Installation of SAP SCM Optimizer on Linux
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1 About this Document

This documentation describes how to install SAP SCM Optimizer using the installation tool software provisioning manager 1.0 SP39, which is part of SL Toolset 1.0 SP39.

You can install SAP SCM Optimizer either on an ABAP application server or on a dedicated server running on Linux with SAP Standalone Gateway installed.

Make sure that you have read the Master Guide for your SAP Business Suite Application before you continue with this installation guide. You can find a printed version of the Master Guide in your installation package or you can download the latest version at https://help.sap.com/scm.

**i Note**

Software provisioning manager is the successor of the product- and release-specific delivery of provisioning tools, such as SAPinst.

Before you perform an installation or system copy, we recommend that you always download the latest version of the software provisioning manager which is part of the Software Logistics Toolset (SL Toolset for short).

This way, you automatically get the latest SAPinst version including latest fixes in the tool and supported processes.

For more information about software provisioning manager as well as products and releases supported by it, see SAP Note 1680045.

1.1 SAP Notes for the Installation

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

Make sure that you have the up-to-date version of these SAP Notes, which you can find at: http://support.sap.com/notes.

<table>
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2 Planning

2.1 Planning Checklist

This section tells you how to plan the installation of the SCM Optimizer:

You make yourself familiar with the implementation considerations [page 8].

2.2 Implementation Considerations

You can install SAP SCM Optimizer either on top of an existing ABAP application server or on a dedicated server.

The following applies:

• SAP SCM Optimizer runs on Windows and Linux platforms. For more information, see the Product Availability Matrix at https://support.sap.com/pam.

• If you use a dedicated server for SAP SCM Optimizer, you need to install an SAP Standalone Gateway beforehand. For more information, see the Installation Guide - Installation of a Standalone Gateway Instance for SAP Systems Based on SAP NetWeaver 7.0 to 7.5x on <os> at https://support.sap.com/sltoolset.

  ➤ System Provisioning ➤ Installation Option of Software Provisioning Manager ➤ Installation Guides - Standalone Engines and Clients ➤ Standalone Gateway Instance.

→ Recommendation

The CPU time and memory requirement can be very high when you execute an optimizer instance. If insufficient resources are available, this can impact heavily on performance or affect correct implementation. Therefore, we highly recommend that you install an SAP SCM Optimizer server for a production or test environment on dedicated hardware (that is, no additional applications will run on this hardware). If you want to run other applications on the optimizer server, you must make sure that these are executed in sequence or that the hardware used provides sufficient resources. This also applies to executing several optimizer instances.

• Check SAP Note 1577112 for sizing information and other requirements.

Constraints

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

- If your current operating system is listed as deprecated in SAP Note 2998013, we strongly recommend that you migrate to a supported platform.

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

3.1 Preparation Checklist

You have to complete the following preparations:

1. If you want to install the SCM Optimizer on top of an existing ABAP application server, you make sure that there is an ABAP application server in your system landscape.
2. If you want to install the SCM Optimizer on a dedicated host, you make sure that there is a standalone Gateway on this host. For more information, see the Installation Guide - Installation of a Standalone Gateway Instance for SAP Systems Based on SAP NetWeaver 7.0 to 7.5x on <os> at https://support.sap.com/sltoolset

3.2 Preparing the Installation Media

This section describes how to prepare the installation media.

Installation media are available as follows:

- The software provisioning manager 1.0 archive containing the software provisioning manager software. You always have to download the latest version of the software provisioning manager 1.0 archive. For more information, see Downloading and Extracting the Software Provisioning Manager 1.0 Archive [page 11].
- SAP SCM Optimizer Installation Media
  You can provide them in one of the following ways:
  - Use the physical SAP SCM Optimizer installation medium as part of the installation package of your SAP system.
  - Download the SAP SCM Optimizer installation medium from the SAP Software Download Center. For more information, see Downloading Installation Media [page 13].
3.2.1 Downloading and Extracting the Software Provisioning Manager 1.0 Archive

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

Prerequisites

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

i Note

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

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

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

For more information about SAPCAR, see SAP Note 212876.

