Safexpert – Installation instructions MS SQL Server

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1 Brief overview of how to use the SQL Server

This whitepaper document is a supplement to the installation instructions from Safexpert (see section 3 in the Safexpert user guide).

It provides a brief overview of how to combine Safexpert with the Microsoft SQL Server as a database backend and is intended for experienced administrators.

In chapter 2 the most important configuration steps are briefly explained.

It also shows the steps needed to install an SQL Server. If there is an SQL Server available in your company, please contact your IT administrator. The IT administrator may be able, if necessary, to set up a login and password for installing the Safexpert database on the server.

Please note

The illustrations reflect the installation of SQL Server 2012, however, the procedure for the installation of other SQL Server versions is not significantly different.

1.1 System requirements

- Operating system: Windows 7; Windows 7 Service Pack 1; Windows 8; Windows 8.1; Windows 10; Windows Server 2008 R2; Windows Server 2008 R2 Service Pack 1; Windows Server 2012; Windows Server 2012 R2
- Processor for 32 Bit Systems:
    - Pentium processor (or compatible) with 1 GHz clock speed or faster (recommended: 2 GHz clock speed)
- Processor for 64 Bit Systems:
    - Pentium processor (or compatible) with 1,4 GHz clock speed or faster (recommended: 2 GHz clock speed)
- System memory: at least 512 MB for the Express-Edition (recommended: at least 1 GB)
- Hard disk capacity: at least 4,2 GB
- Microsoft SQL Server (32 or 64 Bit) in the following editions:
    - Express with Advanced Services
    - Standard
    - Enterprise
    - Business Intelligence
- A stable network connection with minimum 1 MBit bandwidth

Note: Safexpert uses the full text search component of the SQL Server. N.B.: This component must be installed.

The free version can be downloaded directly from Microsoft at: http://www.microsoft.com/en-us/download/details.aspx?id=29062.

We recommend downloading the English version, as it can be installed irrespective of the language settings of your operating system.

Microsoft provides several files for download. Please select the version with the Advanced Services. These are indicated by Microsoft with ADV in the file name. (e.g. SQLEXPRADV)

1.2 Disk space

The disk space required for the Safexpert database is dependent on several factors. In addition to the technical parameters such as project quantity and project size (number of the limits of the machines, interfaces, etc.), this also depends on the general usage patterns of the user. In this way, Safexpert is able to embed files in the database, which correspondingly increases the disk space required.

You can use the following benchmarks to calculate the disk space required:

- 500 MB for the basic installation
- 80 MB per project
- additionally the size of the embedded files,
  values between 0 MB and several 100 MB are possible

1.3 Field of application

Safexpert can be connected via database connectors with different database systems. The standard package contains the connectors for a file-based database (VistaDB) and for the Microsoft SQL Server.

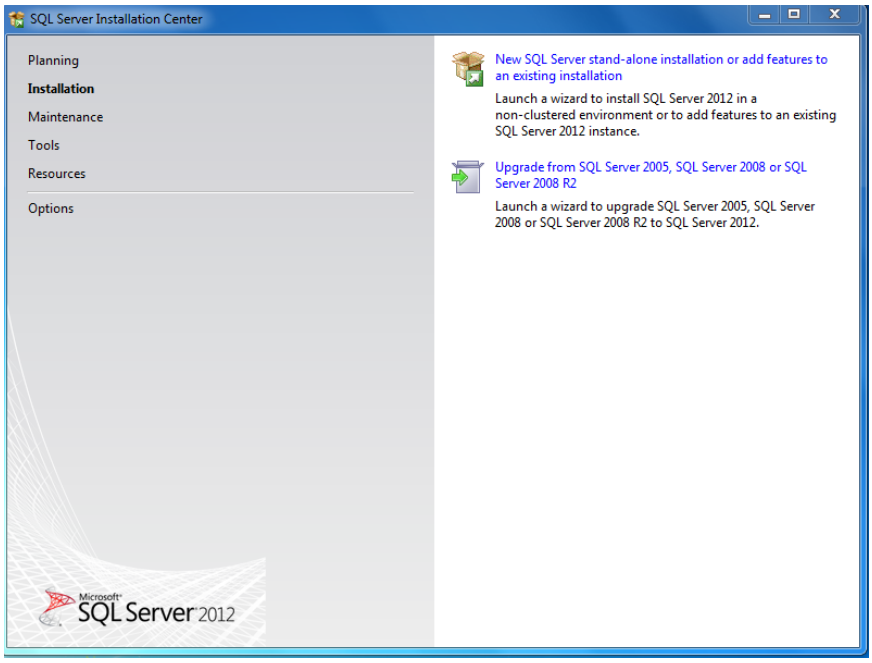
A file-based, local database simplifies the installation and is suitable for small single user versions. Since, however, the performance strongly decreases in a network, an SQL Server is recommended as a database backend for multi-user installations.

The administration of an SQL Server must be carried out by trained IT personnel.

