parameters [page 19]	Optional property. See mentioned section.
DiagnosticsAgent.SAProuter.Passw ord	*SAP Router (optional) Route* and *Password* in SAP Solution Manager Connectivity Parameters [page 19]	Optional property. See mentioned section.

5. Specify the properties that you require for the installation in your `<Installation_Properties_File>`.

⚠ Caution

If you do not want to specify a specific property, the respective property should not be part of the property file at all. Just leaving the property value empty will not have the same effect as not specifying a property at all.

→ Recommendation

Unattended installations/uninstallations should be run with just the properties documented in this guide. You can generate an `inifile.params` file to fill the properties file you want to use for the unattended installation/uninstallation, by running the software provisioning manager with command line parameter `SAPINST_STOP_AFTER_DIALOG_PHASE=true`. This causes the software provisioning manager to exit after all parameters have been provided. You can find the file `inifile.params` under the path `sapinst_instdir/GENERIC/SMD/INST`. This path is located either in the directory defined by the environment variable `TEMP` or in `%ProgramFiles%`. Only specify the parameters you really want to set in your properties file. The generated `inifile.params` file also holds des24 encrypted values of all provided passwords, that can also be used in your properties file.

⚙ Example

```
DiagnosticsAgent.SID=DAA
DiagnosticsAgent.InstanceNumber=98
DiagnosticsAgent.dasidAdmPassword=Abcdef123456
hostAgent.sapAdmPassword=Klmnop123456
DiagnosticsAgent.SolMan.Connection=solman
DiagnosticsAgent.SolMan.UseSSL=true
DiagnosticsAgent.SolMan.HostName=host.domain.corp
DiagnosticsAgent.SolMan.PortNumber=44401
DiagnosticsAgent.SAPJVMVersion=SAPJVM8
```

Further Clarifications

1. You have now prepared your `<Installation_Directory>` and your `<Installation_Properties_File>`.

2. Before you continue, we recommend that you create a backup of your `<Installation_Directory>`.
3. To run the unattended installation, you will start the software provisioning manager with several command line parameters. Executing the following command will give you an overview of the all command line parameters that are available:

   `<Installer_Media_Directory>/sapinst -p`
4. The unattended installation requires you to specify a `<Product_ID>`. The specified `<Product_ID>` determines the installation option that will be executed and it defines which kernel versions will be accepted during the installation. Use the below table to select the `<Product_ID>` for your installation.

Installation Option	Kernel Version	`<Product_ID>` Value
Install - Diagnostics Agent	For details refer to Kernel for the Diagnostics Agent [page 12].	`NW_DiagnosticsAgent:GENERIC.IND.PD`

Running the Installation

> ⚠ Caution
>
> The `<Installation_Directory>` must not contain any leftovers from previous unattended installations or uninstallations. It must not contain more files than the ones mentioned in this section:
>
> - `<Installation_Properties_File>`
> - `<Uninstallation_Properties_File>`
> - `start_dir.cd`
> - Few script files like `my-installation.sh` or `my-uninstallation.sh`

Now start the unattended installation in the following way:

1. **`cd <Installation_Directory>`**
2. **`<Installer_Media_Directory>/sapinst`**
   `SAPINST_INPUT_PARAMETERS_URL=installation.properties`
   `SAPINST_EXECUTE_PRODUCT_ID=<Product_ID>`
   `SAPINST_SKIP_DIALOGS=true -nogui -noguiserver`

The Diagnostics Agent will now be installed in unattended mode. The installation duration will typically be between 5 and 15 minutes. You may check the result by opening the `sapinst_dev.log` file in the `<Installation_Directory>`.

The installation was successful if the file `installationSuccesfullyFinished.dat` has been generated.

5.5 Running an Unattended Uninstallation

Creating a Properties File

1. Create an `<Uninstallation_Properties_File>` in the `<Installation_Directory>`, for example:
   `<Installation_Directory>/uninstallation.properties`
   In this `<Uninstallation_Properties_File>` you will specify the properties (name/value pairs) for the unattended uninstallation.

2. The Diagnostics Agent related properties available for an unattended uninstallation are:

Property Name	Mandatory	Default Value	Property Value Guidance
`NW_readProfileDir.profileDir`	Yes		Location of the system profile directory for the Diagnostics Agent that you want to run an unattended uninstallation for, in the following format (applies also to Windows operating systems): `/usr/sap/<DASID>/SYS/profile`
`NW_System_Uninstall.completeSystem`	No	`true`	Specify `true` if you want to uninstall the complete Diagnostics Agent, including all the instances. If you specify `false`, you must specify the numbers of the instances that must be deleted in property `NW_System_Uninstall.instanceNumberList`.
`NW_System_Uninstall.instanceNumberList`	No		Comma separated list of the numbers of the instances that must be deleted, when `NW_System_Uninstall.completeSystem` equals `false`.
`NW_System_Uninstall.uninstallHostAgent`	No	`true`	Indicate if the SAP Host Agent should be uninstalled. An SAP Host Agent will only be uninstalled if no other SAP Systems are available on the host any more.
`NW_System_Uninstall.removeUsers`	No	`false`	Indicate if the related Diagnostics Agent and SAP Host Agent specific operating system users should be deleted. Values specified for `NW_System_Uninstall.completeSystem` and `NW_System_Uninstall.uninstallHostAgent` are considered.

3. Specify the properties that you require for the uninstallation in your `<Uninstallation_Properties_File>`.

> ⚠ Caution
>
> If you do not want to specify a specific property, the respective property should not be part of the property file at all. Just leaving the property value empty will not have the same effect as not specifying a property at all.

> → **Recommendation**
>
> Unattended installations/uninstallations can usually be run with just the properties documented in this guide. You can generate an `inifile.params` file to fill the properties file you want to use for the unattended installation/uninstallation, by running the software provisioning manager with command line parameter `SAPINST_STOP_AFTER_DIALOG_PHASE=true`. This causes the software provisioning manager to exit after all parameters have been provided. You can find the file `inifile.params` under the path `sapinst_instdir/GENERIC/SMD/INST`. This path is located either in the directory defined by the environment variable `TEMP` or in `%ProgramFiles%`. It is usually sufficient to only specify the parameters you really want to set in your properties file. The generated `inifile.params` file also holds des24 encrypted values of all provided passwords, that can also be used in your properties file.

