



INSTALLATION GUIDE | PUBLIC
2020-04-22

Upgrade to and Installation of SQL Server 2019 in an SAP Environment

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1 Document History

i Note

Before you start the implementation, make sure you have the latest version of this document.

Version	Date	Description
1.00	2020-04-22	Initial version

2 Introduction

This document describes the upgrade to or installation of SQL Server 2019 for an SAP system.

i Note

See SAP Note [2915215](#) for corrections to this guide.

⚠ Caution

This guide contains very customized configuration settings only used by some SAP applications, not all SAP applications. Following the steps in this guide for applications other than which it is intended will cause problems, and most likely errors, in other applications. Please see [General Requirements and Restrictions \[page 6\]](#) for more information.

i Note

With SQL Server 2016, Microsoft changed the default for the *Customer Experience Improvement Program* (CEIP). The CEIP is now enabled by default.

[SQL4SAP \[page 21\]](#) will disable CEIP for the SQL Server instance after the installation.

For more information about how to disable CEIP manually, read the Microsoft KB 3153756, which is available at (<https://support.microsoft.com/en-us/kb/3153756>).

You have the following options to use SQL Server 2019 in an SAP environment:

- You upgrade an existing supported SQL Server instance that is already running an SAP system to SQL Server 2019. SAP does not support any upgrade method other than that described here. For more information, see [Upgrading SQL Server to SQL Server 2019 for an Existing SAP System \[page 9\]](#).

⚠ Caution

Before you upgrade an older SQL Server instance to SQL Server 2019, make sure that you import the required [support package stacks \[page 6\]](#) to your system. Otherwise, the upgraded system does not function correctly with SQL Server 2019.

- You install SQL Server 2019 for a new SAP system. For more information, see [Installing SQL Server 2019 for a New SAP System \[page 21\]](#).

You have the following options to install SQL Server 2019 for a new SAP system.

- You install SQL Server 2019 for a non-high-availability (non-HA) SAP system
You can either install the SQL Server database software using a special script named `SQL4SAP` provided by SAP, or you can install it manually.


i Note

We highly recommend that you perform any new installation of an SQL Server 2019 instance for a non-HA system with the `SQL4SAP` script. The script is located on the SQL Server 2019 RDBMS medium that is shipped with the SAP products.

- You install SQL Server 2019 for a high availability (HA) SAP system

i Note

If you want to install the SQL Server database software for an HA system, you must install the SQL Server database software manually. You cannot use the `SQL4SAP` script.

- You perform a system copy of an SAP system. For more information, see SAP Note [2779625](#) .

3 General Requirements and Restrictions

Required SQL Server 2019 Installation Medium

Before SQL Server 2014, SAP has always prepared and provided a single SQL Server RDBMS medium to all customers regardless of whether they bought the SQL Server license from SAP or from another vendor. As of SQL Server 2014, there are two SQL Server RDBMS media available for SAP customers. Besides these two media delivered by SAP, an SQL Server installation medium is also available. This is officially delivered by Microsoft or authorized dealers.



Available SQL Server 2019 Media




Media	Description
SQL Server RDBMS medium (for run-time customers)	Contains both the SQL4SAP framework and the SQL Server installation medium (see below) to install the SQL Server database. The structure of this medium is identical to SAP medium delivered for previous SQL Server releases. The medium can be used by customers who purchase their SQL Server license from SAP.
SQL Server RDBMS medium (for non-runtime customers)	Contains the SQL4SAP framework but not the SQL Server installation medium (see below). During the installation with SQL4SAP, you are prompted to provide the location of the SQL Server installation medium. The medium can be used by customers who do not purchase their SQL Server license from SAP.
SQL Server installation medium	SQL Server installation medium that is officially delivered by Microsoft or authorized dealers for the installation of the Microsoft SQL Server 2019 database.

Required SAP Notes


Read the following SAP Notes before using SQL Server 2019:

General SAP Notes

Note Number	Title	Remarks
2779625 	Setting Up Microsoft SQL Server 2019	Provides the latest information about the upgrade to and installation of SQL Server 2019.
2807743 	Release planning for Microsoft SQL Server 2019	Provides release planning information about SQL Server 2019, including the minimum SAP support package stack levels

Note Number	Title	Remarks
1252970 	Triggers on SAP tables	In general, SAP does not support any triggers on SAP tables in SQL Server. If, due to application-specific requirements, you have to use triggers on SAP tables in SQL Server, follow the guidelines stated in this SAP note.
2779607 	Configuration Parameters for SQL Server 2019	Provides information about how to configure SQL Server for your SAP system
2116639 	SQL Server columnstore documentation	Provides attached documentation on In-Memory Optimized Columnstore with SAP BW and SAP BW Columnstore Optimized Flat Cube

Required Support Package Stacks



For more information about the minimum support package stack levels to run on SQL Server 2019 for your SAP system, see SAP Note [2807743](#) .

i Note

We recommend that you apply all available SAP_BASIS support package stacks before using SQL Server 2019 in a production system.

General Requirements and Restrictions for Using SQL Server 2019

Note the following general requirements and restrictions, which both apply when using SQL Server 2019 for a non-HA or a HA SAP system:

- SQL Server 2019 is supported on Windows Server 2016 and higher
- SQL Server 2019 is only supported on Windows x64.
- SAP releases prior to SAP NetWeaver 7.0 are not supported to run on SQL Server 2019. For more information, see SAP Note [2779625](#) .
- Not all combinations of SQL Server 2019 and Windows are supported by all SAP products. For up-to-date information on supported releases of SAP systems with SQL Server 2019, see the [Product Availability Matrix \(PAM\)](#) at: <http://support.sap.com/pam> .
- You must only use the SAP upgrade and installation tools according to the instructions and for the purposes described in the SAP upgrade and installation documentation. Improper use of the SAP upgrade and installation tools can damage files and already upgraded or installed systems.

- Only the SQL Server 2019 upgrade and installation procedures described in this guide have been tested by SAP. All other upgrade and installation procedures described in the SQL Server Books Online have not been tested by SAP.
- When installing or upgrading to SQL Server 2019, make sure that you have enough free disk space available on the system drive for:
 - .Net Framework
 - SQL Server client tools
 - SQL Server instance
 - Temporary space during the installation

The required disk space depends on the type of SQL Server components already installed or to be installed. It also depends on the system. You might require up to 6 GB free disk space on the system drive.