Procedure

1. Download the latest version of the Software Provisioning Manager 1.0 archive [70]SWPM10SP<Support_Package_Number>_<Version_Number>.SAR:
   - Valid for SAP systems based on SAP NetWeaver 7.0 and SAP NetWeaver 7.0 including enhancement package <Number>:
     Download the 70SWPM10SP<Support_Package_Number>_<Version_Number>.SAR
Valid for SAP systems based on SAP NetWeaver 7.3 EHP1 and higher:

Download the SWPM10SP_<Support_Package_Number>_.<Version_Number>.SAR

https://support.sap.com/sitoolset/?nav=System_Provisioning&nav=Download_Software_Provisioning_Manager

2. Using the latest version of SAPCAR, you can verify the digital signature of the downloaded SWPM10SP_<Support_Package_Number>_.<Version_Number>.SAR archive as follows:

a. Get the latest version of the SAPCRYPTOLIB archive to your installation host as follows:
   1. Go to https://launchpad.support.sap.com/#/softwarecenter
   2. SUPPORT PACKAGES & PATCHES and search for “sapcryptolib”.
   3. Select the archive file for your operating system and download it to the same directory where you have put the SAPCAR executable.
   4. Use the following command to extract the SAPCRYPTOLIB archive to the same directory where you have put the SAPCAR executable:
      
      SAPCAR -xvf sapcryptolibp_84...sar -R <target directory>

   4. Download the Certificate Revocation List from https://tcs.mysap.com/crl/crlbag.p7s and move it to the same directory.

b. Verify the digital signature of the downloaded SWPM10SP_<Support_Package_Number>_.<Version_Number>.SAR archive by executing the following command:

   Note
   
   Check SAP Notes 2178665 and 1680045 to whether additional information is available.

   /<Path to SAPCAR>/SAPCAR -tvVf <Path to Download Directory>/
   [70]SWPM10SP_<Support_Package_Number>_.<Version_Number>.SAR -crl<file name of revocation list>

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

   /<Path to SAPCAR>/sapcar -xvf <Path to Download Directory>/
   [70]SWPM10SP_<Support_Package_Number>_.<Version_Number>.SAR -R <Path to Unpack Directory>

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

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

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

Procedure

1. Download and unpack the latest version of Software Provisioning Manager as described in Downloading and Extracting the Software Provisioning Manager 1.0 Archive [page 11].
2. You identify the required media as listed in Preparing the Installation Media [page 10].
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://launchpad.support.sap.com/#/softwarecenter/SUPPORT PACKAGES & PATCHES > By Category > ADDITIONAL COMPONENTS > SAP KERNEL > SAP KERNEL 64-BIT UNICODE > SAP KERNEL <Version> 64-BIT UNICODE > <Select your OS>.
       • Select **DATABASE INDEPENDENT** to download the database-independent parts of the kernel.
         ❖ Example
         
         SAPEXE_1110-80002623.SAR  
         Kernel Part I (753) (*)
         
         SAPEXE_1118-80002612.SAR
         
       • Select **<Your DB>** to download the database-independent parts of the kernel.
         ❖ Example
         
         SAPEXEDB_1110-80002623.SAR  
         Kernel Part II (753) (*)
         
       • To download the remaining media required for your SAP product, you can use one of the following navigation paths:
         • https://launchpad.support.sap.com/#/softwarecenter/INSTALLATIONS & UPGRADES > By Category > SAP NETWEAVER AND COMPLEMENTARY PRODUCTS > <Product>
           • <Product Release>
• Material number
  All download objects that are part of an installation medium have the same material number and an individual sequence number:

  \(<\text{Kernelpart}>_<\text{Sequence Number}>-<\text{Material Number}>\)

  \(*\)

  **Example**

  SAPEXE\_1110\_80002623.SAR
  Kernel Part I (753) (*)
  SAPEXE\_1111\_80002623.SAR
  Kernel Part I (753) (*)
  SAPEXE\_1112\_80002623.SAR
  Kernel Part I (753) (*)

  **Example**

  SAPEXEDB\_1110\_80002623.SAR
  Kernel Part II (753) (*)
  SAPEXEDB\_1111\_80002623.SAR
  Kernel Part II (753) (*)
  SAPEXEDB\_1112\_80002623.SAR
  Kernel Part II (753) (*)

• Title
  All objects that are part of an installation medium have the same title, such as

  \(<\text{Solution}><\text{Media_Name}><\text{OS}>\) or \(<\text{Database}>RDBMS<\text{OS}>\) for database media.

4. Download the objects to the download directory.
5. To correctly re-combine the media that are split into small parts, unpack all parts into the same directory.

In the unpacking directory, the system creates a subdirectory with a short text describing the medium and copies the data into it. The data is now all in the correct directory, the same as on the medium that was physically produced. For more information, see SAP Note 1258173.

**Caution**

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

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

4.1 Installation Checklist

This section provides information about the steps that you have to perform to install SAP SCM Optimizer.

1. Make sure that you have completed the planning [page 8] and preparation [page 10] activities before you start the installation.