> ❖ **Example**
>
> This example shows how to uninstall a Diagnostics Agent and the SAP Host Agent, and how to remove related operating system users.
>
> **NW_readProfileDir.profileDir=/usr/sap/DAA/SYS/profile**
>
> **NW_System_Uninstall.completeSystem=true**
>
> **NW_System_Uninstall.uninstallHostAgent=true**
>
> **NW_System_Uninstall.removeUsers=true**

> ❖ **Example**
>
> This example shows how to uninstall only the Diagnostics Agent instances 96 and 97, while keeping the SAP Host Agent, and keeping related operating system users.
>
> **NW_readProfileDir.profileDir=/usr/sap/DAA/SYS/profile**
>
> **NW_System_Uninstall.completeSystem=false**
>
> **NW_System_Uninstall.instanceNumberList=96,97**
>
> **NW_System_Uninstall.uninstallHostAgent=false**
>
> **NW_System_Uninstall.removeUsers=false**

Further Clarifications

1. You have now prepared your `<Installation_Directory>` and your `<Uninstallation_Properties_File>`.
2. Before you continue, we recommend that you create a backup of your `<Installation_Directory>`.

Running the Uninstallation

> **⚠ Caution**
>
> The `<Installation_Directory>` must not contain any leftovers from previous unattended installations or uninstallations. It must not contain more files than the ones mentioned in this section:
>
> - `<Installation_Properties_File>`
> - `<Uninstallation_Properties_File>`
> - `start_dir.cd`
> - Few script files like `my-installation.sh` or `my-uninstallation.sh`

Now start the unattended uninstallation in the following way:

1. **`cd <Installation_Directory>`**
2. **`<Installer_Media_Directory>/sapinst`**
   `SAPINST_INPUT_PARAMETERS_URL=uninstallation.properties`
   `SAPINST_EXECUTE_PRODUCT_ID=NW_Uninstall:GENERIC.IND.PD`
   `SAPINST_SKIP_DIALOGS=true -nogui -noguiserver`

The Diagnostics Agent will now be uninstalled in unattended mode. The uninstallation duration will typically be between 5 and 10 minutes. You may check the result by opening the `sapinst_dev.log` file in the `<Installation_Directory>`.

The uninstallation was successful if the file `installationSuccesfullyFinished.dat` has been generated.

5.6   Troubleshooting an Unattended Installation

To not execute the installation, but just verify the provided command line parameters and installation or uninstallation properties, the command line parameter `SAPINST_STOP_AFTER_DIALOG_PHASE=true` can be used. For example:

`<Installer_Media_Directory>/sapinst`
`SAPINST_INPUT_PARAMETERS_URL=installation.properties`
`SAPINST_EXECUTE_PRODUCT_ID=<Product_ID> SAPINST_SKIP_DIALOGS=true`
`SAPINST_STOP_AFTER_DIALOG_PHASE=true`

6 Post-Installation

6.1 Post-Installation Checklist

After the installation of the Diagnostics Agent and before the Diagnostics Agent goes into production, you have to perform the following steps:

1. Check if you need to set the Operating System Limits for the Diagnostics Agent [page 80].
2. Ensure User Security [page 62].

If you want to change Diagnostics Agent configuration parameters like the connection type, connection credentials, the SAP Solution Manager system the Diagnostics Agent is connected to, see Using the SMD Setup Script [page 66].

6.2 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.

For the security guide location and further security requirements refer to the *Post-Installation Guidance* in section Complying with SAP Solution Manager Security Guidelines [page 63].

Operating System Users

After the installation, operating system users for the Diagnostics Agent and SAP Host Agent are available as listed in the following table:

> → 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.

Diagnostics Agent Users

User Type	User	Comment
Operating system user	`<dasid>adm`	Administrator for the Diagnostics Agent.

SAP Host Agent User

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

6.3 Complying with SAP Solution Manager Security Guidelines

Pre-Installation Guidance

Before the installation of a Diagnostics Agent, and before connecting a Diagnostics Agent to an SAP Solution Manager system, the SAP Solution Manager system must have been properly configured. Information on required administrator users for the SAP Solution Manager ABAP and Java systems, Secure Socket Layer (SSL) configuration, required communication channels and destinations, involved technical users, and much more, can be found in the relevant SAP Solution Manager Security Guide.

Post-Installation Guidance

After the installation of a Diagnostics Agent and before a Diagnostics Agent goes into production, it must be ensured that your respective end-to-end scenario complies with the guidance provided in the relevant SAP Solution Manager Security Guide.

Security Guide Location

SAP Solution Manager Security Guides can be found at: https://help.sap.com/solutionmanager *Security* .

7 Additional Information

7.1 Installation Guidance for Experienced Administrators

> This topic is only valid for 'Platform': Linux

Linux: Installation

> ⚠ Caution
>
> This section is only meant for technology consultants and system administrators that have experience with the installation of Diagnostics Agents.

> ⚠ Caution
>
> Following the instructions in this section may lead to a failing installation, since most planning and precaution steps are skipped.
>
> If your installation fails, you will have to restart the installation from scratch, starting with the Introduction [page 4] and Planning [page 11] sections.

1. Make sure you have understood and respected the following sections:
   - Using Logical Host Names [page 27]
   - Installation Strategy [page 11]
   - Product Availability Matrix [page 12]
   - Hardware Requirements [page 12]
2. Select a Kernel for the Diagnostics Agent [page 12].
3. Download and unpack the software provisioning manager 1.0 archive and the kernel you have selected. For details see Preparing the Installation Media [page 28].
4. Continue with Running Software Provisioning Manager [page 40] and:
   - Choose a Direct SAP Solution Manager Connection [page 14] and connect via the *Java SCS Message Server* (with or without SSL).
   - Provide the General Installation Parameters [page 14].
   - Provide the Diagnostics Agent System ID and Instance Number [page 16].
   - Provide details for the Operating System Users [page 18].
   - Provide the SAP Solution Manager Connectivity Parameters [page 19].
5. Only valid for 'Platform': Linux

   Check if you need to set the Operating System Limits for the Diagnostics Agent [page 80].

