

# Upgrade to and Installation of SQL Server 2012 in an SAP Environment



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# Document History

## Note

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

Version	Date	Description
1.91	2018-03-23	Updated version  SQL Server AlwaysOn Functionality added
1.90	2017-11-17	Updated version <ul style="list-style-type: none"><li>• Updated links</li><li>• Minor changes in entire document</li></ul>
1.80	2016-04-05	Updated version  Minor changes in section <a href="#">[[unresolved text-ref: Installing the SQL Server 2012 Failover Cluster]]</a>
1.70	2014-11-17	Updated version  Changes in sections <a href="#">[[unresolved text-ref: Upgrading SQL Server to SQL Server 2012 for an Existing SAP System]]</a> and <a href="#">[[unresolved text-ref: Installing SQL Server 2012 for a New SAP System]]</a>
1.60	2014-07-08	Updated version <ul style="list-style-type: none"><li>• BW-specific SAP notes added in section General Requirements and Restrictions</li><li>• Minor changes in sections <a href="#">[[unresolved text-ref: Upgrading SQL Server to SQL Server 2012 for an Existing Non-High-Availability SAP System]]</a> and <a href="#">[[unresolved text-ref: Upgrading SQL Server to SQL Server 2012 for an Existing High-Availability SAP System]]</a></li></ul>

Version	Date	Description
1.50	2014-01-10	<p>Updated version</p> <p>Section <a href="#">[[unresolved text-ref: Clustering the SQL Server 2012 Database Server Software]]</a>: Minor changes in table for the SQL Server 2012 installation on the first node</p>
1.40	2013-11-04	<p>Updated version</p> <p>Section <a href="#">[[unresolved text-ref: Upgrading SQL Server to SQL Server 2012 for an Existing High-Availability SAP System]]</a>: Minor changes in upgrade procedure</p>
1.30	2013-06-14	<p>Updated version</p> <p>Additional information about SNAC client added</p>
1.20	2013-05-24	<p>Updated version</p> <p>Section General Requirements and Restrictions:</p> <p>Microsoft .NET Framework 3.5 (x64) information added for SQL Server 2012</p>
1.10	2013-10-29	<p>Updated version</p> <ul style="list-style-type: none"> <li>Section <a href="#">[[unresolved text-ref: Clustering the SQL Server 2012 Database Server Software]]</a>: Changes in 1st step of Procedure and in table <a href="#">[[unresolved text-ref: Input for the SQL Server 2012 Installation on the First Node]]</a>, column <a href="#">[[unresolved text-ref: Server Configuration]]</a></li> <li>Sections <a href="#">[[unresolved text-ref: Upgrading SQL Server to SQL Server 2012 for an Existing Non-High-Availability SAP System]]</a> and <a href="#">[[unresolved text-ref: Upgrading SQL Server to SQL Server 2012 Failover Cluster]]</a>: New location for SAP tools for MS SQL Server (see SAP Note 683447)</li> </ul>
1.00	2012-06-28	Initial version

# 1 Introduction

This document describes the upgrade to or installation of SQL Server 2012 for an SAP system.

## 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.

You have the following options to use SQL Server 2012 in an SAP environment:

- You upgrade an existing SQL Server 2005, SQL Server 2008 or SQL Server 2008 R2 instance that is already running an SAP system to SQL Server 2012. SAP does not support any upgrade method other than that described here. For more information, see [Upgrading SQL Server to SQL Server 2012 for an Existing SAP System \[page 10\]](#).

## Caution

Before you upgrade SQL Server 2005, SQL Server 2008 or SQL Server 2008 R2 to SQL Server 2012, 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 2012.

- You install SQL Server 2012 for a new SAP system. For more information, see [Installing SQL Server 2012 for a New SAP System \[page 21\]](#).

You have the following options to install SQL Server 2012 for a new SAP system.

- You install SQL Server 2012 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.


## Note

We highly recommend that you perform any new installation of an SQL Server 2012 instance for a non-HA system with the `SQL4SAP` script. The script is located on the SQL Server 2012 RDBMS medium that is shipped with the SAP products.

- You install SQL Server 2012 for a high availability (HA) SAP system

## 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 [1676665](#) .

## 2 General Requirements and Restrictions




### Required SAP Notes

Read the following SAP notes before using SQL Server 2012:

#### General SAP Notes

Note Number	Title	Remarks
<a href="#">1676665</a> 	Setting Up Microsoft SQL Server 2012	Provides the latest information about the upgrade to and installation of SQL Server 2012.
<a href="#">1651862</a> 	Release planning for Microsoft SQL Server 2012	Provides release planning information about SQL Server 2012, including the minimum SAP support package stack levels
<a href="#">1252970</a> 	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.
<a href="#">1581700</a> 	PAGE compression support for DDIC & Hom./Het. System Copy	Provides SQL Server PAGE compression support for tables and indexes during a homogenous or heterogeneous system copy using the R3Load method
<a href="#">1488135</a> 	Database compression for SQL Server	Describes how to implement ROW and PAGE compression for SQL Server 2008 (and higher) for SAP products based on SAP Application Server ABAP

#### SAP Business Warehouse (SAP BW)-Specific SAP Notes

Note Number	Title	Remarks
<a href="#">1654613</a> 	SQL Server Parallelism for SAP BW	–
<a href="#">1771177</a> 	SQL Server 2012 column-store support for SAP BW	–
<a href="#">1951490</a> 	SQL Server Column-Store for SAP BW Aggregates	–



## Required Support Package Stacks

For more information about the minimum support package stack levels to run on SQL Server 2012 for your SAP system, see SAP note [1651862](#).