2 Configuration

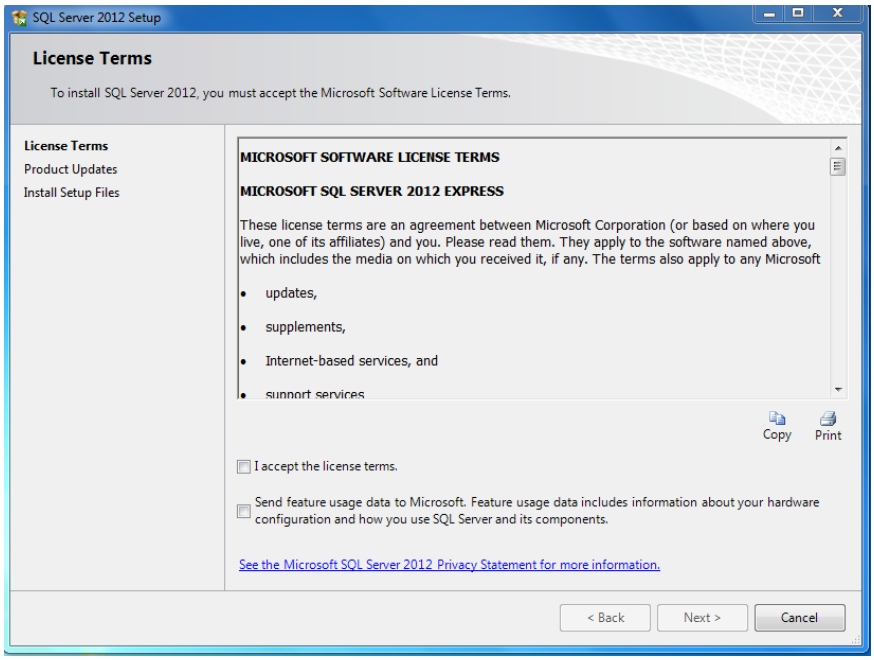
2.1 Installation of the SQL Server

After launching the download file:

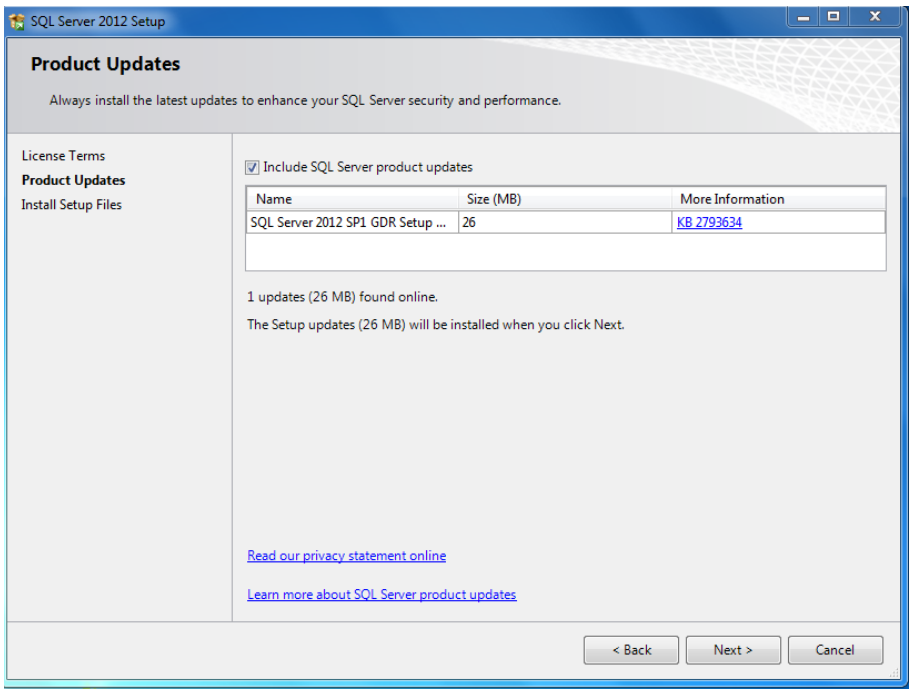


→ Click on „New SQL Server stand-alone installation…“

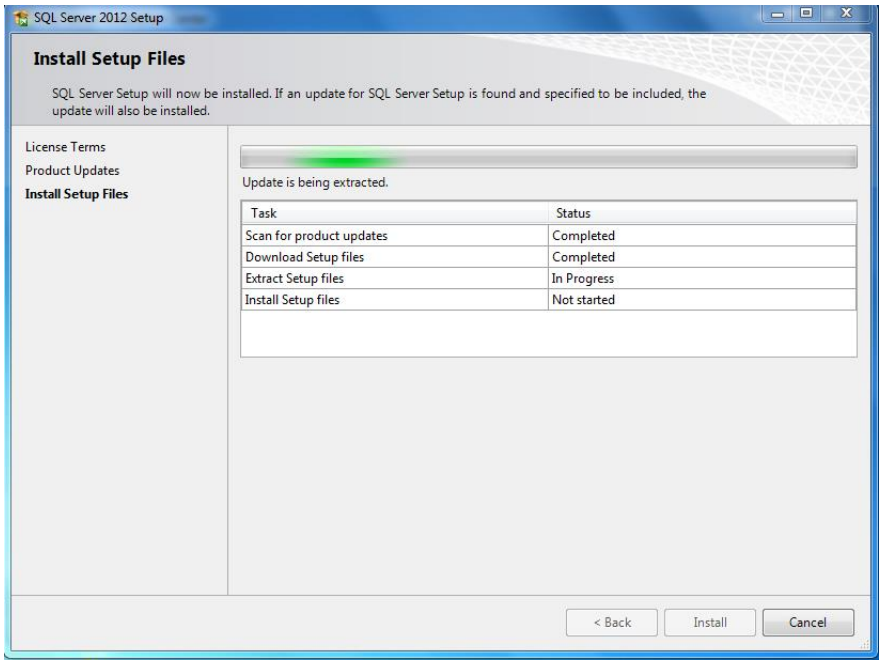
→ “Setup Support Rules” runs through automatically. If an error message appears here, please consult your IT administrator!