   End of 'Platform': Linux

Updating Configuration Parameters

If you want to update the configuration parameters of the Diagnostics Agent after you have finished the installation, refer to Using the SMD Setup Script [page 66],

Uninstallation

If you want to uninstall a Diagnostics Agent, refer to Deleting an SAP System or Single Instances [page 77].

End of 'Platform': Linux

7.2 Installing the Diagnostics Agent Optionally with the SAP System

Per software provisioning manager 1.0 SP10, the Diagnostics Agent can no longer be automatically installed during the installation process of AS ABAP and Java systems, and AS ABAP and Java based systems.

It is recommended to install the Diagnostics Agent separately and prior to the installation of an SAP system. For more information refer to the Diagnostics Agent Installation Strategy **SAP Note** 1365123, **SAP Note** 1833501, **SAP Note** 1858920, and the latest Diagnostics Agent Installation and Setup Guide.

7.3 Using the SMD Setup Script

The `smdsetup` script can be used to update configuration parameters for the Diagnostics Agent.

More details about these configuration parameters are provided in section SAP Solution Manager Connectivity Parameters [page 19].

> ⚠ Caution
>
> The `<smdsetup>` script and the related Java implementation classes are automatically patched as soon as the Diagnostics Agent connects to the SAP Solution Manager system. The features available via the `<smdsetup>` script after the installation and a successful connection of the Diagnostics Agent to the SAP Solution Manager system are defined by the version of the SAP Solution Manager system.
>
> This section documents a subset of the available features and illustrates how they may be used. The "Help Information" section below explains how to get `<smdsetup>` script help information for your Diagnostics Agent installation.

Script Location

The `smdsetup` script can be found in following directory:

- `/usr/sap/<DASID>/SMDA<Instance_Number>/script`

Restarting the Diagnostics Agent

The `smdsetup` script will modify one or more of the following configuration files:

- `runtime.properties`
- `secstore.properties`
- The Java KeyStore that the Diagnostics Agent uses for internal purposes.

The Diagnostics Agent will detect that these configuration files were changed and reload the modified files. A restart of the Diagnostics Agent is not required, unless it is explicitly stated in the below documentation, in the `smdsetup` script `Help Information` output (see below), **or in the** `smdsetup` **script output**.

Help Information

To determine the actions supported by the `smdsetup` script for your Diagnostics Agent installation, execute `smdsetup.sh` without any parameters.

Below you find a possible output of the `smdsetup` script.

> ⚙ Example
>
> ```
> Help Information
>
> Script which allows to update some Diagnostics Agent configuration.
>
> smdsetup <action> <parameters>
>
> List of actions:
> ```
> - `smdsetup managingconf`
>   `hostname:"sapms://<fqn>" port:"<MS HTTP port>" user:"XXXXXX" pwd:"******"`
> - `smdsetup managingconf`
>   `hostname:"<fqn>" port:"<P4 port>" user:"XXXXXX" pwd:"******"`
>   `[optional servername:"<value>"]`

Script Actions

The below table summarizes the `smdsetup` script actions.

> ⓘ Note
>
> Further details on the different Diagnostics Agent configuration parameters that can be updated with the `smdsetup` script can be found in section Basic Installation Parameters [page 14].

Action	Description
`changeservername`	This action changes the server name attribute of the agent.
`supportlogs`	This action creates a ZIP-file holding Diagnostics Agent related configuration files and log files. The ZIP-file can be provided to SAP when creating a support ticket.
`addsaprouter`	See section SAP Router [page 85] for background information.
`saprouterpass`	
`removesaprouter`	

Action managingconf

This action changes the connection settings for the SAP Solution Manager system (also referred to as Managing System) to which the Diagnostics Agent connects.

> ⚠ Caution
>
> For productive usage the Diagnostics Agent must be connected to the *Java SCS Message Server* of the SAP Solution Manager system. The connection via a Java EE dispatcher node should only be used for testing and debugging purposes.

- Connect the Diagnostics Agent via a P4 or P4 SSL connection via the *Java SCS Message Server* (*Java SCS Message Server HTTP Port* and *Java SCS Message Server HTTPS Port*, see section SAP Solution Manager Connectivity Parameters [page 19]):
  ```
  smdsetup managingconf hostname:"sapms://host.domain.corp" port:"8101"
  user:"XXXXXX" pwd:"*******"
  ```
- Connect the Diagnostics Agent via a direct P4 or P4 SSL connection via a Java EE dispatcher node:
  ```
  smdsetup managingconf hostname:"host.domain.corp" port:"53004" user:"XXXXXX"
  pwd:"*******"
  ```
  The Dispatcher P4 Port is determined as follows: **5<xx>04**, where **<xx>** is the instance number of the SAP Solution Manager **Java** central instance.
  The Dispatcher P4 SSL Port is determined as follows: **5<xx>06**, where **<xx>** is the instance number of the SAP Solution Manager **Java** central instance.

Action changeservername

This action changes the server name attribute of the agent.

- Updates the `runtime.properties` file of the agent:
  ```
  smdsetup changeservername servername:"myservername" user:"XXXXXX" pwd:"*******"
  ```

Action supportlogs

This action creates a ZIP-file holding Diagnostics Agent related configuration files and log files. The ZIP-file can be provided to SAP when creating a support ticket.

