

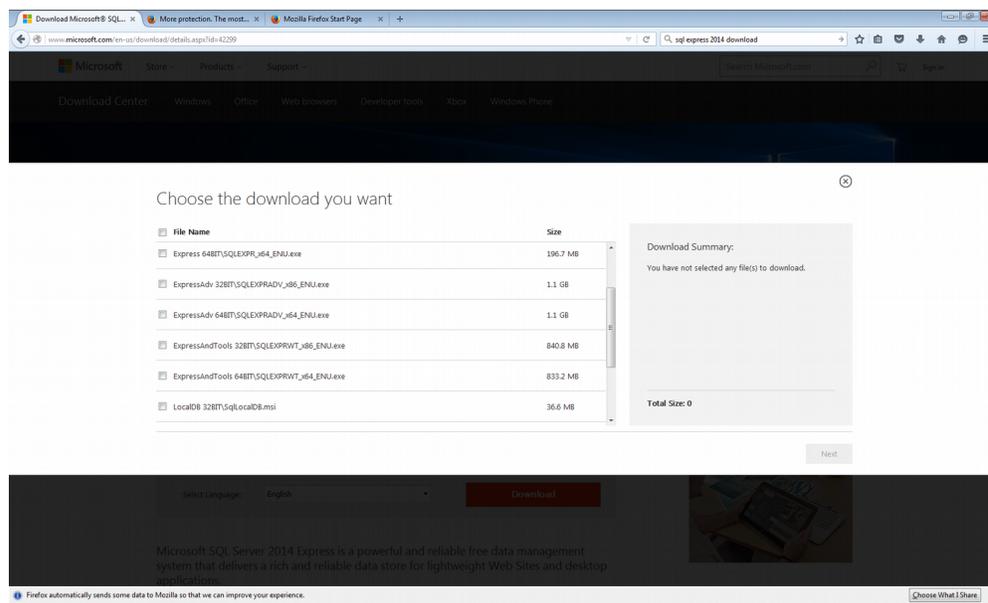
If you're using Quantum Plus on multiple computers, you will need a database server to handle the data. Quantum Plus is set up to work with Microsoft's SQL Server software. If your site already has a SQL Server database server available, that can be used. Every site has a different network and security setup, so you might need to consult your IT department for details, but this document describes the basic process of installing and configuring SQL Server for use with Quantum Plus.

The screen shots in this document were created on a computer running Windows 7 with SQL Server 2014. Other versions of Windows or SQL Server might look a little different, but the functionality and various items referenced on the screen should be the same.

Installing SQL Server

Microsoft offers various versions of SQL Server. One of these versions – SQL Server Express – is free, and is adequate for use with Quantum Plus. It can be downloaded from the Microsoft web site. Microsoft does not make it easy to find anything on their site, and is constantly moving things around. It's usually easier to use your browser's search engine to look for "SQL express download", or something similar.

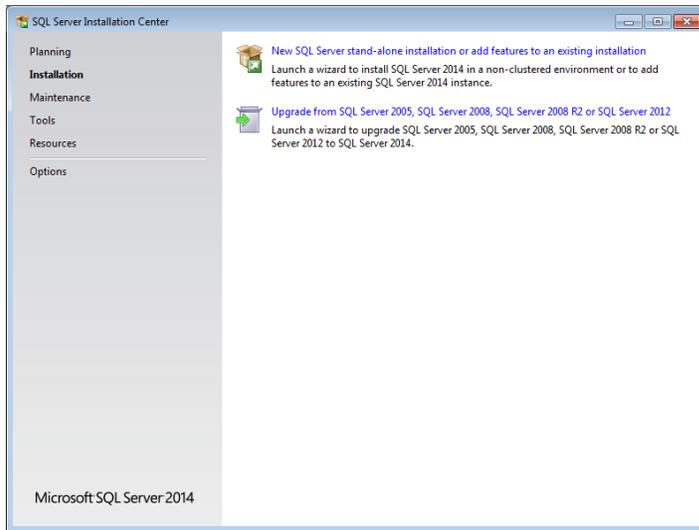
Eventually you will get to a page that looks something like:



Determining which file to download is almost as hard as finding the file list in the first place. You want to select a file that has "And Tools" in its name, since that will include the management tools needed to configure the server later. For versions up to 2014, you can choose 32-bit or 64-bit versions based on the computer hardware you have, but the

32-bit version will do the job. Later versions are only available as 64-bit applications. Select and download the appropriate file.

