Installation of Diagnostics Agent on Windows
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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 78]).

⚠️ 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/sitoolset → 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 SWPM, 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).

- **Installer**
  Refers to software provisioning manager 1.0.

- **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

<table>
<thead>
<tr>
<th>Variables</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;DASID&gt;</td>
<td>Diagnostics Agent system ID in uppercase letters.</td>
</tr>
<tr>
<td>&lt;dasid&gt;</td>
<td>Diagnostics Agent system ID in lowercase letters.</td>
</tr>
<tr>
<td>&lt;fqn&gt;</td>
<td>Fully Qualified Name (host.domain.corp and not the short host name host).</td>
</tr>
</tbody>
</table>
1.1 New Features

This section provides an overview of the new features in Software Provisioning Manager 1.0 (the “installer” for short).

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


<table>
<thead>
<tr>
<th>Feature</th>
<th>Description</th>
<th>Availability</th>
</tr>
</thead>
<tbody>
<tr>
<td>SAP Host Agent Upgrade During the Installation (Optional)</td>
<td>During the Define Parameters phase of the installation, the installer 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].</td>
<td>Software Provisioning Manager 1.0 SP31 (SL Toolset 1.0 SP31)</td>
</tr>
<tr>
<td>New Look and Feel of SL Common GUI</td>
<td>As of version 1.0 SP24 Patch Level (PL) 5, Software Provisioning Manager comes with a new look and feel of the SL Common GUI. For more information, see <a href="https://blogs.sap.com/2018/11/10/new-look-for-software-provisioning-manager/">https://blogs.sap.com/2018/11/10/new-look-for-software-provisioning-manager/</a>.</td>
<td>Software Provisioning Manager 1.0 SP24, PL05 (SL Toolset 1.0 SP24)</td>
</tr>
<tr>
<td>Feature</td>
<td>Description</td>
<td>Availability</td>
</tr>
<tr>
<td>---------</td>
<td>-------------</td>
<td>--------------</td>
</tr>
<tr>
<td>Installer Log Files Improvements</td>
<td>Installer log files are now available immediately after the installer has been started, that is before a product has been selected on the Welcome screen. For more information, see Useful Information about the Installer [page 38] and Troubleshooting with the Installer [page 44].</td>
<td>Software Provisioning Manager 1.0 SP22 (SL Toolset 1.0 SP22)</td>
</tr>
<tr>
<td>Signature Check of Installation Archives</td>
<td>The signature of installation archives is checked automatically by the installer during the Define Parameters phase while processing the Software Package Browser screens. As of now the installer only accepts archives whose signature has been checked. For more information, see Archive-Based Diagnostics Agent Installation [page 27].</td>
<td>Software Provisioning Manager 1.0 SP22 (SL Toolset 1.0 SP22)</td>
</tr>
<tr>
<td>Enabling IPv6</td>
<td>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 the Installer [page 32].</td>
<td>Software Provisioning Manager 1.0 SP22 (SL Toolset 1.0 SP22)</td>
</tr>
<tr>
<td>Media Signature Check</td>
<td>The signature of media is checked automatically by the installer during the Define Parameters phase while processing the Media Browser screens. As of now the installer only accepts media whose signature has been checked. See also the description of this new security feature in SAP Note 2393060. For more information, see Preparing the Installation Media [page 24] and Running the Installer [page 33].</td>
<td>Software Provisioning Manager 1.0 SP21 (SL Toolset 1.0 SP21)</td>
</tr>
<tr>
<td>SL Common GUI with SAPINST 7.49</td>
<td>With the new installer framework version SAPINST 7.49, you can now use the new SAPUI5-based graphical user interface (GUI) “SL Common GUI”. For more information, see Useful Information about the Installer [page 38], Running the Installer [page 33].</td>
<td>Software Provisioning Manager 1.0 SP20 (SL Toolset 1.0 SP20)</td>
</tr>
<tr>
<td>Verification of Integrity of Data Units in Software Provisioning Manager</td>
<td>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 25]. In addition, check SAP Note 1680045 whether additional information is available.</td>
<td>Software Provisioning Manager 1.0 SP19 (SL Toolset 1.0 SP19)</td>
</tr>
<tr>
<td>System Provisioning for SAP NetWeaver 7.5 and SAP NetWeaver 7.5-based Products</td>
<td>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 &lt;SAPSID&gt;, common startup framework, common database), is no longer supported in SAP systems based on SAP NetWeaver 7.5.</td>
<td>Software Provisioning Manager 1.0 SP09 (SL Toolset 1.0 SP15)</td>
</tr>
</tbody>
</table>
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.

**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.

### 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 13]
- JVM for the Diagnostics Agent [page 13]
- Patching the Installation Media [page 30]
- Diagnostics Agent Download Paths [page 31]
- Installing the Diagnostics Agent Optionally with the SAP System [page 60]
- Installer and Diagnostics Agent Version Information [page 69]
- Unsupported Features [page 71]

### 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

<table>
<thead>
<tr>
<th>SAP Note Number</th>
<th>Title</th>
<th>Description</th>
</tr>
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<tr>
<td>1680045</td>
<td>Release Note for Software Provisioning Manager 1.0</td>
<td>Software Provisioning Manager 1.0 with installation and system copy for SAP NetWeaver-based systems</td>
</tr>
<tr>
<td>1710950</td>
<td>Inst. SAP Systems Based on SAP NetWeaver 7.1 and higher: Windows</td>
<td>Windows-specific information about the SAP system installation and corrections to this documentation</td>
</tr>
<tr>
<td>1732161</td>
<td>SAP Systems on Windows Server 2012 (R2)</td>
<td>Windows Server 2012 (R2)-specific information for the SAP system installation</td>
</tr>
<tr>
<td>2384179</td>
<td>Planned support of Windows Server 2016 for SAP products</td>
<td>Windows Server 2016-specific information for the SAP system installation</td>
</tr>
<tr>
<td>1365123</td>
<td>Installation of Diagnostics Agents</td>
<td>Overview of the Diagnostics Agent installation strategies</td>
</tr>
<tr>
<td>1833501</td>
<td>Diagnostics Agent – Installer Versions</td>
<td>More information about available Diagnostics Agent installer versions</td>
</tr>
<tr>
<td>1858920</td>
<td>Diagnostics Agent installation with SWPM</td>
<td>Installation and Post-installation steps for installers based on Software Provisioning Manager 1.0 (SWPM)</td>
</tr>
<tr>
<td>8865350</td>
<td>Downloading multispansing archives</td>
<td>Downloading multispansing archives</td>
</tr>
</tbody>
</table>

### 1.4 Components for Reporting an Incident

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

<table>
<thead>
<tr>
<th>Components</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>SV-SMG-INS</td>
<td>Issues related to Installation, Configuration and Upgrade of SAP Solution Manager</td>
</tr>
<tr>
<td>SV-SMG-INS-AGT</td>
<td>Issues related to Diagnostics Agent Installation</td>
</tr>
<tr>
<td>BC-INS-SWPM</td>
<td>Issues related to the installation with Software Provisioning Manager</td>
</tr>
<tr>
<td>Components</td>
<td>Description</td>
</tr>
<tr>
<td>-------------</td>
<td>-----------------------------------------------------------------------------</td>
</tr>
<tr>
<td>BC-INS-*</td>
<td>Other issues related to the installation tooling. For more information about using subcomponents of BC-INS, see SAP Note 1669327.</td>
</tr>
<tr>
<td>BC-OP-AIX</td>
<td>OS specific issues related to Diagnostics Agent Installations on IBM AIX</td>
</tr>
<tr>
<td>BC-OP-AS4</td>
<td>OS specific issues related to Diagnostics Agent Installations on IBM i</td>
</tr>
<tr>
<td>BC-OP-LNX</td>
<td>OS specific issues related to Diagnostics Agent Installations on Linux</td>
</tr>
<tr>
<td>BC-OP-NT</td>
<td>OS specific issues related to Diagnostics Agent Installations on Windows</td>
</tr>
<tr>
<td>BC-OP-SUN</td>
<td>OS specific issues related to Diagnostics Agent Installations on Solaris</td>
</tr>
<tr>
<td>BC-OP-S390</td>
<td>OS specific issues related to Diagnostics Agent Installations on z/OS</td>
</tr>
<tr>
<td>SV-SMG-DIA</td>
<td>Issues related to SAP Solution Manager Diagnostics</td>
</tr>
<tr>
<td>SV-SMG-DIA-SRV-AGT</td>
<td>Issues related to Diagnostics Agent</td>
</tr>
<tr>
<td>BC-CCM-HAG</td>
<td>Issues related to SAP Host Agent</td>
</tr>
<tr>
<td>BC-JVM</td>
<td>Issues related to SAP Java Virtual Machine</td>
</tr>
<tr>
<td>XX-PART-WILY</td>
<td>Issues related to Introscope</td>
</tr>
</tbody>
</table>
# 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:

<table>
<thead>
<tr>
<th>Product and Release</th>
<th>SAP Library Path</th>
</tr>
</thead>
<tbody>
<tr>
<td>SAP systems based on SAP NetWeaver 7.3x</td>
<td>● SAP NetWeaver 7.3: <a href="http://help.sap.com/nw73">http://help.sap.com/nw73</a></td>
</tr>
<tr>
<td></td>
<td>● SAP NetWeaver Library: Function-Oriented View</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>● SAP NetWeaver Library: Function-Oriented View</td>
</tr>
<tr>
<td>SAP systems based on SAP NetWeaver 7.4</td>
<td><a href="http://help.sap.com/nw74">http://help.sap.com/nw74</a></td>
</tr>
<tr>
<td></td>
<td>Application Help</td>
</tr>
<tr>
<td></td>
<td>SAP NetWeaver Library: Function-Oriented View</td>
</tr>
<tr>
<td>SAP systems based on SAP NetWeaver 7.5x</td>
<td>● SAP NetWeaver 7.5: <a href="http://help.sap.com/nw75">http://help.sap.com/nw75</a></td>
</tr>
<tr>
<td></td>
<td>Application Help</td>
</tr>
<tr>
<td></td>
<td>SAP NetWeaver Library: Function-Oriented View</td>
</tr>
<tr>
<td></td>
<td>Application Help</td>
</tr>
<tr>
<td></td>
<td>SAP NetWeaver Library: Function-Oriented View</td>
</tr>
<tr>
<td></td>
<td>● SAP NetWeaver AS for ABAP 7.52: <a href="https://help.sap.com/nw752abap">https://help.sap.com/nw752abap</a></td>
</tr>
<tr>
<td></td>
<td>Application Help</td>
</tr>
<tr>
<td></td>
<td>SAP NetWeaver Library: Function-Oriented View</td>
</tr>
</tbody>
</table>
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 57].
2. Make sure you have understood the terminology with regard to Logical Host Names [page 23] and Virtual Host Names [page 24].
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 7].
7. Select a Kernel for the Diagnostics Agent [page 13].
8. Understand the situation with regard to the JVM for the Diagnostics Agent [page 13].
10. Collect the Basic Installation Parameters [page 14].