Additional Requirements and Restrictions for Using SQL Server 2019 in a High-Availability SAP System

In addition to the general requirements and restrictions listed above, the following requirements and restrictions apply for the upgrade to and installation of SQL Server 2019 in a high-availability (HA) system.

i Note

For a complete list of the restrictions and more information, see:

SQL Server 2019 Books Online at:

<https://docs.microsoft.com/en-us/sql/sql-server/?redirectedfrom=MSDN&view=sql-server-ver15> ➡

- Make sure that you have not applied NTFS compression to the disk where you install the SQL Server software.
- Make sure that you have not installed anti-virus software on your Microsoft failover cluster.
For more information, see the Microsoft KB article *Antivirus software that is not cluster-aware may cause problems with Cluster Services*, which is available at:
<http://support.microsoft.com/kb/250355/en-us> ➡ .
- Check the system logs of the nodes for any errors before starting the installation.
- For all hardware and software requirements for installing SQL Server, check the following link
<https://docs.microsoft.com/en-us/sql/sql-server/?redirectedfrom=MSDN&view=sql-server-ver15> ➡

4 Upgrading SQL Server to SQL Server 2019 for an Existing SAP System

4.1 Introduction

The following sections describe how to upgrade SQL Server 2012, SQL Server 2014, SQL Server 2016, or SQL Server 2017 to SQL Server 2019.

⚠ Caution

The upgrade procedure in this document is only valid if the source SQL Server database software was installed by the SAP script or manually as described in the relevant [Upgrade and Installation Guide](#).

i Note

There are no service packs released for SQL Server 2019. Only cumulative updates are now released for SQL Server 2019.

4.2 General Prerequisites for Upgrading SQL Server to SQL Server 2019

If you want to upgrade SQL Server 2012, SQL Server 2014, SQL Server 2016 or SQL Server 2017 for an existing SAP system, you must meet the following prerequisites:

- You use an SAP system based on SAP NetWeaver with the minimum recommended support package stack level for SQL Server 2019.
- If your SQL Server release is SQL Server 2017, no SP needs to be applied before you upgrade to SQL Server 2019.
- If your SQL Server release is SQL Server 2016, no SP needs to be applied before you upgrade to SQL Server 2019.
- If your SQL Server release is SQL Server 2014, make sure that you apply SP1 to the system before you upgrade to SQL Server 2019.
- If your SQL Server release is SQL Server 2012, make sure that you apply SP2 to the system before you upgrade to SQL Server 2019.
- You have imported the latest SAP kernel patches, dbsl library, and support package stacks, making sure that you apply at least the minimum level mentioned above.
You can find these patches on SAP Service Marketplace. For more information, see SAP Note [19466](#).
- If you use a **Java** system, you have updated the JDBC driver as described in SAP Note [639702](#).
- If you installed the SQL Server 2012, SQL Server 2014, SQL Server 2016, SQL Server 2017 database software with the `SQL4SAP` script or manually, only the SQL Server features that are required for the operation of the SAP application were installed.

If you installed additional SQL Server features, for example, [Analysis Services](#), [Report Services](#), [Integration Services](#) and [SQL Server Replication](#), check the [SQL Server Books Online](#) for any upgrade restrictions and steps.

- You have backed up your SQL Server database.
- You have shut down the SAP system.

⚠ Caution

- The upgrade will be blocked if there is a pending restart.
- The upgrade will be blocked if the Windows Installer service is not running.
- The upgrade will be blocked if performance counters are corrupt.

4.3 Upgrading SQL Server to SQL Server 2019 for an Existing Non-High-Availability SAP System

Use

This section provides information about the upgrade of SQL Server 2012, SQL Server 2014, SQL Server 2016, or SQL Server 2017 system to SQL Server 2019 in an existing **non-high-availability** system.

⚠ Caution

As of SQL Server 2008, SAP no longer supports 32-bit database servers or 32 bit application servers.

Prerequisites

You have met the general prerequisites mentioned above.

Procedure

1. Upgrade the existing SQL Server instance to SQL Server 2019 as follows:
 1. Log on to the host as a local administrator.
 2. Insert the SQL Server 2019 RDBMS medium in your media drive or copy it locally.
 3. Change to the directory:
`x64\EnterpriseEdition`.
If you use the SQL Server RDBMS medium (for runtime customers), the SQL Server Setup is located in the subdirectory `x64\EnterpriseEdition`. If you did not purchase your license from SAP, use the official Microsoft SQL Server medium to start `setup.exe`.

4. Start the installation program with one of the following:

- `setup.exe`
(if you want to upgrade to the SQL Server RTM build)
You also get the option to install the latest Service Pack (SP) and Cumulative Update (CU) via the Windows update service.
- `setup.exe /Action=Upgrade /UpdateSource="<Drive>:\<Upgrade_Source_Directory>"`
where `<Upgrade_Source_Directory>` is the directory where you can copy the Service Pack (SP) and Cumulative Update (CU) you want to upgrade to during the upgrade of the SQL Server. For the Cumulative Update package, the initial download is a `_zip.exe` file. Make sure that you unzip the package and copy the executable `.exe` to the `Update Source` directory.

i Note

You can upgrade your SQL Server database either with the Service Pack and Cumulative Update as the minimum required build (SP and CU) as specified in **SAP Note 62988**, or with the latest Service Pack and currently released Cumulative Update for the SQL Server product you want to upgrade. For more information on how to set up the `UpdateSource` directory, see <http://msdn.microsoft.com/en-us/library/ms144259.aspx>.

5. Enter the required information as specified in the table below:

i Note

The installation writes the log files to the directory `%ProgramFiles%\Microsoft SQL Server\150\Setup Bootstrap\LOG\<YYYYMMDD_HHMM>`. You find the summary of the setup log in `Summary.txt` in the same directory.

Input for the SQL Server 2019 Upgrade

Window	Input
<i>SQL Server Installation Center</i>	<ol style="list-style-type: none">1. Choose <i>Installation</i>.2. Select <i>Upgrade from a previous version of SQL Server</i>. <div>i Note This window does not appear, if you run <code>setup.exe</code> with the parameter <code>/UpdateSource</code>.</div>
<i>Product Key</i>	If this screen appears, enter the product key and choose <i>Next</i> .
<i>License Terms</i>	Accept the Microsoft software license terms and choose <i>Next</i> .
<i>Global Rules</i>	<p>Check the global rule errors and warnings.</p> <p>If there are no errors, the setup automatically advances to the next window.</p>

Window	Input
<i>Microsoft Update</i>	Select the check-box and choose <i>Next</i> .
<i>Product Updates</i>	Displays the latest SQL Server updates, if available. If there are no updates, the setup automatically advances to the next window.
<i>Install Setup Files</i>	The setup installs the setup files and product updates if selected.
<i>Upgrade Rules</i>	Check the upgrade rule errors and warnings. If there are no upgrade rule errors, the setup automatically advances to the <i>Select Instance</i> window.
<i>Select Instance</i>	Select the SQL Server instance you want to upgrade. To upgrade Management tools and shared features, select <i>Upgrade shared features only</i> . Choose <i>Next</i> .
<i>Select Features</i>	Choose <i>Next</i> . You cannot change the SQL Server features to be upgraded.
<i>Instance Configuration</i>	Specify the instance ID for the instance of SQL Server. By default, the instance name is used as the instance ID. Then choose <i>Next</i> .
<i>Server Configuration</i>	Leave the default values unchanged and choose <i>Next</i> .
<i>Full-Text Upgrade</i>	Select your option (see <i>SQL Server Books Online</i> for additional information) and choose <i>Next</i> .
<i>Feature Rules</i>	Check the failed feature rules and warnings. If there are no failed rules or warnings, the setup automatically advances to the next window.
<i>Ready to Upgrade</i>	Check the summary list and choose <i>Upgrade</i> .
<i>Upgrade Progress</i>	Displays the upgrade progress
<i>Complete</i>	After the upgrade has been completed, the setup displays the status and a link to the log files... Choose <i>Close</i> to finish the installation.