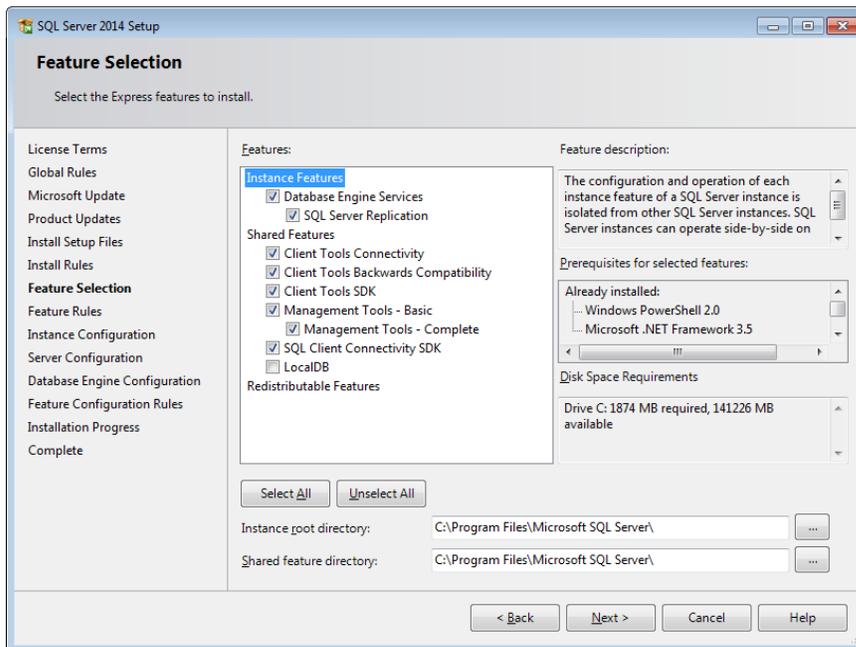
Run the downloaded file. It usually takes a minute or so, but eventually you get to a screen like:



Select “New SQL Server stand-alone installation or add features to an existing installation”.

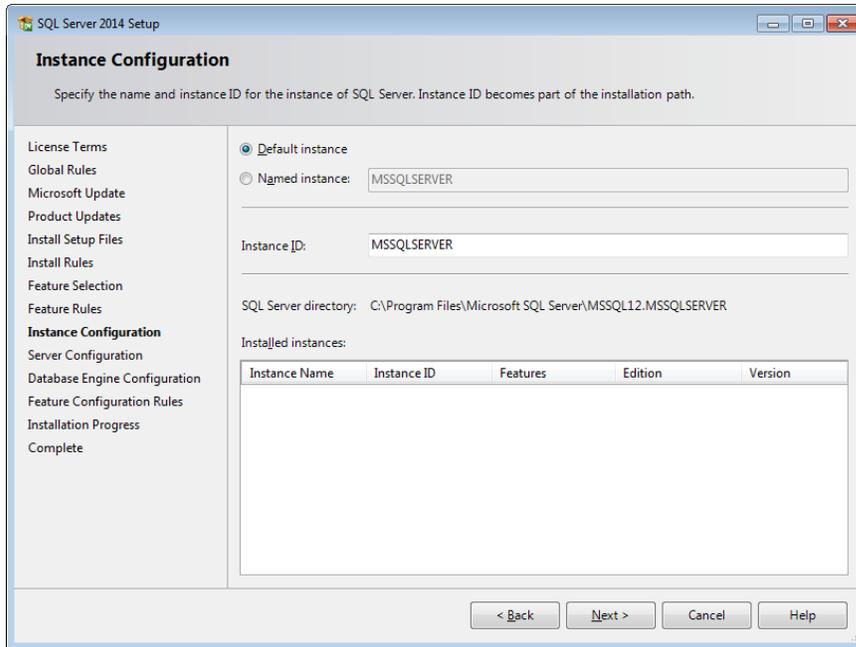
Accept the License Terms and check the “Use Microsoft Update to check for updates” on the next two screens.