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 23].

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 22].
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\(\)\textit{Product Availability Matrix} \(\Rightarrow\) 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

<table>
<thead>
<tr>
<th>Category</th>
<th>Requirement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Minimum disk space</td>
<td>Depending on your platform:</td>
</tr>
<tr>
<td></td>
<td>• Up to 6 GB for installation media (packed and unpacked versions of SWPM SAR-file and kernel ZIP-file)</td>
</tr>
<tr>
<td></td>
<td>• Up to 1.5 GB for the installed Diagnostics Agent</td>
</tr>
<tr>
<td></td>
<td>• Up to 1 GB of free space in the installation directory</td>
</tr>
<tr>
<td>Minimum RAM</td>
<td>256 MB</td>
</tr>
</tbody>
</table>
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.

A Diagnostics Agent must be installed with at least a 7.22 or 7.22 EXT kernel. 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 31].

Install – Diagnostics Agent

The installation option Install - Diagnostics Agent can be used to perform installations using a Unicode Kernel with one of the following versions:

- 7.53
- 7.22

2.6 JVM for the Diagnostics Agent

Diagnostics Agent installations are supported with SAP JVM 6 and with SAP JVM 8. If the Diagnostics Agent is used with a SAP Solution Manager 7.10 system, only SAP JVM 6 is supported. If the Diagnostics Agent is used with a SAP Solution Manager 7.20 system, both SAP JVM 6 and SAP JVM 8 are supported. See also Kernel for the Diagnostics Agent [page 13].

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*.

<table>
<thead>
<tr>
<th>Parameters</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Host Name</strong></td>
<td>Change <em>Host Name</em> if you plan to manage systems running on a logical host. This scenario lets the Diagnostics Agent take part in a switchover environment.</td>
</tr>
<tr>
<td></td>
<td><strong>Caution</strong></td>
</tr>
<tr>
<td></td>
<td>The <em>Host Name</em> is the short host name and not the FQN.</td>
</tr>
<tr>
<td><strong>Package Location</strong> of the kernel medium</td>
<td>Refer to Preparing the Installation Media [page 24] and Kernel for the Diagnostics Agent [page 13] for guidance.</td>
</tr>
<tr>
<td>Parameters</td>
<td>Description</td>
</tr>
<tr>
<td>------------------------------------</td>
<td>-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td><strong>Destination Drive</strong></td>
<td>Base directory for the Diagnostics Agent. You cannot select the <strong>Destination Drive</strong> if:</td>
</tr>
<tr>
<td></td>
<td>• The <code>saploc</code> share already exists (an SAP System or a Diagnostics Agent has already been installed on this machine). The installer sets the <strong>Destination Drive</strong> to where the <code>saploc</code> share points to.</td>
</tr>
<tr>
<td></td>
<td>• The <code>saploc</code> share does not exist and there is only one hard disk on this machine.</td>
</tr>
<tr>
<td><strong>SAP Host Agent Upgrade (Optional)</strong></td>
<td>If there already exists an SAP Host Agent on the installation host, the installer asks you if you want to upgrade it to a newer patch level version. If you want the existing version to be upgraded, you must provide the new target version of the <code>SAPHOSTAGENT&lt;Version&gt;.SAR</code> archive.</td>
</tr>
<tr>
<td></td>
<td>For more information, see [Archive-Based Diagnostics Agent Installation](page 27)</td>
</tr>
</tbody>
</table>
2.9.2 Diagnostics Agent System ID and Instance Number

<table>
<thead>
<tr>
<th>Parameters</th>
<th>Description</th>
</tr>
</thead>
</table>
| **Diagnostics Agent System ID (DASID)** | By default the installer 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 installer 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 installer 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](https://support.sap.com/­notes/­1979280)
### Parameters

<table>
<thead>
<tr>
<th>Parameters</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Instance Number</strong> of the Diagnostics Agent</td>
<td>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 installer automatically creates during the installation. The directory of the Diagnostics Agent instance is called <code>SMDA&lt;Instance_Number&gt;</code>. For more information, see <a href="#">SAP Directories</a> [page 22]. To find out the instance numbers of SAP systems that already exist on the installation host, look for subdirectories ending with <code>&lt;nn&gt;</code> of local <code>\usr\sap\&lt;SAPSID&gt;</code> directories. The value <code>&lt;nn&gt;</code> is the number assigned to the instance.</td>
</tr>
</tbody>
</table>

**Caution**

Do **not** use 43, and 89 for the instance number because:
- 43 is part of the port number for high availability
- 89 is part of the port number for Windows Terminal Server

---

### 2.9.3 Operating System Users

**Operating System Users**

<table>
<thead>
<tr>
<th>Parameters</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Domain Model</strong></td>
<td>The <em>Windows Domain</em> for the Diagnostics Agent operating system users <code>&lt;dasid&gt;adm</code> and <code>SAPService&lt;dasid&gt;</code></td>
</tr>
</tbody>
</table>

**Caution**

SAP strongly recommends creating the Diagnostics Agent users in the *Local Domain*. |
<table>
<thead>
<tr>
<th>Parameters</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>SAP System Administrator:</strong></td>
<td>Administrator for the Diagnostics Agent.</td>
</tr>
<tr>
<td><code>&lt;dasid&gt;adm</code></td>
<td>This user is dedicated to the Diagnostics Agent installation and has the authorization to manage the Diagnostics Agent.</td>
</tr>
<tr>
<td></td>
<td>This user is created on every application server instance host. For security reasons, the installer by default creates this user as a local user without being a member of the local administrators group. If required, you can change this user to become a domain user on the Parameter Summary screen.</td>
</tr>
<tr>
<td></td>
<td>Make sure to respect the password guidance at the end of this table.</td>
</tr>
<tr>
<td><strong>SAP System Service User:</strong></td>
<td>User to run the Diagnostics Agent.</td>
</tr>
<tr>
<td>SAPService&lt;DasID&gt;</td>
<td>Make sure to respect the password guidance at the end of this table.</td>
</tr>
<tr>
<td><strong>SAP System Administrator:</strong></td>
<td>SAP Host Agent administrator is the user for central monitoring services.</td>
</tr>
<tr>
<td>sapadm</td>
<td>This user is created only if the SAP Host Agent is automatically installed during the installation of the Diagnostics Agent.</td>
</tr>
<tr>
<td></td>
<td>Make sure to respect the password guidance at the end of this table.</td>
</tr>
<tr>
<td><strong>Password guidance</strong></td>
<td>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:</td>
</tr>
<tr>
<td></td>
<td>• It must be 8 to 14 characters long</td>
</tr>
<tr>
<td></td>
<td>• It must not contain \ (backslash) and &quot; (double quote)</td>
</tr>
<tr>
<td></td>
<td>• It must contain at least one digit (0-9)</td>
</tr>
<tr>
<td></td>
<td>• It must contain at least one letter in uppercase (A-Z)</td>
</tr>
<tr>
<td></td>
<td>• It must contain at least one letter in lowercase (a-z)</td>
</tr>
<tr>
<td></td>
<td>• Depending on the configuration of the password policy, additional restrictions may apply.</td>
</tr>
</tbody>
</table>

**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:

- SAP System Security on Windows [page 72]
- Automatic Creation of Accounts and Groups [page 74]
- Ensuring User Security [page 56]
## 2.9.4 SAP Solution Manager Connectivity Parameters

SAP Solution Manager Connectivity Parameters

<table>
<thead>
<tr>
<th>Parameters</th>
<th>Description</th>
</tr>
</thead>
</table>
| **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 installer will prompt you for the SAP Solution Manager connection parameters listed below.  
  - *Do not configure connection*  
    If you choose this option, the installer 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 60]. |
| **Host (FQN)** | The fully qualified host name of the SAP Solution Manager system, e.g. `host.domain.corp` |
| **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* is `<81<xx>`, where `<xx>` is the instance number of the SAP Solution Manager Java Central Services (SCS).  
  - *Java SCS Message Server HTTPS Port* is `<444<xx>`, where `<xx>` is the instance number of the SAP Solution Manager Java Central Services (SCS). |
<p>| <strong>User (Administrator role) and Password</strong> | As of SAP Solution Manager 7.10 SP10 we recommend to use the <code>SMD_AGT</code> user of your SAP Solution Manager system. For earlier releases the <code>SMD_ADMIN</code> user is still recommended. |</p>
<table>
<thead>
<tr>
<th>Parameters</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>SAP Router (optional)</strong></td>
<td>The route string describes the stations of a connection required between the Diagnostics Agent and SAP Solution Manager.</td>
</tr>
<tr>
<td><strong>Route and Password</strong></td>
<td>The route string contains a substring for each SAP router without the target server such as: /H/host/S/service/W/pass</td>
</tr>
<tr>
<td></td>
<td>• /H/ indicates the host name</td>
</tr>
<tr>
<td></td>
<td>• /S/ is used for specifying the service (port); it is an optional entry, the default value is 3299</td>
</tr>
<tr>
<td></td>
<td>• /W/ indicates the password for the connection between the predecessor and successor on the route and is also optional (default is &quot;&quot;, no password)</td>
</tr>
<tr>
<td><strong>Example</strong></td>
<td>The route between the Diagnostics Agent and SAP Solution Manager can look like: /H/host.domain.corp/S/3299</td>
</tr>
</tbody>
</table>
3 Preparation

3.1 Preparation Checklist

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

1. Prepare the Installation Media [page 24].
2. Check the Required User Authorization for Running the Installer [page 21].
3. Continue with the Installation [page 32] or the Unattended Installation [page 46] section.

3.1.1 Required User Authorization for Running the Installer

Although the installer automatically grants the rights required for the installation to the user account used for the installation, you have to check whether this account has the required authorization to perform the installation. The authorization required depends on whether you intend to perform a domain or local installation. If necessary, you have to ask the system administrator to grant the account the necessary authorization before you start the installation. If you attempt the installation with an account that does not have the required authorization, the installation aborts.

