

Installing and configuring MS SQL Server

1. Preparing for Installing

MS SQL Server 2014 is the current version recommended by Microsoft, It has several editions and Contiki can work with all of them. Contiki can also use older versions (SQL Server 2008 and SQL server 2005) as well.

For information regarding SQL Server 2014 requirements refer to Microsoft information:
<https://msdn.microsoft.com/en-us/library/ms143506.aspx>

The free version of SQL server, SQL Server 2014 Express edition, is good enough to run Contiki, the Demo and/or small models (SQL Server Express includes 10GB of storage per database). It can be downloaded from:

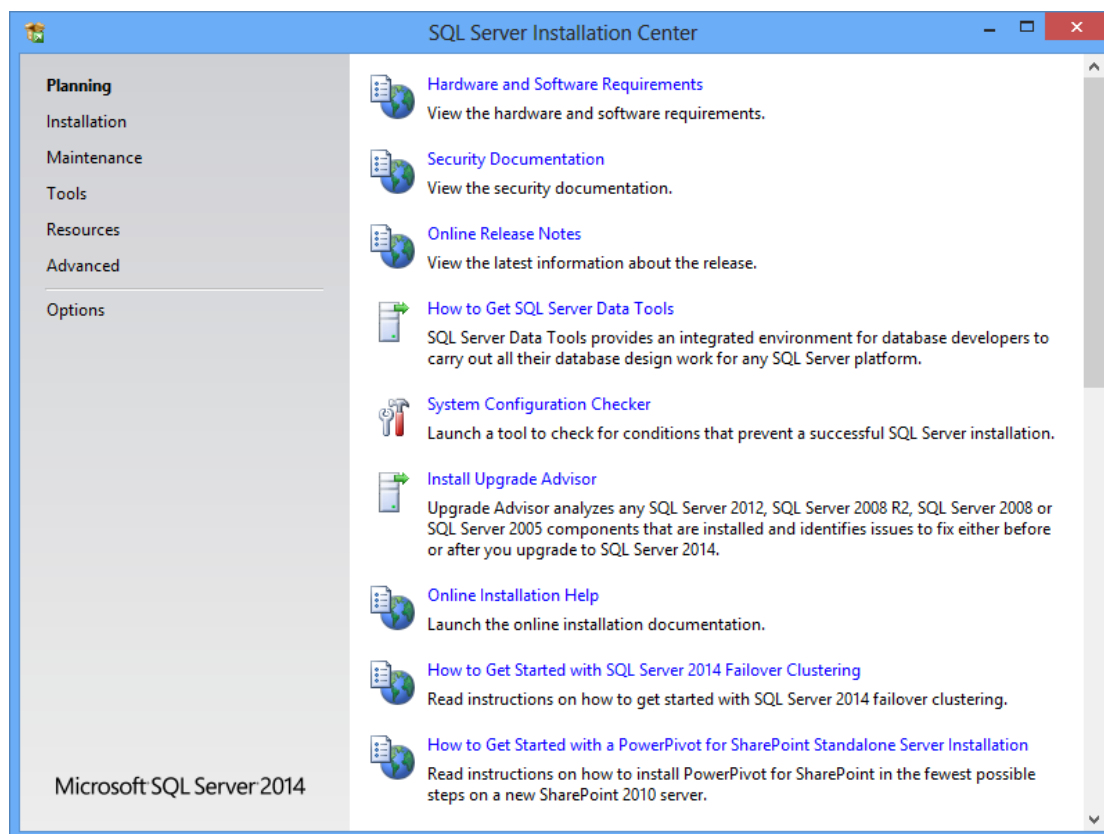
<http://www.microsoft.com/en-us/server-cloud/products/sql-server-editions/sql-server-express.aspx>

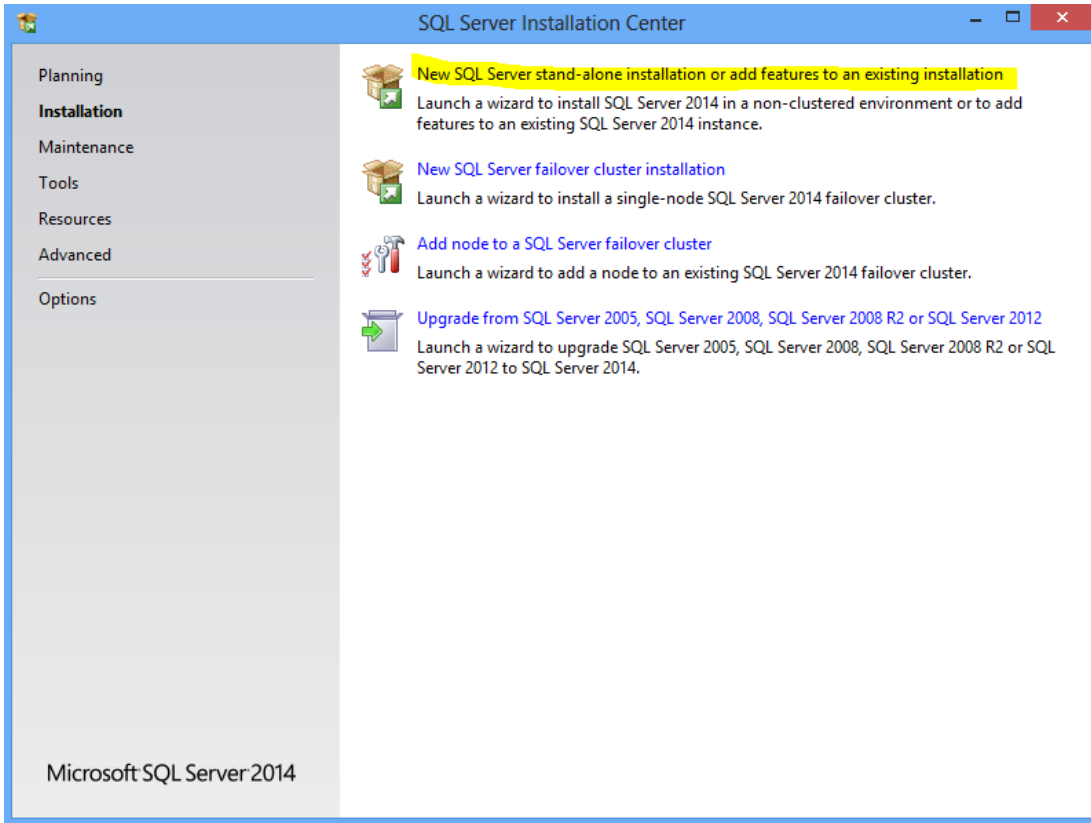
This document go's over the proper installing steps for SQL Server 2008 (R2), so it will function with Contiki.

Important: All critical/important updates must be performed and latest Service Packs must be installed for OS and MS SQL Server, any less than that can cause serious (security) problems.