You will next come to the Feature Selection screen:

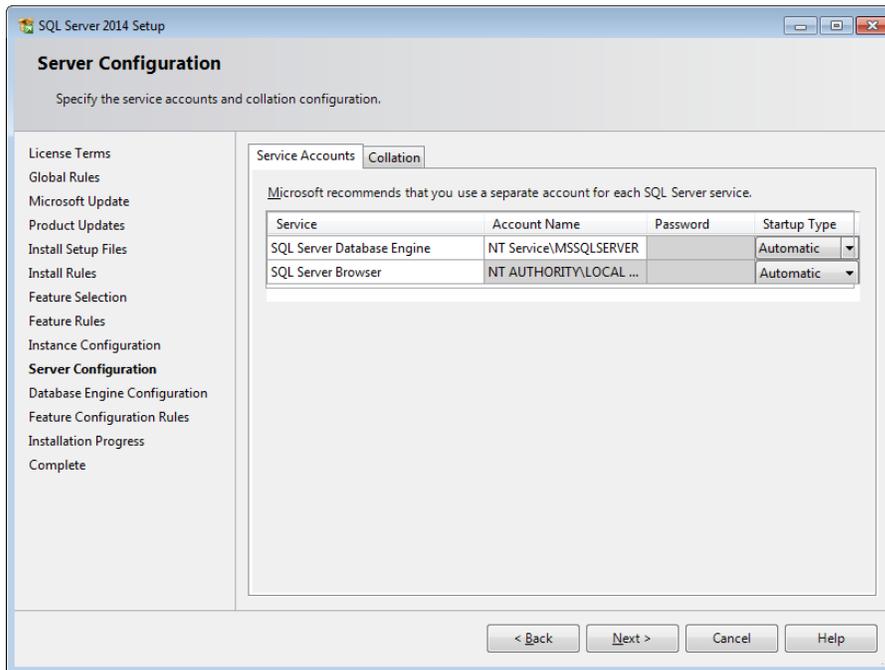


Make sure that all of the boxes except “LocalDB” are checked, then select Next.

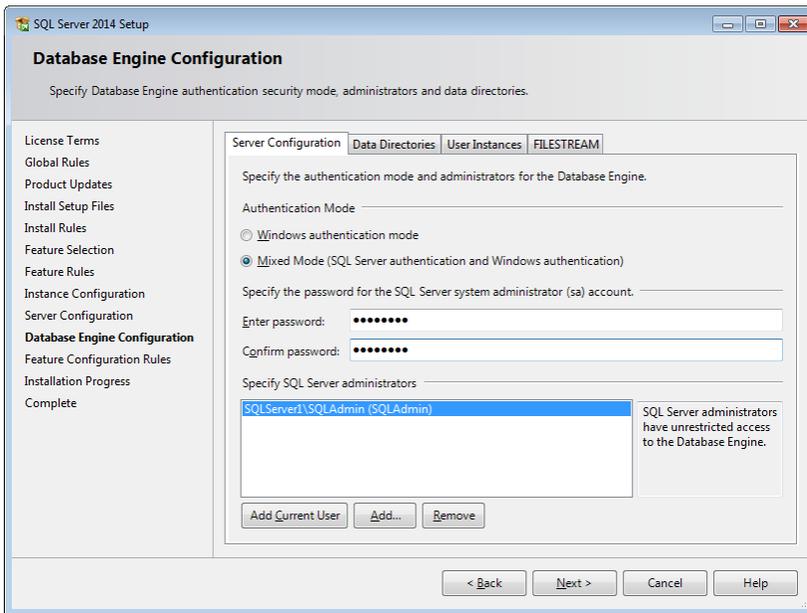
This brings up the Instance Configuration screen. Select the “Default instance” instead of “Named instance”, then select Next.