This section informs you about the authorization required for a domain and a local installation.

Procedure

⚠️ Caution

Do not use the user `<sapsid>adm` or the built-in administrator account for the installation of the SAP system.

Domain Installation

For a domain installation the account used for the installation needs to be a member of the local Administrators group. In many old installation guides, you find the information, that the account must be a member of the Domain Admins group. The account can be either a member of the Domain Admins group, or belongs to the Domain Users group and has the necessary rights to create/modify objects in the domain.

All machines in the system must belong to the same domain. In a domain installation, the user information is stored centrally on the domain controller and is accessible to all hosts in the system.

If the SAP system is to be distributed across more than one machine, SAP strongly recommends that you perform a domain installation to avoid authorization problems.
⚠️ Caution

- For performance and security reasons, SAP does not support an SAP system installation on a domain controller.
- If for any reason, the account used for the installation is not a member of the domain Admins group, you can perform the installation with a domain user who is a member of the local Administrators group. However, the domain administrator has to prepare the system appropriately for you.

For a domain installation, you need to:

1. Check that the account used for the installation is a member of the domain Admins group.
2. If required, obtain these rights by asking the system administrator to enter the account as a member of the domain Admins group.

Local Installation

For a local installation the account used for the installation needs to be a member of the local Administrators group of the machine involved. In a local installation, all Windows account information is stored locally on one host and is not visible to any other hosts in the system.

If the SAP system is to run on a single machine, you can perform a local installation.

⚠️ Caution

Do not use the Windows built-in account Administrator or the renamed built-in account to install your SAP system. The built-in account only has restricted network access rights that are required by the installer. If you renamed the built-in account Administrator, do not create a new account named Administrator.

For a local installation, you need to:

1. Check that the account used for the installation is a member of the local Administrators group.
2. If required, obtain these rights by asking the system administrator to enter the account as a member of the local Administrators group.

Related Information

Performing a Domain Installation Without Being a Domain Administrator [page 76]

3.2 SAP Directories

Directories of the Diagnostics Agent

The installer creates the `\usr\sap\<DASID>` directory during the installation. Below this directory following directories are created:

- Diagnostics Agent system directory: `\usr\sap\<DASID>\SYS`
Diagnostics Agent instance directory: \usr\sap\<DASID>\SMDA<Instance_Number>

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

Executables are replicated from the \usr\sap\<DASID>\SYS to the \usr\sap\<DASID>\SMDA<Instance_Number> directory every time the instance is started. The SAP copy program sapcpe compares the binaries in the system directory and the binaries in the instance directory. If the binaries in the instance directory are older than those in the system directory, sapcpe replaces them with the newer version from the system directory.

The following figure shows the directory structure of the Diagnostics Agent.

```
<Drive> (non-HA) or <Local_Drive> (HA)
    |
    usr
    |
    sap
    |
    <DASID>
    |
    SYS    SMDA<Instance_Number>
        |
        global
        |
        profile
        |
        exe
        |
        script
        |
        SMDAgent
        |
        work
        |
        exe
```

Directory Structure of the Diagnostics Agent

### 3.3 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 24] 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.

3.3.1 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.
- Make sure that you configured the Windows operating system properly to use virtual host names. For more information, see SAP Note 1564275.

Context

⚠️ Caution

Make sure that you first read the section on Using Logical Host Names [page 23].

Procedure

To install a non-high-availability system, proceed as described in SAP Note 1564275.

3.4 Preparing the Installation Media

This section describes how to prepare the installation media.

Installation media are available as follows:

- The Software Provisioning Manager 1.0 archive containing the installer
  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 25].
- Required kernel media (see also Kernel for the Diagnostics Agent [page 13]) or dedicated installation archives (see Archive-Based Diagnostics Agent Installation [page 27]).

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

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

**Prerequisites**

- Make sure that you use the **latest** version of the SAPCAR tool when manually extracting the Software Provisioning Manager archive.

  **Note**
  
  An older SAPCAR version might extract archive files in a wrong way and this could prevent the installer from working consistently.

Proceed as follows to get the latest version of SAPCAR:

1. Go to [https://launchpad.support.sap.com/#/softwarecenter](https://launchpad.support.sap.com/#/softwarecenter) ➤ **SUPPORT PACKAGES & PATCHES** ➤ **By Category** ➤ **SAP TECHNOLOGY COMPONENTS** ➤ **SAPCAR**
2. Select the archive file for your operating system and download it to an empty directory.
3. To check the validity of the downloaded executable, right-click the executable and choose Properties. On the Digital Signatures tab you can find information about the SAP signature with which the executable was signed.
4. Rename the executable to sapcar.exe.

For more information about SAPCAR, see SAP Note [212876](https://launchpad.support.sap.com/#/notes/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/sitoolset](https://support.sap.com/sitoolset) ➤ **System Provisioning** ➤ **Download Software Provisioning Manager**

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

   `<Path to SAPCAR>\sapcar.exe -xvf <Path to Download Directory> \SWPM10SP<Support Package Number>_<Version Number>.SAR -R <Path to Unpack Directory>`
### 3.4.2 Media Required for the Installation

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

The signature of installation media is checked automatically by the installer during the Define Parameters phase while the Media Browser screens are processed (see also Running the Installer [page 33]). The installer only accepts media whose signature has been checked. For more information, see SAP Note 2393060.

Proceed as follows to make the media available:

1. Identify the required media as listed below.

<table>
<thead>
<tr>
<th>Installation</th>
<th>Installation Media</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diagnostics Agent</td>
<td>○ Software Provisioning Manager 1.0 archive</td>
</tr>
<tr>
<td></td>
<td>○ UC Kernel (folder K_&lt;Version&gt;_&lt;OS&gt;) where U means Unicode.</td>
</tr>
</tbody>
</table>

**i Note**

For information about supported kernel versions see Kernel for the Diagnostics Agent [page 13].

**i 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 25].

   **→ 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 31].

   2. Download and unpack the kernel ZIP file to a dedicated directory. For details see Diagnostics Agent Download Paths [page 31]. 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.
- If you perform a domain installation and do not want to copy the media but use network drives for mapping the installation media, make sure that the <dasid>adm user has access to the UNC paths of the network drives.
- If the user does not yet exist, you have to create the user manually before you install the SAP system.

Related Information

- Downloading and Extracting the Software Provisioning Manager 1.0 Archive [page 25]
- Downloading Complete Installation Media [page 29]

3.4.3 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 signature of installation archives is checked automatically by the installer [page 33] during the Define Parameters phase while processing the Software Package Browser screens. The installer only accepts archives whose signature has been checked. After scanning the archives and verifying the 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. For more information, see SAP Note 2393060.

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.
- Make sure that you always choose SAPEXE<Version>.SAR, SAPEXEDB<Version>.SAR of the same SAP kernel release and extension.

บทลงมือที่น่าสนใจ

- If SAPEXE<Version>.SAR is of version 7.53 DCK, then SAPEXEDB<Version>.SAR must also be of version 7.53 DCK.
- If SAPEXE<Version>.SAR is of version 7.49, then SAPEXEDB<Version>.SAR must also be of version 7.49.

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 25].
- 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: http://support.sap.com/swdc Software Downloads SUPPORT PACKAGES & PATCHES By Category Additional Components SAP KERNEL SAP KERNEL 64-BIT UNICODE <SAP KERNEL 7.22 64-BIT UNICODE or KERNEL 7.22_EXT 64-BIT UC> <Select your operating system> #Database independent

- Download the latest patch level of SAPHOSTAGENT.SAR from: http://support.sap.com/swdc Software Downloads SUPPORT PACKAGES & PATCHES By Category SAP Technology Components SAP HOST AGENT SAP HOST AGENT 7.22 <Select your operating system>

ℹ️ 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.
3.4.4 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 25].
2. You identify the required media as listed in Media Required for the Installation [page 26].
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://support.sap.com/sitoolset ➔ System Provisioning ➔ Software Provisioning Manager 1.0 SP<Current Version> ➔ Download Kernel releases delivered for SL Toolset ➔ SL TOOLSET 1.0 (INSTALLATIONS AND UPGRADES) ➔ KERNEL FOR INSTALLATION/SWPM.
     - To download all media required for your SAP product, you can use one of the following navigation paths:

   - Material number
     All download objects that are part of an installation medium have the same material number and an individual sequence number:
     &lt;Material_Number&gt;_&lt;Sequence_Number&gt;

   - **Example**
     51031387_1
     51031387_2
     ...

   - Title
     All objects that are part of an installation medium have the same title, such as
     &lt;Solution&gt;&lt;Media_Name&gt;&lt;OS&gt; or &lt;Database&gt;RDBMS&lt;OS&gt; 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.

### 3.5 Patching the Installation Media

**SAR-Files**

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

The SAR-files are required for the Archive-Based Diagnostics Agent Installation [page 27].

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:


For a mapping of software provisioning manager version to Diagnostics Agent version refer to Installer and Diagnostics Agent Version Information [page 69].
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

3.6 Diagnostics Agent Download Paths

More general download instructions are provided in Preparing the Installation Media [page 24]. 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 Paths via SL Toolset Pages

SL Toolset download path for installer archive: http://support.sap.com/sitoolset > System Provisioning > Software Provisioning Manager 1.0 SP<current SP> > Download Software Provisioning Manager


Download Paths for Additional SAP Kernels

Additional SAP kernels that are not available via the before mentioned paths can be downloaded via: http://support.sap.com/swdc > Software Downloads > By Alphabetical Index (A-Z) > K > SAP KERNEL 64-BIT UNICODE > <Supported_Kernel_Version> > INSTALLATION > <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 13]
4 Installation

4.1 Installation Checklist

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

1. Make sure to fulfill the Prerequisites for Running the Installer [page 32].
2. Follow the instructions in Running the Installer [page 33].
3. For alternative installation scenarios refer to Additional Information About the Installer [page 37].
4. Continue with the Post-Installation [page 56] section.

4.2 Prerequisites for Running the Installer

Make sure you fulfil the following prerequisites before running the installer.

- For the SL Common GUI, 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 Common GUI:
    - 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 Common GUI 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 Common GUI.