2. You check the prerequisites [page 15] and run the installation with Software Provisioning Manager 1.0 (the software provisioning manager) [page 18].
   Additional information about the software provisioning manager:
   - Interrupted Installation with the software provisioning manager [page 24]
   - Troubleshooting with the software provisioning manager [page 27]

4.2 Prerequisites for Running Software Provisioning Manager

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

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

⚠️ Caution

The software provisioning manager uses a self-signed certificate, which is used temporarily only while the software provisioning manager is running. This certificate is not trusted by the browser unless it is imported manually by the user running the software provisioning manager. This behavior is intentionally designed in this way because - unlike ordinary public web servers - the software provisioning manager has different usage patterns. You must configure your browser do trust the self-issued certificate of the software provisioning manager after carefully performing the “thumbprint” verification described in Running Software Provisioning Manager [page 18]. For more information about adding trusted certificates, see the documentation of your browser.
The software provisioning manager uses shell scripts to obtain the environment for user <sapsid>adm.

- If user <sapsid>adm does not yet exist, a working /bin/csh must be available on the host where you run the software provisioning manager. For more information about recommended login shells, see SAP Note 202227.
- If <sapsid> already exists and uses csh, before you start the software provisioning manager, execute the following command as user <sapsid> to make sure that the csh scripts are up-to-date, depending on your UNIX OS platform:
  
  ```
  /bin/csh -c "source /home/<sapsid>/cshrc;env" or /bin/csh -c "source /home/<sapsid>/login;env"
  ```

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

  Make sure that the temporary directory has the permissions 755.

- Make sure that you have at least 700 MB of free space in the installation directory for each installation option. In addition, you need 700 MB free space for the software provisioning manager executables. If you cannot provide 700 MB free space in the temporary directory, you can set one of the environment variables TEMP, TMP, or TMPDIR to another directory with 700 MB free space for the software provisioning manager executables.

  You can set values for the TEMP, TMP, or TMPDIR environment variable to an alternative installation directory as described in section Useful Information about Software Provisioning Manager [page 22].

- Make sure that umask is set to 022 for the user with root permissions that you want to use for running the software provisioning manager.

  As the user with root permissions that you want to use for running the software provisioning manager, enter the following command: `umask 022`

- **Linux**: On Linux, starting with SLES 15, RHEL 8 and Oracle Linux 8, and respective recent SAP kernel patch levels, there is native integration into systemd. In this case, limits for operating system users root, <sapsid>adm, and your database-specific operating system users do not need to be set any longer. Make sure that polkit is installed. systemd requires polkit for authorization checks for the <sapsid>adm user.

  For older Linux versions and SAP kernel patch levels, however, you must still set these limits. For more information about how to proceed for older Linux versions, see the following instructions. For more information about Linux with systemd and the relevant SAP kernel patch levels, see SAP Note 3139184.

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

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

```
Example
The following table lists example output taken from SUSE Linux Enterprise Server 15 (x86_64).
```
Using `sh` or `ksh` shell, the output of command `ulimit -a` needs to be at least as follows:

<table>
<thead>
<tr>
<th>Properties</th>
<th>Output sh</th>
<th>Output ksh</th>
</tr>
</thead>
<tbody>
<tr>
<td>cputime</td>
<td>cpu time (seconds)</td>
<td>cpu time (seconds)</td>
</tr>
<tr>
<td>filesize</td>
<td>file size (blocks)</td>
<td>file size (blocks)</td>
</tr>
<tr>
<td>datasize</td>
<td>data seg size (kbytes)</td>
<td>data size (Kibytes)</td>
</tr>
<tr>
<td>stacksize</td>
<td>stack size (kbytes)</td>
<td>stack size (Kibytes)</td>
</tr>
<tr>
<td>coredumpsize</td>
<td>core file size (blocks)</td>
<td>core file size (blocks)</td>
</tr>
<tr>
<td>descriptors</td>
<td>open files</td>
<td>nofile</td>
</tr>
<tr>
<td>memoryuse</td>
<td>max memory size (kbytes)</td>
<td>max memory size (Kibytes)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>stacksize</td>
<td>8192 KB</td>
</tr>
<tr>
<td>descriptors</td>
<td>8192</td>
</tr>
<tr>
<td>memoryuse</td>
<td>unlimited</td>
</tr>
</tbody>
</table>

Example

The following table lists example output taken from SUSE Linux Enterprise Server 15 (x86_64).