- Execute: `smdsetup supportlogs`
  To create:
  `/usr/sap/<DASID>/<Instance_Number>/SMDAgent/supportLogs_<Timestamp>.zip`

The generated ZIP-file will (at least) contain the following:

- Diagnostics Agent check result file:
  `/usr/sap/<DASID>/<Instance_Number>/SMDAgent/log/AgentSupportToolReport.log`
- Diagnostics Agent log files
- Diagnostics Agent profile
- Software Provisioning Manager log files
- Content of directory `/usr/sap/<DASID>/<Instance_Number>/work`
- Relevant files from directory `/usr/sap/<DASID>/<Instance_Number>/SMDAgent`
- Relevant files from directory `/usr/sap/<DASID>/<Instance_Number>/SMDAgent/configuration`

The Diagnostics Agent check that is performed will (at least) check for following:

- JDK version
- JVM parameters
- Host name resolution
- TCP port
- P4 protocol
- Java SCS Message Server connectivity

7.4 Changing the Log Level

The main Diagnostics Agent log files are stored in folder `/usr/sap/<DASID>/SMDA<Instance_Number>/` `SMDAgent/log` and organized as follows:

Filename	Default Settings	Default Level	Description
`SMDSystem.log`	10 files of 1 MB	`INFO`	This file reports all information about agent framework (like connection to SAP Solution Manager system, agelets loading and patch sequence).
`SMDSystem.log` `SMDAgentApplication` `.log`	10 files of 1 MB	`WARNING`	This file reports all information about the agelets used by RCA applications, Setup Wizards and Introscope setup.
`P4.log`	10 files of 1 MB	`NONE`	This file reports all information about agent connections with the SAP Solution Manager system.

In case the Diagnostics Agent is currently connected to the SAP Solution Manager system, the procedure to change the log level of these log location is as follows:

1. Go to the Agent *Administration UI*
2. Select the tab *Agent Log viewer*
3. Select the relevant agent from dropdown list
4. Configure the expected level

In case the Diagnostics Agent is not connected to the SAP Solution Manager system, the procedure to change the log level is as follows:

1. At OS level, login as user `<dasid>adm`
2. Stop the agent
3. Go to folder `/usr/sap/<DASID>/SMDA<Instance_Number>/SMDAgent/configuration`
4. Open file `log-configuration.xml`
5. Adapt the level for the respective filenames and indicated lines, according the below given table
   - Attribute: `effective-severity`
   - `ALL, DEBUG, INFO, WARNING, ERROR, NONE`
6. Save the file and restart the agent

Filename

`SMDSystem.log`	`<log-controller effective-severity="INFO" maximum-severity="ALL" minimum-severity="DEBUG" name="/SMDlogger/System">`
`SMDAgentApplication.log`	`<log-controller effective-severity="WARNING" maximum-severity="ALL" minimum-severity="DEBUG" name="/SMDlogger/AgentApp">`
`P4.log`	`<log-controller effective-severity="NONE" maximum-severity="ALL" minimum-severity="ALL" name="com.sap.engine.services.rmi_p4">`

7.5 Starting and Stopping SAP System Instances Using the SAP Management Console

You can start and stop all instances of your SAP system using the SAP Management Console (SAP MC)except the database instance.

Prerequisites

- Make sure that the host names defined in the DNS server match the names of the SAP system instance hosts. In particular, keep in mind that host names are case-sensitive. For example, if the names of the SAP system instance hosts are in upper case, but the same host names are defined in the DNS server in lower case, starting and stopping the system does not work.
- If you want to start or restart remote systems or instances, make sure that you have registered them in the SAP Management Console (SAP MC). You do not need to register SAP systems or instances installed on the local host, because the SAP MC displays them automatically.
- The SAP Host Agent is installed on the host where the application server of the SAP system or instance runs.
- You have installed Java Runtime Environment (JRE) 5.0 or higher.
- Your Web browser supports Java.
- Your Web browser's Java plug-in is installed and enabled to run scripting of Java applets.

> ⓘ Note
>
> If your Web browser no longer supports Java applet technology, you can configure the SAP MC to run locally on your PC. For more information, see section *Configuring SAP MC locally* in SAP Note 1014480 .

Context

> → Recommendation
>
> If you experience any issues when starting or using the SAP MC, refer to SAP Note 1153713 .

- For more information about handling the SAP MC, see the SAP Library at:

SAP Release and SAP Library Quick Link	SAP Library Path (Continued)
- SAP NetWeaver 7.4 http://help.sap.com/nw74 - SAP NetWeaver AS for ABAP 7.52 https://help.sap.com/nw752abap - SAP NetWeaver 7.5 http://help.sap.com/nw75 - SAP NetWeaver Application Server for ABAP 7.51 innovation package https://help.sap.com/nw751abap - SAP NetWeaver AS for ABAP 7.52 https://help.sap.com/nw752abap	▌ *Application Help* > *Function-Oriented View* > *Solution Life Cycle Management* > *SAP Management Console* ❯

- If your newly installed SAP system is part of a heterogeneous SAP system landscape comprising systems or instances on Windows platforms, you can also start and stop it from a Windows system or instance using the **SAP Microsoft Management Console (SAP MMC)**.
  For more information about handling the SAP MMC, see the SAP Library at:

Release SAP Library Quick Link	SAP Library Path (Continued)
- SAP NetWeaver 7.4 http://help.sap.com/nw74 - SAP NetWeaver 7.5 http://help.sap.com/nw75 - SAP NetWeaver Application Server for ABAP 7.51 innovation package https://help.sap.com/viewer/p/SAP_NETWEAVER_AS_ABAP_751_IP - SAP NetWeaver AS for ABAP 7.52 https://help.sap.com/nw752abap	▌ *Application Help* > *Function-Oriented View* > *Solution Life Cycle Management* > *SAP Microsoft Management Console: Windows* ❯

Only valid for 'Platform': Linux

> ⓘ Note
>
> **Linux only:** If your server runs on a Linux distribution using systemd version 234 or later, it's technically possible that you use systemd commands on operating system level to start and stop SAP systems. However, we recommend that you **do not** use these systemd commands. For example, using systemd to restart or stop the systemd unit will not only stop the start service, but the entire related SAP instance with time limits for the processes to shut down. This might end in unexpected results. To start and stop

> SAP instances, we recommend that you use the SAP Management Console, as outlined here, or the `sapcontrol` commands (see also Starting and Stopping SAP System Instances Using Commands [page 74]). For more information about systemd, see SAP Note 3139184 .

End of 'Platform': Linux

Procedure

- **Starting the Web-Based SAP Management Console**

  1. Start a Web browser and enter the following URL:

     `http://<Host_Name>:5<Instance_Number>13`

     > ⚙ Example
     >
     > If the instance number is 53 and the host name is `saphost06`, you enter the following URL:
     >
     > `http://saphost06:55313`

     This starts the SAP MC Java applet.