- When you have finished the upgrade, check that the *TCP/IP* protocol in the *SQL Server Configuration Manager* is enabled.

Search for [SQL Server 2019 Configuration Manager](#) to enable TCP/IP.

7. Restart SQL Server.
 8. If you upgraded to the SQL Server 2019 RTM build, or if you want to install an additional Service Pack and Cumulative Update, install them. For more information about the minimum required build, see [SAP Note 62988](#).
-
2. Download and install the SQL Server Management Tools by selecting the option [Install SQL Server Management Tools](#) in the SQL Server Installation center.
In SQL Server 2019, [SQL Server Management Tools](#) is a separate installation option. The installation of SQL Server Management studio is a SAP support requirement.
 3. Run the SAP tools for MS SQL Server.
The SAP tools for MS SQL Server perform the post-upgrade steps that are required for all SAP products based on SAP NetWeaver running on SQL Server 2019.
For more information about how to use and where to download them, see [SAP Note 683447](#).
 4. Start the SAP system.
 5. Connect with a database administrator logon to the SQL Server 2019 Management Studio.
 6. Open a new query window and execute the following commands:

```
use <SID> – where <SID> is your SAP database
go
EXEC sp_updatestats
go
```


It takes some time to replace the old SQL Server index statistics with new SQL Server 2019 statistics. You can execute this while the SAP system is online.
 7. If the page verify option is not set, change it with the following commands:

```
use master
go
alter database <SID> SET PAGE_VERIFY CHECKSUM;
go
```
 8. Set the [configuration for the SQL Server Agent](#) [page 34].
 9. If your system landscape is distributed and SAP application instances are installed on hosts other than the database instance host, you need to install SQL Server 2019 client software on these hosts as described in [Installing the SQL Server 2019 Client Software Manually](#) [page 32].

4.4 Upgrading SQL Server AlwaysOn to SQL Server 2019 AlwaysOn

AlwaysOn is a new feature of SQL Server 2012 (and higher) for high-availability and disaster recovery. The AlwaysOn feature is an extension to the principles of SQL Server Database Mirroring. However, it includes

enhancements that go beyond the existing high-availability solutions that Database Mirroring and Database Replication offer.

Procedure

1. Stop the system.
2. Make sure you have a good backup of the SQL Server Database.
3. Follow these instructions to upgrade all the SQL Server Instances in the Availability Group: <https://docs.microsoft.com/en-us/sql/database-engine/availability-groups/windows/upgrading-always-on-availability-group-replica-instances> .
4. If you upgraded to the SQL Server 2019 RTM build, or if you want to install an additional Service Pack and Cumulative Updates, install them. For more information about the minimum required build, see SAP Note [62988](#) .
5. For SQL Server 2016 and higher, download and install the *SQL Server Management Tools* by selecting the option *Install SQL Server Management Tools* in the *SQL Server Installation Center*. The installation of *SQL Server Management studio* is an SAP support requirement.
6. Run the SAP tools for MS SQL Server in the primary replica. The SAP tools for MS SQL Server perform the post-upgrade steps that are required for SAP ABAP products running on SQL Server 2019. For more information about how to use and where to download them, see SAP Note [683447](#) .
7. Move the Availability Group to other secondary replicas and run the SAP tools in those replicas. After the successful execution of the SAP tools in all the secondary replicas, move the Availability Group to the original primary replica.
8. Set the configuration for the SQL Server Agent.
9. If your system landscape is distributed and SAP application instances are installed on hosts other than the database instance host, you need to install the SQL Server 2019 client software on these hosts as described in [Installing the SQL Server 2019 Client Software Manually \[page 32\]](#).
10. When you have finished the upgrade, check that the TCP/IP protocol in the SQL Server Configuration Manager is enabled. Search for the SQL Server 2019 Configuration Manager application to enable TCP/IP.
11. Start the SAP system.
12. Test the SAP connection by moving the AlwaysOn Availability Group to all the secondary replicas.

4.5 Upgrading SQL Server Failover Cluster to SQL Server 2019 Failover Cluster

Use

This section provides information about the upgrade of SQL Server 2012, SQL Server 2014, SQL Server 2016, or SQL Server 2017 failover cluster to SQL Server 2019 failover cluster in an existing **high-availability** (HA) system.

⚠ Caution

As of SQL Server 2008, SAP no longer supports 32-bit database servers or 32 bit application servers.

Prerequisites

- You have met the general prerequisites.
- You disable all trace flags set in the SQL Server.
- You check that the failover of the existing SQL Server installed in your cluster is working by moving the SQL Server group between the cluster nodes before you perform the upgrade to SQL Server 2019.
- You review the following sections in *SQL Server Books Online*:
 - *Before Installing Failover Clustering* ([http://msdn.microsoft.com/en-us/library/ms189910\(v=sql.150\).aspx](http://msdn.microsoft.com/en-us/library/ms189910(v=sql.150).aspx))
 - *Preinstallation Checklist*

Procedure

After having met all prerequisites on all nodes, start the failover cluster upgrade of the SQL Server instance to SQL Server 2019.

Perform the following steps on all cluster nodes, beginning with the passive node:


1. Log on as a user who has administrator rights with permissions to log on as a service and to act as part of the operating system on **all** nodes.
2. Insert the SQL Server 2019 RDBMS medium in your media drive or copy it locally.
3. Move all the cluster resources and groups to the first (active) cluster node.
4. Change to the directory:

`x64\EnterpriseEdition.`

If you use the SQL Server RDBMS medium (for runtime customers), the SQL Server Setup is located in the subdirectory `x64\EnterpriseEdition`. If you did not purchase your license from SAP, use the official Microsoft SQL Server medium to start `setup.exe`.