### Note

We recommend that you apply all available SAP\_BASIS support package stacks before using SQL Server 2012 in a production system.

## General Requirements and Restrictions for Using SQL Server 2012

Note the following general requirements and restrictions, which both apply when using SQL Server 2012 for a non-HA or a HA SAP system:

- You cannot upgrade SQL Server 2000 to SQL Server 2012 directly. You can neither attach an SQL Server 2000 database to SQL Server 2012. This means that you must perform a two-step upgrade using SQL Server 2005 or SQL Server 2008 (R2).
- SQL Server 2012 is supported on Windows Server 2008 and higher
- SQL Server 2012 is only supported on Windows x64.
- SAP releases prior to SAP NetWeaver 7.0 are not supported to run on SQL Server 2012. For more information, see SAP Note [1676665](#).
- Not all combinations of SQL Server 2012 and Windows are supported by all SAP products. For up-to-date information on supported releases of SAP systems with SQL Server 2012, 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 2012 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 2012, 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.

### Microsoft .NET Framework 3.5 (x64)

- **Windows Server 2012:**

Enable the .NET Framework 3.5 SP1 feature as follows:

Open a command prompt with administrative rights and run the following command:

```
DISM /online /enable-feature /featurename:netfx3 /all /source:<drive>:\sources  
\sxs /LimitAccess
```

where <drive> is the drive pointing to the Windows Server 2012 installation media.

- **Windows Server 2008 R2:**

If the .NET Framework 3.5 SP1 feature is not installed in your system, install it as follows:

1. Log on as local administrator.

2. Enter the following command:

```
DISM /online /enable-feature /featurename:NetFx3
```

3. Reboot your system.

- **Windows Server 2008:**

Install or update the Microsoft .Net Framework as follows:

1. Log on as local administrator.

2. Insert the SQL Server 2012 RDBMS medium in your media drive or copy it locally.

3. For x64, run the executable `dotNetFx35.exe`, which is located in the prerequisites directory

4. Accept the licensing terms for the .Net Framework and choose *Install*.

5. After the installation of the .Net Framework is finished, reboot your system.

### Microsoft .NET Framework 3.5 (x64) SP1 Update

This update is automatically installed if you apply the latest Windows updates to your system. To install this update, proceed as follows:

1. Log on as local administrator.

2. Insert the SQL Server 2012 RDBMS medium in your media drive or copy it locally.

3. Double-click the file `Windows6.0-Kb956250-x64.msu`, which is located in the prerequisites directory.

4. If required, reboot your system.

### Windows Power Shell

SQL Server 2012 requires the Windows feature Power shell. On Windows Server 2008 R2, this feature is available when you install the operating system. On Windows Server 2008, you need to install this in your server if this feature is not already installed in your system. But this feature is installed in your system automatically if you install Service Pack 2 and the latest Windows updates.

1. Log on as local administrator.

2. Insert the SQL Server 2012 RDBMS medium in your media drive or copy it locally.

3. Double-click the file `Windows6.0-Kb968930-x64.msu`, which is located in the prerequisites directory.

4. To install the *Update for windows (KB968930)*, click *OK*.

5. If required, reboot your system.

## Additional Requirements and Restrictions for Using SQL Server 2012 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 2012 in a high-availability (HA) system.





### Note

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

SQL Server 2012 Books Online at:

<http://msdn.microsoft.com/en-us/library/ms130214.aspx> 

- 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  
[http://msdn.microsoft.com/en-us/library/ms143506\(v=sql.110\).aspx](http://msdn.microsoft.com/en-us/library/ms143506(v=sql.110).aspx) 

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## 3 Upgrading SQL Server to SQL Server 2012 for an Existing SAP System

### 3.1 Introduction



The following sections describe how to upgrade SQL Server 2005, SQL Server 2008, or SQL Server 2008 R2 to SQL Server 2012

#### 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](#).

### 3.2 General Prerequisites for Upgrading SQL Server to SQL Server 2012

If you want to upgrade SQL Server 2005 or SQL Server 2008 (R2) 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 2012.
- If your SQL Server release is SQL Server 2008 R2, make sure that you apply SP1 to the system before you upgrade to SQL Server 2012.
- If your SQL Server release is SQL Server 2008, make sure that you apply SP2 to the system before you upgrade to SQL Server 2012.
- If your SQL Server release is SQL Server 2005, make sure that you apply SP4 to the system before you upgrade to SQL Server 2012.
- 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 2005 or SQL Server 2008 (R2) 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.

## 3.3 Upgrading SQL Server to SQL Server 2012 for an Existing Non-High-Availability SAP System

### Use

This section provides information about the upgrade of SQL Server 2005 or SQL Server 2008 (R2) system to SQL Server 2012 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. Therefore, we do **not** support upgrading a 32-bit SQL Server 2005 database server to SQL Server 2012.

### Prerequisites

You have met the general prerequisites mentioned above.