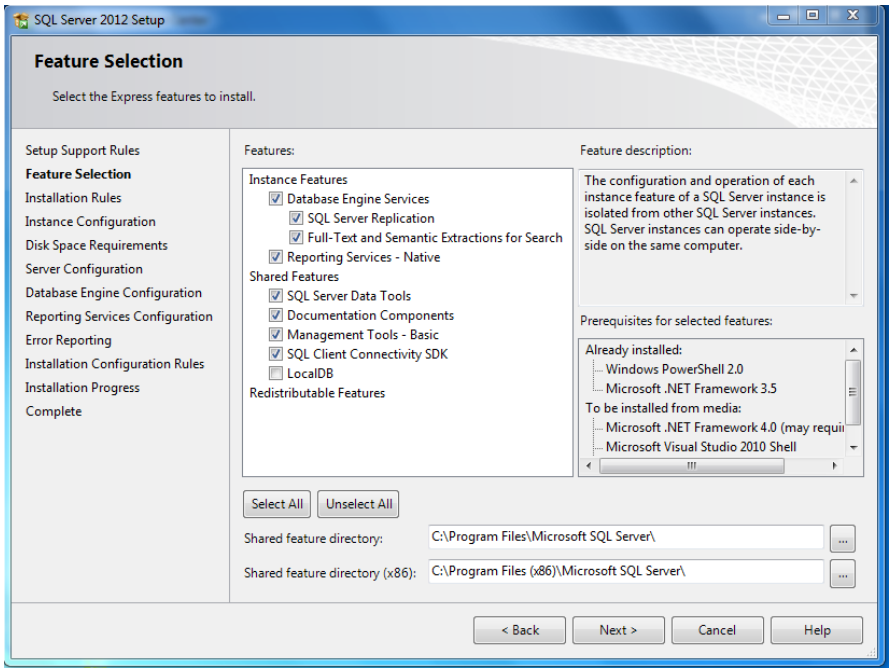
→ Select „I accept….“, then „Next“



→ Activate „Include SQL Server product updates“, then „Next“

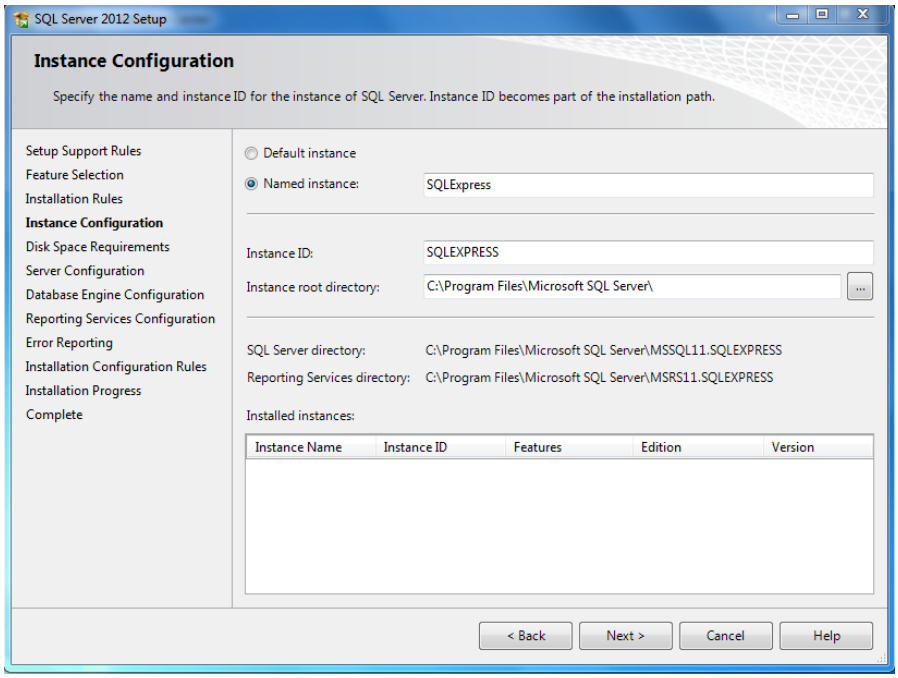


→ SQL Server Updates are installed.



→ Select the desired features and click “Next”. Safexpert needs at least:

- Database Engine Services
- SQL Client Connectivity SDK
- Management Tools - Basic



When installing the SQL Server, the name of the SQL instance is defined in the step “Instance Configuration.” When you select “Named Instance”, the setup suggests the name “SQLEXPRESS” by default as an instance name.

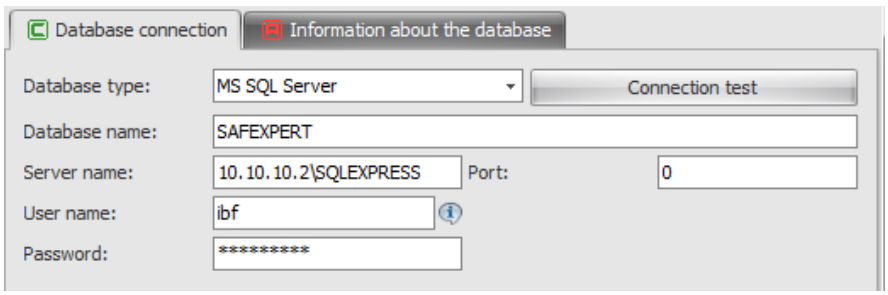
This information is important, because this is needed when entering the server data in Safexpert.

The following settings apply for the Safexpert Setup:

- The image shows the installation of an SQL SERVER Express. SQLExpress is suggested as the instance name. In Safexpert this data is entered as follows:
  Server name\Instance name
- This instance name can be applied or changed into any other instance name (e.g. “SQLExpress”). In Safexpert this data is entered as follows:
  Server name\Instance name
- “Default instance” means that no instance name has to be added onto the server name.

Alternatively, the IP address of the SQL Server can also be used.