5. Start the installation program with one of the following:
 - `setup.exe`
(if you want to upgrade to the SQL Server RTM build)
You also get the option to install the latest Service Pack (SP) and Cumulative Update (CU) via the Windows update service.
 - `setup.exe /Action=Upgrade /UpdateSource="<Drive>:\<Upgrade_Source_Directory>"`
where `<Upgrade_Source_Directory>` is the directory where you can copy the Service Pack (SP) and Cumulative Update (CU) you want to upgrade to during the upgrade of the SQL Server. For the Cumulative Update package, the initial download is a `_zip.exe` file. Make sure that you unzip the package and copy the executable `.exe` to the `Update_Source` directory.

i Note

You can upgrade your SQL Server database either with the Service Pack and Cumulative Update as the minimum required build (SP and CU) as specified in **SAP Note 62988** , or with the latest Service

Pack and currently released Cumulative Update for the SQL Server product you want to upgrade. For more information on how to set up the UpdateSource directory, see <http://msdn.microsoft.com/en-us/library/ms144259.aspx>.

6. Enter the required information as specified in the table below.

i Note

The installation writes the log files to the directory %ProgramFiles%\Microsoft SQL Server\150\Setup Bootstrap\LOG\<YYYYMMDD_HHMM>. You can find the summary of the setup log in Summary.txt in the same directory.

Input for the SQL Server 2019 Upgrade on the First Cluster Node

Window	Input
<i>SQL Server Installation Center</i>	<ol style="list-style-type: none"> 1. Choose <i>Installation</i>. 2. Select <i>Upgrade from a previous version of SQL Server</i>. <div> <h3>i Note</h3> <p>This window does not appear, if you run setup.exe with the parameter /UpdateSource.</p> </div>
<i>Product Key</i>	If this screen appears, enter the product key and choose <i>Next</i> .
<i>License Terms</i>	Accept the Microsoft software license terms and choose <i>Next</i> .
<i>Global Rules</i>	<p>Check the global rule errors and warnings.</p> <p>If there are no errors, the setup automatically advances to the next window.</p>
<i>Microsoft Update</i>	Select the check-box and choose <i>Next</i> .
<i>Product Updates</i>	<p>Displays the latest SQL Server updates, if available.</p> <p>If there are no updates, the setup skips this screen.</p>
<i>Install Setup Files</i>	The setup installs the setup files and product updates if selected.
<i>Upgrade Rules</i>	<p>Check the upgrade rule errors and warnings.</p> <p>If there are no upgrade rule errors, the setup automatically advances to the <i>Select Instance</i> window.</p>
<i>Select Instance</i>	Select the SQL Server instance you want to upgrade and then choose <i>Next</i> .

Window	Input
Select Features	Choose Next . You cannot change the SQL Server features to be upgraded.
Instance Configuration	Specify the instance ID for the instance of SQL Server. By default, the instance name is used as the instance ID. Choose Next .
Server Configuration	Leave the default values unchanged and choose Next .
Full-Text Upgrade	Select your option (see SQL Server Books Online for additional information) and choose Next.
Feature Rules	Check the failed feature rules and warnings. If there are no feature rule errors, the setup automatically advances to the Cluster Upgrade Report window.
Cluster Upgrade Report	Displays the upgrade status of the failover cluster nodes
Ready to Upgrade	Check the summary list and choose Upgrade .
Upgrade Progress	Displays the upgrade progress while adding the node to the selected failover cluster.
Cluster Upgrade Report	Displays the upgrade status of the failover cluster nodes after the upgrade
Complete	After the upgrade has been completed, the setup displays the status and a link to the log files... Choose Close to finish the installation.

7. Make sure that the upgraded node is one of the possible owners of the SQL Server applications or roles. To check this property, perform the following steps:
 1. In the [Failover Cluster Manager](#), select the [Roles](#) node.
 2. Select [SQL Server](#) or [SQL Server \(Instance\)](#).
 3. In the right-hand bottom window, right-click the resource in the [Server Name](#) field and choose [Properties](#).
 4. Choose the [Advanced Policies](#) tab and check that the upgraded node is on the list of possible owners. If not, check the box for the possible owners and choose [OK](#).
8. In the [Failover Cluster Manager](#), move the SQL Server to the upgraded node. After the SQL Server is moved successfully to the upgraded node, complete the upgrade on the second node.
Start the installation program with one of the following:
 - `setup.exe`
(if you want to upgrade to the SQL Server RTM build)

You also get the option to install the latest Service Pack (SP) and Cumulative Update (CU) via the Windows update service.

- `setup.exe /Action=Upgrade /UpdateSource="<Drive>:\<Upgrade_Source_Directory>"` where `<Upgrade_Source_Directory>` is the directory where you can copy the Service Pack (SP) and Cumulative Update (CU) you want to upgrade to during the upgrade of the SQL Server. For the Cumulative Update package, the initial download is a `_zip.exe` file. Make sure that you unzip the package and copy the executable `.exe` to the `Update Source` directory.

i Note

You can upgrade your SQL Server database either with the Service Pack and Cumulative Update as the minimum required build (SP and CU) as specified in **SAP Note 62988**, or with the latest Service Pack and currently released Cumulative Update for the SQL Server product you want to upgrade. For more information on how to set up the `UpdateSource` directory, see <http://msdn.microsoft.com/en-us/library/ms144259.aspx>.


i Note


- Make sure that you have installed or checked on the other node(s) all the prerequisites described above.
- Make sure that you upgrade your SQL Server to the same SQL Server build on both nodes.

Input for the SQL Server 2019 Upgrade on the Second Cluster Node

Window	Input
SQL Server Installation Center	<ol style="list-style-type: none"> 1. Choose <i>Installation</i>. 2. Select <i>Upgrade from a previous version of SQL Server</i>. <div> <h3>i Note</h3> <p>This window does not appear, if you run <code>setup.exe</code> with the parameter <code>/UpdateSource</code>.</p> </div>
Product Key	If this window appears, enter the product key and choose <i>Next</i> .
License Terms	Accept the Microsoft software license terms and choose <i>Next</i> .
Global Rules	<p>Check the global rule errors and warnings.</p> <p>If there are no errors, the setup the setup automatically advances to the <i>Microsoft Update</i> window.</p>
Microsoft Update	Select the check-box and choose <i>Next</i> .
Product Updates	<p>Displays the latest SQL Server updates, if available.</p> <p>If there are no updates, the setup automatically advances to <i>Install Setup Files</i> window.</p>

Window	Input
Install Setup Files	The setup installs the setup files and product updates if selected.
Upgrade Rules	Check the upgrade rule errors and warnings. If there are no upgrade rule errors, the setup automatically advances to the Select Instance window.
Select Instance	Select the SQL Server instance you want to upgrade and choose Next .
Select Features	Choose Next . You cannot change the SQL Server features to be upgraded.
Instance Configuration	Specify the instance ID for the instance of SQL Server. By default, the instance name is used as the instance ID. Choose Next .
Server Configuration	Leave the default values unchanged and choose Next .
Full-Text Upgrade	Select your option (see SQL Server Books Online for additional information) and choose Next.
Feature Rules	Check the feature rule errors and warnings. If there are no feature rule errors, the setup automatically advances to the Cluster Upgrade Report window.
Cluster Upgrade Report	Displays the upgrade status of the failover cluster nodes
Ready to Upgrade	Check the summary list and choose Upgrade .
Upgrade Progress	Displays the upgrade progress while adding the node to the selected failover cluster.
Cluster Upgrade Report	Displays the upgrade status of the failover cluster nodes after the upgrade
Complete	After the upgrade has been completed, the setup displays the status and a link to the log files... Choose Close to finish the installation.