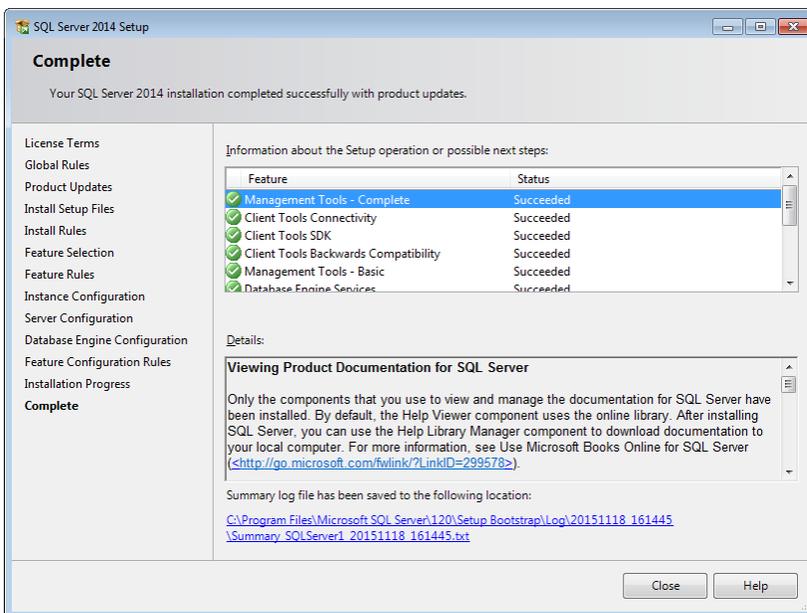
This brings up the Server Configuration screen. Change the SQL Server Browser Startup Type to “Automatic”, then select Next.



This gets us to the Database Engine Configuration screen. Change the Authentication Mode from Windows authentication to Mixed Mode. Enter a password for the SQL Server administrator, then select Next. You should record your password; if you forget it, it is very difficult to recover it.



The installation process should start. It will take several minutes, but you should eventually see the **Complete** screen, with a status of *Succeeded* for all features.

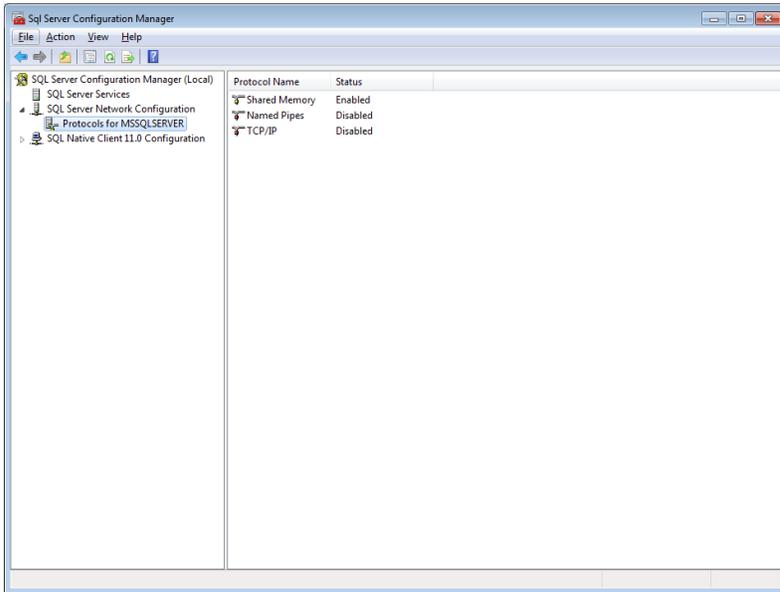


Select Close to close the installer.