### Procedure

1. Upgrade the SQL Server 2005 or SQL Server 2008 (R2) instance to SQL Server 2012 as follows:
  1. Log on to the host as a local administrator.
  2. Insert the SQL Server 2012 RDBMS medium in your media drive or copy it locally.
  3. Change to the directory:  
`x86-x64\EnterpriseEdition.`
  4. Start the installation program with one of the following:
    - `setup.exe`  
(if you want to upgrade to the SQL Server RTM build)
    - `setup.exe /Action=Upgrade /UpdateSource="<Drive>:\<Upgrade_Source_Directory>"`  
where `<Upgrade_Source_Directory>` is the directory where the Service Packs (SPs) and Cumulative Updates (CUs) are copied. 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 all Service Packs and Cumulative Updates as the minimum required build (SPs and CUs) as specified in **SAP Note 62988**, or with all the latest Service Packs and currently released Cumulative builds 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/hh231670\(v=SQL.110\).aspx](http://msdn.microsoft.com/en-us/library/hh231670(v=SQL.110).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 \110\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 2012 Upgrade

Window	Input
<i>SQL Server Installation Center</i>	<ol style="list-style-type: none"> <li>1. Choose <i>Installation</i>.</li> <li>2. Select <i>Upgrade from SQL Server 2005, SQL Server 2008 or SQL Server 2008 R2</i>.</li> </ol> <div> <b>i</b> Note  This window does not appear, if you run setup.exe with the parameters /Action and /UpdateSource. </div>
<i>Setup Support Rules</i>	If there are no failed operations or warnings, choose <i>OK</i> . Otherwise, first check the failed operations and warnings.
<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> .
<i>Install Setup Files</i>	Choose <i>Install</i> .
<i>Setup Support Rules</i>	If there are no failed operations or warnings, choose <i>Next</i> . Otherwise, first check the failed operations and warnings.
<i>Select Instance</i>	Select the SQL Server instance you want to upgrade and choose <i>Next</i> .

Window	Input
<a href="#">Select Features</a>	Choose <a href="#">Next</a> .  You cannot change the SQL Server features to be upgraded.
<a href="#">Instance Configuration</a>	Specify the instance ID for the instance of SQL Server.  By default, the instance name is used as the instance ID.  Choose <a href="#">Next</a> .
<a href="#">Disk Space Requirements</a>	Review the disk space requirements and choose <a href="#">Next</a> .
<a href="#">Server Configuration</a>	Leave the default values unchanged and choose <a href="#">Next</a> .
<a href="#">Full-Text Upgrade</a>	Select your option (see <a href="#">SQL Server Books Online</a> for additional information) and choose <a href="#">Next</a> .
<a href="#">Error Reporting</a>	Select the required error reporting and choose <a href="#">Next</a> .
<a href="#">Upgrade Rules</a>	If there are no failed operations or warnings, choose <a href="#">Next</a> . Otherwise, first check the failed operations and warnings.
<a href="#">Ready to Upgrade</a>	Check the summary list and choose <a href="#">Upgrade</a> .
<a href="#">Upgrade Progress</a>	Displays the upgrade progress
<a href="#">Complete</a>	After the upgrade has been completed, the setup displays the status and a link to the log files...  Choose <a href="#">Close</a> to finish the installation.

- When you have finished the upgrade, check that the [TCP/IP](#) protocol in the [SQL Server Configuration Manager](#) is enabled.

If required, enable it as follows:

- Choose [Start](#) [All Programs](#) [Microsoft SQL Server 2012](#) [Configuration Tools](#) [SQL Server Configuration Manager](#).
- Expand [SQL Server Network Configuration](#) and select one of the following:
  - For a **default** instance, select [Protocols for MSSQLServer](#)
  - For a **named** instance, select [Protocols for <SAPSID>](#)
- In the right-hand pane, under [Protocol Name](#), right-click [TCP/IP](#), and select [Enable](#).
- Restart SQL Server.
- If you upgraded SQL Server to the RTM build, install the latest Service Pack and Cumulative Updates. For more information, see [SAP Note 62988](#).

- Run the SAP tools for MS SQL Server.

The SAP tools for MS SQL Server perform the post-upgrade steps that are required for SAP ABAP products running on SQL Server 2012.

For more information about how to use and where to download them, see [SAP Note 683447](#) .

3. Start the SAP system.
4. Connect with a database administrator logon to the SQL Server 2012 Management Studio.
5. 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 2012 statistics. You can execute this while the SAP system is online.
6. Change the page verify option with the following commands:  

```
use master
go
alter database <SID> SET PAGE_VERIFY CHECKSUM;
go
```
7. Set the [configuration for the SQL Server Agent](#) [page 34].
8. 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 2012 SNAC client on these hosts as described in [Installing the SQL Server 2012 Native Client Software Manually](#) [page 32].

## 3.4 Upgrading SQL Server Failover Cluster to SQL Server 2012 Failover Cluster


### Use

This section provides information about the upgrade of SQL Server 2005 or SQL Server 2008 (R2) failover cluster to SQL Server 2012 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. Therefore, we do **not** support upgrading a 32-bit SQL Server 2005 database server to SQL Server 2012.

### Prerequisites

- You have met the general prerequisites.
- You disable all trace flags set in the SQL Server.
- You check that the fail over 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 2012.
- You review the following sections in [SQL Server Books Online](#):
  - [Before Installing Failover Clustering](http://msdn.microsoft.com/en-us/library/ms189910) (<http://msdn.microsoft.com/en-us/library/ms189910> )

- [Preinstallation Checklist](#)
- Make sure that SQL Server fails over successfully in your current release before you start the upgrade of SQL Server.