     > ⓘ Note
     >
     > If your browser displays a security warning message, choose the option that indicates that you trust the applet.

  2. Choose *Start*.

     The SAP Management Console (SAP MC) appears.

     By default, the instances installed on the host you have connected to are already added in the SAP MC.

     > ⓘ Note
     >
     > If the instances have not been added or if you want to change the configuration to display systems and instances on other hosts, you have to register your system manually. This is described in *Registering Systems and Instances in the SAP Management Console* below.

- **Starting SAP Systems or Instances**

  Similarly, you can start or restart all SAP systems and individual instances registered in the SAP MC.

  1. In the navigation pane, open the tree structure and navigate to the system node that you want to start.
  2. Select the system or instance and choose *Start* from the context menu.
  3. In the *Start SAP System(s)* dialog box, choose the required options.
  4. Choose *OK*.

     The SAP MC starts the specified system or system instances.

     > ⓘ Note
     >
     > The system might prompt you for the SAP system administrator credentials. To complete the operation, you require administration permissions.
     >
     > Log in as user `<dasid>adm`.

- **Stopping SAP Systems or Instances**

  Similarly, you can stop all SAP systems and individual instances registered in the SAP MC.

  1. Select the system or instance you want to stop and choose *Stop* from the context menu.
  2. In the *Stop SAP System(s)* dialog box, choose the required options.
  3. Choose *OK*.
     The SAP MC stops the specified system or system instances.

  > ⓘ Note
  >
  > The system might prompt you for the SAP system administrator credentials. To complete the operation, you require administration permissions.
  >
  > Log in as user `<dasid>adm`.

7.6 Starting and Stopping SAP System Instances Using Commands

Prerequisites

You are logged on to the SAP system host as user `<sapsid>adm`.

Context

> ⓘ Note
>
> The **startsap** and **stopsap** commands are deprecated. SAP recommends that you do not use them any longer. For more information, see SAP Notes 1763593 and 809477 .
>
> Only valid for 'Platform': Linux
>
> **Linux only:** If your server runs on a Linux distribution using systemd version 234 or later, it's technically possible that you use systemd commands on operating system level to start and stop SAP systems. However, we recommend that you **do not** use these systemd commands. For example, using systemd to restart or stop the systemd unit will not only stop the start service, but the entire related SAP instance with time limits for the processes to shut down. This might end in unexpected results. To start and stop SAP instances, we recommend that you use the `sapcontrol` commands or the SAP Management Console (see also Starting and Stopping SAP System Instances Using the SAP Management Console [page 71]). For more information about systemd, see SAP Note 3139184 .
>
> End of 'Platform': Linux

This section only lists the basic commands how to start or stop an SAP system. You can find a detailed list of all `SAPControl` options and features in the command line help, which you can call as follows:

```
/usr/sap/<SAPSID>/<INSTANCE><NUMBER>/exe/sapcontrol --help
```

> ⚙ Example
>
> ```
> /usr/sap/GB1/D00/exe/sapcontrol --help
> ```

Procedure

- **Starting an SAP System or Instance**

  - Starting an SAP System:
    You can start an SAP system by executing the following commands from the command line
    (**`<Instance_Number>`** can be the number of any instance of the SAP system):
    `/usr/sap/<SAPSID>/<INSTANCE><NUMBER>/exe/sapcontrol -nr <instance_number>`
    `-function StartSystem`

    > ⚙ Example
    >
    > ```
    > /usr/sap/GB1/D00/exe/sapcontrol -nr 01 -function StartSystem
    > ```

  - Starting an SAP System Instance
    You can start an SAP system instance by executing the following commands from the command line:
    `/usr/sap/<SAPSID>/<INSTANCE><NUMBER>/exe/sapcontrol -nr <instance_number>`
    `-function Start`

    > ⚙ Example
    >
    > Starting an instance with `<instance_number>` 02: **`/usr/sap/GB1/D00/exe/sapcontrol -nr`**
    > **`02 -function Start`**

    For remote instances, the syntax is slightly different, because you also have to apply the **`-host`** and
    `-user` parameters:
    `/usr/sap/<SAPSID>/<INSTANCE><NUMBER>/exe/sapcontrol -nr <instance_number>`
    `-host <remote host> -user <sapsid>adm <password> -function Start`

    > ⚙ Example
    >
    > Starting a remote instance with `<instance_number>` 02: **`/usr/sap/GB1/D00/exe/`**
    > **`sapcontrol -nr 02 -host myremotehost -user gb1adm -function Start`**

- **Stopping an SAP System or Instance**

  - Stopping an SAP System
    You can stop an SAP system by executing the following commands from the command line
    (**`<Instance_Number>`** can be the number of any instance of the SAP system):
    `/usr/sap/<SAPSID>/<INSTANCE><NUMBER>/exe/sapcontrol -nr <instance_number>`
    `-function StopSystem`

```
/usr/sap/GB1/D00/exe/sapcontrol -nr 01 -function StopSystem
```

- Stopping an SAP System Instance
  You can stop an SAP system instance by executing the following commands from the command line:
  `/usr/sap/<SAPSID>/<INSTANCE><NUMBER>/exe/sapcontrol -nr <instance_number>`
  `-function Stop`

  Stopping an instance with `<instance_number>` 02: `/usr/sap/GB1/D00/exe/sapcontrol`
  `-nr 02 -function Stop`

  For remote instances, the syntax is slightly different, because you also have to apply the **-host** and
  -user parameters:
  `/usr/sap/<SAPSID>/<INSTANCE><NUMBER>/exe/sapcontrol -nr <instance_number>`
  `-host <remote host> -user <sapsid>adm <password> -function Stop`

  Stopping a remote instance with `<instance_number>` 02: `/usr/sap/GB1/D00/exe/`
  `sapcontrol -nr 02 -host myremotehost -user gb1adm -function Stop`

  The database is not stopped by these commands. You have to stop the database using database-specific tools or commands.