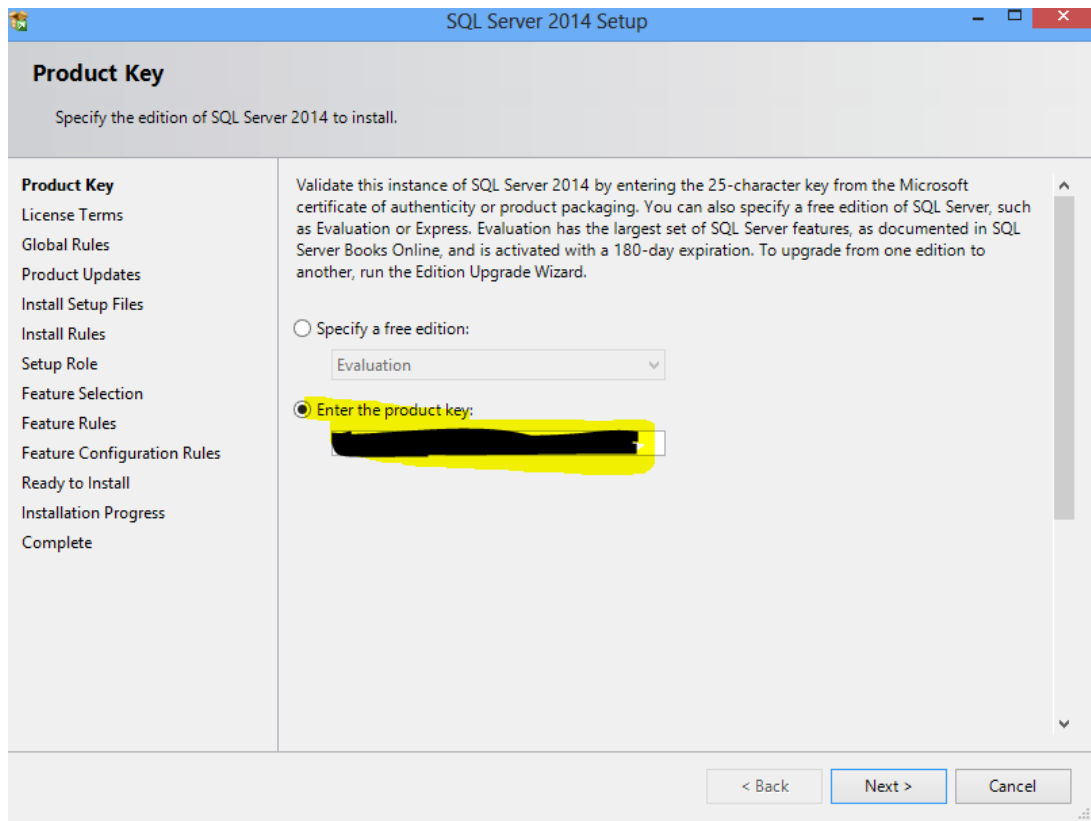
2. Installing

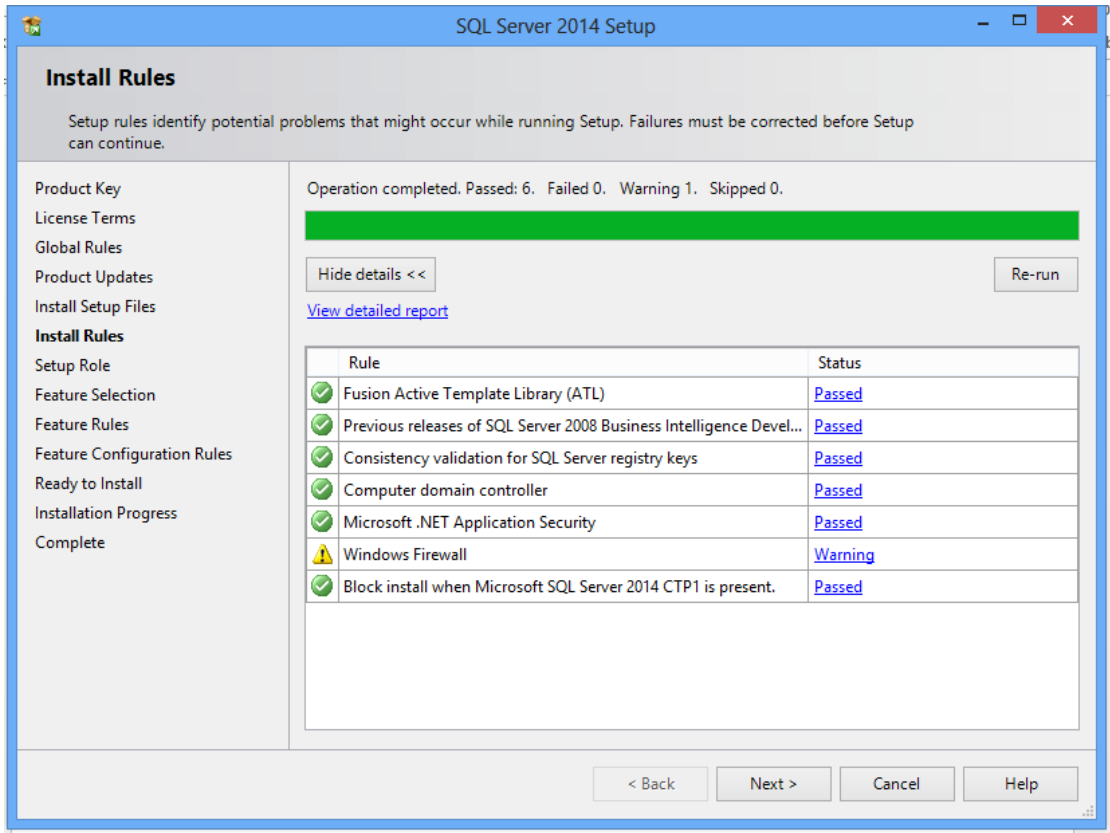
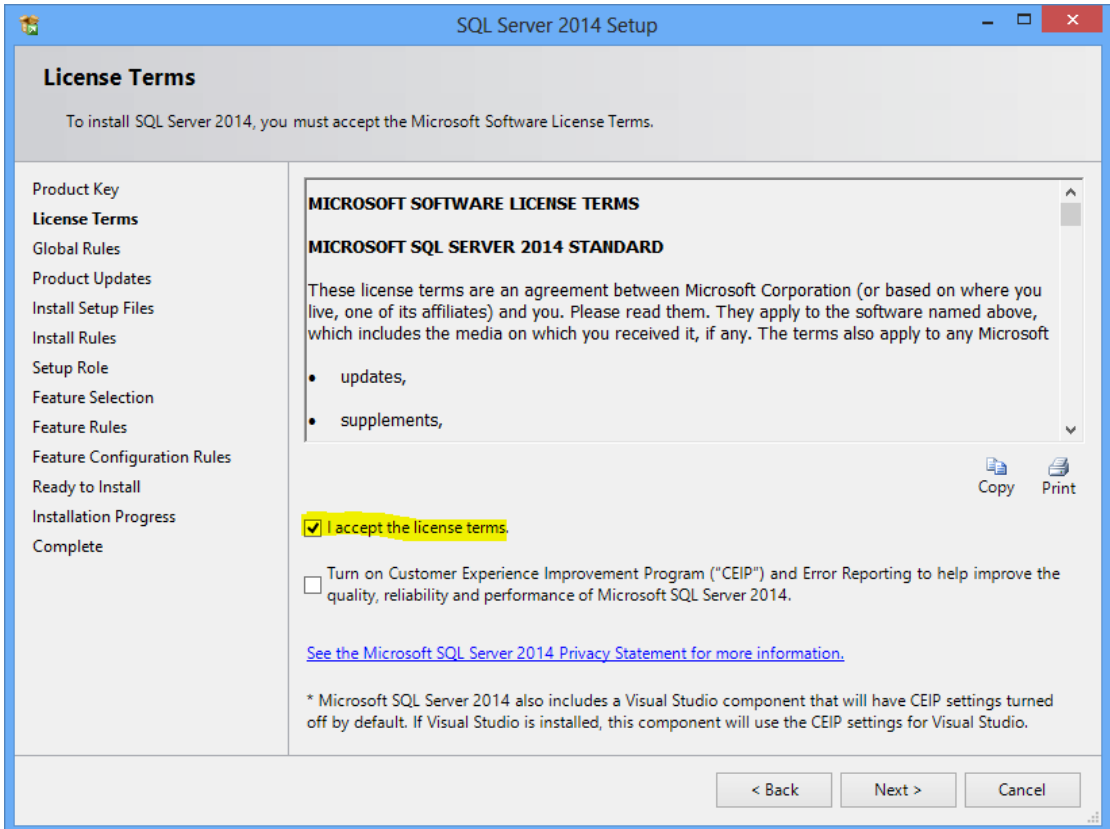
Follow the next Screens:

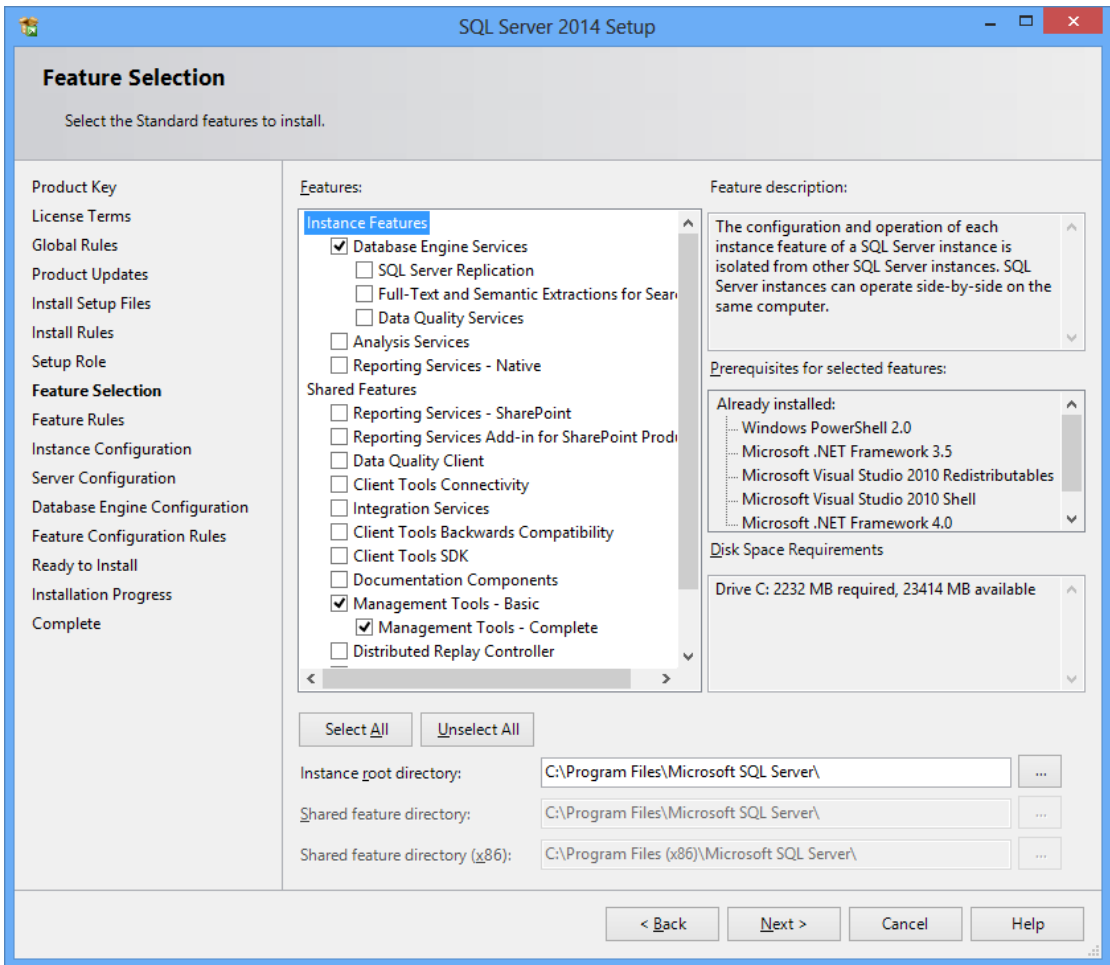
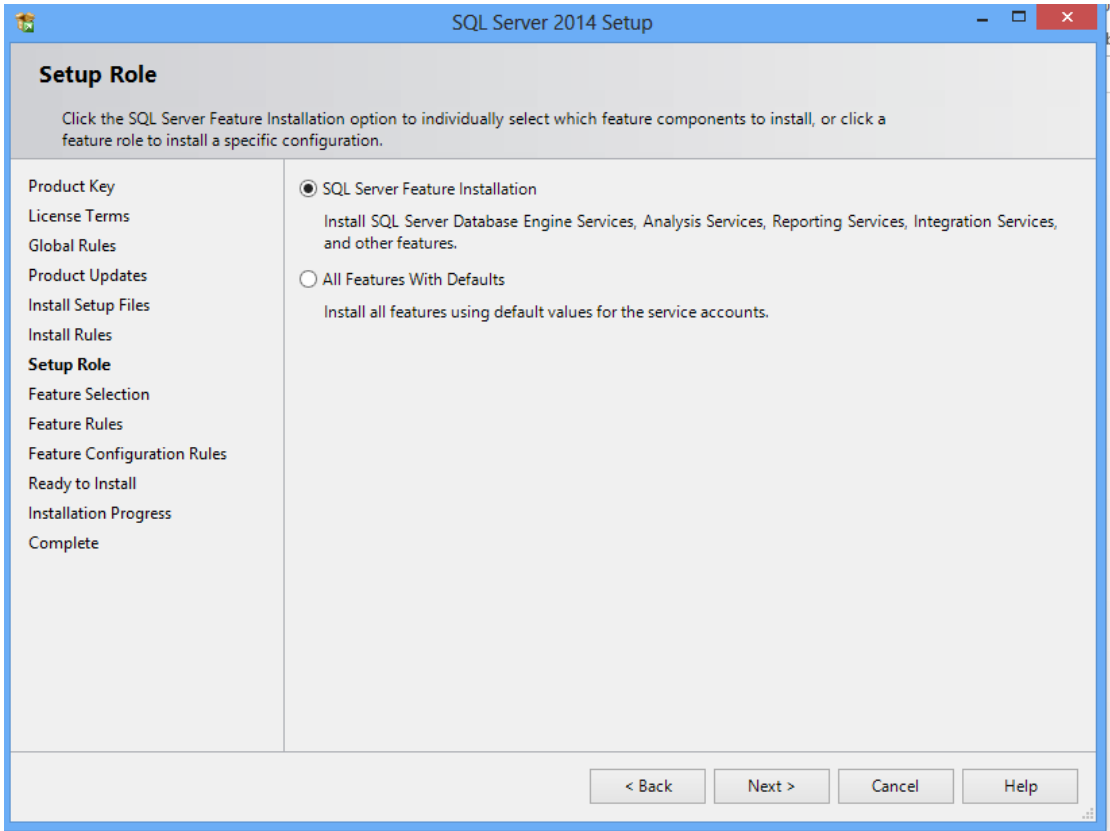