## Procedure

After having met all prerequisites on all nodes, start the failover cluster upgrade of the SQL Server instance to SQL Server 2012.

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

1. Log on to the host as a domain administrator user on **all** nodes.
2. Insert the SQL Server 2012 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 `x86-x64\EnterpriseEdition`.
5. Start the installation program with one of the following:
  - `setup.exe`  
(if you want to upgrade to the SQL Server RTM build)
  - `setup.exe /Action=Upgrade /UpdateSource="<Drive>:\<Upgrade_Source_Directory>"`  
where `<Upgrade_Source_Directory>` is the directory where the Service Packs (SPs) and Cumulative Updates (CUs) are copied. 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 `UpdateSource` directory.

### Note

You can upgrade your SQL Server database either with all Service Packs and Cumulative Updates as the minimum required build (SPs and CUs) as specified in **SAP Note 62988**, or with all the latest Service packs and currently released Cumulative builds 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/hh231670\(v=SQL.110\).aspx](http://msdn.microsoft.com/en-us/library/hh231670(v=SQL.110).aspx).

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

### Note

The installation writes the log files to the directory `%ProgramFiles%\Microsoft SQL Server \110\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 2012 Upgrade

Window	Input
<i>SQL Server Installation Center</i>	<ol style="list-style-type: none"> <li>1. Choose <i>Installation</i>.</li> <li>2. Select <i>Upgrade from SQL Server 2005, SQL Server 2008 or SQL Server 2008 R2</i>.</li> </ol> <div> <p><b>i Note</b></p> <p>This window does not appear, if you run <code>setup.exe</code> with the parameters <code>/Action</code> and <code>/UpdateSource</code>.</p> </div>
<i>Setup Support Rules</i>	If there are no failed operations or warnings, choose <i>OK</i> . Otherwise, first check the failed operations and warnings.
<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> .
<i>Product Updates</i>	<p>This screen only appears if SQL Server product updates are available.</p> <p>If product updates are available, the setup downloads the product updates.</p>
<i>Install Setup Files</i>	Choose <i>Install</i> .
<i>Setup Support Rules</i>	If there are no failed operations or warnings, choose <i>Next</i> . Otherwise, first check the failed operations and warnings.
<i>Select Instance</i>	Select the SQL Server instance you want to upgrade and choose <i>Next</i> .
<i>Select Features</i>	<p>Choose <i>Next</i>.</p> <p>You cannot change the SQL Server features to be upgraded.</p>
<i>Instance Configuration</i>	<p>Specify the instance ID for the instance of SQL Server.</p> <p>By default, the instance name is used as the instance ID.</p> <p>Choose <i>Next</i>.</p>
<i>Disk Space Requirements</i>	Review the disk space requirements and 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> .

Window	Input
<a href="#">Error Reporting</a>	Select the required error reporting and choose <a href="#">Next</a> .
<a href="#">Upgrade Rules</a>	If there are no failed operations or warnings, choose <a href="#">Next</a> . Otherwise, first check the failed operations and warnings.
<a href="#">Cluster Upgrade Report</a>	Displays the upgrade status of the failover cluster nodes
<a href="#">Ready to Upgrade</a>	Check the summary list and choose <a href="#">Upgrade</a> .
<a href="#">Upgrade Progress</a>	Displays the upgrade progress while adding the node to the selected failover cluster.
<a href="#">Cluster Upgrade Report</a>	Displays the upgrade status of the failover cluster nodes after the upgrade
<a href="#">Complete</a>	After the upgrade has been completed, the setup displays the status and a link to the log files...  Choose <a href="#">Close</a> to finish the installation.

7. Make sure that the upgraded node is one of the possible owners of the SQL Server applications or role. To check this property, perform the following steps:
  - Windows Server 2008 R2
    - In the *Failover Cluster Manager*, double-click [SQL Server](#) and [SQL Server \(Instance\)](#).
    - In the right-side window, right-click the resource in the [Server Name](#) field and choose [Properties](#).
    - In the [Advanced Policies](#) tab, check that the upgraded node is on the list of the possible owners. If not, check the box for the possible owners and choose [OK](#).
  - Windows Server 2012 (R2)
    - In the *Failover Cluster Manager*, select the [Roles](#) node and select [SQL Server](#) and [SQL Server \(Instance\)](#).
    - In the right-side bottom window, right-click the resource in the [Server Name](#) field and choose [Properties](#).
    - In the [Advanced Policies](#) tab, 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)
  - `setup.exe /Action=Upgrade /UpdateSource="<Drive>:\<Upgrade_Source_Directory>"`  
where `<Upgrade_Source_Directory>` is the directory where the Service Packs (SPs) and Cumulative Updates (CUs) are copied. 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 `UpdateSource` directory.

### **i** Note

You can upgrade your SQL Server database either with all Service Packs and Cumulative Updates as the minimum required build (SPs and CUs) as specified in **SAP Note 62988**, or with all the latest Service packs and currently released Cumulative builds 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/hh231670\(v=SQL.110\).aspx](http://msdn.microsoft.com/en-us/library/hh231670(v=SQL.110).aspx).

### **i** Note

Make sure that you have installed or checked on the other node(s) all the prerequisites described above.