⚠️ Caution

The installer uses a self-signed certificate, which is used temporarily only while the installer is running. This certificate is not trusted by the browser unless it is imported manually by the user running the installer. This behavior is intentionally designed in this way because - unlike ordinary public web servers - the installer has different usage patterns. You must configure your browser do trust the self-issued certificate of the installer after carefully performing the "thumbprint" verification described in Running the Installer [page 33]. For more information about adding trusted certificates, see the documentation of your browser.

For more information about the SL Common GUI, see Useful Information about the Installer [page 38].

- 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 the required authorization [page 21] to run the installer. While running the installer, 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.

- You need at least 300 MB of free space in the installation directory for each installation option. In addition, you need 300 MB free space for the installer executables. The installer creates an installation directory `sapinst_instdir`, where it keeps its log files, and which is located directly in the `%ProgramFiles%` directory. For more information, see Useful Information About the Installer [page 38].
- 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 installer and the SL Common GUI.
    If this port cannot be used, you can assign a free port number by executing `sapinst.exe` 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 installer 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.exe` with the following command line parameter:
    ```
    SAPINST_HTTP_PORT=<Free Port Number>
    ```

### 4.3 Running the Installer

This section describes how to run the installer.

**Prerequisites**

For more information, see Prerequisites for Running the Installer [page 32].

**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 installer has a web browser-based GUI named “SL Common GUI of the Software Provisioning Manager” - “SL Common GUI” for short.

This procedure describes an installation where you run the installer and use the SL Common GUI, that is you can control the processing of the installer from a browser running on any device.

For more information about the SL Common GUI, see Useful Information About the Installer [page 38].

Procedure

1. Log on to the installation host using an account with the required user authorization to run the Installer [page 21].

   Caution
   Do not use an existing <sapsid>adm or the built-in administrator account user.

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

   If your security policy requires that the person running the installer is not allowed to know administrator credentials on the installation host, you can specify another operating system user for authentication purposes. You do this using the SAFINST_REMOTE_ACCESS_USER parameter when starting sapinst.exe 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.

   executable from the command line. You must confirm that the user is a trusted one. For more information, see SAP Note

   For more information, see Preparing the Installation Media [page 24].

3. Start the installer from the directory to which you unpacked the Software Provisioning Manager archive with the following command:

   sapinst.exe (in a command prompt)
   .\sapinst.exe (in PowerShell)

   By default, the SL Common GUI uses the default browser defined for the host where you run the installer. However, you can also specify another supported web browser available on the host where you start the installer. You can do this by starting the sapinst executable with command line option

   SAFINST_BROWSER=<Path to Browser Executable>, for example
   SAFINST_BROWSER=firefox.exe.

   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 installer screens (see Basic Installation Parameters [page 14]), you can alternatively assign it as follows:

   1. Open a command prompt or PowerShell window in elevated mode and change to the directory to which you unpacked the Software Provisioning Manager archive.
2. Start the installer with the following command:

```
sapinst.exe SAPINST_USE_HOSTNAME=<Virtual_Host_Name>
```

(in a command prompt)
```
\sapinst.exe SAPINST_USE_HOSTNAME=<Virtual_Host_Name>
```

(in PowerShell)

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 23].

---

**i 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 installer screens (see Basic Installation Parameters [page 14]), you can alternatively assign it as follows:

1. Open a command prompt or PowerShell window in elevated mode and change to the directory to which you unpacked the Software Provisioning Manager archive.
2. Start the installer with the following command:

```
sapinst.exe SAPINST_USE_HOSTNAME=<Logical_Host_Name>
```

(in a command prompt)
```
\sapinst.exe SAPINST_USE_HOSTNAME=<Logical_Host_Name>
```

(in PowerShell)

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 23].

---

4. The installer is starting up.

The installer now starts and waits for the connection with the SL Common GUI. If you have a supported web browser (see Prerequisites for Running the Installer [page 32]) installed on the host where you run the installer, the SL Common GUI starts automatically by displaying the Welcome screen.

If the SL Common GUI does not open automatically, you can find the URL you require to access the SL Common GUI at the bottom of the Program Starter window of the installer. You find the icon of the Program Starter window in the taskbar of your Windows host. Open a supported web browser and run the URL from there.

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

---

**i Note**

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

1. Terminate the installer as described in Useful Information about the Installer [page 38].
2. Restart the installer from the command line with the `SAPINST_GUI_HOSTNAME=<hostname>` property.

You can use a fully-qualified host name.

---

**⚠️ 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 installer.

Proceed as follows to get the certificate fingerprint or thumbprint from the server certificate printed in the installer console:

1. Go to the sapinst_exe.xxxxxx.xxxx directory in the temporary directory to which the installer has extracted itself:
   %userprofile%\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 Common GUI 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:

<table>
<thead>
<tr>
<th>Diagnostics in SAP Solution Manager</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Install - Diagnostics Agent</strong></td>
<td>Choose this option to install a Diagnostics Agent instance.</td>
</tr>
<tr>
<td><strong>Uninstall - Diagnostics Agent</strong></td>
<td>Choose this option to uninstall a Diagnostics Agent instance. For more information, see Deleting an SAP System or Single Instances [page 67].</td>
</tr>
</tbody>
</table>

6. Choose Next.

**i Note**

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

7. If the installer prompts you to log off from your system, log off and log on again.
   The installer restarts automatically.
8. Follow the instructions on the installer screens and enter the required parameters.

**i Note**

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

The 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 signature is not checked again.

For more information, see SAP Note 2393060.

After you have entered all requested input parameters, the installer displays the Parameter Summary screen. This screen shows both the parameters that you entered and those that the installer set by default. If required, you can revise the parameters before starting the installation.

9. To start the installation, choose Next.

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

10. If you copied the installer software to your hard disk, you can delete these files when the installation has successfully completed.

11. For security reasons, we recommend that you delete the .sapinst directory within the home directory of the user with which you ran the installer:

   %userprofile%\sapinst\n
12. The installer 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 installer log files in the sapinst_instdir directory. For more information, see Useful Information about the Installer [page 38].

4.4 Additional Information about the Installer

The following sections provide additional information about the installer.

Useful Information about the Installer [page 38]
How to Avoid Automatic Logoff by the Installer [page 39]
Interrupted Processing of the Installer [page 40]
Troubleshooting with the Installer [page 44]
Using the Step State Editor (SAP Support Experts Only) [page 45]
4.4.1 Useful Information about the Installer

This section contains some useful technical background information about the installer and the installer GUI.

- **Software Provisioning Manager** (the “installer” for short) has the web browser-based “SL Common GUI of the Software Provisioning Manager” - “SL Common GUI” for short.
  The SL Common GUI 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.


The SL Common GUI 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 Common GUI, the installer provides a pre-generated URL in the Program Starter window. If you have a supported web browser installed on the host where you run the installer, the SL Common GUI starts automatically.
  - By default, the SL Common GUI uses the default browser defined for the host where you run the installer.
  - However, you can also specify another supported web browser available on the host where you start the installer. You can do this by starting the sapinst executable with command line option `SAPINST_BROWSER=<Path to Browser Executable>`, for example `SAPINST_BROWSER=firefox.exe`.
  - Alternatively you can open a supported web browser on any device and run the URL from there.

For more information about supported web browsers see Prerequisites for Running the Installer [page 32].

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

As soon as you have started the `sapinst.exe` executable, the installer creates a `.sapinst` directory underneath the `<Drive>\Users\<User>` directory where it keeps its logs and other technical files.

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.

The installer records its progress in the `keydb.xml` file located in the `sapinst_instdir` directory. Therefore, if required, you can continue with the installer 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 installer. 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 installer extracts itself to a temporary directory (TEMP, TMP, TMPDIR, or SystemRoot). These executables are deleted after the installer has stopped running. Directories called sapinst_exe.xxxxx.xxxx sometimes remain in the temporary directory after the installer 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 installer, which might be useful if an error occurs.

⚠️ Caution
If the installer cannot find a temporary directory, the installation terminates with the error FCO-00058.

To see a list of all available installer properties, go to the directory %TEMP%\sapinst_exe.xxxxx.xxxx after you have started the installer, and enter the following command:

`sapinst.exe -p`

If you want to install or uninstall a Diagnostics Agent in unattended mode, see section Unattended Installation [page 46].

If required, stop the installer by choosing the Cancel button.

ℹ️ Note
If you need to terminate the installer, choose File Exit in the menu of the Program Starter window.

### 4.4.2 How to Avoid Automatic Logoff by the Installer

When you install the SAP system, the installation tool checks whether the user account used for the installation has the required privileges and authorization.

For a local or domain installation, the account needs to be a member of the local Administrators group.

For domain installations the account can be either a member of the Domain Admins group, or belongs to the Domain Users group and has the necessary rights to create/modify objects in the domain.

In both cases, the user account must be authorized to do the following:

- Act as part of the operating system
- Adjust memory quotas for a process
- Replace a process level token

If the user account does not have these rights assigned, the installer assigns them and automatically logs the account off to activate them. To avoid the installer logging the account off, you can set these rights manually before you start the installation.

**Procedure**

You perform the following steps to assign these rights to the user account used for the installation.
Caution

Be aware that domain policies override locally defined policies. This means that if you want to grant domain administrator rights to a user who belongs to the local Administrators group, make sure that you have also defined domain administrator rights for this user on domain level.

1. Windows Server 2012 (R2) and higher: Press \text{Ctrl} + \text{Esc} and choose \textit{Administrative Tools} \text{ Local Security Policy}.
3. In the \textit{Local Security Settings} window, choose \textit{Local Policies} \textit{User Rights Assignment}.
4. Double-click the required right under \textit{Policy} and choose \textit{Add User or Group}.
5. In the \textit{Select Users and Groups} window, choose the required user and choose \textit{Add}.
6. The selected user appears in the box below.
7. Confirm your entry and then repeat the steps for each remaining policy that the user requires for the installation.
8. Log off and log on again to apply the changes.

Related Information

Required User Authorization for Running the Installer [page 21]

4.4.3 Interrupted Processing of the Installer

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

Context

The processing of the installer might be interrupted for one of the following reasons:

- An error occurred during the \textit{Define Parameters or Execute} phase:
  The installer 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 installer by choosing \textit{Cancel} in the SL Common GUI.

Caution

If you stop an option in the \textit{Execute} phase, any system or component \texttt{installed} by this option is incomplete and not ready to be used. Any system or component \texttt{uninstalled} by this option is not completely uninstalled.
The following table describes the options in the dialog box:

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

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 the Installer [page 33].
2. Make sure that the installation media are still available.
   For more information, see Preparing the Installation Media [page 24].