- **Checking System Instance and Processes**

  - With the following command you get a list of system instances, their status, and the ports used by them (`<Instance_Number>` can be the number of any instance of the SAP system):
    `/usr/sap/<SAPSID>/<INSTANCE><NUMBER>/exe/sapcontrol -nr <instance_number>`
    `-host <remote host> -user <sapsid>adm <password> -function`
    `GetSystemInstanceList`

    ```
    /usr/sap/GB1/D00/exe/sapcontrol -nr 02 -host myremotehost -user gb1adm
    -function GetSystemInstanceList
    ```

  - With the following command you get a list of instance processes and their status:
    `/usr/sap/<SAPSID>/<INSTANCE><NUMBER>/exe/sapcontrol -nr <instance_number>`
    `-host <remote host> -user <sapsid>adm <password> -function GetProcessList`

    ```
    /usr/sap/GB1/D00/exe/sapcontrol -nr 02 -host myremotehost -user gb1adm
    -function GetProcessList
    ```

- **Troubleshooting**

  If you get an error like `"FAIL: NIECONN_REFUSED"`, execute **sapcontrol -nr <Instance_Number> -function StartService <SAPSID>** to ensure that `sapstartsrv` is running. Then execute again the start or stop command.

7.7 Starting and Stopping the Diagnostics Agent

The Diagnostics Agent is started at the end of the installation. You can start and stop the Diagnostics Agent by running `sapcontrol`. The `sapcontrol` executable is located in the Diagnostics Agent instance specific `exe` directory:

- `/usr/sap/<DASID>/SMDA<Instance_Number>/exe`

See also section SAP Directories [page 25].

> ⓘ Note
>
> You can only start or stop the Diagnostics Agent separately. It is not started or stopped automatically with an SAP system that you start or stop.

You can also use the SAP Management Console (SAP MC) to start or stop the Diagnostics Agent. For more information see Starting and Stopping SAP System Instances Using the SAP Management Console [page 71].

Procedure

You have logged on to the host as `<dasid>adm`.

- To start or stop the Diagnostics Agent system (all instances) with `sapcontrol`, enter one of the following commands:

  sapcontrol -prot PIPE -nr <Instance_Number> -function StartSystem
  sapcontrol -prot PIPE -nr <Instance_Number> -function StopSystem
- To start or stop a single Diagnostics Agent instance with `sapcontrol`, enter one of the following commands:

  sapcontrol -prot PIPE -nr <Instance_Number> -function Start
  sapcontrol -prot PIPE -nr <Instance_Number> -function Stop

7.8 Uninstalling an SAP System or Single Instances

Uninstalling an SAP system or single instances is described in this section. It includes prerequisites, manual steps, and recommendations for deleting the system or instances using the software provisioning manager. It also provides information on deleting database content and other related considerations.

Prerequisites

- You have installed your SAP system with standard SAP tools according to the installation documentation.
- You are logged on as a user with `root` permissions.

> ⚠ Caution
>
> Do **not** use the `<dasid>adm` user to delete the Diagnostics Agent.

- Make sure that the SAP system, or single instance, or standalone engine, or optional standalone unit to be deleted is down and that you are not logged on as one of the SAP system users. Also check that all SAP-related processes are stopped. If there is a lock on one of the SAP system objects, the uninstall fails.

> ⓘ Note
>
> You do not have to stop the SAP Host Agent. The SAP Host Agent is stopped automatically during the uninstall process.

- When starting the uninstall, make sure that there are no SAP system user sessions still open.

Context

Note the following when deleting an SAP system or single instances:

- We strongly recommend that you delete an SAP system or single instances using the software provisioning manager. However, you can also delete an SAP system or single instance manually. For more information, see SAP Note 1259982 .
- During the uninstall process, all file systems and subdirectories of the selected SAP system or single instance are deleted. Before you start uninstalling, check that you have saved a copy of all files and directories that you want to keep to a secure location.
- The uninstall process is designed to remove as much as possible of the SAP system to be deleted. If an item cannot be removed, a message informs you that you have to remove this item manually. You can do this either at once or after the uninstall process has finished. As soon as you confirm the message, the uninstall process continues.

> ⚠ Caution
>
> Make sure to follow these recommendations related to uninstalling Diagnostics Agents:
>
> - SCN Wiki article on *"Diagnostics Agent Maintenance Procedures"* (http://wiki.scn.sap.com/wiki/x/ n4efFg).
> - Section *"Deleting a Diagnostics Agent Manually"* in the UNIX/Linux specific **SAP Note** 1259982 .
>
> In case of problems see Components for Reporting an Incident [page 9].

Procedure

1. Start the software provisioning manager as described in Running Software Provisioning Manager [page 40].

2. On the *Welcome* screen, choose:

   ▍ *Generic Installation Options* ❭ *Diagnostics in SAP Solution Manager* ❭ *Uninstall - Diagnostics Agent* ❭

3. Follow the instructions on the software provisioning manager screens to delete a complete SAP system or single instances.

   > ⓘ 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.

   The following table provides information about deleting a complete system or single instances with the software provisioning manager.

Deletion of	Remarks
Diagnostics Agent	If you want to delete a Diagnostics Agent instance, enter the location of the profile directory of the Diagnostics Agent that you want to uninstall on the *General SAP System Parameters* screen: `/usr/sap/<DASID>/SYS/profile`
Standalone SAP Host Agent	The SAP Host Agent is automatically uninstalled from a host together with the last remaining SAP system instance. If you want to uninstall a **standalone** SAP Host Agent, deselect *Profiles Available* and select *Uninstall Standalone SAP Host Agent* on the *General SAP System Parameters* screen.

4. When you have finished, delete the relevant directory structure on the global host.

5. If you created the directories `/usr/sap/<DASID>` and `/<sapmnt>/<DASID>` as mount points, but not as directories on the local file system, you have to remove them manually.

6. If the directory `/usr/sap/ccms` contains a subdirectory with a name such as `wily*` or `*introscope`, the directory `/usr/sap/ccms` and all of its subdirectories will not be deleted.