Input for the SQL Server 2012 Upgrade

Window	Input
<i>SQL Server Installation Center</i>	<ol style="list-style-type: none"><li>1. Choose <i>Installation</i>.</li><li>2. Select <i>Upgrade from SQL Server 2005, SQL Server 2008 or SQL Server 2008 R2</i>.</li></ol> <div><b>i</b> Note This window does not appear, if you run <code>setup.exe</code> with the parameters <code>/Action</code> and <code>/UpdateSource</code>.</div>
<i>Setup Support Rules</i>	If there are no failed operations or warnings, choose <i>OK</i> . Otherwise, first check the failed operations and warnings.
<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> .
<i>Product Updates</i>	<p>This screen only appears if SQL Server product updates are available.</p> <p>If product updates are available, the setup downloads the product updates.</p>
<i>Install Setup Files</i>	Choose <i>Install</i> .
<i>Setup Support Rules</i>	If there are no failed operations or warnings, choose <i>Next</i> . Otherwise, first check the failed operations and warnings.
<i>Select Instance</i>	Select the SQL Server instance you want to upgrade and choose <i>Next</i> .

Window	Input
<a href="#">Select Features</a>	Choose <a href="#">Next</a> .  You cannot change the SQL Server features to be upgraded.
<a href="#">Instance Configuration</a>	Specify the instance ID for the instance of SQL Server.  By default, the instance name is used as the instance ID.  Choose <a href="#">Next</a> .
<a href="#">Disk Space Requirements</a>	Review the disk space requirements and choose <a href="#">Next</a> .
<a href="#">Server Configuration</a>	Leave the default values unchanged and choose <a href="#">Next</a> .
<a href="#">Full-Text Upgrade</a>	Select your option (see <a href="#">SQL Server Books Online</a> for additional information) and choose Next.
<a href="#">Error Reporting</a>	Select the required error reporting and choose <a href="#">Next</a> .
<a href="#">Upgrade Rules</a>	If there are no failed operations or warnings, choose <a href="#">Next</a> . Otherwise, first check the failed operations and warnings.
<a href="#">Cluster Upgrade Report</a>	Displays the upgrade status of the failover cluster nodes
<a href="#">Ready to Upgrade</a>	Check the summary list and choose <a href="#">Upgrade</a> .
<a href="#">Upgrade Progress</a>	Displays the upgrade progress while adding the node to the selected failover cluster.
<a href="#">Cluster Upgrade Report</a>	Displays the upgrade status of the failover cluster nodes after the upgrade
<a href="#">Complete</a>	After the upgrade has been completed, the setup displays the status and a link to the log files...  Choose <a href="#">Close</a> 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 required Service Packs 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.
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 SAP ABAP products running on SQL Server 2012.  
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 2012 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 2012 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 2012 SNAC client on these hosts as described in [Installing the SQL Server 2012 Native Client Software Manually \[page 32\]](#).

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## 4 Installing SQL Server 2012 for a New SAP System

### 4.1 Introduction

The following sections describe how to install the SQL Server 2012 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**.

### 4.2 Installing the SQL Server Database Software Automatically with SQL4SAP

For more information about the installation of SQL Server 2012 with SQL4SAP, see SAP Note [1684545](#). You find the SQL4SAP.BAT script on the SQL Server 2012 RDBMS medium, as well as the tool documentation `SQL4SAP_docu.pdf`.

### 4.3 Installing the SQL Server 2012 Database Server Software Manually

#### Use

You have to install the SQL Server 2012 database **server** software on the database host.

#### Prerequisites

Before you install SQL 2012, 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 2012 RDBMS medium in your media drive or copy it locally.
3. Change to the directory x86-x64\EnterpriseEdition on the RDBMS medium.
4. Start the installation program with one of the following:
  - `setup.exe`  
(if you want to install the SQL Server RTM build)
  - `setup.exe /Action=Install /UpdateSource="<Drive>:\<Upgrade_Source_Directory>"`  
where <Upgrade\_Source\_Directory> is the directory where the Service Packs (SPs) and Cumulative Updates (CUs) are copied. 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 UpdateSource directory.

### Note


You can install your SQL Server database either with all Service Packs and Cumulative Updates as the minimum required build (SPs and CUs) as specified in **SAP Note 62988**, or with all the latest Service packs and currently released Cumulative builds 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/hh231670\(v=SQL.110\).aspx](http://msdn.microsoft.com/en-us/library/hh231670(v=SQL.110).aspx).

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

### Note

The installation writes the log files to the directory %ProgramFiles%\Microsoft SQL Server \110\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 2012 Installation

Window	Input
<i>SQL Server Installation Center</i>	<ol style="list-style-type: none"><li>1. Choose <i>Installation</i>.</li><li>2. Select <i>New SQL Server standalone installation or add features to an existing installation</i>.</li></ol> <div> <b>Note</b> This window does not appear, if you run <code>setup.exe</code> with the parameters <code>/Action</code> and <code>/UpdateSource</code>.</div>
<i>Setup Support Rules</i>	If there are no failed operations or warnings, choose <i>Next</i> . Otherwise, first check the failed operations or warnings.
<i>Product Key</i>	If this window appears, enter the product key and choose <i>Next</i> .