Example:
10.10.10.2\SQLEXPRESS



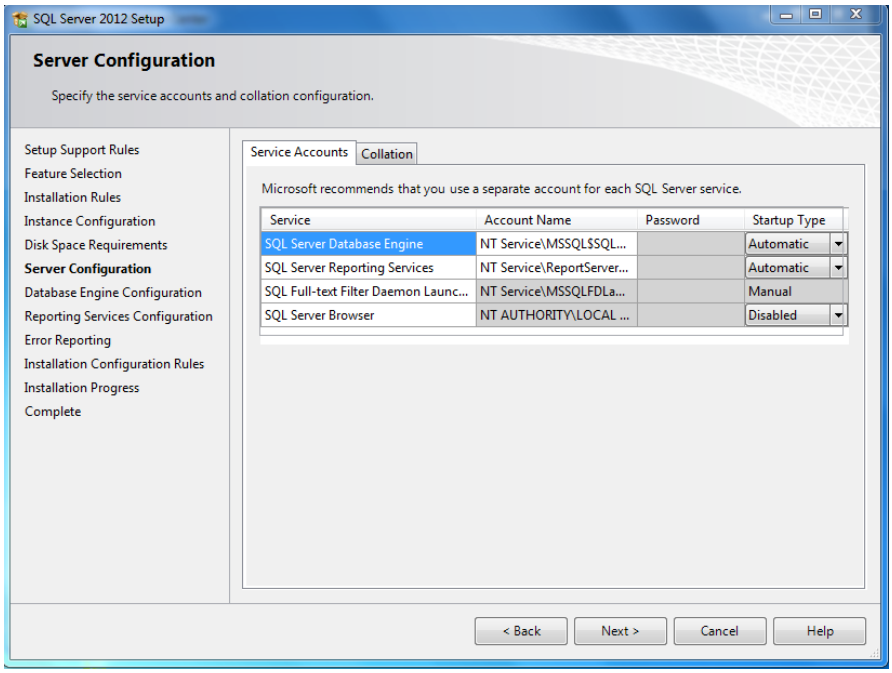
2.1.1 Configuration of services

The SQL Server starts automatically with Windows if it was appropriately configured in Windows services.

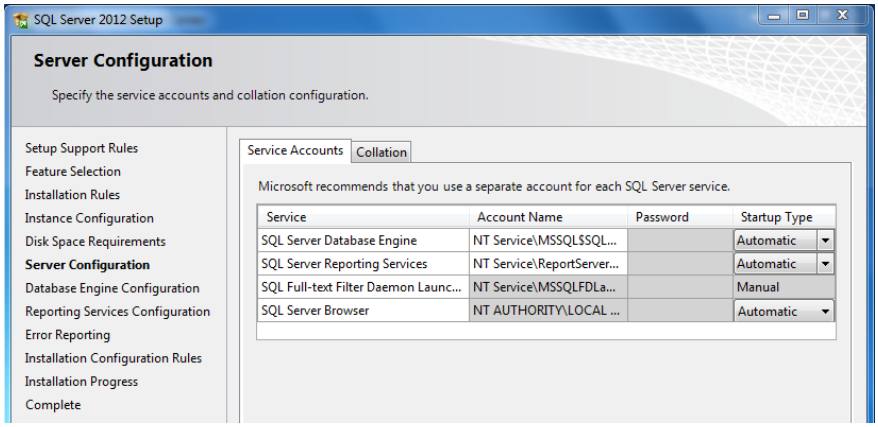
For the single user version it is sufficient when the service “SQL Server (instance name)” is automatically started.

If users from other computers would also like to gain access, activate the service “SQL Server Browser”.

The services can be configured in the “SQL Server Configuration”.



In order to start the service with Windows, change the “Startup Type” to “Automatic” under
“SQL Server Browser”.



2.1.2 Authentication options

The SQL Server can be configured in two authentication methods.

- Windows authentication
- SQL Server and Windows authentication (“Mixed Mode”)

Safexpert supports both methods.

2.1.3 Windows authentication

This method is recommended above all for the single user installation. The advantage lies in the fact that on the SQL Server itself no particular users with access rights have to be defined. For authentication, the user name and password of the Windows user is used.

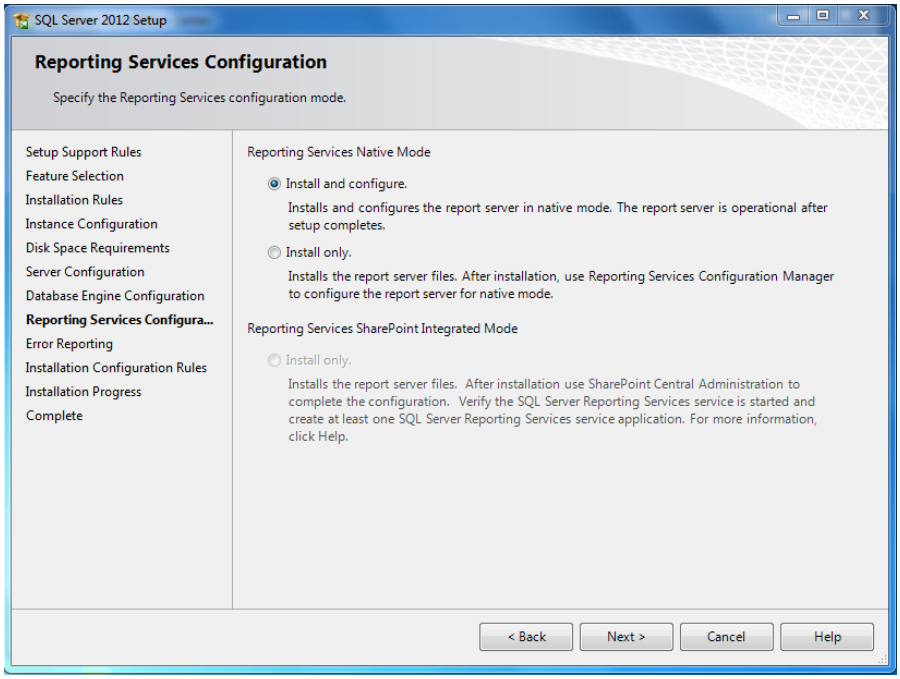
When using this method, the disadvantage lies in the assignment of access privileges in the network. An individual access privilege must be defined for every possible Windows user. A Safexpert user who is not registered as a user on the SQL Server cannot work with Safexpert.