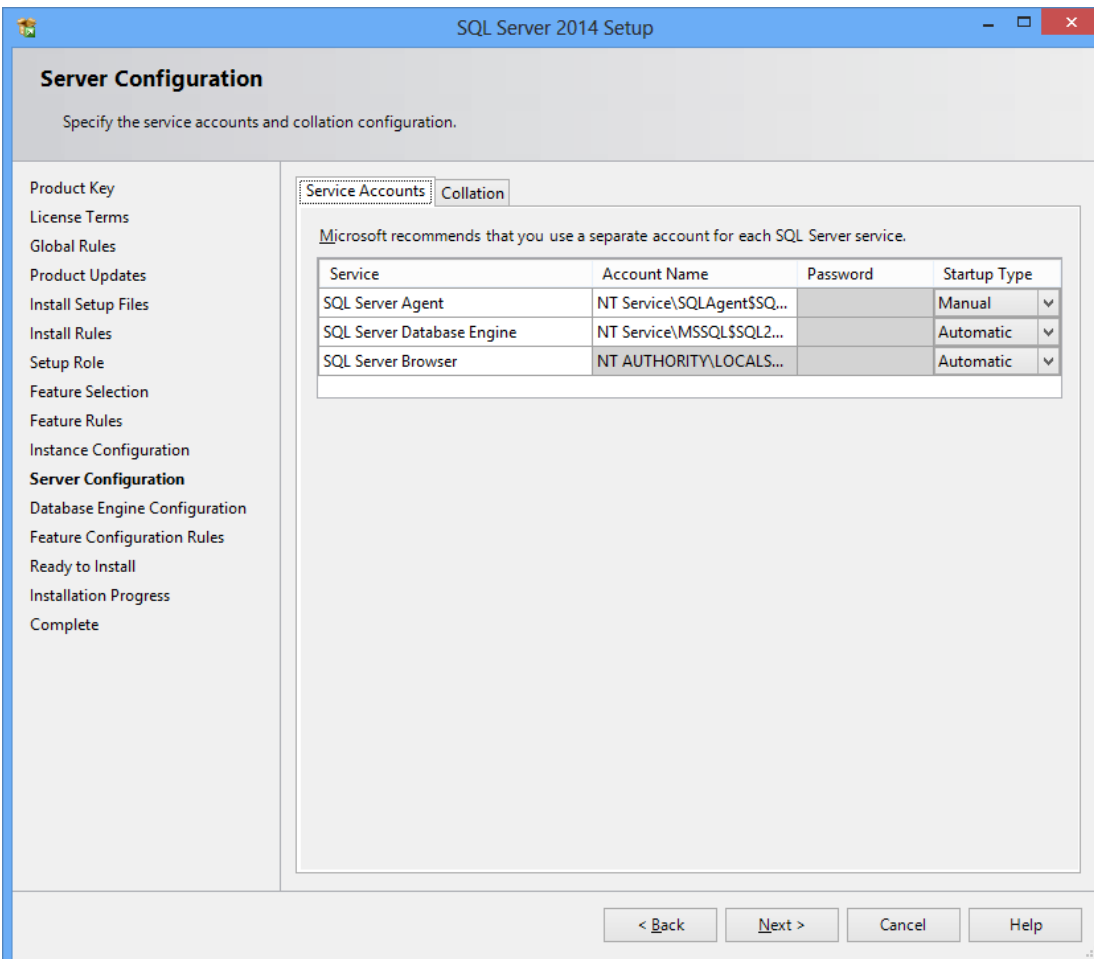
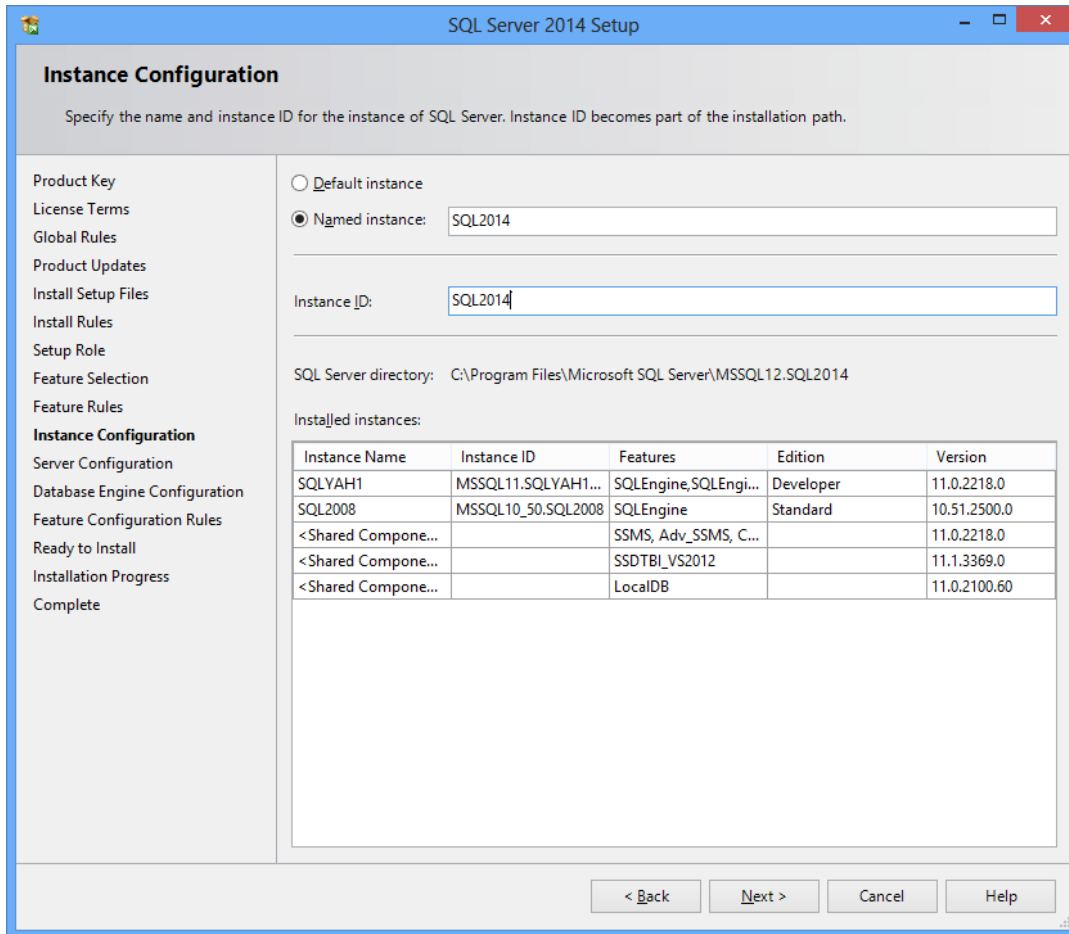


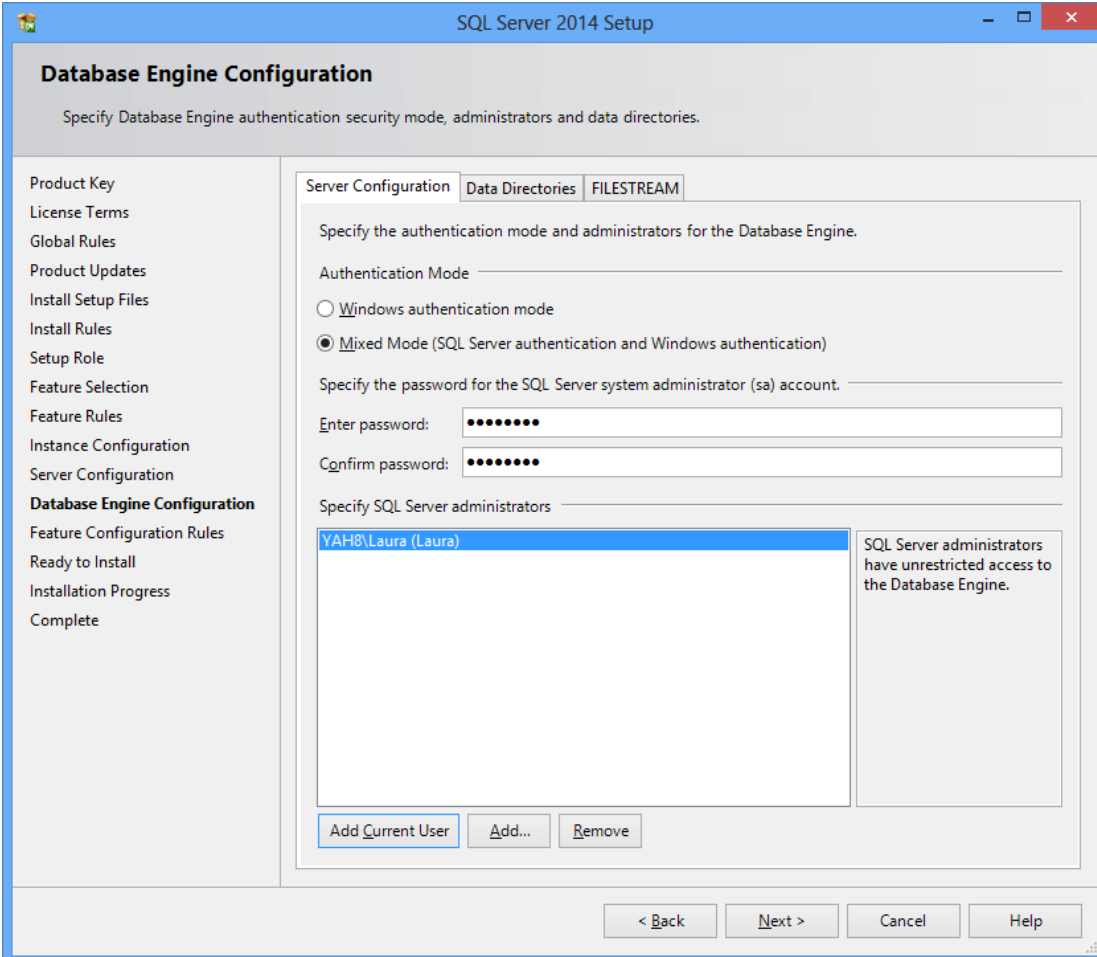
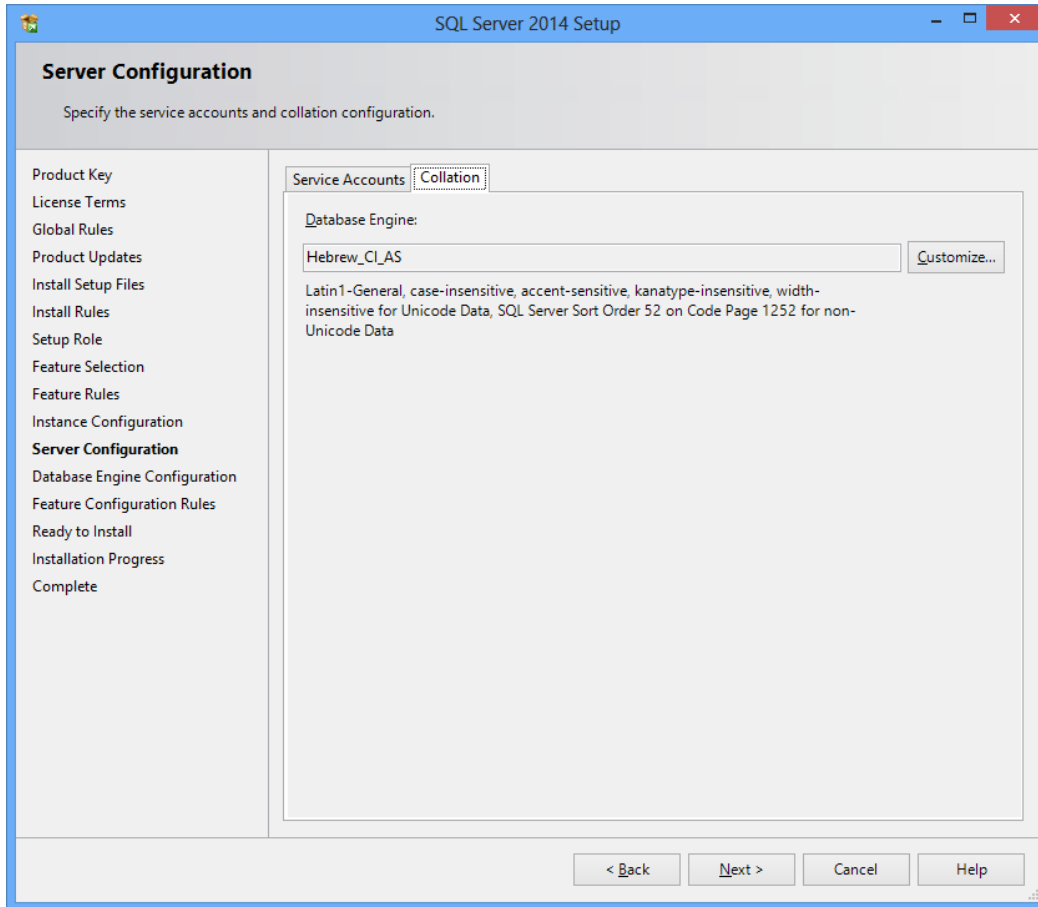
Enter your product key