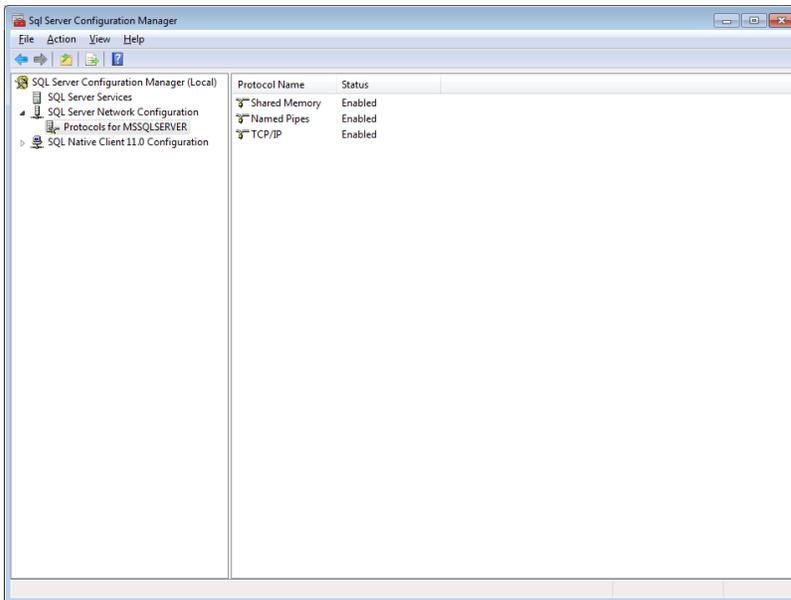
Configuring the server

Start the server configuration program by clicking on the Windows Start button, then navigating to All Programs → Microsoft SQL Server 2014 → Configuration Tools → SQL Server 2014 Configuration. If you're using a different version, substitute the appropriate year.

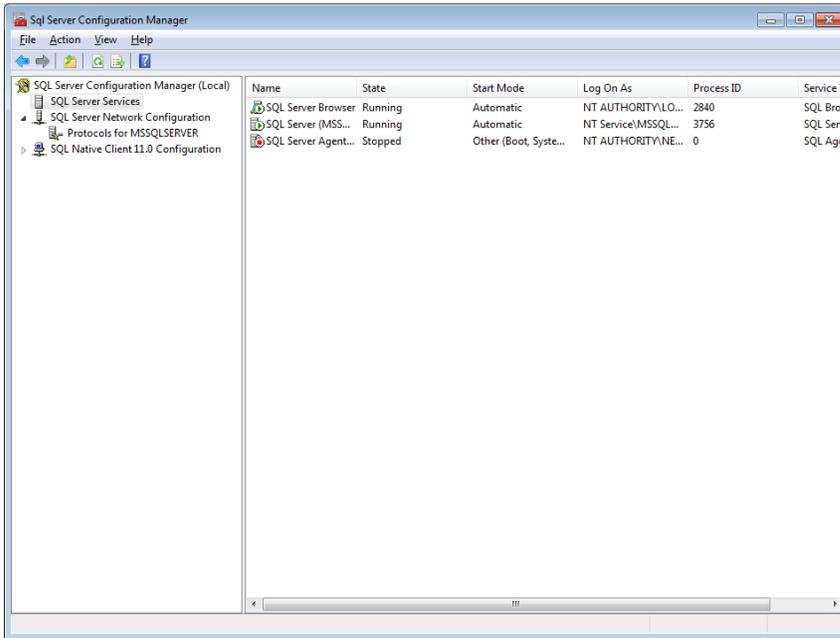
The Configuration Manager screen should appear. Click on the arrow next to SQL Server Network Configuration, then on Protocols for MSSQLSERVER:



Right click on the Named Pipes line and select the option to enable it. Repeat for the TCP/IP line:

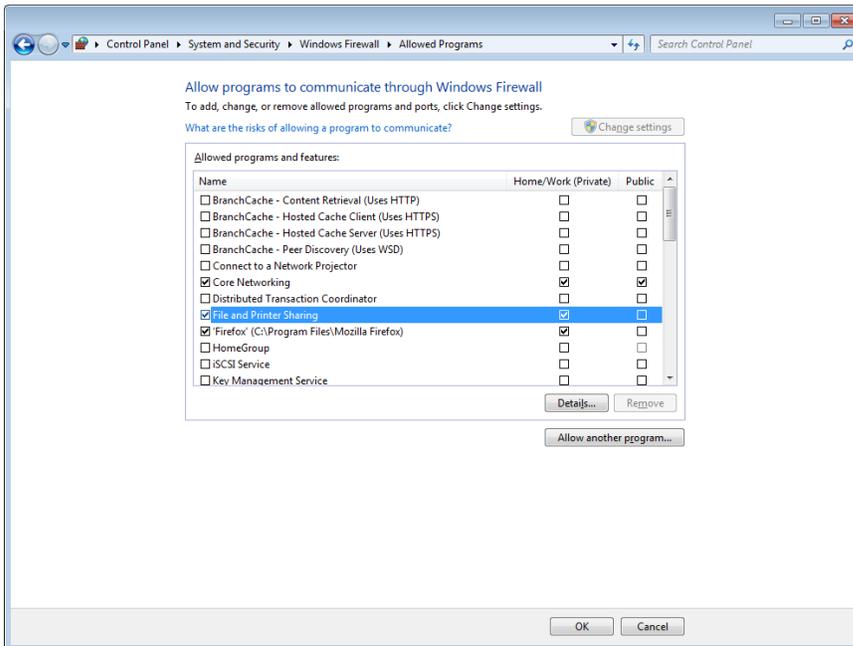


Select SQL Server Services. Right click on SQL Server and select the option to restart the server:



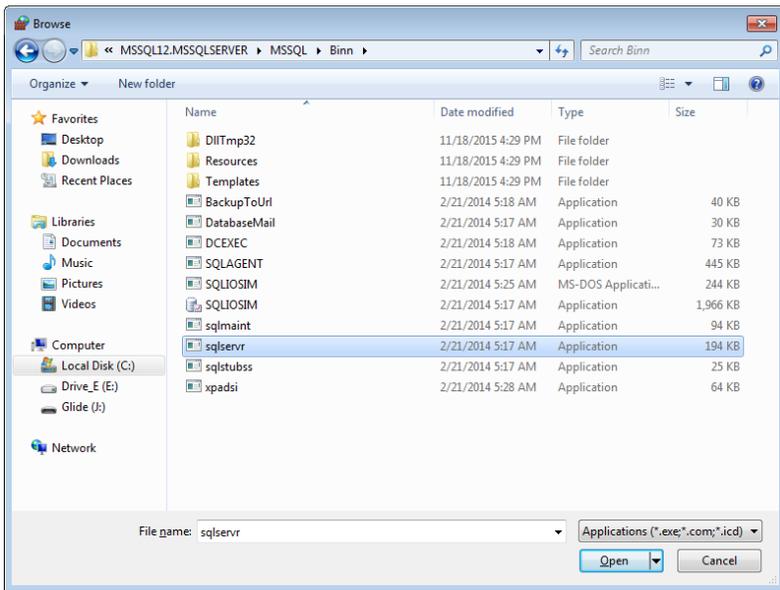
Close the configuration manager.

Click on the Start button, then select Control Panel. Select System and Security → Windows Firewall → Allowed Programs:

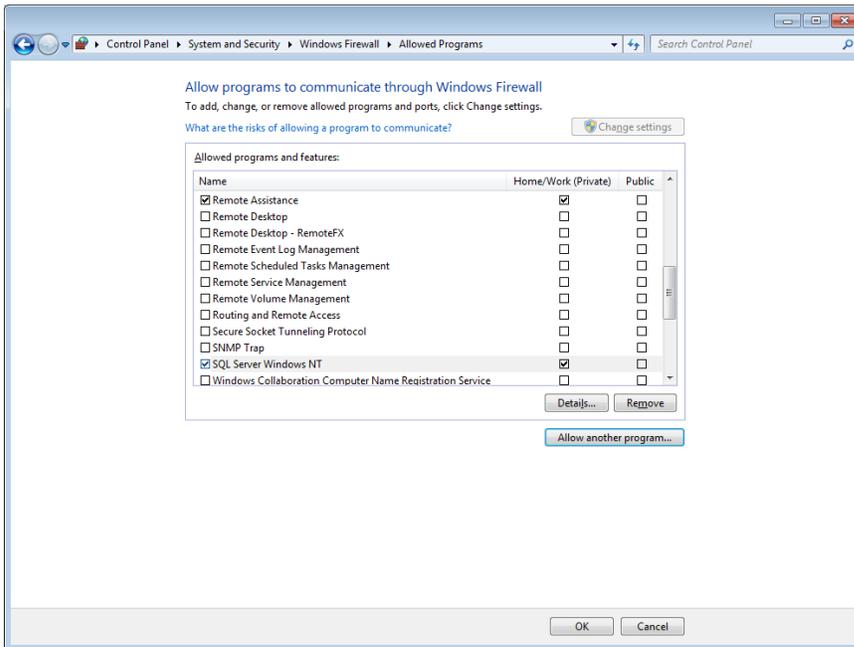


Make sure the “File and Printer Sharing” box is checked.

