Installation Guide | PUBLIC
Software Provisioning Manager 1.0 SP31
Document Version: 1.4 – 2021-02-15

Installation of SAP Content Server 7.5 and Higher on Windows

© 2021 SAP SE or an SAP affiliate company. All rights reserved.

THE BEST RUN SAP

Content

1 Document History

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

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

Version	Date	Description
1.4	2021-02-15	Updated version for Software Provisioning Manager 1.0 SP31 (SL Toolset 1.0 SP31)
1.3	2020-10-05	Updated version for Software Provisioning Manager 1.0 SP30 (SL Toolset 1.0 SP30)
1.2	2020-06-08	Updated version for Software Provisioning Manager 1.0 SP29 (SL Toolset 1.0 SP29)
1.1	2020-01-20	Updated version for Software Provisioning Manager 1.0 SP28 (SL Toolset 1.0 SP28)
1.0	2019-09-16	Initial version Software Provisioning Manager 1.0 SP27 (SL Toolset 1.0 SP27)

2 About this Document

This documentation describes how to install an SAP Content Server or SAP Cache Server 7.5 **or higher** on Windows, using the Software Provisioning Manager 1.0 SP31 [page 5] (“installer” for short), which is part of SL Toolset 1.0 SP31.

> **i Note**
>
> If you want to install an SAP Content Server or SAP Cache Server release **lower than 7.5**, use the documentation *Installation of SAP Content Server (lower than) 7.5 on Windows*, which is available at https://support.sap.com/sltoolset > *System Provisioning* > *System Provisioning Scenarios* > *Install a System using Software Provisioning Manager* > *Installation Option of Software Provisioning Manager 1.0* `<Current SP>` > *Installation Guides - Standalone Engines and Clients* > *SAP Content Server*

You can find a complete list of the SAP system products that are supported by Software Provisioning Manager 1.0 attached to SAP Note 1680045.

Starting with release 7.5, Content Server is integrated into the SAP Web Dispatcher instead of the Apache (Unix) or Microsoft IIS (Windows) web servers.

SAP Content Server will be installed typically under its own system ID (SAPSID) and with an instance number that is unique within the system. As a result, SAP Content Server instances will now be better integrated in your SAP system landscape (for example, regarding its integration with SAP MC, SAP MMC, SAP Solution Manager). For more information, see SAP Note 2786364 .

If SAP Cache Server is not explicitly mentioned, “SAP Content Server” always refers to both SAP Content Server and SAP Cache Server.

> **i Note**
>
> If you want to install an SAP Content Server or Cache Server **lower** than 7.5 , use the documentation *Installation of SAP Content Server on Windows 7.4 and Lower* at: https://support.sap.com/sltoolset > *System Provisioning* > *Install a System using Software Provisioning Manager* > *Installation Option of Software Provisioning Manager 1.0 SP*`<Current Number>` > *Installation Guides - Standalone Engines and Clients* > *SAP Content Server*

2.1 About Software Provisioning Manager 1.0

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

“SAPinst” has been renamed to “Software Provisioning Manager” (“installer” for short) in this documentation, but the terms “SAPinst” and “sapinst” are still used in:

- The name of the technical framework of Software Provisioning Manager. For more information about the SAPinst Framework, see SAP Note 2393060.
- Texts and screen elements in the Software Provisioning Manager GUI
- Names of executables, for example `sapinst.exe`
- Names of command line parameters, for example **`SAPINST_HTTPS_PORT`**

In the following, we generally refer to Software Provisioning Manager 1.0 as the “installer”. We only use the term “Software Provisioning Manager 1.0” if this is required for technical reasons.

Related Information

Preparing the Installation Archives [page 29]

2.2 Purpose

This section describes the purpose of SAP Content Server.

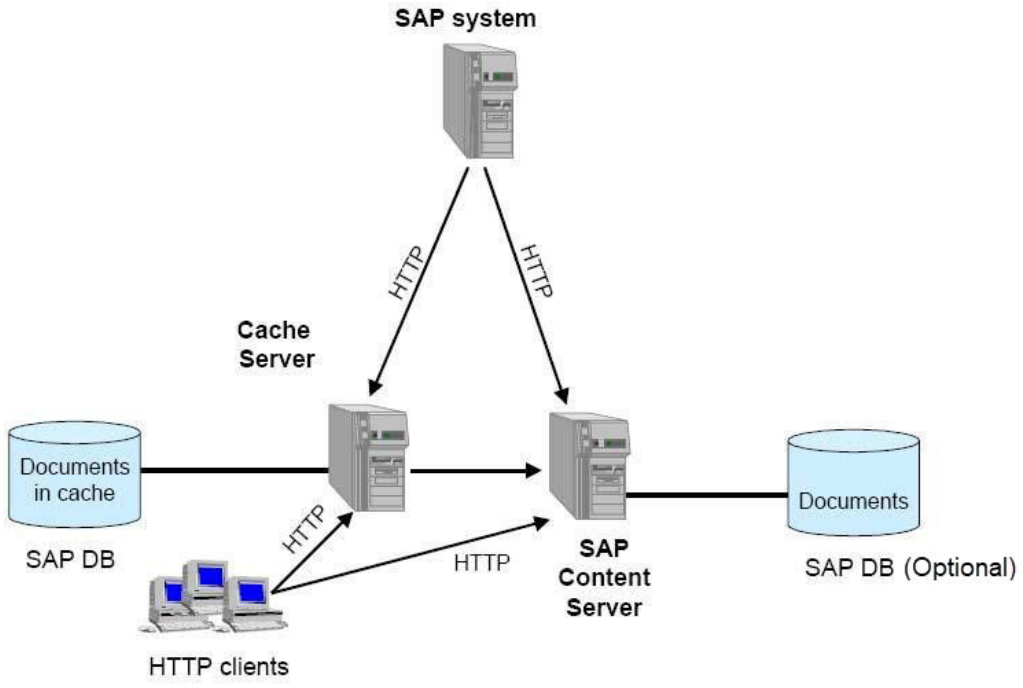
Knowledge Provider is a component of SAP Application Server ABAP and provides the general infrastructure for storing and administrating documents. SAP Content Server 7.5 and higher is available on Windows Server (OS Versions are listed in the Product Availability Matrix (PAM) at https://support.sap.com/pam).