<table>
<thead>
<tr>
<th>Output sh</th>
<th>Output ksh</th>
<th>Properties</th>
</tr>
</thead>
<tbody>
<tr>
<td>cpu time (seconds)</td>
<td>cpu time (seconds)</td>
<td>unlimited</td>
</tr>
<tr>
<td>file size (blocks)</td>
<td>file size (blocks)</td>
<td>unlimited</td>
</tr>
<tr>
<td>data seg size (kbytes)</td>
<td>data size (Kibytes)</td>
<td>unlimited</td>
</tr>
<tr>
<td>stack size (kbytes)</td>
<td>stack size (Kibytes)</td>
<td>8192 KB</td>
</tr>
<tr>
<td>core file size (blocks)</td>
<td>core file size (blocks)</td>
<td>unlimited</td>
</tr>
<tr>
<td>open files</td>
<td>nofile</td>
<td>8192</td>
</tr>
<tr>
<td>max memory size (kbytes)</td>
<td>max memory size (Kibytes)</td>
<td>unlimited</td>
</tr>
</tbody>
</table>

Make sure that the following ports are not used by other processes:

- Port 4237 is used by default as HTTPS port for communication between the software provisioning manager and the SL-UI.
  If this port cannot be used, you can assign a free port number by executing `sapinst` with the following command line parameter:

  `SAPINST_HTTPS_PORT=<Free Port Number>`

- Port 4239 is used by default for displaying the feedback evaluation form at the end of the software provisioning manager processing.
  The filled-out evaluation form is then sent to SAP using HTTPS.
If this port cannot be used, you can assign a free port number by executing `sapinst` with the following command line parameter:

```
SAPINST_HTTP_PORT=<Free Port Number>
```

## 4.3 Running Software Provisioning Manager

This section describes how to run the software provisioning manager.

### Prerequisites

For more information, see Prerequisites for Running Software Provisioning Manager [page 15].

### Context

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

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

For more information about the SL-UI, see Useful Information about Software Provisioning Manager [page 22].

### Procedure

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

   **Caution**

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

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

2. Make the installation media available.

   For more information, see Preparing the Installation Media [page 10].


→ Recommendation

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

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

```
<Path_To_Unpack_Directory>/sapinst
```

**i Note**

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

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

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

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

**i Note**

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

1. Terminate the software provisioning manager as described in **Useful Information about Software Provisioning Manager [page 22]**.
2. Restart the software provisioning manager from the command line with the `SAPINST_GUI_HOSTNAME=<hostname>` property.

You can use a fully-qualified host name.

If you have a supported web browser (see **Prerequisites for Running Software Provisioning Manager [page 15]**) installed on the host where you run the software provisioning manager, you can open this URL directly in the shell. Otherwise, open the URL in a supported web browser that runs on another device.

**Caution**

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

Before you reach the **Welcome** screen, your browser warns you that the certificate of the sapinst process on this computer could not be verified.

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

1. Click on the certificate area on the left hand side in the address bar of your browser, and view the certificate.
2. Open the certificate fingerprint or thumbprint, and compare all hexadecimal numbers to the ones displayed in the console output of the software provisioning manager.
Proceed as follows to get the certificate fingerprint or thumbprint from the server certificate printed in the software provisioning manager console:

1. Go to the sapinst_exe.xxxxxx.xxxx directory in the temporary directory to which the software provisioning manager has extracted itself:
   `<User_Home>/sapinst/
2. In the sapinst_exe.xxxxxx.xxxx directory, execute the sapgenpse tool with the command line option `get_my_name -p`.
   As a result, you get the server fingerprint or thumbprint from the server certificate.
3. Accept the warning to inform your browser that it can trust this site, even if the certificate could not be verified.

The SL-UI opens in the browser by displaying the Welcome screen.

5. On the Welcome screen, choose the required option:
   - If you are using the 70SWPM*.SAR:
   - If you are using the SWPM*.SAR:
     Choose Generic Options SCM Optimizer Installation.

6. Choose Next.

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

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

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

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

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

   For more information, see SAP Note 2393060.

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

Installation of SAP SCM Optimizer on Linux
8. To start the installation, choose Next.

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

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

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

11. For security reasons, we recommend that you remove the operating system users from the group sapinst after you have completed the installation.

**Note**

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

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

   `<User_Home>/sapinst/`

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

   You find the software provisioning manager log files in the sapinst_instdir directory. For more information, see Useful Information about Software Provisioning Manager [page 22].

### 4.4 Additional Information about Software Provisioning Manager

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

- **Useful Information about Software Provisioning Manager [page 22]**
  - This section contains some useful technical background information about the software provisioning manager and the software provisioning manager's SL-UI.

- **Restarting Interrupted Processing of Software Provisioning Manager [page 24]**
  - Here you find information about how to restart the software provisioning manager if its processing has been interrupted.

- **Troubleshooting with Software Provisioning Manager [page 27]**
  - This section tells you how to proceed when errors occur while the software provisioning manager is running.