7. If the following directories and files exist, delete them by entering the following command:

   `WRKLNKSAP`

   * `/usr/sap/trans/cofiles/*<SAPSID>*`
   * `/usr/sap/trans/data/*<SAPSID>*`
   * `/usr/sap/trans/log/*<SAPSID>*`
   * `/usr/sap/trans/buffer/*<SAPSID>*`

   Choose **4** (*Remove*) on every file that is found by the command `WRKLNKSAP`.

> **⸙ Example**
>
> For example, for directory `/usr/sap/trans/data`, enter the following command:
>
> **`WRKLNKSAP DIR('/usr/sap/trans/data/*<SAPSID>*')`**
>
> Choose **4** (*Remove*) on the listed files.

> **ⓘ Note**
>
> To limit the command **`WRKLNKSAP`**, choose **Subset** (in the upper right part on the screen).

8. If the following directories exist, delete them by entering the following commands:

   `RMVDIR DIR('/sapmnt/<SAPSID>') SUBTREE(*ALL)`

   `RMVDIR DIR('/usr/sap/trans/config/<SAPSID>') SUBTREE(*ALL)`

   > **ⓘ Note**
   >
   > If you are removing a system from an independent ASP also delete the contents from the following directories:
   >
   > **`RMVDIR DIR('/<IASP_Name>/usr/sap/<SAPSID>') SUBTREE(*ALL)`**
   >
   > **`RMVDIR DIR('/<IASP_Name>/sapmnt/<SAPSID>') SUBTREE(*ALL)`**

9. If the kernel library of the system you just deleted was only used by the deleted system, you can remove it.
   - To remove the kernel library from the library list, enter the following command:
     `RMVLIBLE LIB(SAP<SAPSID>IND)`
   - To delete the kernel library, enter the following command:
     `DLTLIB LIB(SAP<SAPSID>IND)`

Results

The SAP system is now deleted. If you want to reinstall an SAP system, you can use the same `<SAPSID>` as the one of the SAP system you deleted.

7.9 Setting Operating System Limits for the Diagnostics Agent

Certain operating systems limit operating system resources (such as the maximum number of open files) too strictly in the default settings. As a result, some SAP instance types (such as the Diagnostics Agent instances) do not work correctly. Therefore, the operating system settings must be adjusted.

Depending on how the Diagnostics Agent is started, limits have to be set either for the specific `<dasid>adm` user or in such a way that they also take effect for the `sapstartsrv` that was started either as a daemon at the

time of the operating system boot process or using a web service client (`sapcontrol`, SAP MMC, SAP MC, and so on).

Procedure

If `sapstartsrv` was started as `<dasid>adm` in a shell running commands like:

- **`/usr/sap/sapservices`**
- **`sapstartsrv pf=<Instance_Profile>`**
- **`sapcontrol -nr <Instance_Number> -function StartService <DASID>`**

you need to set the limits in the shell before doing so.

To do this, the individual platforms provide various mechanisms to set these globally or for individual processes or users.

Only valid for 'Platform': AIX, HP-UX, Linux, Oracle Solaris

Operating System	Action
AIX	Proceed as described in SAP Note 323816 .
HP-UX	Check the output of command **`limit`** (if you use `csh` shell) or **`ulimit -a`** (if you use `sh` or `ksh` shell) according to section ▶ *OS Dependencies* ❯ *All Operating Systems* ❯ of SAP Note 1704753 .
Linux	Check the output of command **`limit`** (if you use `csh` shell) or **`ulimit -a`** (if you use `sh` or `ksh` shell) according to section ▶ *OS Dependencies* ❯ *All Operating Systems* ❯ of SAP Note 1704753 .
Solaris	Check the output of command **`limit`** (if you use `csh` shell) or **`ulimit -a`** (if you use `sh` or `ksh` shell) according to section ▶ *OS Dependencies* ❯ *All Operating Systems* ❯ of SAP Note 1704753 .

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

To set the limits for all `sapstartsrv` daemons that were started via the `sapinit` script at operating system boot time, you can set the limits in `/usr/sap/sapservices`

`limit.descriptors=<Value>`

`limit.stacksize=<Value>`

> ⚠ Caution
>
> Make sure to follow the instructions in **SAP Note** 1437105 .

To take the new limits into account you have to:

- Stop the Diagnostics Agent:
  `sapcontrol -prot PIPE -nr <Instance_Number> -function StopWait 60 1`
- Stop the `sapstartsrv` process:
  `sapcontrol -prot PIPE -nr <Instance_Number> -function StopService`

- Start the `sapstartsrv` process and the Diagnostics Agent:

  `sapcontrol -prot PIPE -nr <Instance_Number> -function StartService <DASID>`

Just restarting `sapstartsrv` is not enough since it would just send a restart request to `sapstartsrv`. Then the new `sapstartsrv` would inherit the limits of the currently running one.

7.10   Backup and Recovery

Once a Diagnostics Agent is installed and has been connected to an SAP Solution Manager system, it downloads latest binaries and configuration information from the SAP Solution Manager system. Relevant configuration changes that you do after the installation (e.g. enabling Agents On-the-fly) are stored by SAP Solution Manager. Diagnostics Agents that get corrupted can easily be recovered, by reinstalling and reconnecting to the SAP Solution Manager system. A dedicated backup and recovery procedure is not mandatory.

Only valid for 'Platform': AIX, HP-UX, Linux, Oracle Solaris

If you should want to put a backup and recovery procedure for Diagnostics Agents in place, please refer to the respective Accessing the SAP Library [page 10] documentation for SAP NetWeaver systems. Any database related instructions are can be ignored; Diagnostics Agents do not have a database dependency.

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

Only valid for 'Platform': AIX, HP-UX, Linux, Oracle Solaris

Release	SAP Library Path
• SAP NetWeaver 7.3 • SAP NetWeaver 7.3 including Enhancement Package 1 • SAP NetWeaver 7.3	▶ *Solution Life Cycle Management* ▶ *Backup and Recovery* ▶

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

7.11   Software Provisioning Manager and Diagnostics Agent Version Information

As of software provisioning manager 1.0 SP05, information about the installer version used to install the Diagnostics Agent is consistently stored in the `installationinfo.properties` files that are generated by the software provisioning manager. The `installationinfo.properties` file can be found at the following location:

`/usr/sap/<DASID>/SMDA<Instance_Number>/SMDAgent/configuration/installationinfo.properties`

The value of the `sapinst_version` property in combination with the below table can be used to determine the software logistics toolset, software provisioning manager, and Diagnostics Agent versions **that were used at the time of the installation**.