   ➔ **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.

3. Make sure that the installation media are still available.
   For more information, see Preparing the Installation Media [page 24].

   ➔ **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.
4. Restart the installer by double-clicking `sapinst.exe` from the directory to which you unpacked the Software Provisioning Manager archive.

   By default, the SL Common GUI uses the default browser defined for the host where you run the installer. However, you can also specify another supported web browser available on the host where you start the installer. You can do this by starting the `sapinst` executable with command line option `SAPINST_BROWSER=<Path to Browser Executable>`, for example `SAPINST_BROWSER=firefox.exe`.

5. The installer is restarting.

   The installer now starts and waits for the connection with the SL Common GUI. If you have a supported web browser (see Prerequisites for Running the Installer [page 32]) installed on the host where you run the installer, the SL Common GUI starts automatically by displaying the Welcome screen.

   If the SL Common GUI does not open automatically, you can find the URL you require to access the SL Common GUI at the bottom of the Program Starter window of the installer. You find the icon of the Program Starter window in the taskbar of your Windows host. Open a supported web browser and run the URL from there.

   ...  

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

   i Note

   If the host specified by `<hostname>` cannot be reached due to a special network configuration, proceed as follows:
   1. Terminate the installer as described in Useful Information about the Installer [page 38].
   2. Restart the installer from the command line with the `SAPINST_GUI_HOSTNAME=<hostname>` property.
   You can use a fully-qualified host name.

   △ 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 installer.
   Proceed as follows to get the certificate fingerprint or thumbprint from the server certificate printed in the installer console:
   1. Go to the `sapinst.exe.xxxxxx.xxxx` directory in the temporary directory to which the installer has extracted itself:
   `%userprofile%\sapinst\`
2. In the `sapinst_exe.xxxxx.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 Common GUI opens in the browser by displaying the **Welcome** screen.

6. From the tree structure on the **Welcome** screen, select the installation option that you want to continue and choose **Next**.

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

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

<table>
<thead>
<tr>
<th>Alternative</th>
<th>Behavior</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Perform a new run</strong></td>
<td>The installer does not continue the interrupted installation option. Instead, it moves the content of the old installer directory and all installer-specific files to a backup directory. Afterwards, you can no longer continue the old option.</td>
</tr>
<tr>
<td></td>
<td>The following naming convention is used for the backup directory:</td>
</tr>
<tr>
<td></td>
<td><code>log_&lt;Day&gt;_&lt;Month&gt;_&lt;Year&gt;_&lt;Hours&gt;_&lt;Minutes&gt;_&lt;Seconds&gt;</code></td>
</tr>
<tr>
<td></td>
<td>✤ <strong>Example</strong></td>
</tr>
<tr>
<td></td>
<td><code>log_01_Oct_2016_13_47_56</code></td>
</tr>
<tr>
<td></td>
<td>✪ <strong>Note</strong></td>
</tr>
<tr>
<td></td>
<td>All actions taken by the installation before you stopped it (such as creating directories or users) are not revoked.</td>
</tr>
<tr>
<td></td>
<td>△ <strong>Caution</strong></td>
</tr>
<tr>
<td></td>
<td>The installer 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.</td>
</tr>
<tr>
<td><strong>Continue with the existing one</strong></td>
<td>The installer continues the interrupted installation from the point of failure.</td>
</tr>
</tbody>
</table>
4.4.4 Troubleshooting with the Installer

This section tells you how to proceed when errors occur while the installer is running.

Context

If an error occurs, the installer:

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

Procedure

1. Check SAP Note 2393060 for known installer 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 installer 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 installer 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 the files in the .sapinst directory underneath the <Drive>:\Users\<User> directory, where <User> is the user that you used to start the installer.
     For more information, see Useful Information about the Installer [page 38].
     ○ To check the log and trace files of the installer GUI for errors, go to the directory %userprofile%\sapinst\.
     ○ Then continue by choosing Retry.
     ○ If required, abort the installer by choosing Cancel in the tool menu and restart the installer. For more information, see Interrupted Processing of the Installer [page 40].
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.
4.4.5 Using the Step State Editor (SAP Support Experts Only)

This section describes how to use the Step State Editor available in the installer.

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

**Prerequisites**

- SAP Support requests you to use the Step State Editor.
- Make sure that the host where you run the installer meets the requirements listed in Prerequisites for Running the Installer [page 32].

**Procedure**

1. Start the installer from the command line as described in Running the Installer [page 33] with the additional command line parameter `SAPINST_SET_STEPSTATE=true`.
2. Follow the instructions on the installer 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 installer during the Execute Service phase. By default all steps are in an initial state. Underneath each step, you see the assigned installer 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 installer to pause.
   - Mark the checkbox in front of the Skip option of the steps which you want the installer 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 installer 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 installer.
5. Continue until you have run through all the steps of the Execute Service phase of the installer.
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. Read and apply section How to Avoid Automatic Logoff by the Installer [page 39].
4. Execute Preparing an Unattended Installation [page 47].
5. Execute Running an Unattended Installation [page 48].
6. Follow the instructions in the Post-Installation Checklist [page 56].

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. Read and apply section How to Avoid Automatic Logoff by the Installer [page 39].
3. Execute Preparing an Unattended Installation [page 47].
4. Execute Running an Unattended Uninstallation [page 52].
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 installer in unattended mode.

Create an Installation Directory

Create an installation directory `<Installation_Directory>`.

Example

Create an `<Installation_Directory>` like C:\unattended\install

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

   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:

<table>
<thead>
<tr>
<th>Property Name</th>
<th>Parameter in Related Documentation</th>
<th>Property Value Guidance</th>
</tr>
</thead>
<tbody>
<tr>
<td>DiagnosticsAgent.LogicalHostName</td>
<td>Host Name in General Installation Parameters [page 14]</td>
<td>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.</td>
</tr>
<tr>
<td>DiagnosticsAgent.DestinationDrive</td>
<td>Destination Drive in General Installation Parameters [page 14]</td>
<td>Optional property. See mentioned section. If there is already an SAP system installed on the host, this property will be ignored and the Diagnostics Agent will be installed into the already existing <code>&lt;Drive&gt;:\usr\sap</code> directory. If this property is omitted, and there is no SAP system installed on the host yet, the Diagnostics Agent will be installed on the drive with biggest amount of free space.</td>
</tr>
<tr>
<td>DiagnosticsAgent.SID</td>
<td>Diagnostics Agent System ID (DASID) in Diagnostics Agent System ID and Instance Number [page 16]</td>
<td>See mentioned section.</td>
</tr>
<tr>
<td>Property Name</td>
<td>Parameter in Related Documentation</td>
<td>Property Value Guidance</td>
</tr>
<tr>
<td>-----------------------------------</td>
<td>--------------------------------------------</td>
<td>---------------------------------------------------------------</td>
</tr>
<tr>
<td>DiagnosticsAgent.InstanceNumber</td>
<td><em>Instance Number</em> of the Diagnostics Agent in Diagnostics Agent System ID and Instance Number [page 16]</td>
<td>See mentioned section.</td>
</tr>
<tr>
<td>DiagnosticsAgent.domain</td>
<td><em>Domain Model</em> in Operating System Users [page 17]</td>
<td>Optional property. See mentioned section.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>If this property is omitted, the Diagnostics Agent users will be created for the recommended Local Domain.</td>
</tr>
<tr>
<td>hostAgent.sapAdmPassword</td>
<td><em>SAP System Administrator: sapadm</em>, including the password guidance, in Operating System Users [page 17]</td>
<td>Optional property. See mentioned section.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>If an SAP Host Agent is not yet installed on the host, this property must be specified.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>If an SAP Host Agent is already installed on the host, this property must be omitted.</td>
</tr>
</tbody>
</table>
3. The SAP Solution Manager related properties available for an unattended installation are:

<table>
<thead>
<tr>
<th>Property Name</th>
<th>Parameter in Related Documentation</th>
<th>Property Value Guidance</th>
</tr>
</thead>
<tbody>
<tr>
<td>DiagnosticsAgent.SolMan.Connection</td>
<td>Connection of the Diagnostics Agent to SAP Solution Manager in SAP Solution Manager Connectivity Parameters [page 19]</td>
<td>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.</td>
</tr>
<tr>
<td>DiagnosticsAgent.SolMan.UseSSL</td>
<td>Use SSL connectivity in SAP Solution Manager Connectivity Parameters [page 19]</td>
<td>Specify true or false.</td>
</tr>
<tr>
<td>DiagnosticsAgent.SolMan.HostName</td>
<td>Host (FQN) in SAP Solution Manager Connectivity Parameters [page 19]</td>
<td>See mentioned section.</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Property Name</th>
<th>Parameter in Related Documentation</th>
<th>Property Value Guidance</th>
</tr>
</thead>
</table>

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 installer with command line parameter `SAPINST_STOP_AFTER_DIALOG_PHASE=true`. This causes the installer 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

```plaintext
DiagnosticsAgent.DestinationDrive=C:
DiagnosticsAgent.SID=DAA
DiagnosticsAgent.InstanceNumber=98
DiagnosticsAgent.dasidAdmPassword=Abcdef123456
DiagnosticsAgent.sapServiceDASIDPassword=Abcdef123456
hostAgent.sapAdmPassword=Klmnop123456
DiagnosticsAgent.SolMan.Connection=solman
DiagnosticsAgent.SolMan.UseSSL=true
DiagnosticsAgent.SolMan.HostName=host.domain.corp
DiagnosticsAgent.SolMan.PortNumber=44401
```

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 installer with several command line parameters. Executing the following command will give you an overview of the all command line parameters that are available:
   ```cmd
   <Installer_Media_Directory>\sapinst.exe -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.
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.bat` or `my-uninstallation.bat`

Now start the unattended installation in the following way:

1. `cd <Installation_Directory>`
2. `<Installer_Media_Directory>\sapinst.exe`
   ```
   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 `installationSuccessfullyFinished.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:

<table>
<thead>
<tr>
<th>Property Name</th>
<th>Mandatory</th>
<th>Default Value</th>
<th>Property Value Guidance</th>
</tr>
</thead>
</table>
| 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 installer with command line parameter SAPINST_STOP_AFTER_DIALOG_PHASE=true. This causes the installer 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.bat` or `my-uninstallation.bat`

Now start the unattended uninstallation in the following way:

1. `cd <Installation_Directory>`
2. `<Installer_Media_Directory>\sapinst.exe
   SAPINST_INPUT_PARAMETERS_URL=uninstallation.properties
   SAPINST_EXECUTE_PRODUCT_ID=NW_Uninstall:GENERIC.IND.PD
   SAPINST_SKIP_DIALOGS=true`

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 `installationSuccessfullyFinished.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.exe
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. Ensure User Security [page 56].
2. Respect the recommendations for SAP System Security on Windows [page 72].