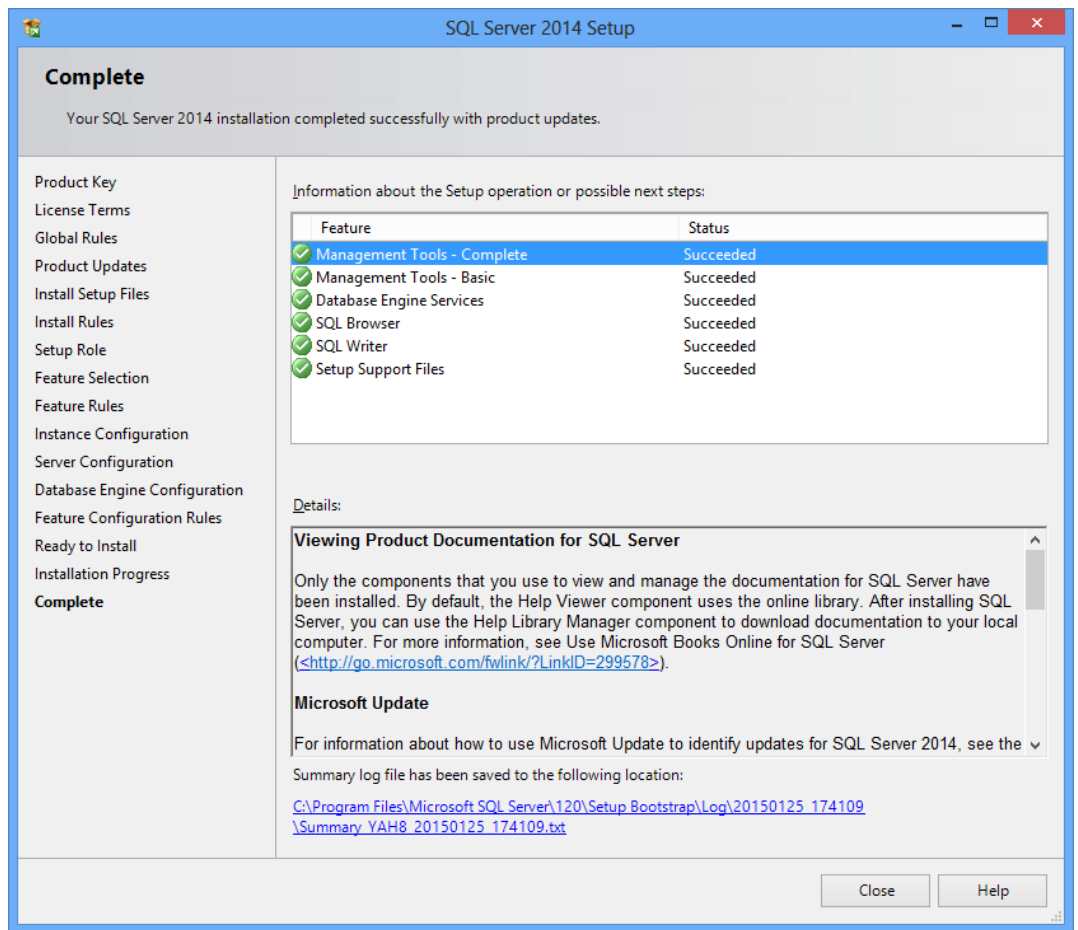
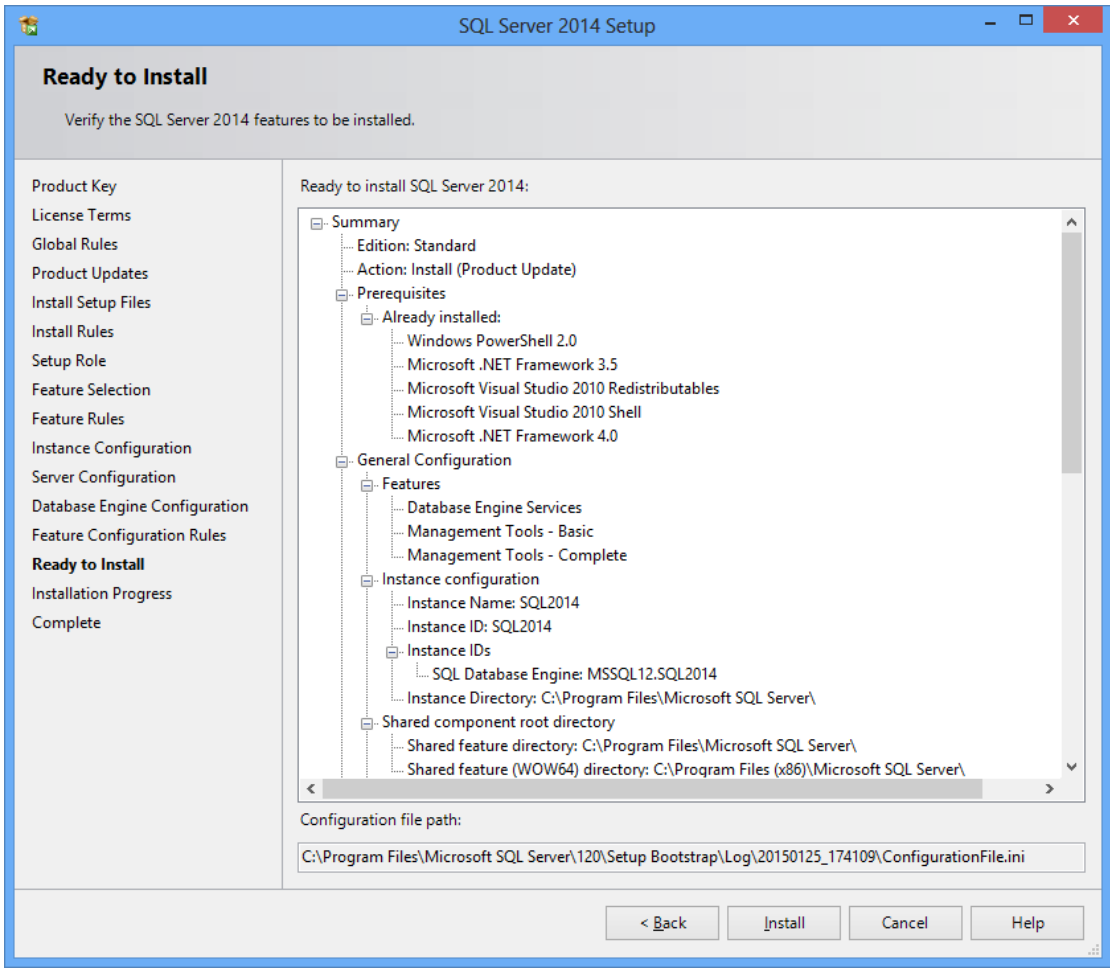