- **Using the Step State Editor (SAP Support Experts Only) [page 28]**
  - This section describes how to use the Step State Editor available in the software provisioning manager.
4.4.1 Useful Information about Software Provisioning Manager

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

- The software provisioning manager has a framework named “SAPinst”. For more information about the current SAPinst Framework version and its features, see SAP Note 3207613 (SAPinst Framework 753 Central Note).

- The software provisioning manager has the web browser-based “SL-UI of the software provisioning manager” - “SL-UI” for short. The SL-UI uses the SAP UI Development Toolkit for HTML5 - also known as SAPUI5 - a client-side HTML5 rendering library based on JavaScript. The benefits of this new user interface technology for the user are:
  - Zero footprint, since only a web browser is required on the client
  - New controls and functionality, for example, view logs in web browser.

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

The SL-UI connects the web browser on a client with the sapinst executable - which is part of software provisioning manager - running on the installation host using the standard protocol HTTPS. For the SL-UI the software provisioning manager provides a pre-generated URL at the bottom of the shell from which you are running the software provisioning manager. If you have a supported web browser installed on the host where you run the software provisioning manager, you can start the SL-UI directly from this URL. Otherwise, open a web browser supported by the SL-UI on any device and run the URL from there.

For more information about supported web browsers see Prerequisites for Running Software Provisioning Manager [page 15].

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

- As soon as you have started the sapinst executable, the software provisioning manager creates a .sapinst directory underneath the /home/<User> directory where it keeps its log files. <User> is the user with which you have started the software provisioning manager.
  After you have reached the Welcome screen and selected the relevant software provisioning manager option for the SAP system or instance to be installed, the software provisioning manager creates a directory sapinst_instdir where it keeps its log files, and which is located directly below the temporary directory. The software provisioning manager finds the temporary directory by checking the value of the TEMP, TMP, or TMPDIR environment variable. If no value is set for these variables, the software provisioning manager uses /tmp by default.

All log files which have been stored so far in the .sapinst folder are moved to the sapinst_instdir directory as soon as the latter has been created.

If you want the sapinst_instdir directory to be created in another directory than /tmp, set the environment variable TEMP, TMP, OR TMPDIR to this directory before you start the software provisioning manager.
Shell Used | Command
---|---
Bourne shell (sh) | TEMP=<Directory>
| export TEMP
C shell (csh) | setenv TEMP <Directory>
Korn shell (ksh) | export TEMP=<Directory>

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

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

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

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

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

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

ℹ️ Note
If you need to terminate the software provisioning manager, press [Ctrl] + [C]
4.4.2 Restarting Interrupted Processing of Software Provisioning Manager

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

Context

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

- An error occurred during the Define Parameters or Execute phase:
  The software provisioning manager does not abort the installation in error situations. If an error occurs, the installation pauses and a dialog box appears. The dialog box contains a short description of the choices listed in the table below as well as a path to a log file that contains detailed information about the error.

- You interrupted the processing of the software provisioning manager by choosing Cancel in the SL-UI.

⚠️ Caution

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

The following table describes the options in the dialog box:

<table>
<thead>
<tr>
<th>Option</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Retry</td>
<td>The software provisioning manager retries the installation from the point of failure without repeating any of the previous steps. This is possible because the software provisioning manager records its progress in the keydb.xml file. We recommend that you view the entries in the log files, try to solve the problem, and then choose Retry. If the same or a different error occurs, the software provisioning manager displays the same dialog box again.</td>
</tr>
<tr>
<td>Stop</td>
<td>The software provisioning manager stops the installation, closing the dialog box and the software provisioning manager’s SL-UI. The software provisioning manager records its progress in the keydb.xml file. Therefore, you can continue with the software provisioning manager from the point of failure without repeating any of the previous steps. See the procedure below.</td>
</tr>
<tr>
<td>Continue</td>
<td>The software provisioning manager continues the installation from the current point.</td>
</tr>
<tr>
<td>View Log</td>
<td>Access installation log files.</td>
</tr>
</tbody>
</table>
You can also terminate the software provisioning manager by choosing $\text{Ctrl} + \text{C}$ but we do not recommend this because it kills the process immediately.

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

**Procedure**

1. Log on to the installation host as a user with the required permissions as described in Running Software Provisioning Manager [page 18].
2. Make sure that the installation media are still available.
   
   For more information, see Preparing the Installation Media [page 10].

   **→ 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 10].

   **→ 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 software provisioning manager from the directory to which you unpacked the Software Provisioning Manager archive by executing the following command:

   `<Path_To_Unpack_Directory>/sapinst`

5. The software provisioning manager is restarting.

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

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

**i Note**

If the host specified by `<hostname>` cannot be reached due to a special network configuration, proceed as follows:
1. Terminate the software provisioning manager as described in Useful Information about Software Provisioning Manager [page 22].