The Content Server and the Cache Server are server components that interact with the Knowledge Provider. This document describes how to install these components. For further information on Knowledge Provider, the Content Server, and the Cache Server, see the SAP Library at https://help.sap.com/nw > `<Choose the SAP NetWeaver Release your SAP product is based on>` > *SAP NetWeaver Library: Function-Oriented View* > *Application Server* > *Application Server ABAP* > *Other Services* > *Services for Business Users* > *Knowledge Provider (BC-SRV-KPR)* > *Content Management Service (BC-SRV-KPR)* > *SAP Content Server* .

2.3 Features

This section describes the features of SAP Content Server which comprises a content server and a cache server.

The graphic below illustrates the conceptual structure of the server system:



SAP Content Server Structure of the Server System on Windows

Using a database is optional. Documents can be stored either in SAP MaxDB or directly on the file system.

Content Server [page 7]

Cache Server [page 8]

2.3.1 Content Server

The Content Server is accessed via HTTP. SAP AG has designed the interface required to do this. SAP also provides a certification procedure. You can find a description of the SAP Content Server Interface in the SAP Library at https://help.sap.com/nw ▶ ▶ `<Choose the SAP NetWeaver Release your SAP product is based on>` ▶ *SAP NetWeaver Library: Function-Oriented View* ▶ *Application Server* ▶ *Application Server ABAP* ▶ *Other Services* ▶ *Services for Business Users* ▶ *Knowledge Provider (BC-SRV-KPR)* ▶ *Content Management Service (BC-SRV-KPR)* ▶ *SAP Content Server* ▶ *SAP Content Server HTTP 4.5 Interface* ▶

If you want to integrate another content server into your network, the new content server must fulfill the requirements of the interface.

2.3.2 Cache Server

The Cache Server serves the following purposes:

- To provide a seamless and transparent caching facility for existing Content Server landscapes
- To drastically reduce client response times
- To ensure that caching requires as little administration work as possible

Cache servers are used in distributed environments to store documents at a location close to the relevant client, and thus to allow faster access to document content. To do this, the Cache Server creates and stores “working copies” of documents from the Content Server. This also reduces network load, as no remote content server has to be accessed when a client requests read access to a document. Cache servers are similar to content servers. However, with cache servers, little administrative input is required, and access protection is maintained. The central document management functions in the SAP System make sure that out-of-date document versions that are still in the cache are no longer accessed and are eventually deleted.

If the client and the Content Server have the same location, the documents do not (usually) need to be cached. In these cases, the requested URL is sent directly to the SAP Content Server and the content is obtained directly from the SAP Content Server.

The installation procedure is available for Windows 2003 Server and higher only.

> **i** Note
>
> This documentation does **not** cover the installation of SAP Content Server below Windows 2003 server version.

2.4 Constraints

This section lists the constraints valid for SAP Content Server.

SAP Content Server is not an alternative to optical storage systems and other storage media for long-term document archiving.

2.5 SAP Notes for the Installation

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

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

SAP Notes for the Installation

SAP Note Number	Title	Description
1680045	Release Note for Software Provisioning Manager 1.0	Remarks, annotations, and corrections discovered after publication of the documentation Software Provisioning Manager

2.6 Naming Conventions

In this documentation, the following naming conventions apply:

> **i** Note
>
> From a technical point of view, the SAP Content Server 7.5 or higher is set up like an SAP system with its own SAP system ID (SAPSID), its own operating system users, and its own directory structure.

- “installer” refers to “Software Provisioning Manager 1.0” .
- “SAP system” refers to the “SAP Content Server” as such.
- “instance” refers to the “SAP Content Server instance”.
- If SAP Cache Server is not explicitely mentioned, “SAP Content Server” always refers to both SAP Content Server and SAP Cache Server.

3 Planning

3.1 Installation Prerequisites

Before you start installing SAP Content Server, note the following prerequisites.

General Prerequisites [page 10]

Technical Prerequisites [page 10]

3.1.1 General Prerequisites

SAP Content Server can store documents in SAP MaxDB (separate installation required) or directly on a file system.

You should save the following SAP Content Server sub-components to different hard disks, to ensure maximum performance and data security in the productive system:

- Data (data files of MaxDB or root folder of file system based repositories)
- Log file (MaxDB only)
- Mirrored log file (MaxDB only)

A RAID 5 system with at least 2.5 GB of free hard disk capacity is recommended for storing the data. The hard disks must be set up in NTFS format.

All users, in particular application servers and workstation PCs, must be able to access the Content Server or Cache Server system via HTTP. A workstation PC without direct HTTP access will not be able to execute individual scenarios, or will only have very limited access to individual scenarios.

3.1.2 Technical Prerequisites

Hardware and Software Requirements [page 11]

Technical Prerequisites of the SAP System [page 17]

This section describes the minimum requirements for the back-end system.

3.1.2.1 Hardware and Software Requirements

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

Procedure

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

3.1.2.1.1 Hardware and Software Requirements Tables

Hardware Requirements

Hardware Requirement	Requirement	How to Check
Minimum disk space		To check disk space: • Windows Server 2012 (R2) and higher: 1. Open PowerShell in elevated mode, and enter the following command: `get-volume` 2. Check the value *SizeRemaining* of the disk you want to install on. • Windows Server 2008 (R2): 1. Choose *Start* > *All Programs* > *Administrative Tools* > *Storage* > *Computer Management* > *Disk Management*. 2. Right-click the drive and choose *Properties*.

Hardware Requirement	Requirement	How to Check
Minimum RAM		To check RAM: • Windows Server 2012 (R2) and higher: Open PowerShell in elevated mode, and enter the following command: `Get-WmiObject Win32_ComputerSystem` • Windows Server 2008 (R2): Choose *Start* > *Control Panel* > *System*. **Note** If *System* is not visible, change *View by:* from *Category* into *Large icons*.