9. If the latest Service Pack and the Cumulative Update are not installed during the initial upgrade, install them after the upgrade as described below.
For more information about the minimum required build, see SAP Note [62988](#)  .
Perform the following steps to install the SQL Server updates:
 1. Install the Service Pack and Cumulative Update on the passive node.
 2. Move the SQL Server group to the second node that was updated.

3. Verify that all SQL Server resources are online on the currently active node.
4. Install the Service Pack and Cumulative Update on the passive node.
10. Run the SAP tools for MS SQL Server.
The SAP tools for MS SQL Server perform the post-upgrade steps that are required for all SAP products based on SAP NetWeaver running on SQL Server 2019.
For more information about how to use and where to download them, see SAP Note [683447](#) .
11. Start the SAP system.
12. Connect with a database administrator logon to the SQL Server 2019 Management Studio and execute the following commands:

```
use <SID> – where <SID> is your SAP database
go
EXEC sp_updatestats
go
```


It takes some time to replace the old SQL Server index statistics with new SQL Server 2019 statistics. You can execute this while the SAP system is online.
13. Change the page verify option with the following commands:

```
use master
go
alter database <SID> SET PAGE_VERIFY CHECKSUM;
go
```
14. Test the failover of the SQL Server group between the cluster nodes.
Test the connection to the failover cluster from a SQL Server Management Studio query window installed on a server (which is not part of the cluster) after moving the SQL Server group between the nodes.
15. Set the [configuration for the SQL Server Agent \[page 34\]](#).
16. If your system landscape is distributed and SAP application instances are installed on hosts other than the database instance host, you need to install the SQL Server 2019 client software on these hosts as described in [Installing the SQL Server 2019 Client Software Manually \[page 32\]](#).
17. When you have finished the upgrade, check that the *TCP/IP protocol* in the *SQL Server Configuration Manager* is enabled.
Search for the *SQL Server 2019 Configuration Manager* application to enable TCP/IP.
18. Download and install the SQL Server Management Tools by selecting the option *Install SQL Server Management Tools* in the SQL Server Installation center.
In SQL Server 2019, *SQL Server Management Tools* is a separate installation option. The installation of SQL Server Management studio is a SAP support requirement. You can install the SQL Server Management Studio in one of the cluster nodes or in another windows server. Use the SQL Server Management Studio and test the connection to the SQL Server failover cluster installed on the cluster nodes.

5 Installing SQL Server 2019 for a New SAP System

5.1 Introduction

The following sections describe how to install the SQL Server 2019 database software for a new SAP system.

The SQL Server software has to be installed on each host in the system where you intend to set up an SAP instance. Depending on the type of host involved, you either have to install the software for the database **server** or **client**.

i Note

There are no service packs released for SQL Server 2019. Only cumulative updates are now released for SQL Server 2019.

5.2 Installing the SQL Server Database Software Automatically with SQL4SAP

For more information about the installation of SQL Server 2019 with SQL4SAP, see SAP Note [2729848](#). You find the SQL4SAP.BAT script on the SQL Server 2019 RDBMS medium, as well as the tool documentation `SQL4SAP_docu.pdf`.

5.3 Installing the SQL Server 2019 Database Server Software Manually

Use

You have to install the SQL Server 2019 database **server** software on the database host.

Prerequisites

Before you install SQL Server 2019, make sure that that you have installed or updated all the required prerequisites as described above.

Procedure

1. Log on as a user who is a member of the local Administrators group.
2. Insert the SQL Server 2019 RDBMS medium in your media drive or copy it locally.
3. Change to the directory `x64\EnterpriseEdition` on the RDBMS DVD.
If you use the SQL Server RDBMS medium (for runtime customers), the SQL Server Setup is located in the subdirectory `x64\EnterpriseEdition`. If you did not purchase your license from SAP, use the official Microsoft SQL Server medium to start `setup.exe`.
4. Start the installation program with one of the following:
 - `setup.exe`
(if you want to install the SQL Server RTM build)
You also get the option to install the latest Service Pack (SP) and Cumulative Update (CU) via the Windows update service.
 - `setup.exe /Action=Install /UpdateSource="<Drive>:\<Upgrade_Source_Directory>"`
where `<Upgrade_Source_Directory>` is the directory where you can copy the Service Pack (SP) and Cumulative Update (CU) you want to install during the setup of the SQL Server. For the Cumulative Update package, the initial download is a `_zip.exe` file. Make sure that you unzip the package and copy the executable `.exe` to the `Update_Source` directory.

i Note

You can install your SQL Server database either with the Service Pack and Cumulative Update as the minimum required build (SP and CU) as specified in **SAP Note 62988**, or with the latest Service Pack and currently released Cumulative Update for the SQL Server product you want to install. For more information on how to set up the `UpdateSource` directory, see <http://msdn.microsoft.com/en-us/library/ms144259.aspx>.

5. Enter the required information as specified in the table below.

i Note

The installation writes the log files to the directory `%ProgramFiles%\Microsoft SQL Server\150\Setup Bootstrap\LOG\<YYYYMMDD_HHMM>`. You find the summary of the setup log in `Summary.txt` in the same directory.


Input for the MS SQL Server 2019 Installation

Window	Input
<i>SQL Server Installation Center</i>	<ol style="list-style-type: none"> 1. Choose <i>Installation</i>. 2. Select <i>New SQL Server Standalone installation or add features to an existing installation</i>. <div> <h3>i Note</h3> <p>This window does not appear, if you run <code>setup.exe</code> with the parameter <code>/UpdateSource</code>.</p> </div>
<i>Product Key</i>	If this window appears, enter the product key and choose <i>Next</i> .