2. Restart the software provisioning manager from the command line with the 
\texttt{SAPINST\_GUI\_HOSTNAME=<hostname>} property.

You can use a fully-qualified host name.

If you have a supported web browser (see Prerequisites for Running Software Provisioning Manager [page 15]) installed on the host where you run the software provisioning manager, you can open this URL directly in the shell. Otherwise, open the URL in a supported web browser that runs on another device.

\section*{⚠️ 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 \texttt{Welcome} screen, your browser warns you that the certificate of the sapinst process on this computer could not be verified.

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

1. Click on the certificate area on the left hand side in the address bar of your browser, and view the certificate.
2. Open the certificate fingerprint or thumbprint, and compare all hexadecimal numbers to the ones displayed in the console output of the software provisioning manager.

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

1. Go to the \texttt{sapinst\_exe.xxxxxx.xxxxx} directory in the temporary directory to which the software provisioning manager has extracted itself:
   \[<User\_Home>/\.sapinst/\]
2. In the \texttt{sapinst\_exe.xxxxxx.xxxxx} directory, execute the \texttt{sapgenpse} tool with the command line option \texttt{get\_my\_name -p}.

As a result, you get the server fingerprint or thumbprint from the server certificate.

3. Accept the warning to inform your browser that it can trust this site, even if the certificate could not be verified.

The SL-UI opens in the browser by displaying the \texttt{Welcome} screen.

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

The \texttt{What do you want to do?} screen appears.

7. On the \texttt{What do you want to do?} screen, decide between the following alternatives and continue with \texttt{Next}:
<table>
<thead>
<tr>
<th>Alternative</th>
<th>Behavior</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Perform a new run</strong></td>
<td>The software provisioning manager does not continue the interrupted installation option. Instead, it moves the content of the old software provisioning manager directory and all software provisioning manager-specific files to a backup directory. Afterwards, you can no longer continue the old option.</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 software provisioning manager moves all the files and folders to a new log directory, even if these files and folders are owned by other users. If there are any processes currently running on these files and folders, they might no longer function properly.</td>
</tr>
<tr>
<td><strong>Continue with the existing one</strong></td>
<td>The software provisioning manager continues the interrupted installation from the point of failure.</td>
</tr>
</tbody>
</table>

### 4.4.3 Troubleshooting with Software Provisioning Manager

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

**Context**

If an error occurs, the software provisioning manager:

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

1. Check SAP Note SAP Note 3207613 (SAPinst Framework 753 Central Note) for known software provisioning manager issues.

2. If an error occurs during the Define Parameters or the Execute Service phase, do one of the following:
   - Try to solve the problem:
     - To check the software provisioning manager log files (sapinst.log and sapinst_dev.log) for errors, choose the LOG FILES tab.
       
       **Note**
       
       The LOG FILES tab is only available if you have selected on the Welcome screen the relevant software provisioning manager option for the SAP product to be installed.
       
       If you need to access the log files before you have done this selection, you can find them in the .sapinst directory underneath the /home/<User> directory, where <User> is the user that you used to start the software provisioning manager.
       
       For more information, see Useful Information about Software Provisioning Manager [page 22].
     
     - To check the log and trace files of the software provisioning manager’s SL-UI for errors, go to the directory <User_Home>/.sapinst/
     
     - Then continue by choosing Retry.
     
     - If required, abort the software provisioning manager by choosing Cancel in the tool menu and restart the software provisioning manager. For more information, see Restarting Interrupted Processing of Software Provisioning Manager [page 24].
   
3. If you cannot resolve the problem, report an incident using the appropriate subcomponent of BC-INS*.

   For more information about using subcomponents of BC-INS*, see SAP Note 1669327.

4.4.4 Using the Step State Editor (SAP Support Experts Only)

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

**Note**

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

Prerequisites

- SAP Support requests you to use the Step State Editor.
- Make sure that the host where you run the software provisioning manager meets the requirements listed in Prerequisites for Running Software Provisioning Manager [page 15].
Procedure

1. Start the software provisioning manager from the command line as described in Running Software Provisioning Manager [page 18] with the additional command line parameter `SAPINST_SET_STEPSTATE=true`.

2. Follow the instructions on the software provisioning manager screens and fill in the parameters prompted during the Define Parameters phase until you reach the Parameter Summary screen.

3. Choose Next.

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

   • Mark the checkbox in front of the Break option of the steps where you want the software provisioning manager to pause.
   • Mark the checkbox in front of the Skip option of the steps which you want the software provisioning manager to skip.