Window	Input
<i>License Terms</i>	Accept the Microsoft software license terms 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>	Choose <i>Install</i> .
<i>Setup Support Rules</i>	If there are no failed operations or warnings, choose <i>Next</i> . Otherwise, first check the failed operations or warnings.
<i>Setup Role</i>	Select <i>SQL Server Feature installation</i> and choose <i>Next</i> .
<i>Feature Selection</i>	<ol style="list-style-type: none"> <li>Select the following features: <ul style="list-style-type: none"> <li><i>Database Engine Services</i></li> <li><i>Full-Text and Semantic Extractions for Search</i></li> <li><i>Client Tools Connectivity</i></li> <li><i>Client Tools Backward Compatibility</i></li> <li><i>Client Tools SDK</i></li> <li><i>Documentation Components</i></li> <li><i>Management Tools – Basic</i></li> <li><i>Management Tools – Complete</i></li> <li><i>SQL Client Connectivity SDK</i></li> </ul> <p>For shared feature directory and shared feature directory (x86), leave the default value paths 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> </li> <li>Choose <i>Next</i>.</li> </ol>
<i>Instance Rules</i>	Setup checks the system state of your computer. If there are no failed operations or warnings, choose <i>Next</i> . Otherwise, first check the failed operations and warnings.
<i>Instance Configuration</i>	<ol style="list-style-type: none"> <li>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 &lt;SAPSID&gt; in the <i>Named instance</i> field.</li> <li>Leave the <i>Instance ID</i> and <i>Instance root directory</i> field to the default values.</li> <li>Choose <i>Next</i>.</li> </ol>
<i>Disk Space Requirements</i>	Review the disk space requirements and choose <i>Next</i> .

Window	Input
<i>Server Configuration</i>	<ol style="list-style-type: none"> <li>In the <i>Service Accounts</i> tab, perform the following steps: <ol style="list-style-type: none"> <li>Enter the <i>Local System</i> accounts For the English Windows version, the user name starts with <i>NT Authority</i>, for example <i>NT Authority\System</i>.</li> <li>Set the <i>Startup Type</i> for the SQL Server Agent to <i>Automatic</i>.</li> </ol> </li> <li>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.</li> <li>When you have made all entries, choose <i>Next</i>.</li> </ol>
<i>Database Engine Configuration</i>	<ol style="list-style-type: none"> <li>In the <i>Server Configuration</i> tab, select one of the following authentication modes: <ul style="list-style-type: none"> <li><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.</li> <li><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.</li> </ul> </li> <li>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.</li> <li>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. SAP strongly recommends that you enter <i>Administrators</i> in the <i>Select Users or Groups</i> window..</li> <li>Choose <i>Next</i>.</li> </ol>
<i>Error Reporting</i>	Select the required error reporting and choose <i>Next</i> .
<i>Installation Configuration Rules</i>	If there are no failed operations or warnings, choose <i>Next</i> . Otherwise, first check the failed operations and warnings.
<i>Ready to Install</i>	Check the summary list and select <i>Install</i> .
<i>Installation Progress</i>	Displays the installation progress.
<i>Complete</i>	<p>After the installation has been completed, the setup displays the status and a link to the log files.</p> <p>choose <i>Close</i> to finish the installation.</p>

6. When you have finished the installation, enable the *TCP/IP* protocol in the *SQL Server Configuration Manager* as follows:
  1. Choose ► *Start* ► *All Programs* ► *Microsoft SQL Server 2012* ► *Configuration Tools* ► *SQL Server Configuration Manager* .
  2. Expand *SQL Server Network Configuration* and select one of the following:
    - For a **default** instance, select *Protocols for MSSQLServer*
    - For a **named** instance, select *Protocols for <SAPSID>*
  3. In the right-hand pane, under *Protocol Name*, right-click *TCP/IP*, and select *Enable*.
7. Restart SQL Server.
8. Install the latest Service Pack and Cumulative Update. For more information, see **SAP Note 62988** .
9. Set the [configuration for the SQL Server Agent](#) [page 34].

## 4.4 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
  - Documentation Components
  - Management Tools – Basic
  - Management Tools – Complete
  - SQL Client Connectivity SDK
2. In the ► *Server Configuration* ► *Service Accounts* ► Screen, enter the local system account or domain account based on type of authentication you want to use for your Database mirroring endpoints.

## Related Information

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

## 4.5 Installing the SQL Server 2012 Failover Cluster

### Use

This section describes how to install the SQL Server 2012 database server software for a high-availability system with Microsoft failover clustering.

The SQL Server 2012 database **server** software must be installed on the database host.

#### Note

The installation writes the log files to the directory %ProgramFiles%\Microsoft SQL Server \110\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 2012 Native Access Client Software Manually](#) [page 32].

### Prerequisites

Before you install SQL Server 2012, 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 2012 RDBMS medium in your media drive or copy it locally.
4. Change to the directory:  
x86-x64\EnterpriseEdition.
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)
  - setup.exe /Action=Installfailovercluster/UpdateSource=<Drive>:  
\<Upgrade\_Source\_Directory>"

where <Upgrade\_Source\_Directory> is the directory where the Service Packs (SPs) and Cumulative Updates (CUs) are copied. 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 UpdateSource directory.

### **i** Note

You can install your SQL Server database either with all Service Packs and Cumulative Updates as the minimum required build (SPs and CUs) as specified in **SAP Note 62988**, or with all the latest Service packs and currently released Cumulative builds 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/hh231670\(v=SQL.110\).aspx](http://msdn.microsoft.com/en-us/library/hh231670(v=SQL.110).aspx).