Window	Input
License Terms	Accept the Microsoft software license terms and choose Next .
Global Rules	<p>Check the global rule errors and warnings.</p> <p>If there are no errors, the setup automatically advances to the Microsoft Update window.</p>
Microsoft Update	Select the check-box and choose Next .
Product Updates	<p>Displays the latest SQL Server updates, if available.</p> <p>If there are no updates, the setup skips this screen.</p>
Install Setup Files	The setup installs the setup files and product updates if selected.
Install Rules	<p>Check the install rule errors and warnings</p> <p>If there are no install rule errors, the setup automatically advances to the Feature Selection screen.</p>
Feature Selection	<ol style="list-style-type: none"> Select the following features: <ul style="list-style-type: none"> Database Engine Services Full Text and Semantic Extractions for Search Client Tools Connectivity Client Tools Backward Compatibility Client Tools SDK SQL Client Connectivity SDK <p>For Instance root directory, shared feature directory, and shared feature directory (x86), leave the default value paths</p> <p>The path specified for the shared components must be an absolute path.</p> <p>The folder must not be compressed or encrypted. Mapped drives are also not supported.</p> Choose Next.
Feature Rules	Setup checks the system state of your computer. If there are no failed operations or warnings, choose Next . Otherwise, check the failed operations and warnings.

Window	Input
<i>Instance Configuration</i>	<ol style="list-style-type: none"> Specify the instance name and ID you want to install. Since the configuration of SQL Server is easier to handle, we recommend that you install a <i>Default instance</i>. If you want to install a <i>Named instance</i>, enter the <SAPSID> in the <i>Named instance</i> field. Leave the <i>Instance ID</i> and <i>Instance root directory</i> field to the default values. Choose <i>Next</i>. <div style="border: 1px solid #ccc; background-color: #f9f9f9; padding: 10px; margin-top: 10px;"> <p>i Note</p> <p>The <i>Installed Instances</i> grid shows the instances of SQL server that are installed on the computer.</p> </div>
<i>Server Configuration</i>	<ol style="list-style-type: none"> For the SQL Server Agent and SQL Server Database Engine services, enter the <i>Local system</i> account in the <i>Account Name</i> column. <ol style="list-style-type: none"> For the English Windows version, the user name starts with <i>NT Authority</i>, for example <i>NT Authority\System</i>. Set the <i>Startup Type</i> for the SQL Server Agent to <i>Automatic</i>. In the <i>Collation</i> tab, for the <i>Database Engine</i>, set the collation to <i>SQL_Latin1_General_CP850_BIN2</i>. To change the collation, use the <i>Customize</i> field. Check the box to <i>Grant Perform Volume Maintenance Task Privilege</i> to <i>SQL Server Database Engine</i> Service When you have made all entries, choose <i>Next</i>.
<i>Database Engine Configuration</i>	<ol style="list-style-type: none"> In the <i>Server Configuration</i> tab, select one of the following authentication modes: <ul style="list-style-type: none"> <i>Windows Authentication Mode</i> We recommend that you use this mode for an ABAP system. With this mode the <i>sa</i> login is created, but cannot be used. <i>Mixed Mode (Windows authentication and SQL Server authentication)</i> This mode is required for a Java or ABAP+Java system. If you select this mode, you have to set the password for the <i>sa</i> login. SAPinst automatically changes the authentication mode into <i>Mixed Mode</i> when installing a Java system. If you use <i>Mixed Mode</i>, enter and confirm the password for the built-in SQL Server system administrator account. The password for the <i>sa</i> login must comply with the Windows password policy. To specify an SQL Server administrator, choose <i>Add</i> In the <i>Select Users or Groups</i> window, choose one Windows account as local system administrator. For other tabs Data Directories, TempDB, MaxDOP, Memory, and FILE-STREAM leave the defaults values. If required, the values can be changed after the installation of the SAP system. Choose <i>Next</i>.

Window	Input
Feature Configuration Rules	If there are no failed operations or warnings, choose Next . Otherwise, first check the failed operations and warnings.
Ready to Install	Check the summary list and select Install .
Installation Progress	Displays the installation progress.
Complete	After the installation has been completed, the setup displays the status and a link to the log files. choose Close to finish the installation.

6. Restart SQL Server.
7. If the latest Service Pack and Cumulative Update are not installed during the initial setup, install them after the setup has finished. For more information about the minimum required build, see **SAP Note 62988** .
8. Download and install the SQL Server Management Tools by selecting the option [Install SQL Server Management Tools](#) in the SQL Server Installation center.
In SQL Server 2019, [SQL Server Management Tools](#) is a separate installation option. The installation of SQL Server Management studio is a SAP support requirement.
9. Set the [configuration for the SQL Server Agent](#) [page 34].

5.4 Installing SQL Server AlwaysOn for a New SAP System

AlwaysOn is a new feature of SQL Server 2012 (and higher) for high-availability and disaster recovery. The AlwaysOn feature is an extension to the principles of SQL Server Database Mirroring. However, it includes enhancements that go beyond the existing high-availability solutions that Database Mirroring and Database Replication offer.

Context

Follow the manual SQL Server installation(Non-HA) steps to install SQL Server in all the nodes with the following input selection for the screens below.

Procedure

1. In the [Feature Selection](#) screen, select only the following features:
 - Database Engine Services
 - Full Text and Semantic Extractions for Search
 - Client Tools Connectivity

- Client Tools Backwards Compatibility
- Client Tools SDK
- SQL Client Connectivity SDK

2. In the ► *Server Configuration* ► *Service Accounts* ► Screen, enter a domain account.

Related Information

<https://msdn.microsoft.com/en-us/library/ms179511.aspx> ➡

5.5 Installing the SQL Server 2019 Failover Cluster

Use

This section describes how to install the SQL Server 2019 database server software for a high-availability system with Microsoft failover clustering.

The SQL Server 2019 database **server** software must be installed on the database host.

i Note

The installation writes the log files to the directory %ProgramFiles%\Microsoft SQL Server \150\Setup Bootstrap\LOG\<YYYYMMDD_HHMM>. You can find the summary of the setup log in Summary.txt in the same directory.

To install the client software for an application server, see [Installing the SQL Server 2019 Client Software Manually \[page 32\]](#).

Prerequisites

Before you install SQL Server 2019, make sure that you have installed or updated all the required prerequisites as described above.

Procedure

1. Log on all cluster nodes as a domain user who is a member of the local administrators group with the permissions to log on as a service and to act as part of the operating system.
2. Move all the cluster resources and groups to the first cluster node.
3. Insert the SQL Server 2019 RDBMS medium in your media drive or copy it locally.

4. Change to the directory:

x64\EnterpriseEdition.

If you use the SQL Server RDBMS medium (for runtime customers), the SQL Server Setup is located in the subdirectory x64\EnterpriseEdition. If you did not purchase your license from SAP, use the official Microsoft SQL Server medium to start setup.exe.

5. Start the installation program on the first cluster node with one of the following:

- setup.exe

(if you want to install the SQL Server RTM build)

You also get the option to install the latest Service Pack (SP) and Cumulative Update (CU) via the Windows update service.