4. After you have marked all required steps with either the Break or the Skip option, choose OK on the Step State Editor dialog.

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

   • Choose OK to continue with this step.
   • Choose Step State Editor to return to the Step State Editor and make changes, for example you can repeat the step by marking the checkbox in front of the Repeat option.
   • Choose Cancel to abort the software provisioning manager.

5. Continue until you have run through all the steps of the Execute Service phase of the software provisioning manager.

4.5 Installing SAP SCM Optimizer

Procedure

1. On the Welcome screen of the software provisioning manager, choose Generic Installation Options > SCM Optimizer Installation.

2. On the Define Parameter screen, enter the installation directory in the Installation Directory field. The default installation directory proposed by the software provisioning manager is `scmopt`.

   i Note
   You can change the installation directory.

   The selected installation directory will later on be referred to as `<INST_DIR>`.
3. In the **Installation Archive** field, enter an installation archive that is valid for SCM Optimizer 13.0 or higher.

You can retrieve the respective archive from your SAP SCM Optimizer installation media.

**Note**

You can find the SAR archive in the `DATA_UNITS/<OS>` directory on the installation media.

For more information on which media to use, see the Master Guide for your product and release.
5  Post-Installation

5.1  Post-Installation Checklist

You need to perform the following post-installation steps for SAP SCM Optimizer after the software provisioning manager has finished:

1. You perform a setup check of the RFC Gateway [page 31].
2. You customize the SAP Optimizer destination entries [page 34].
3. You test the SCM Optimizer installation [page 34].
4. You check for patches and support packages [page 35].

5.2  Performing a Setup Check of the RFC Gateway

We recommend that you perform a setup check of the RFC Gateway.

Procedure

1. If you use a standalone Gateway instance, start the Gateway instance.
2. Log on to the ABAP application server.
3. Call transaction SM59. The Display and maintain RFC destinations screen appears.
4. Open the node TCP/IP connection.
5. For the first optimizer server, you have to adapt the RFC entries that are existing in your system.

The RFC entries existing in your system might look as follows:

<table>
<thead>
<tr>
<th>i Note</th>
</tr>
</thead>
<tbody>
<tr>
<td>You <strong>only</strong> have to adapt the entries that <strong>actually exist</strong> in your system, for example OPTSERVER_CS01. You do not have to add entries that are missing in your system as your system <strong>only</strong> requires the entries that actually exist in your system. For example, SAP TM systems might only have entries starting with &quot;T&quot; such as TVRG01.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>i Note</th>
</tr>
</thead>
<tbody>
<tr>
<td>As of SAP S/4HANA 1709, the default RFC-destinations are no longer available. Instead, you can use report RCC_RFC_S4_DFLT_SCMOPT_DESTS to create them.</td>
</tr>
</tbody>
</table>
For more information, see SAP Note 2644038.

### Example

- OPTSERVER_CS01
- OPTSERVER_CTM01
- OPTSERVER_DPS01
- OPTSERVER_MIP01
- OPTSERVER_MMP01
- OPTSERVER_SEQ01
- OPTSERVER_SNP01
- OPTSERVER_VSR01
- OPTSERVER_TSPS01
- OPTSERVER_TVRG01
- OPTSERVER_TVSR01
- OPTSERVER_TVSS01
- OPTSERVER_VSO01

### Note

For any additional optimizer server, you have to create a new RFC entry (for example, OPTSERVER_CTM02). Make sure that this new RFC entry ends with a two-digit number that is different from 01.

To adapt an RFC entry proceed as follows:

1. Double-click the destination name OPTSERVER_<Optimizer>01. The RFC Destination OPTSERVER_<Optimizer>01 screen appears.
2. Depending on the server, you must do the following to check the RFC entries:

<table>
<thead>
<tr>
<th>Standalone SAP SCM Optimizer on Separate Host</th>
<th>SAP SCM Optimizer and ABAP Application Server on Same Host</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Choose <strong>Start on Explicit host</strong>.</td>
<td>1. Choose <strong>Start on Application server</strong>.</td>
</tr>
<tr>
<td>2. In the <strong>Program</strong> field, check your program path (see table <strong>Program Paths of RFC Entries</strong> below).</td>
<td>2. In the <strong>Program</strong> entry field, check your program path (see table <strong>Program Paths of RFC Entries</strong> below).</td>
</tr>
<tr>
<td>3. Check the name of your <strong>Target Host</strong>.</td>
<td>4. Enter the number of the Gateway host and the corresponding Gateway service <strong>SAPGW&lt;GW_NO&gt;</strong>.</td>
</tr>
<tr>
<td>4. Enter the number of the Gateway host and the corresponding Gateway service <strong>SAPGW&lt;GW_NO&gt;</strong>.</td>
<td></td>
</tr>
</tbody>
</table>

**Note**

You can find out the required parameters on your target host as follows:

1. On your target host, call transaction SMGW.
2. Choose **Goto Parameters** (see entries for gateway host-name and gateway service).