Recommendation: Use for single user installations

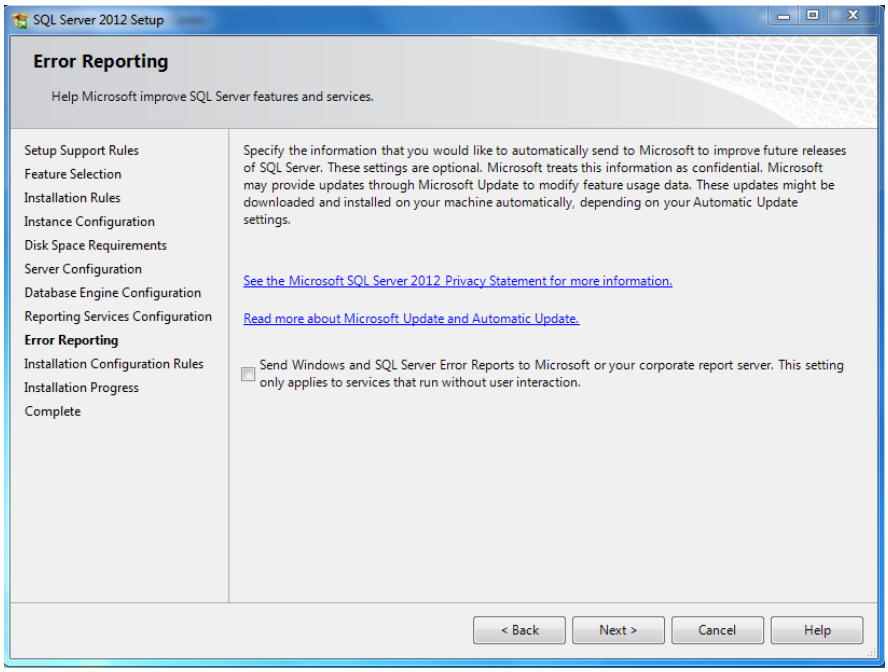
2.1.4 SQL Server Authentication

This method is recommended above all for multi-user access. The advantage lies in the fact that on the SQL Server itself only one user with access rights has to be set up. All users that have been created in Safexpert thereby have access to the server regardless of their Windows user names.

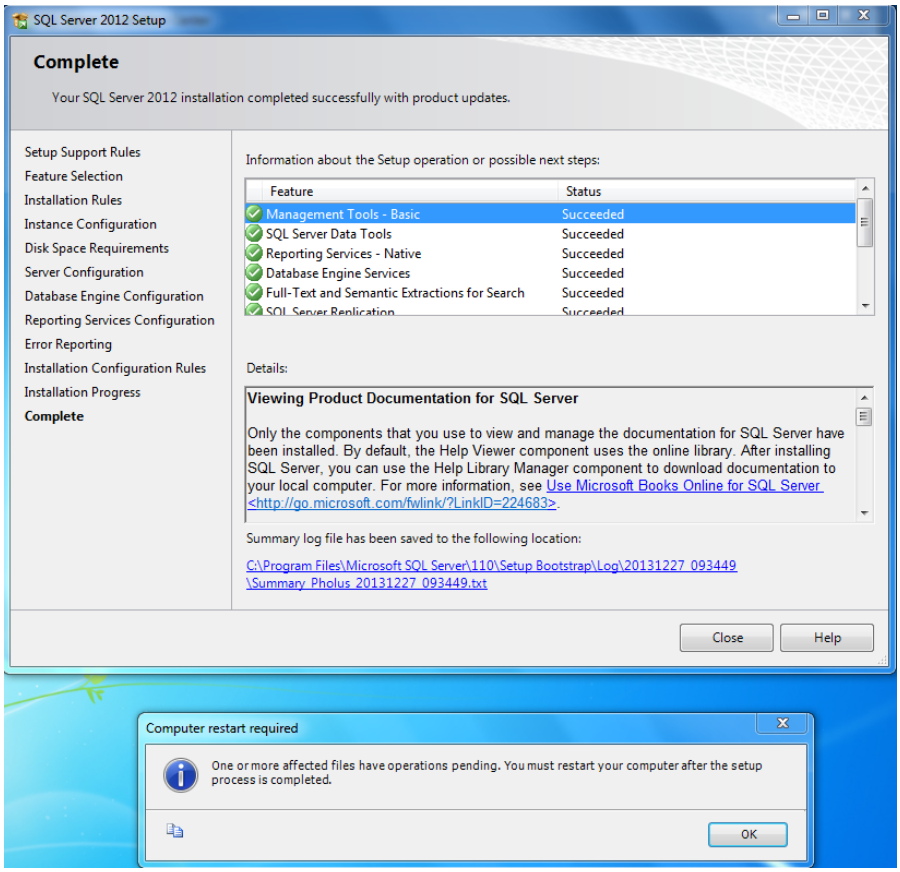
2.1.5 Next steps



→ “Next”



→ “Next”



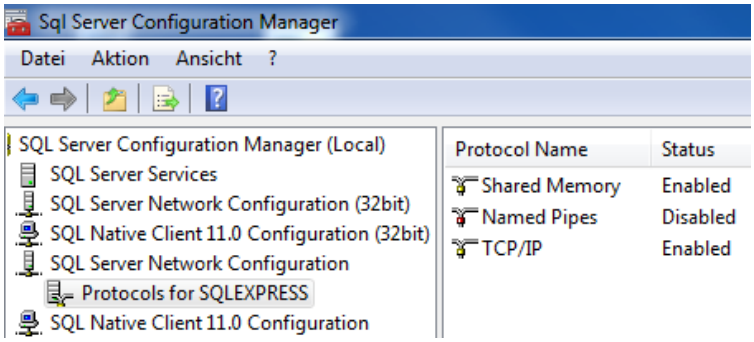
→ All items must be set to “Succeeded”. If yes, click “OK” to restart the computer and to finish the installation. N.B.: If the status of one or several items reads “Failed”, please consult your IT administrator.

2.1.6 Configuration of the network protocols

This point is only necessary for multi-user access.