- setup.exe /Action=Installfailovercluster/UpdateSource=<Drive>:\<Upgrade_Source_Directory>"

where <Upgrade_Source_Directory> is the directory where you can copy the Service Pack (SP) and Cumulative Update (CU) you want to install during the setup of the SQL Server. For the Cumulative Update package, the initial download is a _zip.exe file. Make sure that you unzip the package and copy the executable .exe to the Update_Source directory.

i Note

You can install your SQL Server database either with the Service Pack and Cumulative Update as the minimum required build (SP and CU) as specified in **SAP Note 62988**, or with the latest Service Pack and currently released Cumulative Update for the SQL Server product you want to install. For more information on how to set up the UpdateSource directory, see <http://msdn.microsoft.com/en-us/library/ms144259.aspx>.

6. Enter the required information as specified in the table below.

Input for the SQL Server 2019 Installation on the First Cluster Node

Window	Input
SQL Server Installation Center	<ol style="list-style-type: none">1. Choose <i>Installation</i>.2. Select <i>New SQL Server failover cluster installation</i>. <div>i Note This window does not appear, if you run setup.exe with the parameter /UpdateSource.</div>
Product Key	If this window appears, enter the product key and choose <i>Next</i> .
License Terms	Accept the Microsoft software license terms and choose <i>Next</i> .
Global Rules	Check the global errors and warnings. If there are no errors, the setup automatically advances to the <i>Microsoft Update</i> window.
Microsoft Update	Select the check-box and choose <i>Next</i> .

Window	Input
Product Updates	<p>Displays the latest available SQL Server updates, if available.</p> <p>The setup downloads the product updates.</p>
Install Setup Files	<p>The setup installs the setup files and product updates if selected.</p>
Install Failover Cluster Rules	<p>If there are no failed operations or warnings, choose Next.</p> <p>Otherwise, first check the failed operations or warnings.</p>
Feature Selection	<ol style="list-style-type: none"> Select the following features: <ul style="list-style-type: none"> Database Engine Services SQL Server Replication Full Text and Semantic Extractions for Search Data Quality Services Client Tools Connectivity Client Tools Backwards Compatibility Client Tools SDK SQL Client Connectivity SDK <div style="border: 1px solid #ccc; background-color: #f9f9f9; padding: 10px; margin-top: 10px;"> <p>i Note</p> <p>In a failover cluster installation, the features SQL Server Replication, Full Text and Semantic Extractions for Search and Data Quality Services are mandatory and you cannot deselect them.</p> <p>For Instance root directory, shared feature directory, and shared feature directory (x86), leave the default value paths</p> <p>The path specified for the shared components must be an absolute path. The folder must not be compressed or encrypted. Mapped drives are also not supported.</p> </div> <ol style="list-style-type: none"> Choose Next.
Feature Rules	<p>SQL Server setup runs setup rules based on the features you selected to validate your configuration.</p> <p>If there are no feature rule errors or warnings, the setup automatically advances to the next window. Otherwise, check the failed rules and warnings.</p>
Instance Configuration	<ol style="list-style-type: none"> Enter the SQL Server network name. Select the instance type you want to install. <p>Since the configuration of SQL Server is easier to handle, we recommend that you install a Default instance.</p> <p>If you want to install a Named instance, enter the <SAPSID> in the Named instance field.</p> Leave the default values Instance ID and Instance root directory field to the default values. Choose Next.

Window	Input
Cluster Resource Group	Specify the SQL Server cluster resource group and choose Next .
Cluster Disk Selection	<ol style="list-style-type: none"> 1. Specify the shared disk to be included in the SQL Server resource cluster group. 2. Choose Next.
Cluster Network Configuration	<ol style="list-style-type: none"> 1. Specify the IP type and address. 2. If you do not have DHCP addresses, enter a static IP address and subnet mask 3. Choose Next.
Server Configuration	<ol style="list-style-type: none"> 1. In the Service Accounts tab, for the SQL Server Agent and SQL Server Database Engine services, enter the domain accounts in the Account name column, and the password in the Password column. 2. In the Collation tab, for the Database Engine, set the collation to SQL_Latin1_General_CP850_BIN2. To change the collation, use the Customize field. 3. Check the box to Grant Perform Volume Maintenance Task Privilege to SQL Server Database Engine Service. 4. When you have made all entries, choose Next.
Database Engine Configuration	<ol style="list-style-type: none"> 1. In the Server Configuration tab, select one of the following authentication modes: <ul style="list-style-type: none"> ◦ Windows Authentication Mode We recommend that you use this mode for an ABAP system. With this mode the sa login is created, but cannot be used. ◦ Mixed Mode (Windows authentication and SQL Server authentication) This mode is required for a Java or ABAP+Java system. If you select this mode, you have to set the password for the sa login. The installer automatically changes the authentication mode into Mixed Mode when installing a Java system. 2. If you use Mixed Mode, enter and confirm the password for the built-in SQL Server system administrator account. The password for the sa login must comply with the Windows password policy. 3. To specify an SQL Server administrator, choose Add. In the Select Users or Groups window, choose one Windows account as local system administrator. For other tabs Data Directories, TempDB, MaxDOP, Memory, and FILE-STREAM leave the defaults values. If required, the values can be changed after the installation of the SAP system. 4. Choose Next.
Feature Configuration Rules	If there are no failed operations or warnings, choose Next . Otherwise, first check the failed operations and warnings.
Ready to Install	Check the summary list and select Install .

Window	Input
<i>Installation Progress</i>	Displays the installation progress.
<i>Complete</i>	After the installation has been completed, the setup displays the status and a link to the log files. choose <i>Close</i> to finish the installation.

7. When you have finished installing the SQL Server failover cluster on the first cluster node, complete the cluster installation by restarting the installation program on the second cluster node.
Start the installation program with one of the following:
- `setup.exe`
(if you want to install the SQL Server RTM build)
You also get the option to install the latest Service Pack (SP) and Cumulative Update (CU) via the Windows update service.
 - `setup.exe /Action=Addnode /UpdateSource="<Drive>:\<Upgrade_Source_Directory>"`
where `<Upgrade_Source_Directory>` is the directory where you can copy the Service Pack (SP) and Cumulative Update (CU) you want to install during the setup of the SQL Server. For the Cumulative Update package, the initial download is a `_zip.exe` file. Make sure that you unzip the package and copy the executable `.exe` to the `Update Source` directory.

i Note

You can install your SQL Server database either with the Service Pack and Cumulative Update as the minimum required build (SP and CU) as specified in **SAP Note 62988**, or with the latest Service Pack and currently released Cumulative Update for the SQL Server product you want to install. For more information on how to set up the `UpdateSource` directory, see <http://msdn.microsoft.com/en-us/library/ms144259.aspx>.

i Note

Make sure you install the SQL Server database with the same build in both nodes.