5. Confirm with **OK**.

**Caution**

If your ABAP application server is a **Unicode** system, you must do the following in addition to the above setting for each **OPTSERVER_<Optimizer>_01** destination:

1. Choose the tab **Unicode**.
2. You must select the indicator **Unicode**, and in the group frame **Character Conversion**, leave the indicator at the default setting.

**Note**

In SCM Optimizer 10.0, the default path has changed from **APOOPT** to **SCMOPT**. Furthermore, all subdirectories have been deleted so that any optimizer executables are extracted directly to the chosen installation directory.

### RFC Program Path

<table>
<thead>
<tr>
<th>RFC</th>
<th>Program Path</th>
</tr>
</thead>
<tbody>
<tr>
<td>OPTSERVER_CTM01</td>
<td>&lt;INST_DIR&gt;/ctmsvr</td>
</tr>
<tr>
<td>OPTSERVER_DPS01</td>
<td>&lt;INST_DIR&gt;/dsoptsvr</td>
</tr>
<tr>
<td>OPTSERVER_SNP01</td>
<td>&lt;INST_DIR&gt;/snpopsvr</td>
</tr>
<tr>
<td>OPTSERVER_SEQ01</td>
<td>&lt;INST_DIR&gt;/seqopsvr</td>
</tr>
<tr>
<td>RFC</td>
<td>Program Path</td>
</tr>
<tr>
<td>----------------------</td>
<td>-----------------------</td>
</tr>
<tr>
<td>OPTSERVER_VSR01</td>
<td>&lt;INST_DIR&gt;/vsropsvr</td>
</tr>
<tr>
<td>OPTSERVER_MMP01</td>
<td>&lt;INST_DIR&gt;/mmpovrsvr</td>
</tr>
<tr>
<td>OPTSERVER_CS01</td>
<td>&lt;INST_DIR&gt;/csopsvr</td>
</tr>
<tr>
<td>OPTSERVER_TSPS01</td>
<td>&lt;INST_DIR&gt;/csopsvr</td>
</tr>
<tr>
<td>OPTSERVER_TVRG01</td>
<td>&lt;INST_DIR&gt;/vsropsvr</td>
</tr>
<tr>
<td>OPTSERVER_TVSR01</td>
<td>&lt;INST_DIR&gt;/vsropsvr</td>
</tr>
<tr>
<td>OPTSERVER_TVSS01</td>
<td>&lt;INST_DIR&gt;/vsropsvr</td>
</tr>
<tr>
<td>OPTSERVER_MIP01</td>
<td>&lt;INST_DIR&gt;/mipovrsvr</td>
</tr>
<tr>
<td>OPTSERVER_VSO01</td>
<td>&lt;INST_DIR&gt;/vsoopsvr</td>
</tr>
<tr>
<td>OPTSERVER_TSFM01</td>
<td>&lt;INST_DIR&gt;/csopsvr</td>
</tr>
<tr>
<td>OPTSERVER_VSO01</td>
<td>&lt;INST_DIR&gt;/vsoopsvr</td>
</tr>
</tbody>
</table>

3. Save your entry and choose Exit.
4. Repeat the steps 1. to 3. for the remaining RFC entries.

### 5.3 Customizing the Optimizer Destination Entries

1. Log on to the ABAP application server.
2. Call transaction SPRO.
3. Choose SAP Reference IMG.
5. Choose the Execute button of the step Edit Destinations and maintain it according to the customizing documentation.
6. Perform the Connection Test in this transaction after the customization.

### 5.4 Testing the Optimizer Installation

1. Log on to the ABAP application server.
2. Call transaction RCC_CUST and click the connection test button. All tests must be successful (green light).
5.5 Applying the Latest Patches and Support Packages

Proceed as described in SAP Note 1686826.
6 Additional Information

6.1 Additional Information

This section contains additional information on the SAP SCM Optimizer installation:

• Uninstalling the SAP SCM Optimizer [page 36]

6.2 Uninstalling SAP SCM Optimizer

Use

Proceed as follows to uninstall SAP SCM Optimizer

Procedure

1. If your SAP SCM Optimizer runs on a dedicated host, stop the SAP Standalone Gateway.
2. Delete the directory /INST_DIR completely with all its content.
3. If required, uninstall also the SAP Standalone Gateway.
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