3. Firewall settings for SQL Server remote access:

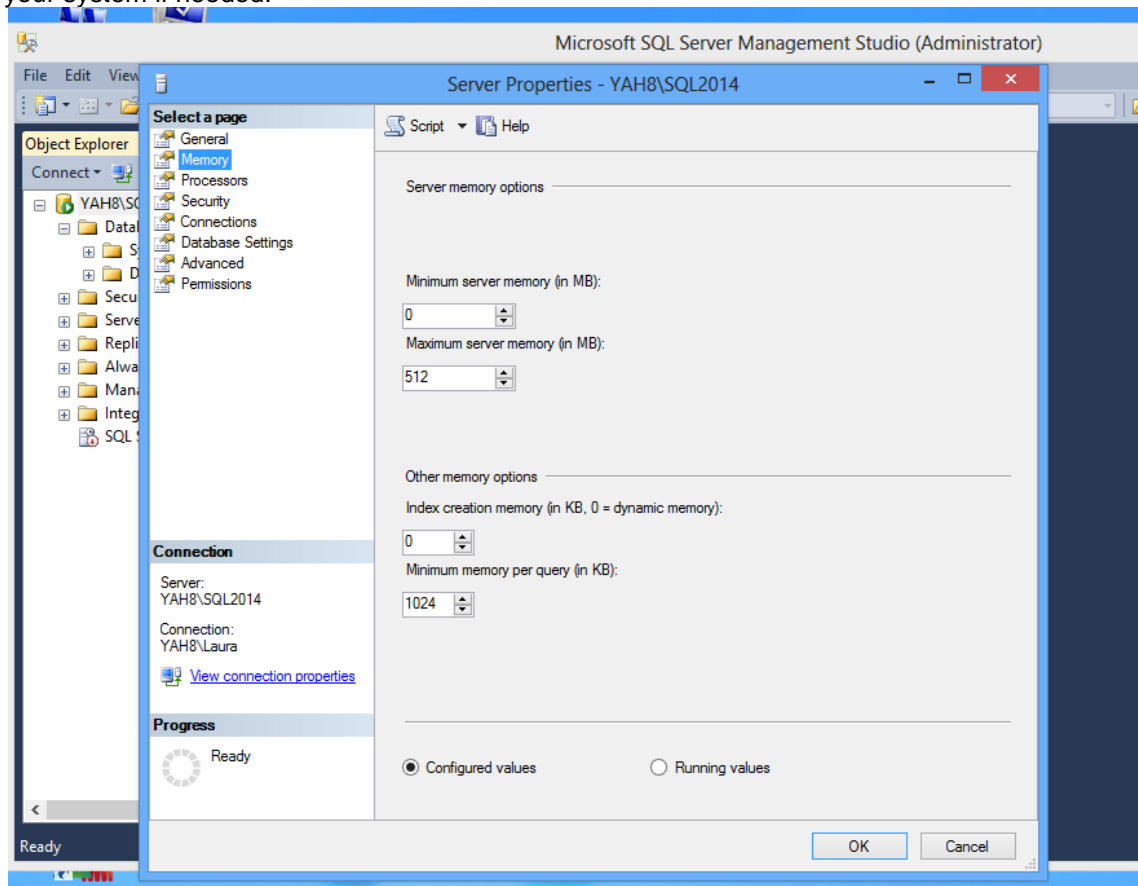
Open SQL Server to the firewall for remote access. For SQL Server 2014, the following ports must be included:

- TCP 1433
- TCP 1434
- UDP 1434

Refer to “How to: Configure a Windows Firewall for Database Engine Access” at the following link: <http://msdn.microsoft.com/en-us/library/ms175043.aspx>

4. Memory settings of the SQL Server:

Set the maximum server memory (in MB) to a value that is less than the memory installed on the PC. Use task manager to see the amount of available memory on your system when fully loaded. **There should always be at least 10 to 20 Percent (%) free physical memory available by average.** If there is not found to be enough memory available, then lower Maximum Server Memory assigned to SQL Server or add more memory to the system (see sample picture below). Memory use depends on the size of the data used and is at every customer different and ranges from a few MB's to many GB's. For **average users a setting from 128MB until 512MB should suffice**, Never have your PC use more than 90% averagely of its physical memory for this will cause the system to behave slow and less stable. Consult with experienced people for tuning your system if needed.



5. Setting server proxy account:

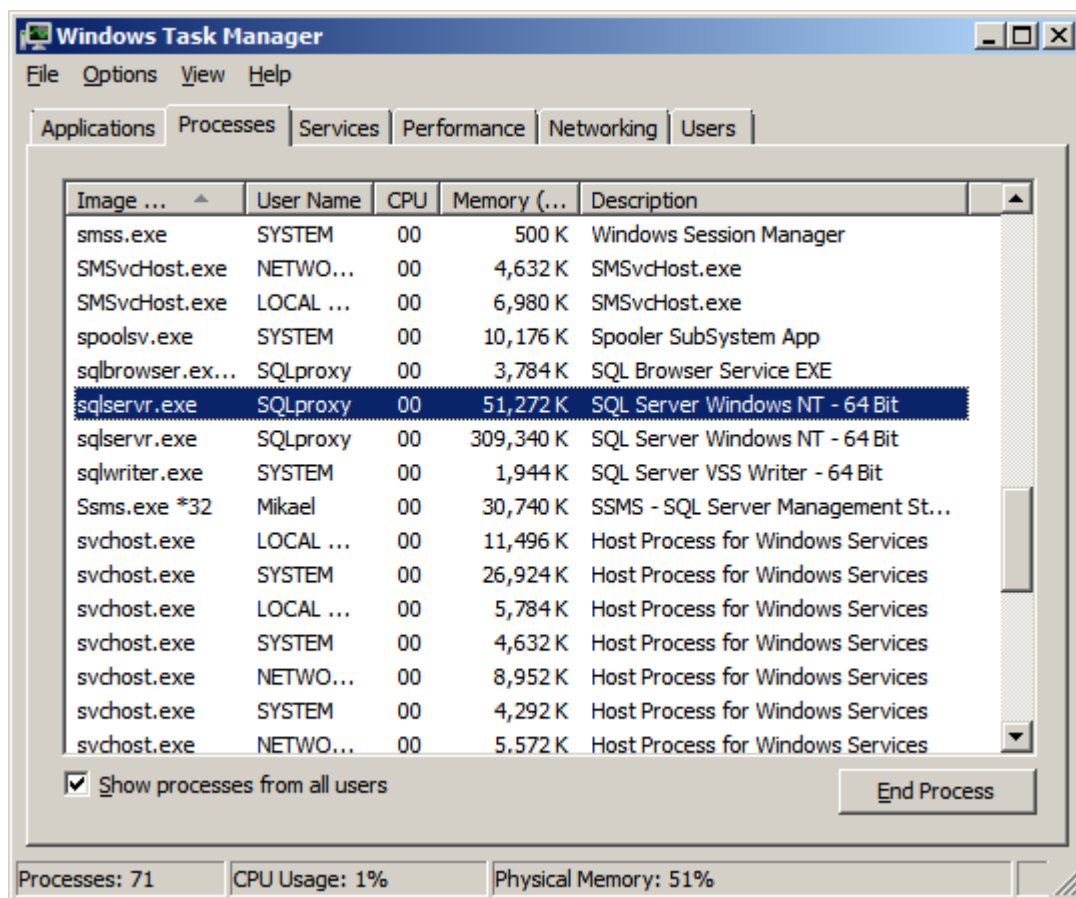
When running Contiki Client on a different PC from the one where SQL Server is installed (using remote server) the SQL Server proxy must be granted with read rights on the Temp directory (refer to Installing Contiki document for further information)

Bulk insert uses sqlservr.exe and not Contiki5.exe. That is why it is needed to know how to grant 'sqlservr.exe' its proxy (read) rights on Temp directory.

How to find the SQL server proxy: The SQL proxy can be any installed user and is mostly not the same like the user you use to log in.

Notice: opening Management Studio or Contiki as an administrator does not change the SQL server proxy user. For bulk insert the proxy user used by the sqlservr.exe is the one needing read rights to the temporary data file location, that is often not the same like the user name you logged on to and you work with.