Hardware Requirement	Requirement	How to Check
Paging file size	For more information, see SAP Note 1518419.	To check paging file size: • Windows Server 2012 (R2) and higher: For more information, see Checking and Changing the Paging File Settings on Windows Server 2012 (R2) [page 53] • Windows Server 2008 (R2): 1. Choose *Start* > *Control Panel* > *System*. **Note** If *System* is not visible, change *View by:* from *Category* into *Large icons*. 2. Choose *Advanced system settings*. 3. In section *Performance*, select *Settings...* > *Advanced*. 4. If required, in section *Virtual memory*, choose *Change*. **Note** Do **not** select *Automatically managed paging file*

Hardware Requirement	Requirement	How to Check
		size for all drives. Only valid for 'High Availability': HA (Windows) **i Note** **High Availability only:** You must adjust the size of the paging file on **all** cluster nodes. End of 'High Availability': HA (Windows)
Processing units	**For application server instances and database instances**: The number of physical or virtual processing units usable by the operating system image must be equal to or greater than 2. Examples of processing units are processor cores or hardware threads (multithreading). In a virtualized environment, ensure that adequate processor resources are available to support the workloads of the running SAP systems.	
Suitable backup system		

Software Requirements

Software Requirement	Requirement	How to Check

Windows operating system	• **64-bit version** of one of the following Windows Server Editions:
	  ○ Windows Server 2012 (R2) and higher:
	  ○ Windows Server Standard Edition
	  ○ Windows Server Datacenter Edition
	  ○ Windows Server 2008 (R2):
	  ○ Only valid for 'High Availability': non-HA
	  Windows Server Standard Edition
	  End of 'High Availability': non-HA
	  ○ Windows Server Enterprise Edition
	  ○ Windows Server Datacenter Edition
	  ○ Windows Server 2008 (R2) for Itanium-Based Systems Edition
	
	⚠ Caution
	For up-to-date information on the released and supported operating system versions for your SAP product and database, see the Product Availability Matrix (PAM) at http://support.sap.com/pam.
	
	⚠ Caution
	Make sure that you install the **English** language pack so that your support requests can be handled quickly.
	• For any version of Windows Server, you need the latest supported service pack
		To check your Windows version:
		• Windows Server 2012 (R2) and higher: Open PowerShell in elevated mode, and enter the following command: `Get-WmiObject Win32_OperatingSystem | select caption`
		• Windows Server 2008 (R2):
		1. Choose *Start* > *All Programs* > *Accessories* > *Command Prompt*
		2. Enter the command **winver**
		Only valid for 'High Availability': HA (Windows)
		i Note
		• You must add the operating system feature *Failover Clustering* on **all** cluster nodes.
		End of 'High Availability': HA (Windows)

Windows regional settings	*English (United States)* must be set by default. For more information about localized Windows versions, see SAP Note 362379. You can install additional languages but the default setting for new users must always be *English (United States)*.	Choose *Start* > *Control Panel* > *Clock, Language, and Region* > *Language*.

Software Requirement	Requirement	How to Check
Minimum Web Browser	Make sure that you have at least one of the following web browsers installed on the host where you run the installer GUI: • Microsoft Internet Explorer 11 or higher • Microsoft Edge • Mozilla Firefox • Google Chrome Always use the latest version of these web browsers. You need a web browser to be able to run the SL Common GUI, and to display the Evaluation Form and send it to SAP.	Choose *Start* > *Control Panel* > *Programs and Features*.

3.1.2.2 Technical Prerequisites of the SAP System

This section describes the minimum requirements for the back-end system.

- For the content server: release 4.5B or higher of the SAP system (Note that certificates can only be used together with an SAP system release 4.6B or higher.
- For the cache server: release 4.6B or higher (4.6B with Support Package 10) of the SAP system or an SAP system with KW 4.0 or higher (KW 4.0 with Support Package 5)

In order to be able to perform administrative tasks (transaction CSADMIN), you may need a higher version of the SAP system:

- For the content server: at least Release 4.6C or KW 4.0
- For the cache server: at least Release 4.6C

3.2 Basic Installation Parameters

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

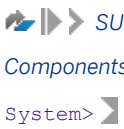
Parameters	Description
SAP System ID <SAPSID>	The SAP System ID <SAPSID> is the technical identifier for your SAP Content Server and SAP Cache Server. You can install SAP Content Server and SAP Cache Server with the same <SAPSID>, but with different instance numbers. ⚠ Caution Choose your SAP system ID carefully. You **cannot** change the SAP system ID after the installation. Make sure that your SAP system ID: • Is unique throughout your organization • Consists of exactly three alphanumeric characters • Contains only uppercase letters • Has a letter for the first character • Does not include any of the reserved IDs listed in SAP Note 1979280.
Instance Number for the SAP Content Server	**Instance Number:** Technical identifier for internal processes. Consists of a two-digit number from 00 to 97. The instance number must be unique on a host. That is, if more than one SAP instance is running on the same host, these instances must be assigned different numbers. ⚠ Caution Do not use 43, 60, 89 for the instance number of the SAP Content Server.

Parameters	Description
Virtual Host Name	Virtual host name (network name) of the `SAP<SAPSID>` cluster group You can assign a virtual host name for the instance to be installed, by specifying it in the *Host Name* field of the screen. Then this instance is installed with this virtual host name. After the installation has completed, all application servers can use this virtual host name to connect to the instance. The virtual host name is also a global host name. If you do not provide the virtual host name, the instance is installed automatically using its physical host name. You must have already reserved the virtual host name (network name) and its IP address on a DNS server before you run the installer. For more information, see Using Virtual Host Names [page 28]. **i Note** Fully qualified host names, `IPv4`, `IPv6` are not accepted as virtual host names. Alternatively you can assign virtual host names also by starting the installer with the `SAPINST_USE_HOSTNAME` command line parameter. For more information, see Running the Installer [page 34].

Parameters	Description

Operating System Users	The passwords of the operating system users **must** comply with the Windows password policy. The installer processes the passwords of operating system users as follows:
	• If the operating system users do **not** exist, SAP creates the following users:
	  ○ `<sapsid>adm`
	  This user is the SAP system administrator user. It is a member of the local `Administrators` group.
	  ○ `SAPService<SAPSID>`
	  This user is the Windows account to run the SAP system. It is not a member of the local `Administrators` group.
	  ○ `sapadm`
	  The host agent user `sapadm` is used for central monitoring services. The installer creates this user by default as a local user although it is not a member of the local `Administrators` group.
	  If required, you can change this user to become a domain user on the parameter summary screen. For more information, see Performing a Domain Installation Without Being a Domain Administrator [page 25]. For security reasons, however, SAP strongly recommends you to create this user as a local user.
	The installer sets the master password for these users by default. You can overwrite and change the passwords either by using the parameter mode *Custom* or by changing them on the parameter summary screen.
	• If the operating system users already exist, the installer prompts you for the existing password, except the password of these users is the same as the master password.
	⚠ Caution
	Make sure that you have the required user authorization [page 24] for these accounts before you start the installation.