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 60].

6.2 Ensuring User Security

You need to ensure the security of the users that the installer created during the installation.

→ 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 users listed below, take the precautions described in the relevant SAP security guide.

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 57].
Operating System and Database Users

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

Diagnostics Agent Users

<table>
<thead>
<tr>
<th>User Type</th>
<th>User</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operating system user</td>
<td>&lt;dasid&gt;adm</td>
<td>Administrator for the Diagnostics Agent.</td>
</tr>
<tr>
<td>Operating system user</td>
<td>SAPService&lt;Dasid&gt;</td>
<td>User to run the Diagnostics Agent.</td>
</tr>
</tbody>
</table>

SAP Host Agent User

<table>
<thead>
<tr>
<th>User Type</th>
<th>User</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operating system user</td>
<td>sapadm</td>
<td>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.</td>
</tr>
</tbody>
</table>

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

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 23]
   - Installation Strategy [page 11]
   - Product Availability Matrix [page 12]
   - Hardware Requirements [page 12]
2. Select a Kernel for the Diagnostics Agent [page 13].
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 24].
4. Continue with Running the Installer [page 33] 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 17].
   - Provide the SAP Solution Manager Connectivity Parameters [page 19].

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 60].
Uninstallation

If you want to uninstall a Diagnostics Agent, refer to Deleting an SAP System or Single Instances [page 67].

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:

- <Drive>:\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.bat` 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>"
- `smdsetup managingconf`
  hostname: "<fqn>" port: "<P4 port>"
  [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]`. 
<table>
<thead>
<tr>
<th>Action</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>changeservername</td>
<td>This action changes the server name attribute of the agent.</td>
</tr>
<tr>
<td>supportlogs</td>
<td>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.</td>
</tr>
<tr>
<td>addsaprouter</td>
<td>See section SAP Router [page 72] for background information.</td>
</tr>
<tr>
<td>saprouterpass</td>
<td></td>
</tr>
<tr>
<td>removesaprouter</td>
<td></td>
</tr>
</tbody>
</table>

### 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"

- 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"

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"
**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
- Installer 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:

<table>
<thead>
<tr>
<th>Filename</th>
<th>Default Settings</th>
<th>Default Level</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>SMDSystem.log</td>
<td>10 files of 1 MB</td>
<td>INFO</td>
<td>This file reports all information about agent framework (like connection to SAP Solution Manager system, agelets loading and patch sequence).</td>
</tr>
</tbody>
</table>
**Filename**  | **Default Settings** | **Default Level** | **Description**
---|---|---|---
SMDSystem.log  | 10 files of 1 MB | WARNING | This file reports all information about the agelets used by RCA applications, Setup Wizards and Introscope setup.
SMDAgentApplication.log  | 10 files of 1 MB | WARNING | 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
   - **Values:** ALL, DEBUG, INFO, WARNING, ERROR, NONE
6. Save the file and restart the agent

**Filename**

<table>
<thead>
<tr>
<th>Filename</th>
<th><code>&lt;log-controller effective-severity=&quot;INFO&quot; maximum-severity=&quot;ALL&quot; minimum-severity=&quot;DEBUG&quot; name=&quot;/SMDlogger/AgentApp&quot;&gt;</code></th>
</tr>
</thead>
<tbody>
<tr>
<td>SMDSystem.log</td>
<td><code>&lt;log-controller effective-severity=&quot;INFO&quot; maximum-severity=&quot;ALL&quot; minimum-severity=&quot;DEBUG&quot; name=&quot;/SMDlogger/AgentApp&quot;&gt;</code></td>
</tr>
<tr>
<td>SMDAgentApplication.log</td>
<td><code>&lt;log-controller effective-severity=&quot;INFO&quot; maximum-severity=&quot;ALL&quot; minimum-severity=&quot;DEBUG&quot; name=&quot;/SMDlogger/AgentApp&quot;&gt;</code></td>
</tr>
</tbody>
</table>
7.5 Starting and Stopping the SAP System

You use this procedure to start and stop the SAP system or single instances after the installation with the SAP Microsoft Management Console (SAP MMC) or SAPControl.

Prerequisites

The user who wants to start and stop the SAP system with the SAP MMC, must be a member of the local administrators group.

Procedure

Starting and Stopping the SAP System with the SAP MMC

With the SAP MMC, you can start or stop installed SAP instances – except the database instance – locally on the host that you are logged on to. If the SAP MMC is configured for central system administration, you can start or stop the entire system from a single host.

i Note

- You can also start and stop a UNIX system with the SAP MMC.
- The SAP MMC is not available on Server Core for Windows Server 2012 (R2) and higher.
For more information about the SAP MMC, see the SAP Library at:

<table>
<thead>
<tr>
<th>SAP Release and SAP Library Quick Link</th>
<th>SAP Library Path (Continued)</th>
</tr>
</thead>
<tbody>
<tr>
<td>● SAP NetWeaver 7.4</td>
<td></td>
</tr>
<tr>
<td><a href="http://help.sap.com/nw74">http://help.sap.com/nw74</a></td>
<td></td>
</tr>
<tr>
<td>● SAP NetWeaver 7.5</td>
<td></td>
</tr>
<tr>
<td><a href="http://help.sap.com/nw75">http://help.sap.com/nw75</a></td>
<td></td>
</tr>
<tr>
<td>● SAP NetWeaver Application Server for ABAP 7.51 innovation package</td>
<td></td>
</tr>
<tr>
<td><a href="https://help.sap.com/nw751abap">https://help.sap.com/nw751abap</a></td>
<td></td>
</tr>
<tr>
<td>● SAP NetWeaver AS for ABAP 7.52</td>
<td></td>
</tr>
<tr>
<td><a href="http://help.sap.com/nw752abap">http://help.sap.com/nw752abap</a></td>
<td></td>
</tr>
</tbody>
</table>

To start or stop the SAP system – except the database instance – with the SAP MMC, perform the following steps:

1. Start the SAP MMC on the SAP system host.
2. Right-click the SAP system node and choose **Start** or **Stop**.
   All SAP instances listed under the system node start or stop in the correct order.
3. To stop the database instance, use the relevant database administration tools.
4. If the SAP system is installed on multiple hosts, you have the following options to start or stop your system:
   ○ You start or stop the SAP instances – except the database instance – using the SAP MMC on each host.
   ○ You add the remote instances to the SAP MMC configuration to start or stop all instances from a single SAP MMC.
   To do so, do one of the following:
   ○ You configure the SAP MMC manually. For more information, see *Changing the Configuration of the SAP MMC* in the SAP MMC documentation.
   ○ You use the automatic LDAP registration. For more information, see *Configuring SAP MMC for Active Directory Services* in the SAP MMC documentation.

**Starting and Stopping the SAP System with SAPControl**

To start or stop the SAP system – except the database instance – with SAPControl (*sapcontrol.exe*), perform the following steps:

- To start or stop the complete SAP system with SAPControl, open a PowerShell in elevated mode, and enter the following command:
  ```command
  sapcontrol -prot PIPE -nr <Instance_Number> -function StartSystem
  sapcontrol -prot PIPE -nr <Instance_Number> -function StopSystem
  ```
- To start or stop a single instance with SAPControl, open a PowerShell in elevated mode, and enter the following command:
  ```command
  sapcontrol -prot PIPE -nr <Instance_Number> -function Start
  sapcontrol -prot PIPE -nr <Instance_Number> -function Stop
  ```
7.6 Uninstalling an SAP System or Single Instances

This section describes how to uninstall a complete SAP system or single SAP instances with the **Uninstall** option of the installer.

**Prerequisites**

- You have installed your SAP system with standard SAP tools according to the installation documentation.
- You are logged on with a user account that has the required authorization to run the installer and the SAP system. For more information, see *Required User Authorization for Running the Installer* [page 21].

⚠ **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.

ℹ **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:

- 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.
- If you uninstall an SAP instance and you plan to install another SAP instance with the same System ID, first reboot the Windows host to clear all user cached information. For more information, see SAP Note [2296310](http://wiki.scn.sap.com/wiki/-/n4efG).

⚠ **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/28n4efFg](http://wiki.scn.sap.com/wiki/x/28n4efFg)).
In case of problems see Components for Reporting an Incident [page 8].

Procedure

1. Start the installer as described in Running the Installer [page 33].
2. On the Welcome screen, choose:
   - Generic Installation Options
   - Diagnostics in SAP Solution Manager
   - Uninstall - Diagnostics Agent
3. Follow the instructions on the installer screens to delete a complete SAP system or single instances.

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

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

<table>
<thead>
<tr>
<th>Deletion of</th>
<th>Remarks</th>
</tr>
</thead>
</table>
| 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:  
   `<Drive>:\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. Delete the local user group `SAP_<DASID>_LocalAdmin` manually as follows:
   - Windows Server 2012 (R2):
     Open a PowerShell in elevated mode and enter the following command:
     `net localgroup SAP_<DASID>_LocalAdmin /delete`
   - Windows Server 2008 (R2):
     1. Choose Start ➔ Programs ➔ Administrative Tools ➔ Computer Management ➔
     2. Choose Local Users and Groups ➔ Groups ➔
     3. Right-click the local group `SAP_<DASID>_LocalAdmin` and choose Delete.
6. If required, you can delete the directory `\usr\sap\trans` and its contents manually.
   The installer does not delete `\usr\sap\trans` because it might be shared.
7. 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.
7.7 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.

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.