8. Enter the required information as specified in the table below.

Input for the SQL Server 2019 Cluster Installation Completion on the Second Cluster Node

Window	Input
<i>SQL Server Installation Center</i>	<ol style="list-style-type: none"> 1. Choose <i>Installation</i>. 2. Select <i>Add node to a SQL Server failover cluster</i>. <div style="border: 1px solid #ccc; padding: 10px; margin-top: 10px;"> <h4>i Note</h4> <p>This window does not appear, if you run <code>setup.exe</code> with the parameter <code>/UpdateSource</code>.</p> </div>
<i>Product Key</i>	If this window appears, enter the product key and choose <i>Next</i> .
<i>License Terms</i>	Accept the Microsoft software license terms and choose <i>Next</i> .

Window	Input
<i>Global Rules</i>	Check the global rule errors and warnings. If there are no errors, the setup automatically advances to the <i>Microsoft Update</i> window.
<i>Microsoft Update</i>	Select the check-box and choose <i>Next</i> .
<i>Product Updates</i>	Displays the latest available SQL Server updates, if available. The setup downloads the product updates.
<i>Install Setup Files</i>	The setup installs the setup files and product updates if selected.
<i>Add Node Rules</i>	If there are no failed operations or warnings, choose <i>Next</i> . Otherwise, first check the failed operations or warnings.
<i>Cluster Node Configuration</i>	Select the instance name and choose <i>Next</i> .
<i>Cluster Network Configuration</i>	Check the values and choose <i>Next</i> .
<i>Service Accounts</i>	Enter the password for the SQL Server and SQL Agent Services accounts and choose <i>Next</i> .
<i>Feature Rules</i>	The system configuration checker runs one or more set of rules to validate your system configuration based on the selected features. If there are no feature rule errors or warnings, the setup skips this screen. Otherwise, check the failed rules and warnings.
<i>Ready to Add Node</i>	Displays the selected options to add the node to the failover cluster. Check the options and select <i>Install</i> .
<i>Add Node Progress</i>	Displays the installation progress of the selected features when adding the node to the failover cluster.
<i>Complete</i>	After the installation has been completed, the setup displays the status and a link to the log files. Choose <i>Close</i> to finish the installation.

9. Restart SQL Server.
10. Download and install the SQL Server Management Tools by selecting the option *Install SQL Server Management Tools* in the SQL Server Installation center.
In SQL Server 2019, *SQL Server Management Tools* is a separate installation option. The installation of SQL Server Management studio is a SAP support requirement. You can install the SQL Server Management Studio in one of the cluster nodes or in another windows server. Use the SQL Server Management Studio and test the connection to the SQL Server failover cluster installed on the cluster nodes.
11. After the SQL Server 2019 failover installation has finished successfully on the second cluster node, make sure that you can fail over the SQL Server group between the nodes.
Test the connection to the failover cluster from a SQL Server Management Studio query window installed on a server (which is not part of the cluster) after moving the SQL Server group between the nodes.

12. If the latest Service Pack and the Cumulative Update are not installed during the initial setup, install them after the setup has finished on both the nodes as described below.
For more information about the required Service Pack and Cumulative Update, see SAP Note [62988](#).
Perform the following steps to install the SQL Server updates:
 1. Install the Service Pack and Cumulative Update on the passive node.
 2. Move the SQL Server group to the second node that was updated.
 3. Verify that all SQL Server resources are online on the currently active node.
 4. Install the Service Pack and Cumulative Update on the passive node.
13. Test the failover of the SQL Server group between the cluster nodes.
14. After the installation of SQL Server Failover cluster, you need to add dependencies for SQL Server on the shared disks that will be used to store SAP database files.
To do so, perform the following steps:
 1. In the *Failover Cluster Manager*, select the *Roles* node.
 2. Right-click on the *SQL Server (MSSQLSERVER)* or *SQL Server (<NamedInstance>)* role, and then select *Add Storage*.
 3. In the *Add Storage* pop-up window, select the disks you want to move to the *SQL Server (MSSQLSERVER)* or *SQL Server(<NamedInstance>)* role, and choose OK.
 4. Make sure you can see all the resources for the *SQL Server (MSSQLSERVER)* or *SQL Server(<NamedInstance>)* role node in the bottom window.
If not, click on the resources tab in the bottom window, so you can see all resources.
 5. In the resources tab in the bottom window, right-click the *SQL Server* or *SQL Server (<NamedInstance>)* resource and take the *SQL Server* or *SQL Server (<NamedInstance>)* resource offline. This action will also take the dependency resource *SQL Server Agent* or *SQL Server Agent (<NamedInstance>)* offline.
 6. Right-click the *SQL Server* or *SQL Server(<NamedInstance>)* resource and select *Properties*.
 7. In the *Dependencies* window, add the previously shared disks by using the AND operator in the field [click here to add a dependency](#) and click *Insert*.
 8. Bring the *SQL Server* or *SQL Server (<NamedInstance>)* and *SQL Server Agent* or *SQL Server Agent (<NamedInstance>)* resources online.
15. Set the [configuration for the SQL Server Agent](#) [page 34].


5.6 Installing the SQL Server 2019 Client Software Manually


Use

This section describes how to install the SQL Server 2019 client software.

You have to install the ODBC Driver client software on all SAP application servers. It enables the communication between an application server and the database.

Procedure

1. Log on as local administrator to the host where you want to install an application server.
2. Insert the SQL Server 2019 RDBMS (for runtime customers) or the SQL Server 2019 RDBMS (for non-runtime customers) medium in your media drive or copy it locally.
3. Change to the directory `<RDBMS_Medium>:\SqlNativeClient\<Platform>\` and double-click the `msodbcsql.msi` installer.
For more information, see **SAP Note 2729848** .
4. Follow the instructions in the SQL Server installation setup screens.

If you apply the latest version of the ODBC driver to the Database Server, update the same version to all the application Servers. See SAP Note [2656107](#)  for the supported ODBC driver versions.

6 Setting the SQL Server Agent Configuration


Use

After you have installed or upgraded to SQL Server 2019, you must set the configuration for the [SQL Server Agent](#).

Procedure

1. Start the [SQL Server Management Studio](#).
2. Right-click [SQL Server Agent](#) and choose [Properties](#).
3. Choose [History](#).
4. Set the value for column [Maximum job history log size \(in rows\)](#) to [6000](#) (minimum).
5. Set the value for column [Maximum job history rows per job](#) to [500](#) (minimum).
6. Check the column [Remove agent history](#) and set a value for this column.
7. To save the settings, choose [OK](#).

i Note



If multiple SAP systems are installed in the same SQL Server, configure the SQL Agent log history size as described in SAP note [1730470](#) .

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