In order to enable other users to connect to the SQL Server, the TCP/IP protocol must be enabled. This setting is found in “SQL Server Configuration Manager” in the area “Protocols for [[instance name]]”.

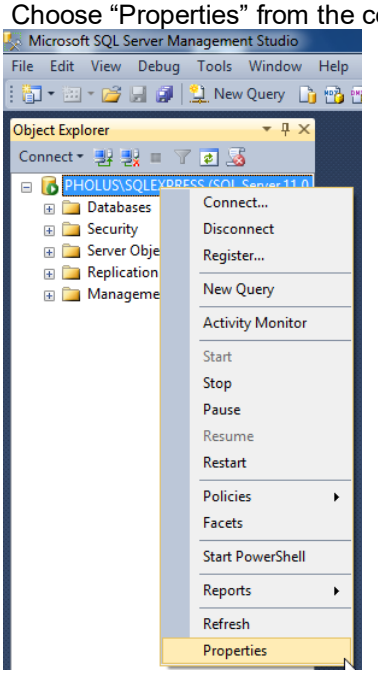
Note: After clicking “Enable” the service must be restarted.



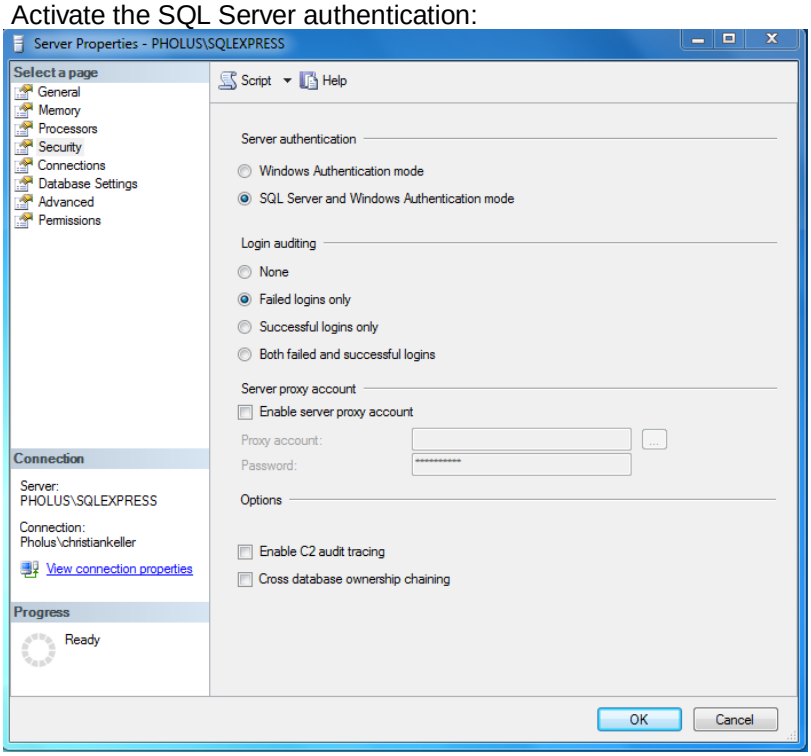
2.1.7 Creating an SQL user

Start the “SQL Server Management Studio” supplied by Microsoft

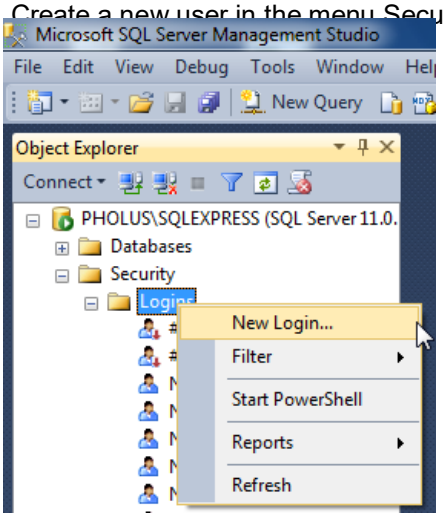
1. Choose “Properties” from the context menu:



2. Activate the SQL Server authentication:

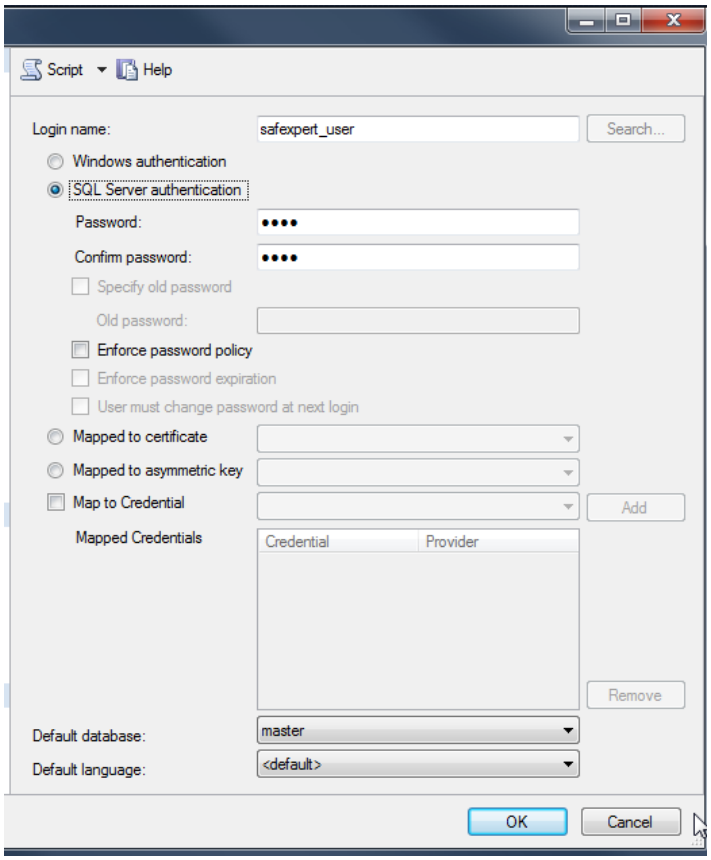


3. Create a new user in the menu Security>Logins and New Login…



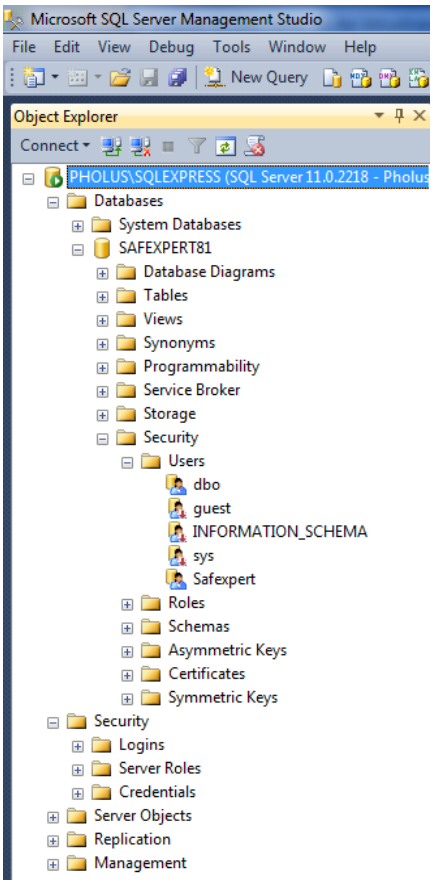
The important points to define here are:

- Login name
- Authentication of the SQL Server
- Password



2.2 Assignment of permissions for an SQL user

The assignment of rights is divided into two levels.

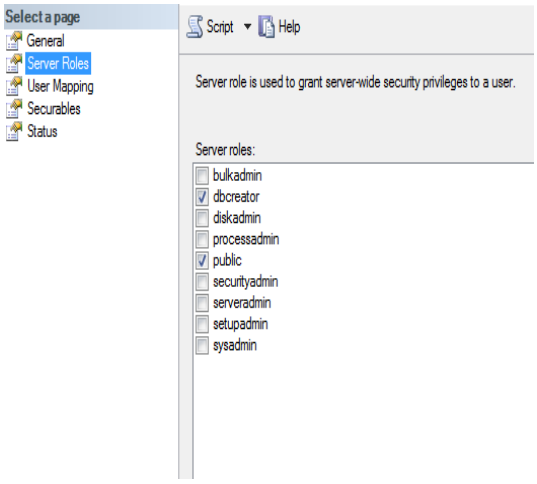


1. Server level (Server roles)
   - rights of the user are determined here for the logins.
   - the SQL user needs the following rights:
     - puplic
     - dbcreator

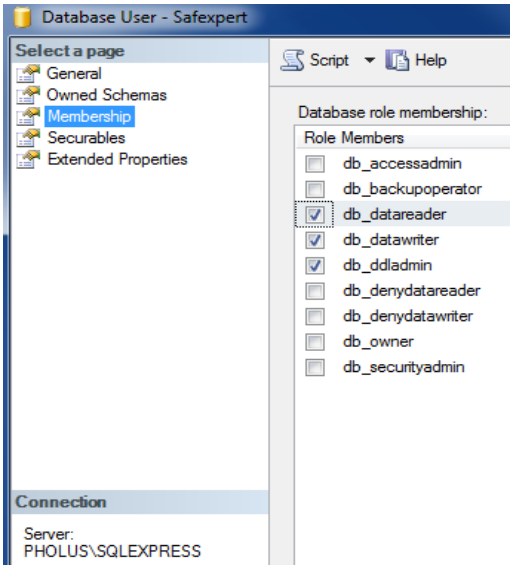
     (Only needed to create the database on the Safexpert setup. If the database has already been previously established by an administrator, this role is NOT required)
2. Database level (Database roles)
   - Here the rights are defined the user needs for the respective databases:
     - db_datareader
     - db_datawriter
     - db_ddladmin

     (NOTE: To define the rights at the database level, the database must be created before)

Assignment of rights at the server level

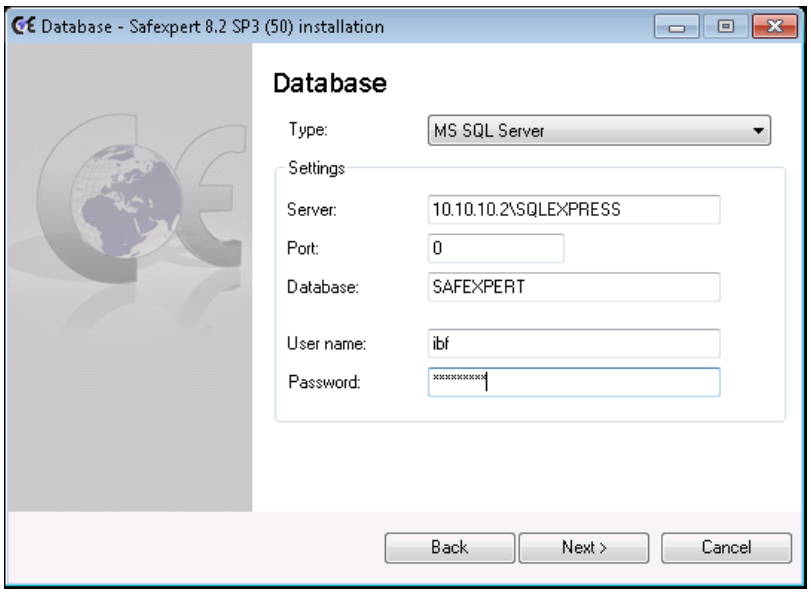


Assignment of rights at the database level



2.3 Selection of the database in the Safexpert Setup

Choose the database that is to be used in Safexpert Setup:



Irrespective of which authentication methods (see chapter 2.1.2) you would like to use, for installation on an SQL server, choose

- MS SQL Server or
- MS SQL Server (Windows authentication).