<table>
<thead>
<tr>
<th>Release</th>
<th>SAP Library Path</th>
</tr>
</thead>
<tbody>
<tr>
<td>● SAP NetWeaver 7.3</td>
<td>![Solution Life Cycle Management]</td>
</tr>
<tr>
<td>● SAP NetWeaver 7.3 including</td>
<td>![Backup and Recovery]</td>
</tr>
<tr>
<td>Enhancement Package 1</td>
<td></td>
</tr>
<tr>
<td>● SAP NetWeaver 7.3</td>
<td></td>
</tr>
</tbody>
</table>

7.8 Installer and Diagnostics Agent Version Information

Per software provisioning manager 1.0 SP5, information about the installer version used to install the Diagnostics Agent is consistently stored in the installationinfo.properties files that are generated by the SWPM installer. The installationinfo.properties file can be found at the following location:

<Drive>:\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 <Drive>:\usr\sap\<DASID>\SMDA\Instance_Number\SMDAgent\lib\smdagent.jar
- Listing of the files in directory <Drive>:\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 60].
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>October 2020, and later releases</td>
<td>1.0 SP30, and higher</td>
<td>1.0 SP30, and higher</td>
<td>7.53, and higher</td>
<td>SWPM: SWP10SP(<strong>), where (</strong>) matches the current SP number</td>
</tr>
<tr>
<td>June 2020</td>
<td>1.0 SP29</td>
<td>1.0 SP29</td>
<td>7.53</td>
<td>SWPM: SWPM10SP29</td>
</tr>
<tr>
<td>January 2020</td>
<td>1.0 SP28</td>
<td>1.0 SP28</td>
<td>7.53</td>
<td>SWPM: SWPM10SP28</td>
</tr>
<tr>
<td>September 2019</td>
<td>1.0 SP27</td>
<td>1.0 SP27</td>
<td>7.53</td>
<td>SWPM: SWPM10SP27</td>
</tr>
<tr>
<td>May 2019</td>
<td>1.0 SP26</td>
<td>1.0 SP26</td>
<td>7.53</td>
<td>SWPM: SWPM10SP26</td>
</tr>
<tr>
<td>January 2019</td>
<td>1.0 SP25</td>
<td>1.0 SP25</td>
<td>7.53</td>
<td>SWPM: SWPM10SP25</td>
</tr>
<tr>
<td>September 2018</td>
<td>1.0 SP24</td>
<td>1.0 SP24</td>
<td>7.53</td>
<td>SWPM: SWPM10SP24</td>
</tr>
<tr>
<td>May 2018</td>
<td>1.0 SP23</td>
<td>1.0 SP23</td>
<td>7.53</td>
<td>SWPM: SWPM10SP23</td>
</tr>
<tr>
<td>January 2018</td>
<td>1.0 SP22</td>
<td>1.0 SP22</td>
<td>7.49.3</td>
<td>SWPM: SWPM10SP22</td>
</tr>
<tr>
<td>September 2017</td>
<td>1.0 SP21</td>
<td>1.0 SP21</td>
<td>7.49.2</td>
<td>SWPM: SWPM10SP21</td>
</tr>
<tr>
<td>May 2017</td>
<td>1.0 SP20</td>
<td>1.0 SP20</td>
<td>7.49.1</td>
<td>SWPM: SWPM10SP20</td>
</tr>
<tr>
<td>February 2017</td>
<td>1.0 SP19</td>
<td>1.0 SP19</td>
<td>7.49</td>
<td>SWPM: SWPM10SP19</td>
</tr>
<tr>
<td>October 2016</td>
<td>1.0 SP18</td>
<td>1.0 SP18</td>
<td>7.45.3</td>
<td>SWPM: SWPM10SP18 70SWPM: 70SWPM10SP18</td>
</tr>
<tr>
<td>June 2016</td>
<td>1.0 SP17</td>
<td>1.0 SP17</td>
<td>7.45.2</td>
<td>SWPM: SWPM10SP17 70SWPM: 70SWPM10SP17</td>
</tr>
<tr>
<td>February 2016</td>
<td>1.0 SP16</td>
<td>1.0 SP10</td>
<td>7.45.1</td>
<td>SWPM: SWPM10SP10 70SWPM: 70SWPM10SP10</td>
</tr>
<tr>
<td>October 2015</td>
<td>1.0 SP15</td>
<td>1.0 SP9 (Patch Release to support SAP Kernel 7.45)</td>
<td>7.45</td>
<td>SWPM: SWPM10SP9 70SWPM: 70SWPM10SP9</td>
</tr>
<tr>
<td>-----------------</td>
<td>-----------------------------------------------</td>
<td>-----------------------------------------------</td>
<td>---------------------------</td>
<td>------------------------------------------------------------------</td>
</tr>
<tr>
<td>September 2015</td>
<td>1.0 SP14</td>
<td>1.0 SP9</td>
<td>745</td>
<td>SWPM: SWPM10SP9, 70SWPM: 70SWPM10SP9</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>April 2015</td>
<td>1.0 SP13</td>
<td>1.0 SP8</td>
<td>742.2</td>
<td>SWPM: SWPM10SP8, 70SWPM: 70SWPM10SP8</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>November 2014</td>
<td>1.0 SP12</td>
<td>1.0 SP7</td>
<td>742.1</td>
<td>SWPM: SWPM10SP7, 70SWPM: 70SWPM10SP7</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>September 2014</td>
<td>1.0 SP11</td>
<td>1.0 SP6 (Patch Release to support SAP Kernel 7.42)</td>
<td>742</td>
<td>SWPM: SWPM10SP6, 70SWPM: 70SWPM10SP6</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>July 2014</td>
<td>1.0 SP11</td>
<td>1.0 SP6</td>
<td>742</td>
<td>SWPM: SWPM10SP6, 70SWPM: 70SWPM10SP6</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>March 2014</td>
<td>1.0 SP10</td>
<td>1.0 SP5</td>
<td>741</td>
<td>SWPM: SWPM10SP5, 70SWPM: 70SWPM10SP5</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>October 2013</td>
<td>1.0 SP9</td>
<td>1.0 SP4</td>
<td>74</td>
<td></td>
</tr>
</tbody>
</table>

### 7.9 Unsupported Features

The below table gives an overview and explanations on features that are not supported for the Diagnostics Agent.
<table>
<thead>
<tr>
<th>Software Provisioning Manager (SWPM) Version</th>
<th>Feature Description</th>
<th>Support Statement</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.0 SP6</td>
<td>System Copy</td>
<td>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” (<a href="http://wiki.scn.sap.com/wiki/x/n4efFg">http://wiki.scn.sap.com/wiki/x/n4efFg</a>).</td>
</tr>
<tr>
<td>1.0 SP6</td>
<td>System Rename</td>
<td>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” (<a href="http://wiki.scn.sap.com/wiki/x/n4efFg">http://wiki.scn.sap.com/wiki/x/n4efFg</a>).</td>
</tr>
</tbody>
</table>

### 7.10 SAP Router

The Diagnostics Agent can be connected to the SAP Solution Manager system via an SAP router. The installer 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 60]).

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.

### 7.11 SAP System Security on Windows

In a standard SAP system installation, the installer automatically performs all steps relevant for security. Although the installer makes sure that the system is protected against unauthorized access, you must still check that no security breaches can occur.

For central and straightforward administration of the SAP system, you have to install distributed SAP systems with multiple application servers in a Windows domain. This section describes the user accounts and groups that the installer creates during a domain installation and shows how these are related to the SAP directories.

**User Accounts**
The installer creates the following accounts for SAP system administration:

<table>
<thead>
<tr>
<th>User account</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>sapadm</td>
<td>This is the user for the SAP Host Agent. By default it is a local user and not a member of the local Administrators group. You can change this user into a domain user on the Parameter Summary screen. For security reasons, however, SAP strongly recommends to create this user as a local user. The SAP Host Agent contains all of the required elements for centrally monitoring any host with the Alert Monitor or the SAP NetWeaver Administrator.</td>
</tr>
<tr>
<td>&lt;dasid&gt;adm</td>
<td>This is the administrator user account that is required for the administration of the Diagnostics Agent. By default it is a local user and not a member of the local Administrators group. You can change this user into a domain user on the Parameter Summary screen. For security reasons, however, SAP strongly recommends to create this user as a local user.</td>
</tr>
<tr>
<td>SAPService&lt;DASID&gt;</td>
<td>This is the user account that is required to start the Diagnostics Agent. It has the local user right to log on as a service.</td>
</tr>
</tbody>
</table>

**Domain and Local Groups**

The only function of a domain group is to group users at the domain level so that they can be placed in the appropriate local groups.

Only local groups are created and maintained on each local host. A local group can only be given permissions and rights to the system where it is located. The system is part of a particular domain, and the local group can contain users and domain (global) groups from this domain.

During a domain installation, the installer creates the following domain and local groups:

<table>
<thead>
<tr>
<th>Group</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>SAP_&lt;DASID&gt;_GlobalAdmin</td>
<td>This domain group for the Diagnostics Agent is only created if you create the Diagnostics Agent user &lt;dasid&gt;adm as a domain user.</td>
</tr>
<tr>
<td>SAP_SAP_GlobalAdmin</td>
<td>This domain group for the SAP Host Agent is only created if you create the SAP Host Agent user sapadm as a domain user.</td>
</tr>
<tr>
<td>SAP_&lt;DASID&gt;_LocalAdmin</td>
<td>If you create the Diagnostics Agent user as domain user, the group SAP_&lt;DASID&gt;_LocalAdmin is also created.</td>
</tr>
<tr>
<td>SAP_SAP_LocalAdmin</td>
<td>If you create the SAP Host Agent user as domain user, the group SAP_SAP_LocalAdmin is also created.</td>
</tr>
<tr>
<td>SAP_LocalAdmin</td>
<td>This local group is created on all hosts, but is particularly important for the transport host. Members of the group have full control over the transport directory (\usr\sap\trans) that allows transports to take place between systems.</td>
</tr>
</tbody>
</table>

**SAP Directories**

**Installation of Diagnostics Agent on Windows**

**Additional Information**
The installer protects the SAP directories under `\usr\sap\<DASID>` by only granting the group `SAP_<DASID>_LocalAdmin` full control over these directories.

**i Note**

An access control list (ACL) controls access to SAP system objects. For maximum security in the SAP system, only the following are members of all SAP system object ACLs:

- Local group `SAP_<DASID>_LocalAdmin`
- Group `Administrators`
- User `SYSTEM`

---

**More Information**

Automatic Creation of Accounts and Groups [page 74]

---

**7.12 Automatic Creation of Accounts and Groups**

The installer automatically creates the accounts and groups required for the secure operation of the SAP system with Windows during the installation, as described in SAP System Security on Windows [page 72].

**Features**

The following figures show the steps that the installer performs to create the users and groups and assign the required rights to SAP directories.