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

Input for the SQL Server 2012 Installation on the First Node

Window	Input
<i>SQL Server Installation Center</i>	<ol style="list-style-type: none"> <li>1. Choose <i>Installation</i>.</li> <li>2. Select <i>New SQL Server failover cluster installation</i>.</li> </ol> <div> <b>i</b> Note  This window does not appear, if you run setup.exe with the parameters / Action and /UpdateSource. </div>
<i>Setup Support Rules</i>	If there are no failed operations or warnings, choose <i>Next</i> . Otherwise, first check the failed operations or warnings.
<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> .
<i>Product Updates</i>	Displays the latest available SQL Server updates, if available. The setup downloads the product updates.
<i>Install Setup Files</i>	Choose <i>Install</i> .
<i>Setup Support Rules</i>	If there are no failed operations or warnings, choose <i>Next</i> . Otherwise, first check the failed operations or warnings.
<i>Setup Role</i>	Select <i>SQL Server Feature installation</i> and choose <i>Next</i> .

Window	Input
<i>Feature Selection</i>	<ol style="list-style-type: none"> <li>Select the following features: <ul style="list-style-type: none"> <li><i>Database Engine Services</i></li> <li><i>SQL Server Replication</i></li> <li><i>Full Text and Semantic Extractions for Search</i></li> <li><i>Data Quality Services</i></li> <li><i>Client Tools Connectivity</i></li> <li><i>Client Tools Backwards Compatibility</i></li> <li><i>Client Tools SDK</i></li> <li><i>Documentation Components</i></li> <li><i>Management Tools - Basic</i></li> <li><i>Management Tools - Complete</i></li> <li><i>SQL Client Connectivity SDK</i></li> </ul> </li> </ol> <div style="background-color: #fff9c4; padding: 10px; margin-top: 10px;"> <p><b>i Note</b></p> <p>In a failover cluster installation, the features <i>SQL Server Replication</i>, <i>Full Text and Semantic Extractions for Search</i>, and <i>Data Quality Services</i> are mandatory and you cannot deselect them.</p> <p>For 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"> <li>Choose <i>Next</i>.</li> </ol>
<i>Feature Rules</i>	SQL Server setup runs setup rules based on the features you selected to validate your configuration.
<i>Instance Configuration</i>	<ol style="list-style-type: none"> <li>Enter the SQL Server network name.</li> <li>Select the instance type 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 &lt;SAPSID&gt; in the <i>Named instance</i> field.</li> <li>Leave the default values <i>Instance ID</i> and <i>Instance root directory</i> field to the default values.</li> <li>Choose <i>Next</i>.</li> </ol>
<i>Disk Space Requirements</i>	Review the disk space requirements and choose <i>Next</i> .
<i>Cluster Resource Group</i>	Specify the SQL Server cluster resource group and choose <i>Next</i> .
<i>Cluster Disk Selection</i>	<ol style="list-style-type: none"> <li>Specify the shared disk to be included in the SQL Server resource cluster group.</li> <li>Choose <i>Next</i>.</li> </ol>

Window	Input
<i>Cluster Network Configuration</i>	<ol style="list-style-type: none"> <li>1. Specify the IP type and address.</li> <li>2. If you do not have DHCP addresses, enter a static IP address and subnet mask</li> <li>3. Choose <i>Next</i>.</li> </ol>
<i>Server Configuration</i>	<ol style="list-style-type: none"> <li>1. In the <i>Service Accounts</i> tab, enter the domain accounts and password.</li> <li>2. 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.</li> <li>3. When you have made all entries, choose <i>Next</i>.</li> </ol>
<i>Database Engine Configuration</i>	<ol style="list-style-type: none"> <li>1. In the <i>Server Configuration</i> tab, select one of the following authentication modes: <ul style="list-style-type: none"> <li>◦ <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.</li> <li>◦ <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.</li> </ul> </li> <li>2. 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.</li> <li>3. 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. SAP strongly recommends that you enter <i>Administrators</i> in the <i>Select Users or Groups</i> window.</li> <li>4. Choose <i>Next</i>.</li> </ol>
<i>Error Reporting</i>	Select the required error reporting and choose <i>Next</i> .
<i>Cluster Installation Rules</i>	If there are no failed operations or warnings, choose <i>Next</i> . Otherwise, first check the failed operations and warnings.
<i>Ready to Install</i>	Check the summary list and select <i>Install</i> .
<i>Installation Progress</i>	Displays the installation progress.
<i>Complete</i>	<p>After the installation has been completed, the setup displays the status and a link to the log files.</p> <p>choose <i>Close</i> to finish the installation.</p>

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)
- `setup.exe /Action=Addnode /UpdateSource="<Drive>:\<Upgrade_Source_Directory>"`  
where `<Upgrade_Source_Directory>` is the directory where the Service Packs (SPs) and Cumulative Updates (CUs) are copied. 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 `UpdateSource` directory.

### **i** Note

You can install your SQL Server database either with all Service Packs and Cumulative Updates as the minimum required build (SPs and CUs) as specified in **SAP Note 62988**, or with all the latest Service Packs and currently released Cumulative builds 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/hh231670\(v=SQL.110\).aspx](http://msdn.microsoft.com/en-us/library/hh231670(v=SQL.110).aspx).