Use Task Manager (on the PC were the SQL server is installed) to verify who is running sqlservr.exe:

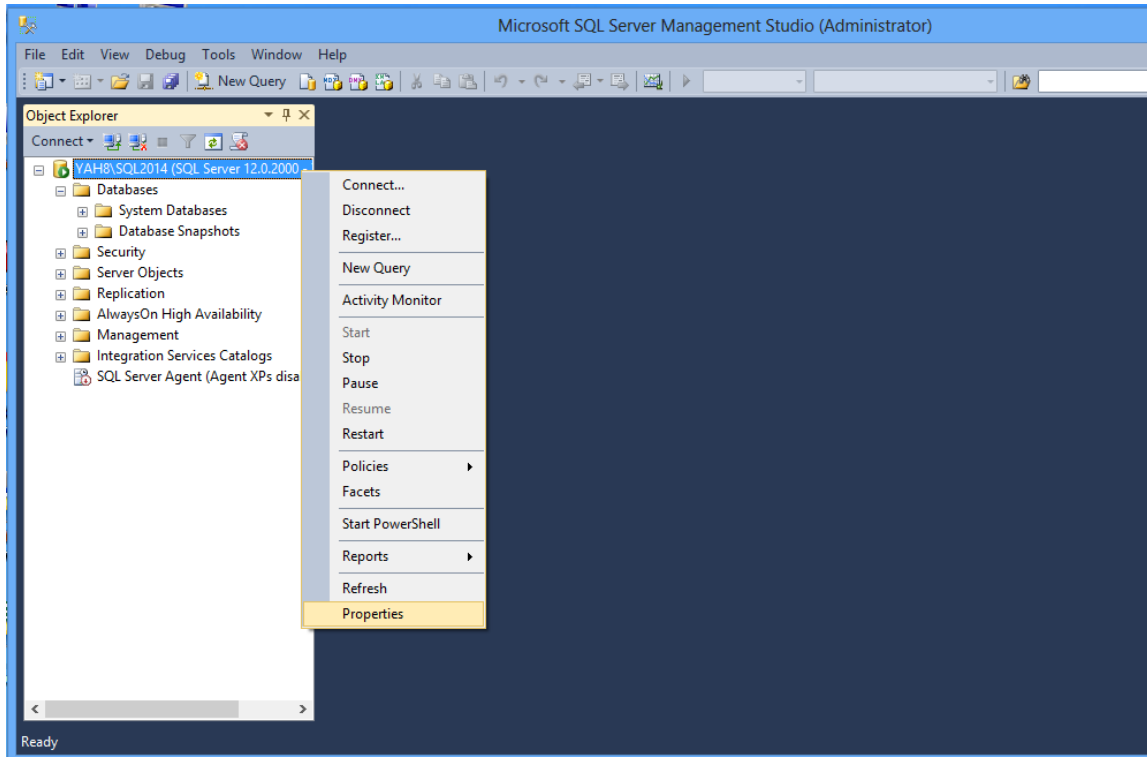


Best practice: When installing the SQL Server it is best practice to create a limited user account and use this instead of the default options for the SQL Server user proxy. Changing it afterward has to be done with caution if there are other dependencies to the SQL Server.

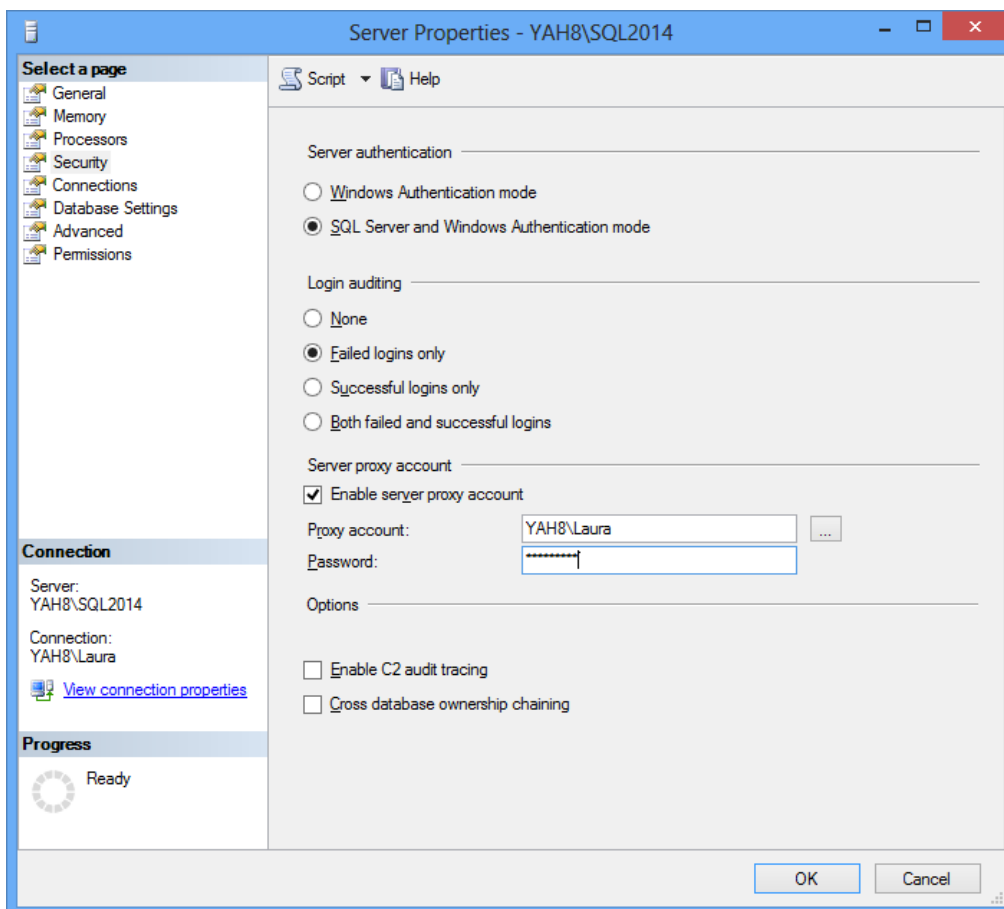
For example, create a new user account "SQL Proxy" at your Domain/Workgroup with limited rights, and use this account for SQL Server proxy account. This will be the account that has to be granted with permissions to read from Temp directory.

Without a manual "Server proxy account" it is common for the "Server proxy account" to default to "local system" or similar accounts that have no default read permissions to shares and mappings even if targeted on that same PC.

In order to set the “Server proxy account”:
Open SQL Server Management Studio and login.
Right click on the Server Name and select “Properties”:



Choose “Security” and set the Server proxy account. Confirm by pressing OK.