The first figure shows the users that are created during a domain installation, with the Diagnostics Agent and SAP Host Agent operating system users being local users.
### 7.13 Summary of Diagnostics Agent Users and Groups on Windows

The below overview summarizes the Diagnostics Agent related users and group assignments that are created for either a local or a domain installation.
### Users and Groups

<table>
<thead>
<tr>
<th>User</th>
<th>Groups for a Local Installation</th>
<th>Groups for a Domain Installation</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;dasid&gt;adm</td>
<td>SAP_&lt;Dasid&gt;_LocalAdmin</td>
<td>SAP_&lt;Dasid&gt;_GlobalAdmin (domain group)</td>
</tr>
<tr>
<td></td>
<td>SAP_LocalAdmin</td>
<td>SAP_LocalAdmin (local group)</td>
</tr>
<tr>
<td></td>
<td>Users</td>
<td>Users (domain group)</td>
</tr>
<tr>
<td>SAPService&lt;DASID&gt;</td>
<td>SAP_&lt;Dasid&gt;_LocalAdmin</td>
<td>SAP_&lt;Dasid&gt;_GlobalAdmin (domain group)</td>
</tr>
<tr>
<td></td>
<td>SAP_LocalAdmin</td>
<td>SAP_LocalAdmin (local group)</td>
</tr>
<tr>
<td></td>
<td>Users (domain group)</td>
<td>Users (domain group)</td>
</tr>
<tr>
<td></td>
<td>Performance Monitor Users</td>
<td>Performance Monitor Users (local group)</td>
</tr>
<tr>
<td>sapadm</td>
<td>SAP_SAP_LocalAdmin</td>
<td>SAP_SAP_GlobalAdmin (domain group)</td>
</tr>
<tr>
<td></td>
<td>SAP_LocalAdmin</td>
<td>SAP_LocalAdmin (local group)</td>
</tr>
<tr>
<td></td>
<td>Users (domain group)</td>
<td>Users (domain group)</td>
</tr>
</tbody>
</table>

### 7.14 Performing a Domain Installation Without Being a Domain Administrator

It is not required to perform the installation of the SAP system with a user who is a member of the Domain Admins group. For security reasons most customers do not provide this permission to SAP or database administrators. If the Domain Admin right has been granted, you can start any SAP installation because the user will have all necessary rights to install a standard, distributed or high-availability system.

An alternative is to ask the domain administrator to grant the required permissions to the user which installs SAP or the database. This domain user must be a member of the local Administrators group. In most cases the domain administrator will define an OU (Organizational Unit) structure, where all SAP systems and their related domain objects belong to.

To perform the installation with a domain user, the user account must meet the following requirements:

1. Create/Delete/Modify Users and Groups within OUs only. Ask the AD administrator about the company’s OU concept.
2. Create/Delete/Modify Computer Objects within this OU. This is required for users which install SAP or database applications in Failover Clusters, LAMA environments or other HA environments. Optional rights might be necessary related to your company’s security policy, for example:
3. Create/Delete/Modify DNS server records within a specific DNS zone, where the Windows hosts with SAP software belong to.
4. Create/Delete/Modify Organizational Unit objects within a specific OUs only.
For standard and distributed installations (not HA installations!) the domain administrator can prepare the user and group objects in the domain for you. In this case, the domain user which will be used for the installation does not need any of the above permissions.

The required objects in the domain are:

1. **Domain group** `SAP_<SAPSID>_GlobalAdmin`  
   The group scope should be `GLOBAL`, the group type should be `SECURITY`.
2. Two new SAP system users `<sapsid>adm` and `<sapsid>SAPService`.
3. The users `<sapsid>adm` and `<sapsid>SAPService` must be members of the domain group `SAP_<SAPSID>_GlobalAdmin`.

**Note**

The installer creates the operating system user for the SAP Host Agent by default as a local user that is not a member of the local Administrators group. If you want to create this user manually as a domain user, you must perform the following steps:

**Creating the SAP Host Agent User and Group Manually**

1. Create the new global group `SAP_SAPGlobalAdmin`.
2. Create the SAP system user `sapadm`.
3. Add the user `sapadm` to the newly created group `SAP_SAPGlobalAdmin`.

However, for security reasons we strongly recommend that you create this user as a local user.
A Appendix

A.1 Online Information from SAP

More information is available online as follows:

<table>
<thead>
<tr>
<th>Title</th>
<th>Internet Address</th>
</tr>
</thead>
<tbody>
<tr>
<td>How to Use SAP Solution Manager Configuration (SOLMAN_SETUP)</td>
<td><a href="http://wiki.scn.sap.com/wiki/display/SMSETUP/Home">http://wiki.scn.sap.com/wiki/display/SMSETUP/Home</a></td>
</tr>
</tbody>
</table>

A.2 Using PowerShell

SAP uses Windows PowerShell to run and describe Windows commands.

For Windows Server 2012 (R2) and higher, SAP only uses Windows PowerShell to run and describe Windows commands.

Windows PowerShell is a powerful tool integrated in the Windows operating system. It uses object-oriented methodology, which allows fast and stable script development.

For more information about the Windows PowerShell, see:

There you can find links to the online help, online documentation, scripting repository, downloads, and blogs.

If you want to use the PowerShell feature, note the following:

- **Windows Server 2016**
  Windows Server 2016 contains PowerShell 5.0
  You can update to PowerShell 5.0 (search the internet for *Windows Management Framework 5.0*).

- **Windows Server 2012 R2**
  Windows Server 2012 R2 contains PowerShell 4.0.

- **Windows Server 2012**
  You can update to PowerShell 4.0 (search the internet for *Windows Management Framework 4.0*).

- **Windows Server 2008 R2**
  Windows Server 2008 R2 contains PowerShell 2.0.
  For more information about PowerShell 2.0, see [http://support.microsoft.com/kb/968929](http://support.microsoft.com/kb/968929).
  You can update to PowerShell 3.0 or 4.0 (search the internet for *Windows Management Framework 3.0* or *Windows Management Framework 4.0*).
- Windows Server 2008
  Windows Server 2008 contains PowerShell 1.0.
  You have to activate the PowerShell feature with Start > Administrative Tools > Server Manager > Features.

How to Start PowerShell

⚠️ Caution

Make sure that you start the PowerShell in administrator mode.

- Windows Server 2012 (R2) and higher
  Open the command prompt and enter the command: powershell.exe
To start PowerShell on Windows Server 2008 (R2), you have the following options:
- From the command prompt, by entering the command: powershell.exe
- From the Start Menu:
  - PowerShell 1.0:
    Choose Start > All Programs > Windows PowerShell 1.0 > Windows PowerShell.
  - PowerShell 2.0:
    Choose Start > All Programs > Windows PowerShell > Windows PowerShell.

How to Work with PowerShell

Most commands that are used in cmd.exe are also available in the PowerShell (defined as aliases).
You can use well-known commands, such as cd, type, copy, move, mkdir, delete, rmdir. There is also online help available, which you can access by typing the command: help (or help <command>).

This is a list of differences between PowerShell and cmd.exe:
- Before you can run PowerSheils scripts (text files with the file extension .ps1 that contain PowerShell statements), you might have to change the default security setting to allow the execution of non-signed scripts as follows: set-executionpolicy ("unrestricted")
- By default, when double-clicking PowerShell scripts (.ps1 files) in the Windows explorer, this does not execute the script as is the default for .cmd files, but opens the script in an editor. If you want to activate automatic script execution after a double-click, you have to change the value HKEY_CLASSES_ROOT \Microsoft.Powershellscript.1\Shell\Open\Command from notepad.exe to the full path of the PowerShell executable.
- The output of PIPE commands is not just a stream of characters (strings) but a stream of objects. You can easily access the properties and methods for these objects (see the process list DLL example below).
The current working directory is not part of the directory search path that the PowerShell looks at for scripts and programs. The PowerShell only searches directories listed in the environment variable path. Therefore, you might have to run a local program with `.\sapcontrol.exe` or specify its full path.

You can use the UNIX-like directory delimiters, such as `cd /usr/sap/C11`.

You can have your current working directory in a UNC path (`cd \sapglobalhost\sapmnt`).

The shell distinguishes between environment variables and shell variables:

- Use of shell variables:
  - Definition: `$x="hello"`
  - Reference: `write-host $x`
- Use of an environment variable:
  - Definition: `$env:x="hello"`
  - Reference: `write-host $env:x`

The PowerShell has an interesting container concept called `ps-drives`. Within `ps-drives` you can navigate in other objects, such as the registry or shell internal lists in the same way as you typically navigate in a file system (`cd`, `dir`, `del`, and so on).

- `dir env` to get a list of environment variables
- `dir variable` to get the list of shell variables
- `dir HKLM` to get a list of registry keys in HKEY_LOCAL_MACHINE
- `get-psdrive` to get a list of available ps-drives

Windows PowerShell has full access to the .NET runtime. You can directly access missing functions in the PowerShell via .NET.

With Windows PowerShell, you can create GUI-class user interfaces using Windows forms.

### PowerShell Commands

The following table lists some PowerShell commands that are available on Windows Server 2012 (R2) and higher:

<table>
<thead>
<tr>
<th>Command</th>
<th>Explanation</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>stop-service sap</strong></td>
<td>Stops all Windows services with service name starting with &quot;SAP&quot;</td>
</tr>
<tr>
<td><strong>get-process</strong></td>
<td>Lists currently started processes on your system</td>
</tr>
<tr>
<td>`get-process</td>
<td>sort starttime</td>
</tr>
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<td>Command</td>
<td>Explanation</td>
</tr>
<tr>
<td>---------</td>
<td>-------------</td>
</tr>
<tr>
<td>`get-process</td>
<td>%{$<em>.name;&quot;----------&quot;; $</em>.modules}`</td>
</tr>
<tr>
<td>`$processes = (get-process</td>
<td>sort starttime)`</td>
</tr>
<tr>
<td><code>$processes.length</code></td>
<td>The number of processes in the array (is equivalent to the number of processes on your computer)</td>
</tr>
<tr>
<td><code>$processes[$processes.length-1].kill()</code></td>
<td>Invokes the kill method (terminate process) of the last started process</td>
</tr>
<tr>
<td><code>(dir a.txt).set_attributes(&quot;readonly&quot;)</code></td>
<td>Sets the file <code>a.txt</code> to “read-only”</td>
</tr>
</tbody>
</table>
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