If you should have the need to determine this information for older Diagnostics Agent installations, you can report an incident at component SV-SMG-INS-AGT. Following information must be attached to the incident:

- File /usr/sap/<DASID>/SMDA<Instance_Number>/SMDAgent/lib/smdagent.jar
- Listing of the files in directory /usr/sap/<DASID>/SMDA<Instance_Number>/SMDAgent/bootstrap
- Recent Diagnostics Agent supportLogs_<Timestamp>.zip file for the respective installation. See *Action supportlogs* in Using the SMD Setup Script [page 66].

RTC Information	Software Logistics Toolset (SL Toolset) Version	Software Provisioning Manager (SWPM) Version	Diagnostics Agent Version	Version String for sapinst_version Property in installationinfo. properties File
October 2020, and later releases	1.0 SP30, and higher	1.0 SP30, and higher	7.53, and higher	SWPM: SWP10SP(**), where (**) matches the current SP number
June 2020	1.0 SP29	1.0 SP29	7.53	SWPM: SWPM10SP29
January 2020	1.0 SP28	1.0 SP28	7.53	SWPM: SWPM10SP28
September 2019	1.0 SP27	1.0 SP27	7.53	SWPM: SWPM10SP27
May 2019	1.0 SP26	1.0 SP26	7.53	SWPM: SWPM10SP26
January 2019	1.0 SP25	1.0 SP25	7.53	SWPM: SWPM10SP25
September 2018	1.0 SP24	1.0 SP24	7.53	SWPM: SWPM10SP24
May 2018	1.0 SP23	1.0 SP23	7.53	SWPM: SWPM10SP23
January 2018	1.0 SP22	1.0 SP22	7.49.3	SWPM: SWPM10SP22
September 2017	1.0 SP21	1.0 SP21	7.49.2	SWPM: SWPM10SP21
May 2017	1.0 SP20	1.0 SP20	7.49.1	SWPM: SWPM10SP20
February 2017	1.0 SP19	1.0 SP19	7.49	SWPM: SWPM10SP19
October 2016	1.0 SP18	1.0 SP18	7.45.3	SWPM: SWPM10SP18 70SWPM: 70SWPM10SP18
June 2016	1.0 SP17	1.0 SP17	7.45.2	SWPM: SWPM10SP17 70SWPM: 70SWPM10SP17

RTC Information	Software Logistics Toolset (SL Toolset) Version	Software Provisioning Manager (SWPM) Version	Diagnostics Agent Version	Version String for `sapinst_version` Property in `installationinfo.properties` File
February 2016	1.0 SP16	1.0 SP10	7.45.1	SWPM: `SWPM10SP10` 70SWPM: `70SWPM10SP10`
October 2015	1.0 SP15	1.0 SP9 (Patch Release to support SAP Kernel 7.45)	7.45	SWPM: `SWPM10SP9` 70SWPM: `70SWPM10SP9`
September 2015	1.0 SP14	1.0 SP9	7.45	SWPM: `SWPM10SP9` 70SWPM: `70SWPM10SP9`
April 2015	1.0 SP13	1.0 SP8	7.42.2	SWPM: `SWPM10SP8` 70SWPM: `70SWPM10SP8`
November 2014	1.0 SP12	1.0 SP7	7.42.1	SWPM: `SWPM10SP7` 70SWPM: `70SWPM10SP7`
September 2014	1.0 SP11	1.0 SP6 (Patch Release to support SAP Kernel 7.42)	7.42	SWPM: `SWPM10SP6` 70SWPM: `70SWPM10SP6`
July 2014	1.0 SP11	1.0 SP6	7.42	SWPM: `SWPM10SP6` 70SWPM: `70SWPM10SP6`
March 2014	1.0 SP10	1.0 SP5	7.41	SWPM: `SWPM10SP5` 70SWPM: `70SWPM10SP5`
October 2013	1.0 SP9	1.0 SP4	7.4	-

7.12 Unsupported Features

The below table gives an overview and explanations on features that are not supported for the Diagnostics Agent.

Software Provisioning Manager Version	Feature Description	Support Statement
1.0 SP6	System Copy	Per software provisioning manager 1.0 SP6, we officially communicate that this feature is not supported and not relevant for the Diagnostics Agent.

This statement applies to all software provisioning manager versions.

For alternatives, see the System Copy section in SCN Wiki article *"Diagnostics Agent Maintenance Procedures"* (http://wiki.scn.sap.com/wiki/x/n4efFg). |
| 1.0 SP6 | System Rename | Per software provisioning manager 1.0 SP6, we officially communicate that this feature is not supported for the Diagnostics Agent.

This statement applies to all software provisioning manager versions.

For alternatives, see the System Rename section in SCN Wiki article *"Diagnostics Agent Maintenance Procedures"* (http://wiki.scn.sap.com/wiki/x/n4efFg). |

7.13 SAP Router

The Diagnostics Agent can be connected to the SAP Solution Manager system via an SAP router. The software provisioning manager supports configuring the Diagnostics Agent connection via an SAP router. Alternatively the route string can be maintained after the Diagnostics Agent installation using the smdsetup script (see Using the SMD Setup Script [page 66]).

The automatic activities *Introscope Host Adapter* and *Introscope Byte Code Adapter Installation* in the SAP Solution Manager scenario *Managed System Configuration* (transaction SOLMAN_SETUP) will also use the provided route string.

A   Appendix

A.1   Online Information from SAP

More information is available online as follows:

Documentation

Title	Internet Address
How to Use SAP Solution Manager Configuration (SOLMAN_SETUP)	http://wiki.scn.sap.com/wiki/display/SMSETUP/Home *How to Use SAP Solution Manager Configuration (SOLMAN_SETUP)*

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