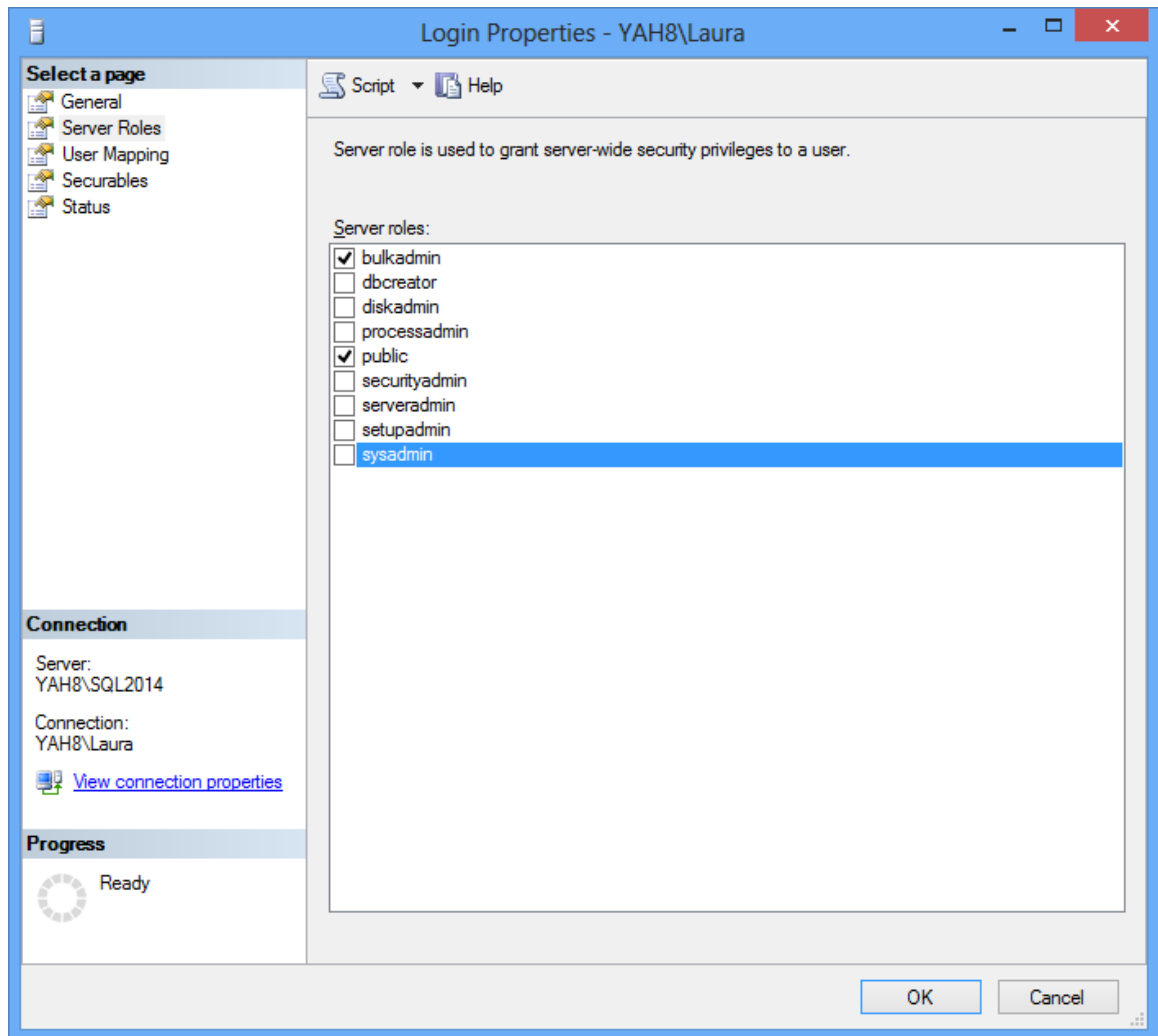
6. Setting SQL Server Logins:

SQL Server Login Minimum rights for Contiki Clients

Server roles: Bulkadmin

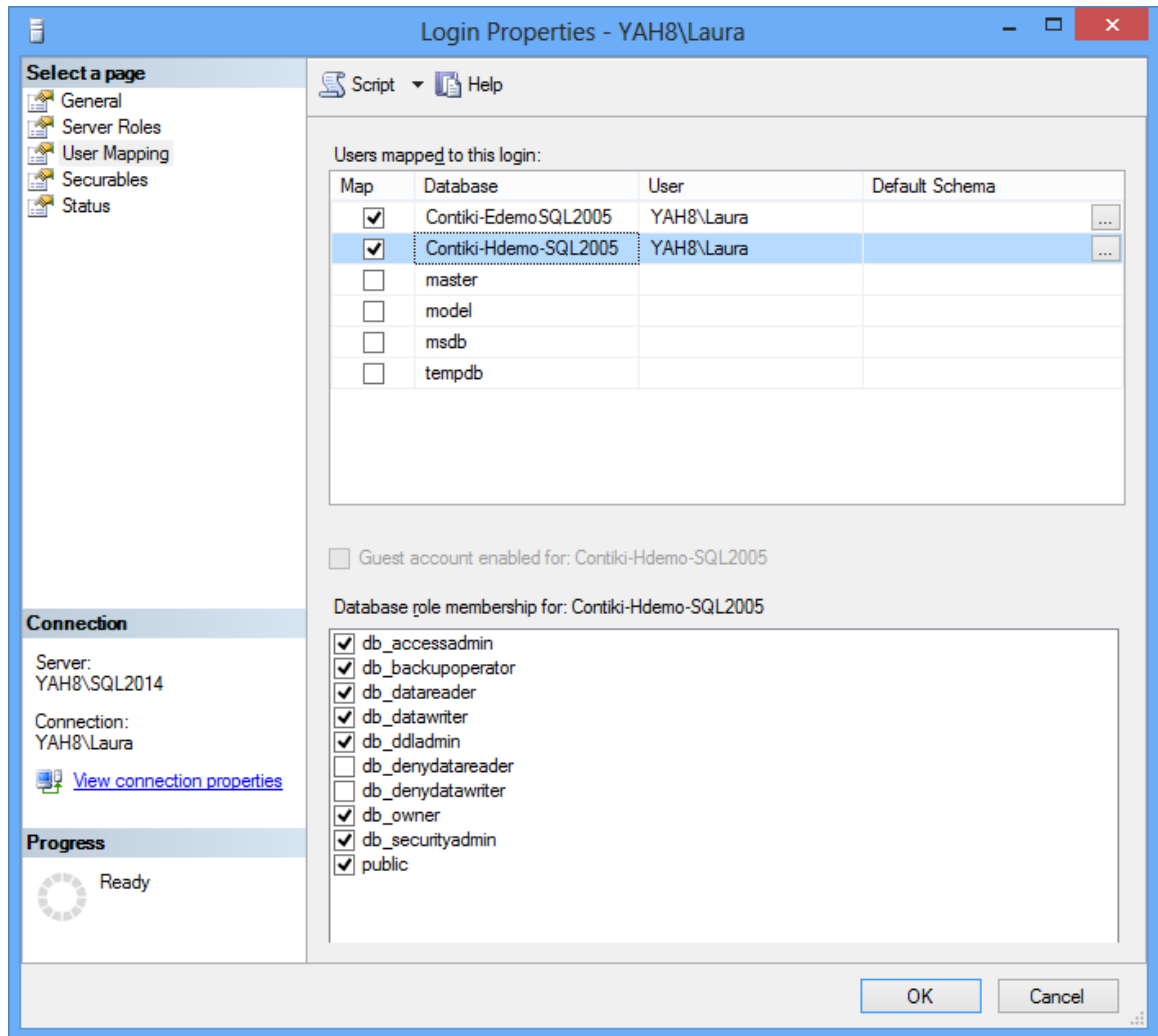
User Mapping: public & dbowner for Contiki's DB's.

To set Login properties, open Microsoft SQL Server Management Studio, open Security => Logins => right click on the desire login => Properties. On Server Roles check the required options. Minimum rights, as shown in the pictures below:

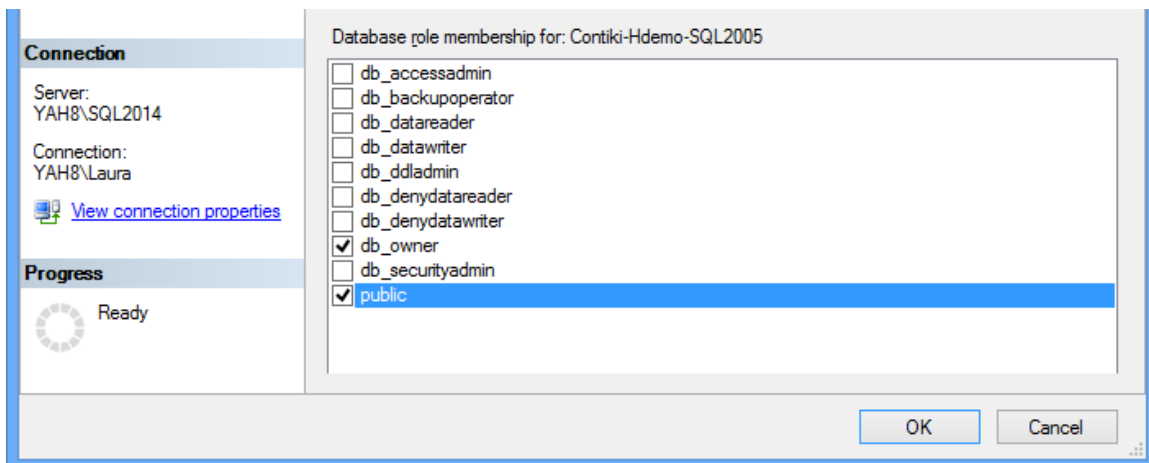


On User Mapping, check Contiki's relevant database in the upper window.

After that, check the required rights in the lower window. Recommended rights for full DB control as shown in next picture:



Minimum rights requirement as shown below:



Document Version: 03/2015