The SQL Server must have been installed and configured before you can continue with the set up (see chapter 2.1).

It is possible to install the Safexpert database in two versions:

- automatically via Safexpert Setup or
- manually by the IT administrator: Snapshot isolation must be activated.

Note: If you want to copy an existing database, this has to be done via backup/restore. When copying by using diverse database scripts it may happen that standard field values get lost. In this case the database gets corrupted.

Activating snapshot isolation

Execute the following SQL commands in SQL Server Management Studio or in the command line tool:

- ALTER DATABASE "Name of new database" SET READ_COMMITTED_SNAPSHOT ON;
- ALTER DATABASE "Name of new database" SET ALLOW_SNAPSHOT_ISOLATION ON;

Note: A connection to the server cannot be checked at this point in time, since the necessary database components have not yet been installed. Should the connection data be entered incorrectly, an error message will only appear later in the Setup.

2.3.1 Features of the single user installation

As a single user version, Safexpert is operated with the file-based database VistaDB. Since the installation of the file-based database is simpler, this is recommended by default. However, there are reasons to operate an SQL Server locally on the Windows PC even for this installation type.

Advantages:

- Better speed, especially for large projects

Disadvantages:

- Increased administration effort
- Backup has to be carried out using own backup solution

In single user installations, the SQL Server is directly installed on the PC or laptop on which Safexpert itself also is to be installed.

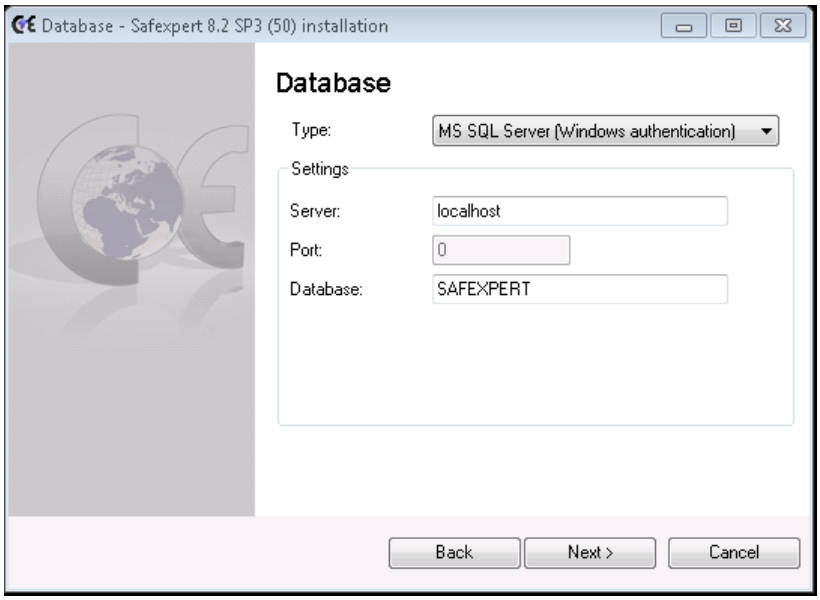
For configuration, no particular steps are necessary. The default settings which are suggested during the setup can be applied.

These are:

- Instance name: SQLExpress
- Authentication: Windows authentication
- Install full text search component
- Services started: SQL Server (SQLExpress)

Other services are not needed for the single user installation.

In the Safexpert Setup choose MS SQL Server (Windows authentication) in this case as a database type and indicate the server as seen in the image:



Settings in the Safexpert Setup

2.3.2 Special features of the network installation

For network installations, it is important to ensure that the SQL Server is installed on a suitable machine which is integrated in the business backup.

The service “SQL Server Browser must be activated in addition to the default service “SQL Server” (see chapter 2.1.1).

As network protocol, the TCP/IP protocol must also be activated (see chapter 2.1.6).

2.4 Information on silent installation

The Safexpert client has a silent installation method. The individual parameters for this are defined in the Safexpert user guide. If you would like to connect clients via silent parameters with an SQL Server, please enter a connection string according to the following model:

Type: MS SQL Server

/DBCONNECTION="DBTYPE=MSSQL2008;DBSERVER=localhost\SQLEXPRESS;DBDATABASE=SAFEXPERT;DBUSERNAME=max;DBPASSWORD=maxpwd;DBPORT=0;"

2.5 Step by step

Recommended steps for a single user installation

1. Install SQL Server with default settings
2. Install Safexpert
3. In step 4 of the setup, choose the following settings:
    1) Type: MS SQL Server (Windows authentication)
    2) Server name: localhost\SQLExpress
    3) Database name: SAFEXPERT

Recommended steps for a network version

1. Install SQL Server with default settings on a suitable server
2. Activate TCP/IP for the SQL Server
3. Activate SQL Server Browser
4. Activate SQL Server authentication (see chapter 2.1.4)
5. Create SQL user for Safexpert (see chapter 2.1.7)
6. Install Safexpert
7. In step 4 of the setup, choose the following settings:
    1) Type: MS SQL Server
    2) Server name: (enter the correct name here)
    3) Database name: SAFEXPERT

3 Terms in this document

Database	Name of a database. This name is required for an SQL Server installation in order to separate the data from different programmes from one another. Default name of the Safexpert database is: Safexpert
Port	A port is a part of an address which assigns the data segments to a network protocol. This must only be indicated if other ports are used by the SQL administrator (or the cluster service) apart from the default ports. Default value: 0
Server name	The database server name comprises the Windows server name and the name of the SQL instance “Server name” + “\” + “Instance name” If the default instance name is used in the configuration of the SQL Server, this can be disregarded here. “Server name” Would be a valid entry in this instance.
Login name	Name of an access to an SQL Server
Database backend	A backend describes the platform of a piece of software; in this instance, it is the SQL server used for the storage of the data.