Parameters	Description
SAP Content Server Configuration	• *Maximum Number of Incoming Concurent Connections* You can specify a maximum of incoming concurrent connections. Standard configurations are available for: ○ 500 connections: Test configuration, suitable for few concurrent requests ○ 2000 connections: Configuration for small or medium-sized production systems ○ 32000 connections: Configuration for large production systems and load tests The configurations differ in the number of possible parallel connections and resource consumption, such as memory, sockets, and threads. • *HTTP Script* This is the SAP Content Server's or the SAP Cache Server's script name. For SAP Content Server, the default script name is `/sapcs`. For SAP Cache Server, the default script name is `/sapscs`. When migrating an existing SAP Content Server, make sure that you use the same HTTP Script as specified in OAC0. You can also adjust OAC0 to use the same HTTP Script as specified here. • HTTP/HTTPS Ports: ○ *HTTPS Port* The HTTPS port of the SAP Content Server is an entry point to the SAP system. The default is `1091`. ○ *HTTP Port* Optionally you can change the HTTP port number if the port number assigned by default does not suit your needs. The HTTP port of the SAP Content Server is an entry point to the SAP system. The default is `1090`. You can either accept a default value for the HTTP port number or configure the port number as required. **→ Recommendation** For the SAP Content Server, we recommend using HTTP port 1090 and HTTPS port 1091. For the SAP Cache server, we recommend using HTTP port 1095 and HTTPS port 1096. • *Enable AdminSecurity* If you want to enable `AdminSecurity`, provide the *AdminSecurity Group*.

Parameters	Description
SAP Host Agent Upgrade (Optional)	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 `SAPHOSTAGENT<Version>.SAR` archive. To download this archive, go to https://launchpad.support.sap.com/#/softwarecenter  *SUPPORT PACKAGES & PATCHES* > *By Category* > > *SAP Technology Components* > *SAP HOST AGENT* > *SAP HOST AGENT 7.21* > `<Operating System>`

4 Preparation

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

4.1 Checking the Windows File System

Use

You need to check that you are using the Windows file system NTFS on hosts where you want to install the SAP system and database. NTFS supports full Windows security and long file names.

> **i** Note
>
> You must use NTFS for an SAP system installation. Do **not** install the SAP directories on a FAT partition.

Procedure

1. Open the Windows Explorer.
2. Select the relevant disk.
3. Choose *Properties* > *General*.
   The system displays the type of file system in use.
4. Check that the file system is NTFS.

4.2 Reducing the Size of the File Cache

Use

> **i** Note
>
> This step is not required if you use Windows Server 2008.

The Windows file cache competes directly with SAP programs for memory. Therefore, you need to adjust the file cache as described below.

Only valid for 'High Availability': HA (Windows)

> **i Note**
>
> For a high-availability configuration, you must adjust the size of the file cache on **all** cluster nodes.

End of 'High Availability': HA (Windows)

Procedure

1. Choose *Start* > *Control Panel* > *Network Connections* > *Local Area Connections*.
2. In the *Local Area Connection Status* dialog box, choose *Properties*.
3. In the *Local Area Connection Properties* dialog box, double-click *File and Printer Sharing for Microsoft Networks*.
4. Select *Maximize data throughput for network applications*.

   > **⚠ Caution**
   >
   > If you cannot select *File and Printer Sharing for Microsoft Networks*, this option has not yet been installed. To install it, you need the Windows Server CDs.

5. To confirm your entries, choose *OK*.

4.3 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.

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 25]

4.4 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:

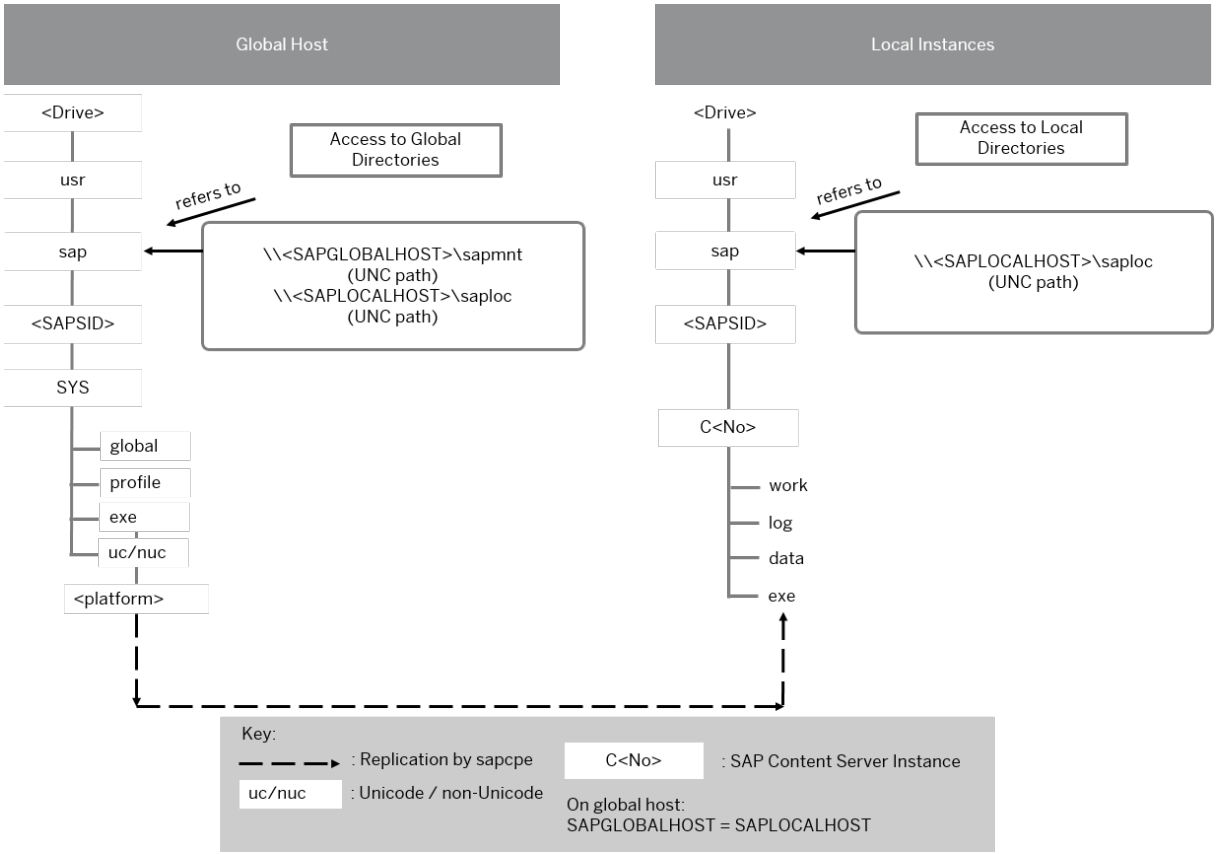
1. Domain group `SAP_<SAPSID>_GlobalAdmin`
   The group scope should be `GLOBAL`, the group type should be `SECURITY`.
2. Two new SAP system users `<sapsid>`adm and `SAPService<SAPSID>`.
3. The users `<sapsid> adm`and `SAPServiceSAPSID` must be members of the domain group `SAP_<SAPSID>_GlobalAdmin`.