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

Input for the SQL Server 2012 Cluster Installation Completion on the Second Node

Window	Input
<i>SQL Server Installation Center</i>	<ol style="list-style-type: none"> <li>1. Choose <i>Installation</i>.</li> <li>2. Select <i>Add node to a SQL Server failover cluster cluster</i>.</li> </ol> <div> <b>i</b> Note  This window does not appear, if you run <code>setup.exe</code> with the parameters <code>/Action</code> and <code>/UpdateSource</code>. </div>
<i>Setup Support Rules</i>	If there are no failed operations or warnings, choose <i>Next</i> . Otherwise, first check the failed operations or warnings.
<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> .
<i>Product Updates</i>	Displays the latest available SQL Server updates, if available. The setup downloads the product updates.
<i>Install Setup Files</i>	Choose <i>Install</i> .
<i>Setup Support 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> .

Window	Input
<a href="#">Service Accounts</a>	Enter the password for the SQL Server and SQL Agent Services accounts and choose <a href="#">Next</a> .
<a href="#">Error Reporting</a>	Select the required error reporting and choose <a href="#">Next</a> .
<a href="#">Add Node Rules</a>	The system configuration checker runs one or more set of rules to validate your system configuration based on the selected features.
<a href="#">Ready to Add Node</a>	Displays the selected options to add the node to the failover cluster. Check the options and select <a href="#">Install</a> .
<a href="#">Add Node Progress</a>	Displays the installation progress of the selected features when adding the node to the failover cluster.
<a href="#">Complete</a>	After the installation has been completed, the setup displays the status and a link to the log files. Choose <a href="#">Close</a> to finish the installation.

9. When you have finished, enable the [TCP/IP](#) protocol in the [SQL Server Configuration Manager](#) on all cluster nodes as follows:
  1. Choose **Start > All Programs > Microsoft SQL Server 2012 > Configuration Tools > SQL Server Configuration Manager**.
  2. Expand [SQL Server Network Configuration](#) and select one of the following:
    - For a default instance, select [Protocols for <SQL Server Instance Name>](#)
    - For a named instance, select [Protocols for <SAPSID>](#)
  3. In the right-hand pane, under [Protocol Name](#), right-click [TCP/IP](#), and choose [Enable](#).
10. Restart SQL Server.
11. After the SQL Server 2012 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 Packs 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 are used for SAP Database files. To do so, perform the following steps:
  - Windows Server 2008 R2
    1. On the [Services and Applications](#) node, right-click the [SQL Server](#) or [SQL Server\(<NamedInstance>\)](#) application and select [Add Storage](#).

2. In the *Add Storage* pop-up window, select the disk you want to move to the *SQL Server* application and choose *OK*.  
On the *Services and Applications* node, double-click the *SQL Server* or *SQL Server(<NamedInstance>)* application.
3. In the right-side window, right-click the *SQL Server* or *SQL Server(<NamedInstance>)* resource and take the *SQL Server* or *SQL Server(<NamedInstance>)* resource offline.
4. Right-click the *SQL Server* or *SQL Server(<NamedInstance>)* resource and select *Properties*.
5. In the *Dependencies* window, use the insert button and add the shared disks that are used to store the SAP database files with the **AND** operator.
6. Bring the *SQL Server* and *SQL Server Agent* resources online.
- Windows Server 2012 (R2)
  1. On the *Roles* node, right-click the *SQL Server* or *SQL Server(Instance)* role, and select *Add Storage*.
  2. In the *Add Storage* pop-up window, select the disk you want to move to the *SQL Server* or *SQL Server(Instance)* role, and choose *OK*.
  3. On the *Roles* node, select the *SQL Server* or *SQL Server(<NamedInstance>)* resource.
  4. In the right-side bottom window, right-click the *SQL Server* or *SQL Server(<NamedInstance>)* resource and take the *SQL Server* or *SQL Server(<NamedInstance>)* resource offline.
  5. Right-click the *SQL Server* or *SQL Server(<NamedInstance>)* resource and select *Properties*.
  6. In the *Dependencies* window, use the insert button and add the shared disks that are used to store the SAP database files with the **AND** operator.
  7. Bring the *SQL Server* and *SQL Server Agent* resources online.
15. Set the [configuration for the SQL Server Agent](#) [page 34].

## 4.6 Installing the SQL Server 2012 Native Client Software Manually

### Use

This section describes how to install the *SQL Server 2012 Native Access Client (SNAC)* software.


You have to install the SQL Server 2012 client software on all SAP application servers. It enables the communication between an application server and the database.

If there are updates to the SNAC DLLs in either a Service Pack (SP) or a Cumulative Update (CU), similarly an SP or CU needs to be running on each application server to make sure that the SNAC changes are applied consistently to the database server and to the application server.

### Procedure

1. Log on as local administrator to the host where you want to install an application server.
2. Insert the SQL Server 2012 RDBMS medium in your media drive or copy it locally.
3. Change to the directory *<RDBMS\_Medium>:\SqlNativeClient\<platform>\* and double-click the SNAC files.

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For more information, see **SAP Note 1684545** .

4. Follow the instructions in the SQL Server installation setup screens.

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## 5 Setting the SQL Server Agent Configuration


### Use

After you have installed or upgraded to SQL Server 2012, 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](#).

#### 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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