> **i 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_SAP_GlobalAdmin`
> 2. Create the SAP system user `sapadm`.
> 3. Add the user sapadm to the newly created group `SAP_SAP_GlobalAdmin`.
>
> However, for security reasons we strongly recommend that you create this user as a local user.

4.5 SAP Directories

The installer automatically creates the directories listed in the following figures and tables. Before running the installation, you have to set up the required file systems manually. In addition, you have to make sure that the required disk space for the directories to be installed is available on the relevant hard disks. The figure below assumes that you have set up one file system for the SAP system mount directory `<sapmnt>` and one file

system for the `/usr/sap` directory. However, you have to decide for which directories you want to set up separate file systems. If you do not set up any file system on your installation host, the installer creates all directories in the `root` directory `/`. The installer prompts you only for the `<sapmnt>` directory during the installation.



SAP Directories of an SAP Content Server Instance

The directory of the SAP Content Server instance is `C<Instance_Number>`, for example `C00`.

SAP File Directories in Detail

> **i Note**
>
> The listed file system sizes are initial SAP requirements.
>
> Depending on your operating system, you might also have to add space for administrative purposes.

Directory Name	Description	Space Required
<Drive>:\usr\sap\<SAPSID>	\usr\sap is created and **shared** with the network share sapmnt. The \usr\sap directory contains general SAP software, global and local (instance-specific) data. For this, the following directories are created in usr\sap\<SAPSID>\SYS: • global (contains globally shared data) • profile (contains the profiles of the instance) • exe (contains executable kernel programs) The directory usr\sap\<SAPSID>\<INSTANCE> is the directory of the instance: The instance name (instance ID) of the SAP Content Server instance is C<Instance_Number>, for example C00.	500 MB
<Drive>:\usr\sap\trans	\usr\sap\trans This directory contains SAP software for the transport of objects between SAP systems .	This value heavily depends on the use of your SAP system. For the installation, it is sufficient to use 200 MB for each SAP system instance. You can enlarge the file system afterwards.

4.6 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

Only valid for 'High Availability': HA (Windows)

> ⚠ Caution
>
> **High Availability only:**
>
> - Only use virtual host names if this is explicitly stated in the parts of this installation guide specific to high availability. Otherwise, use the physical host name.
> - Do **not** start the installer with the command line parameter SAPINST_USE_HOSTNAME=<virtual hostname> on failover cluster nodes.

End of 'High Availability': HA (Windows)

Procedure

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

4.7 Preparing the Installation Archives

This section describes how to prepare the installation media.

Installation archives are available as follows:

Installation Archive	Description
`SWPM10SP<Support_Package_Number>_<Version_Number>.SAR`	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. You must extract this archive to be able to run the installer. For more information, see Downloading and Extracting the Software Provisioning Manager 1.0 Archive [page 31].

Installation Archive	Description
SAPCS<Release>.SAR	Contains the installation packages for the SAP Content Server and the Cache Server You can download it from https://launchpad.support.sap.com/#/softwarecenter > *SUPPORT PACKAGES & PATCHES* > *By Category* > *SAP TECHNOLOGY COMPONENTS* > *SAP CONTENT SERVER* > *SAP CONTENT SERVER 7.5*<Latest Version>
SAPHOSTAGENT<Release>_<Version>.SAR	Contains the installation packages for the SAP Host Agent You can download it from https://launchpad.support.sap.com/#/softwarecenter > *SUPPORT PACKAGES & PATCHES* > *By Category* > *SAP TECHNOLOGY COMPONENTS* > *SAP HOST AGENT* > *SAP HOST AGENT 7.21* > <Latest Version>
SAP MaxDB RDBMS medium: MaxDB <Release> - SP<Version> Build <Version> <OS> Server on <...>64 bit	Contains the installation packages for the SAP MaxDB. Installing SAP MaxDB is only required if documents are to be stored in a database. Installation *.ZIP Archive: You can download it from https://launchpad.support.sap.com/#/softwarecenter > *DATABASES* > *Database and Database Patches* > *SAP MaxDB* > *DATABASE >* > *MAXDB 64-BIT* > *MAXDB* > <Latest Version> *64-BIT*

> **Note**
>
> 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 34]). The installer only accepts media whose signature has been checked. For more information, see SAP Note 2393060.

4.7.1 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.

  > **i 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 > *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.

Procedure

1. Download the latest version of the Software Provisioning Manager 1.0 archive `SWPM10SP<Support_Package_Number>_<Version_Number>.SAR` from:

   https://support.sap.com/sltoolset > *System Provisioning* > *Download Software Provisioning Manager* >
2. 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>
   ```

   > **i Note**
   >
   > Make sure that all users have at least read permissions for the directory to which you unpack the installer.

> ⚠ 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.

5 Installation

5.1 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 34] . 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 24] to run the installer. While running the installer, this setting is then also added to the environment of the `<sapsid>adm` user.

  > ℹ 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 18] **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>`

5.2 Running the Installer

This section describes how to run the installer.

Prerequisites

For more information, see Prerequisites for Running the Installer [page 33].

Context

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 24].

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

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 `SAPINST_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 Archives [page 29] .

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 **`SAPINST_BROWSER=<Path to Browser Executable>`**, for example **`SAPINST_BROWSER=firefox.exe`**.

   > **i Note**
   >
   > If you need to assign a virtual host name to the instance to be installed and you do not want to assign it by entering it as a parameter using the installer screens (see Basic Installation Parameters [page 18]), 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`)
   >
   > For more information, see Using Virtual Host Names [page 28].

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 33]) 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:

   To install SAP Content Server and Cache Server, choose *Generic Options* > *SAP Content Server* > *Content Server and SAP Cache Server (7.5 and Higher)*.

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.

- Only valid for 'High Availability': HA (Windows)

  High Availability only: If you decide to install an SAP Web Dispatcher or a Gateway in the ASCS instance, note that a failure of the SAP Web Dispatcher or the Gateway causes failover of the ASCS instance to another cluster node. The failover cluster monitors all processes that are started by the SAP start service (sapstartsrv.exe). For an ASCS instance this is: `msg_server.exe` (message server), `enserver.exe` (enqueue server), gwrd.exe (Gateway), and `sapwebdisp.exe` (SAP Web Dispatcher). To prevent failover, see SAP Note 2375999.

  End of 'High Availability': HA (Windows)

> **⚠ 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 want to store documents in SAP MaxDB, you can now install a SAP MaxDB Database Instance.
    a. Restart the installer as described above.
    b. On the Welcome screen, choose *Generic Options* > *SAP Content Server* > *SAP MaxDB Database Instances*.
    c. Follow the instructions on the installer screens and enter the required parameters.
11. If you copied the installer software to your hard disk, you can delete these files when the installation has successfully 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 installer:

    ```
    %userprofile%\.sapinst\
    ```

13. 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].

5.3 Additional Information about the Installer

The following sections provide additional information about the installer.

5.3.1 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.

  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 https://blogs.sap.com/2018/11/10/new-look-for-software-provisioning-manager/.
  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 33].
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.
  `<User>` is the user which you used to start the installer.
  After you have reached the *Welcome* screen and selected the relevant installer option for the SAP system or instance to be installed , the installer creates a directory `sapinst_instdir`, where it keeps its logs and other technical files, and which is located directly in the `%ProgramFiles%` directory. If the installer is not able to create `sapinst_instdir` there, it tries to create `sapinst_instdir` in the directory defined by the `TEMP` environment variable.
  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.xxxxxx.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.xxxxxx.xxxx` after you have started the installer, and enter the following command:
  `sapinst.exe -p`

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

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

5.3.2 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 `Ctrl` + `Esc` and choose *Administrative Tools* > *Local Security Policy*.
2. Windows Server 2008 (R2): Choose *Start* > *Control Panel* > *Administrative Tools* > *Local Security Policy*.
3. In the *Local Security Settings* window, choose *Local Policies* > *User Rights Assignment.*.
4. Double-click the required right under *Policy* and choose *Add User or Group*.
5. In the *Select Users and Groups* window, choose the required user and choose *Add*.
   The selected user appears in the box below.
6. Confirm your entry and then repeat the steps for each remaining policy that the user requires for the installation.
7. Log off and log on again to apply the changes.

Related Information

Required User Authorization for Running the Installer [page 24]

5.3.3 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 *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 *Cancel* in the SL Common GUI.

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

The following table describes the options in the dialog box:

Option	Definition
Retry	The 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 `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 installer displays the same dialog box again.
Stop	The installer stops the installation, closing the dialog box, the installer GUI, and the GUI server. The installer records its progress in the `keydb.xml` file. Therefore, you can continue with the installer from the point of failure without repeating any of the previous steps. See the procedure below.
Continue	The installer continues the installation from the current point.
View Log	Access installation log files.

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 34] .
2. Make sure that the installation media are still available.

   For more information, see Preparing the Installation Archives [page 29] .

   > → 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 Archives [page 29] .

   > → 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 33]) 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.

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

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

Alternative	Behavior

Perform a new run	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.
	The following naming convention is used for the backup directory:
	`log_<Day>_<Month>_<Year>_<Hours>_<Minutes>_<Seconds>`
	Example
	`log_01_Oct_2016_13_47_56`
	Note
	All actions taken by the installation before you stopped it (such as creating directories or users) are not revoked.
	Caution
	The 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.

Continue with the existing one	The installer continues the interrupted installation from the point of failure.

5.3.4 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 41].

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.

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

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

> **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 33].

Procedure

1. Start the installer from the command line as described in Running the Installer [page 34] 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.

6 Post-Installation

6.1 Post-Installation Steps

After the installer has completed successfully, there are a few more things you have to do before you can use your newly-installed SAP Content Server.

Procedure

1. Set up repositories.
2. Make the repositories known to your SAP system.
3. Issue certificates, if necessary.
4. Change the password for the database users.

   You do steps 1 – 3 in transaction CSADMIN in your SAP system. For detailed information on CSADMIN and the tasks listed above, go to https://help.sap.com/nw > `<Choose the SAP NetWeaver Release your SAP product is based on>` > *SAP NetWeaver Library: Function-Oriented View* > *Application Server* > *Application Server ABAP* > *Other Services* > *Services for Business Users* > *Knowledge Provider (BC-SRV-KPR)* > *Content Management Service (BC-SRV-KPR)* > *SAP Content Server* and see the following documentation:

   - Section *Content Server and Cache Server Administration*
     See also SAP Note 329473 for a description of the Content Server and Cache Server configuration file.
   - Section *Special Measures* > *Changing the Password for Database Access* describes clearly how to change the password for the database user SAPR3. However, you should also read SAP Note 212394 that lists all the administrative database users and describes an alternative method of changing passwords. If you change the password for the user SAPR3 in the database instance, you must run the

report RSCMSPWS. This report asks for the user/ password combination that the content server should use to access the repositories. After you have entered a new combination, RSCMSPWS encrypts the password and sends the user/password combination to the content server. If you forget to change the password with RSCMSPWS all connection attempts from the content server to the database will fail. The composite SAP note for the SAP Content Server for UNIX contains the link to the appropriate SAP Notes that describe the report RSCMSPWS.

5. On a more general level, you should also consult the complete operating manual for SAP Content Server at https://help.sap.com/nw > `<Choose the SAP NetWeaver Release your SAP product is based on>` > *SAP NetWeaver Library: Function-Oriented View* > *Application Server* > *Application Server ABAP* > *Other Services* > *Services for Business Users* > *Knowledge Provider (BC-SRV-KPR)* > *Content Management Service (BC-SRV-KPR)* > *SAP Content Server* to learn how to prepare backups, observe and monitor the server, and relocate repositories, among other things. The sections *Content Server and Cache Server Administration*, *Content Server and Cache Server Monitoring*, and the *SAP Content Server Security Guide* are of particular relevance here.

6.2 Installation Check

This section describes how you can perform an installation check

Context

After you have created your repositories (see Post-Installation [page 47]), you might want to run report RSCMST to check that your repositories can be accessed from the SAP system.

Procedure

- **Testing the Content Repositories**
  a. In transaction SE38, execute the report RSCMST.
  b. Enter the name of one of your content repositories and execute one or more test runs.

  The traffic light symbols show you whether or not the tests were successful. You can also read the test logs at this point.
- **Testing the Caches**

  You can test the cache independently of the Customizing settings described above. To do this, use the test report RSCMST to set that a specific cache should be used for access, regardless of the Customizing settings.

  a. In transaction SE38, execute the report RSCMST.
  b. Specify the name of your cache in the following format:

  ```
  <Host Name>:<Port>/sapcsc
  ```

> ✤ Example
>
> `p21032:1095/Cache/sapcsc`

c. Execute the test.
d. Execute the test run RSCMSTH0 or RSCMSTAC.

The traffic light symbols show you whether or not the tests were successful. You can also read the test logs at this point.

RSCMSTH0

URLs that contain the forward parameter are GET URLs that are transferred via the cache that you specified.

RSCMSTAC

If data is found in the cache, [cache] is the output after each GET request.

6.3 System Configuration

Before you store data on SAP Content Server and start using the system productively, you have to make the system settings described in this section. You can make these settings directly in the SAP System.

Prerequisites

You have to fulfill the technical prerequisites described in Installation Prerequisites [page 10].

Overview

Make the system settings described in the following sections:

- Content Server Settings [page 50]
- Cache Server Settings [page 51]

The system settings are mainly Customizing settings.

You make the Customizing settings in the SAP System in the Implementation Guide (IMG). The individual Customizing activities are described in the SAP reference IMG under *Application Server* > *Basis Services* > *Knowledge Provider*. In the IMG, simply choose *Execute* to go to the transaction in question. For online help, choose Documentation. Also, for detailed documentation on SAP Content Server, see the SAP Library at https://help.sap.com/nw > `<Choose the SAP NetWeaver Release your SAP product is based on>` > *Application Server* > *Basis Services* > *Knowledge Provider* > *Content Management Service* and its sub-sections. As the settings are described in detail in the SAP Library, they are only mentioned briefly here.

6.3.1 Content Server Settings

Once you have installed your new Content Server, you need to create content repositories where you can store your content.

Procedure

- **Testing the Connection to the Content Server**
  a. Open a Web browser on a host that is connected to your local network.
  b. Navigate to the following URL:

     `http://<hostname>:<port>/sapcs?serverInfo`

     > **i** Note
     >
     > Note that the URL is case-sensitive.

     The information on the Content Server that is the result of the test is then displayed. In this information, the status should be `running`.
- **Creating Content Repositories**
  a. In transaction CSADMIN, create at least one content repository for your Content Server.

     Make sure that you change the pre-set ContentStorageName from SDB to the name of the database instance you set during the installation procedure.
  b. Send a certificate to your repository and activate the certificate.
  c. From the tab page *Detail*, call up transaction OAC0, so that you can make the repository known in the SAP System.

     You can use the Customizing icon (a blue arrow) in change mode to jump from transaction CSADMIN to transaction OAC0. In OAC0, you can simply accept the pre-set entries and save them.

     For more information on administrating the Content Server, see the SAP Library at: https://help.sap.com/nw ▶ ▶ `<Choose the SAP NetWeaver Release your SAP product is based on>` ▶ *SAP NetWeaver Library: Function-Oriented View* ▶ *Application Server* ▶ *Application Server ABAP* ▶ *Other Services* ▶ *Services for Business Users* ▶ *Knowledge Provider (BC-SRV-KPR)* ▶ *Content Management Service (BC-SRV-KPR)* ▶ *SAP Content Server* ▶ *Content Server and Cache Server Administration* ▶
- **Switching Off Access Control for Content Server Administration**

  AdminSecurity is activated by default.

  This means that only members of specified groups (and local administrators) can execute administrative commands. To do this, they have to enter their user name and password.

6.3.2 Cache Server Settings

Context

Procedure

- **Testing the Connection to the Cache Server**
  a. Open a Web browser on a host that is connected to your local network.
  b. Enter the following URL in the address field and choose Return:

     ```
     http://<hostname>:<port>/sapcsc?serverInfo
     ```

     > **i** Note
     >
     > Note that the URL is case-sensitive.

     The information on the Cache Server that is the result of the test is then displayed. In this information, the status should be `running` (`serverStatus="running"`).
- **Making the Cache Known to the SAP System**
  a. In transaction SCMSCA, maintain the entries for your Cache Server.
  b. If you are using distributed cache servers, you need to make additional entries.

  For information on this, see both the installation guide (IMG) at *Application Server* > *Basis Services* > *Knowledge Provider* > *Distribution* and the SAP Library at https://help.sap.com/nw > `<Choose the SAP NetWeaver Release your SAP product is based on>` > *SAP NetWeaver Library: Function-Oriented View* > *Application Server* > *Application Server ABAP* > *Other Services* > *Services for Business Users* > *Knowledge Provider (BC-SRV-KPR)* > *Content Management Service (BC-SRV-KPR)* > *SAP Content Server* > *Distribution*.

7 Additional Information

7.1 SAP Notes Relevant for SAP Content Server

Number	Content
2786364	SAP Content Server and Cache Server 7.5 (and higher)
0181696	Caching
0216419	Multilevel caching and content server proxies
0350067	Administration Content Server/SAP DB
0351647	Cache Server Administration
310218	Delete SAP DB Installation
329473	Description of Content Server and Cache Server configuration file

7.2 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

Only valid for 'High Availability': HA (Windows)

> ⚠ Caution
>
> **High Availability only:**
>
> - Only use virtual host names if this is explicitly stated in the parts of this installation guide specific to high availability. Otherwise, use the physical host name.
> - Do **not** start the installer with the command line parameter SAPINST_USE_HOSTNAME=<virtual hostname> on failover cluster nodes.

End of 'High Availability': HA (Windows)

Procedure

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

7.3 Checking and Changing the Paging File Settings on Windows Server 2012 (R2) and Higher

Use

This section describes how to check and change the paging file size on Windows Server 2012 (R2) and higher with PowerShell.

The PowerShell commands also work in previous Windows versions where PowerShell is available.

> ℹ Note
>
> Some paging file operations require a reboot of the server to activate the changes you made. Wmi-commands do not indicate whether a reboot is required or not. Therefore, we recommend rebooting your system every time you change the paging file settings with PowerShell.

Prerequisites

Always start the PowerShell in elevated mode (run as administrator).

Procedure

Checking the Size of a Paging File

1. Start Windows PowerShell.
2. Check whether the default value *Automatic manage pagefile size for all devices* is activated.

   > **i** Note
   >
   > We do not support automatically managed page file sizes.

   To check this, enter the following command:
   ```
   (Get-WmiObject Win32_Pagefile) -eq $null
   ```
   If *Automatic manage pagefile size for all devices* is enabled, the output value is *True*.
   If necessary, disable *Automatic manage pagefile size for all devices* with the following command:
   ```
   $sys = Get-WmiObject Win32_Computersystem -EnableAllPrivileges
   $sys.AutomaticManagedPagefile = $false
   $sys.put()
   ```
3. Check the size of the paging files with the following command:
   ```
   Get-WmiObject WIN32_Pagefile | Select-Object Name, InitialSize, MaximumSize, FileSize
   ```
   The output looks like the following:

   ```
   Name                   InitialSize
   MaximumSize              FileSize
   ----                   -----------
   -----------              --------
   C:\pagefile.sys                0                      0
   41943040000
   E:\pagefile.sys            40000                  80000
   41943040000
   ```

   In this example, in the first line, the *InitialSize* and *MaximumSize* values of a paging file are 0, which means that the paging file size is *system managed* (not recommended).
   In the second line, the paging file size has a minimum and a maximum size (recommended).

Changing the Size of a Single Paging File

Changing the *InitialSize* and *MaximumSize* values of a paging file to a size other than 0, will automatically switch off *system managed size*.

In the following example, we change the size of the paging file on *C:* to the *InitialSize* of 40 GB and to the *MaximumSize* of 80 GB.

Use the following commands in a PowerShell:

```
$Pagefile = Get-WmiObject Win32_PagefileSetting | Where-Object {$_.name -eq "C:\pagefile.sys"}

$Pagefile.InitialSize = 40000

$Pagefile.MaximumSize = 80000

$Pagefile.put()
```

Typically, you choose the same value for *InitialSize* and *MaximumSize*.

> **i Note**
>
> The sum of all paging files *InitialSize* values must be equal to or higher than the value recommended for your SAP system.

Creating a Second Paging File on Another Disk

You might want to create a second or additional paging files to improve system performance, or if your disk does not have enough space.

To do so, enter the following commands in a PowerShell:

```
$Pagefile = Get-WmiObject Win32_PagefileSetting

$pagefile.Name = "E:\pagefile.sys"

$pagefile.Caption = "E:\pagefile.sys"

$pagefile.Description = "'pagefile.sys' @ E:\"

$pagefile.SettingID ="pagefile.sys @ E:"

$pagefile.InitialSize = 80000

$pagefile.MaximumSize = 80000

$pagefile.put()
```

Deleting a Paging File on a Specific Device

To delete a paging file, enter the following commands in a PowerShell:

```
$pagefile = Get-WmiObject Win32_PagefileSetting | Where-Object {$_.name -eq "E:
\pagefile.sys"}

$pagefile.delete()
```

7.4 Uninstall

Procedure

1. Start the Installer [page 34].
2. On the Welcome screen, choose *Generic Options* > `<Database>` > *Uninstall* > *Uninstall SAP Systems or Single Instances*.
3. Follow the instructions in the installer screens.

Important Disclaimers and Legal Information

Hyperlinks

Some links are classified by an icon and/or a mouseover text. These links provide additional information.
About the icons:

- Links with the icon  : You are entering a Web site that is not hosted by SAP. By using such links, you agree (unless expressly stated otherwise in your agreements with SAP) to this:
  - The content of the linked-to site is not SAP documentation. You may not infer any product claims against SAP based on this information.
  - SAP does not agree or disagree with the content on the linked-to site, nor does SAP warrant the availability and correctness. SAP shall not be liable for any damages caused by the use of such content unless damages have been caused by SAP's gross negligence or willful misconduct.
- Links with the icon  : You are leaving the documentation for that particular SAP product or service and are entering a SAP-hosted Web site. By using such links, you agree that (unless expressly stated otherwise in your agreements with SAP) you may not infer any product claims against SAP based on this information.

Videos Hosted on External Platforms

Some videos may point to third-party video hosting platforms. SAP cannot guarantee the future availability of videos stored on these platforms. Furthermore, any advertisements or other content hosted on these platforms (for example, suggested videos or by navigating to other videos hosted on the same site), are not within the control or responsibility of SAP.

Beta and Other Experimental Features

Experimental features are not part of the officially delivered scope that SAP guarantees for future releases. This means that experimental features may be changed by SAP at any time for any reason without notice. Experimental features are not for productive use. You may not demonstrate, test, examine, evaluate or otherwise use the experimental features in a live operating environment or with data that has not been sufficiently backed up.
The purpose of experimental features is to get feedback early on, allowing customers and partners to influence the future product accordingly. By providing your feedback (e.g. in the SAP Community), you accept that intellectual property rights of the contributions or derivative works shall remain the exclusive property of SAP.

Example Code

Any software coding and/or code snippets are examples. They are not for productive use. The example code is only intended to better explain and visualize the syntax and phrasing rules. SAP does not warrant the correctness and completeness of the example code. SAP shall not be liable for errors or damages caused by the use of example code unless damages have been caused by SAP's gross negligence or willful misconduct.

Gender-Related Language

We try not to use gender-specific word forms and formulations. As appropriate for context and readability, SAP may use masculine word forms to refer to all genders.

www.sap.com/contactsap

© 2021 SAP SE or an SAP affiliate company. All rights reserved.

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

Some software products marketed by SAP SE and its distributors contain proprietary software components of other software vendors. National product specifications may vary.

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

SAP and other SAP products and services mentioned herein as well as their respective logos are trademarks or registered trademarks of SAP SE (or an SAP affiliate company) in Germany and other countries. All other product and service names mentioned are the trademarks of their respective companies.

Please see https://www.sap.com/about/legal/trademark.html for additional trademark information and notices.

THE BEST RUN SAP