Select the “Allow another program ...” button. Navigate to the SQL Server program directory. It should be under Program Files → Microsoft SQL Server. Select the sqlservr.exe file.



You should now have SQL Server in the list of allowed programs:



Close Control Panel.

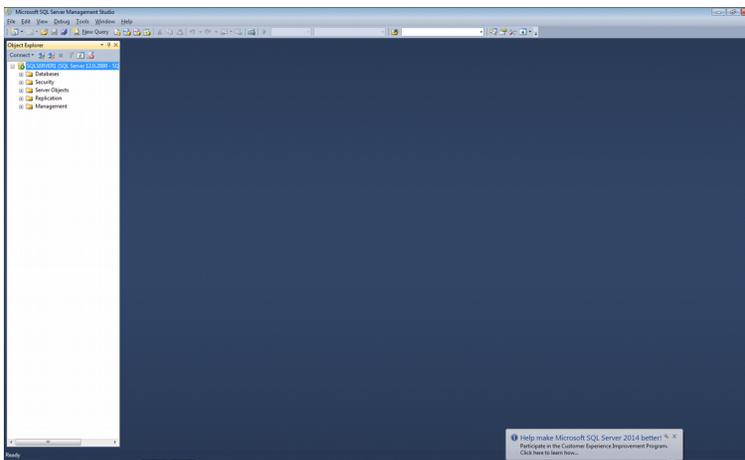
Creating the Quantum Plus Databases

We will now create the databases that Quantum Plus will use, and set up login information for Quantum Plus to be able to access them.

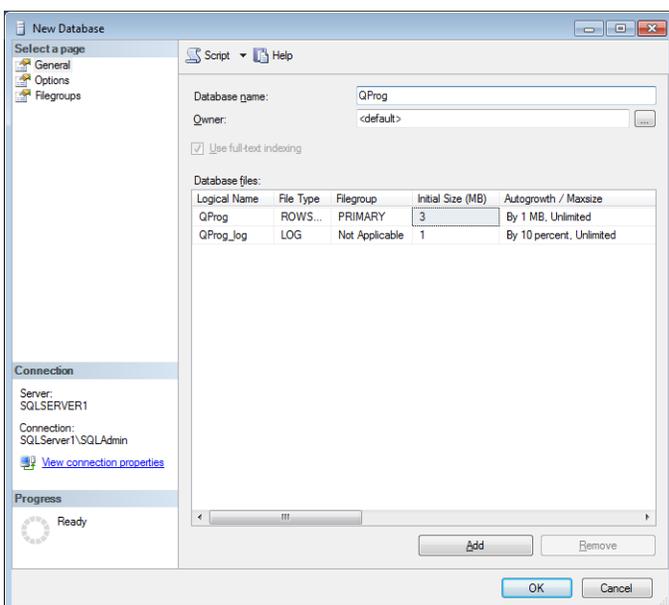
Start the SQL Server Management Studio from Start → All Programs → Microsoft SQL Server:



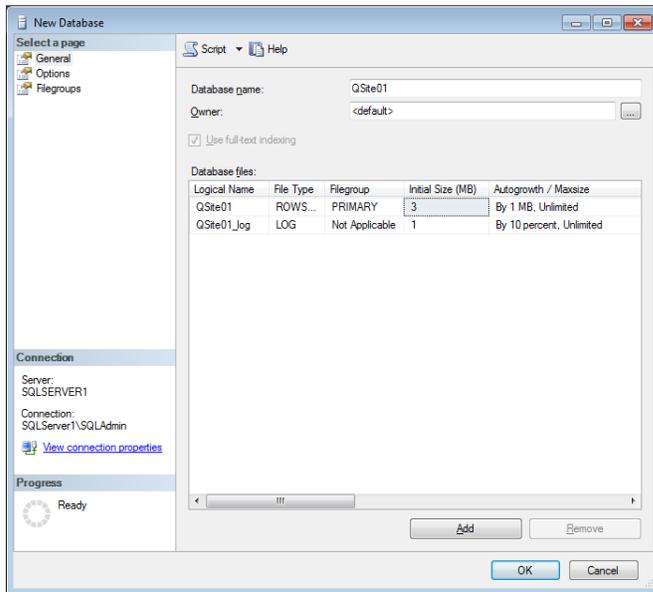
Click on the Connect button. If you receive a message saying that access is denied, change the Authentication method to SQL Server, enter sa for the User name and supply the password you set up while installing SQL Server. You should next get the Object Explorer screen:



Right click on Databases, and select New Database. On the New Database screen, enter QProg for Database name, then select Ok.



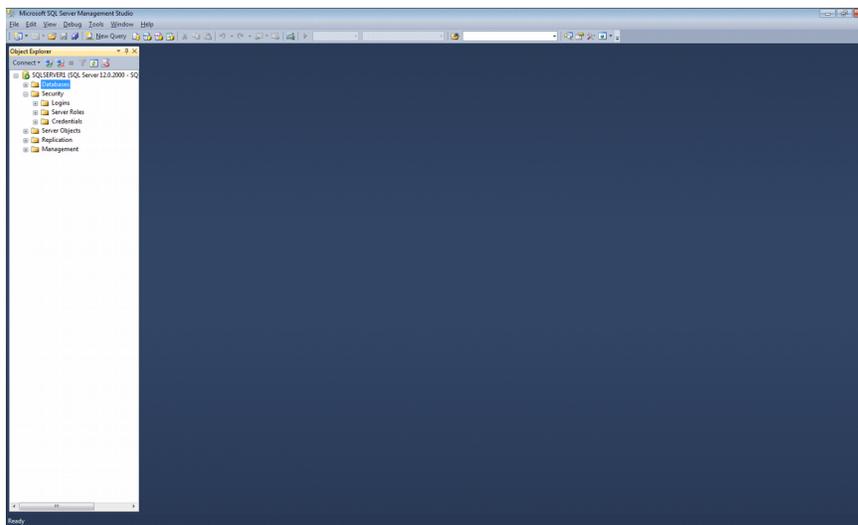
Repeat the process to create a second database named QSite01 (that's Zero One):



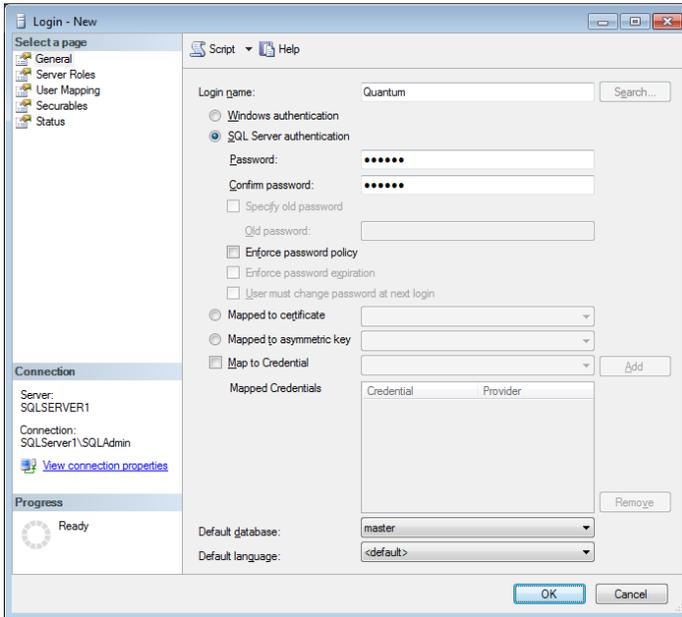
Creating Server Logins

SQL Server has two methods for granting access to its databases: Windows Authentication and SQL Server Authentication. With Windows Authentication, SQL Server uses the information used for logging into your Windows network. Specific Windows user accounts can be granted access to the database server. With SQL Server Authentication, the server itself maintains a list of users and their ability to access databases. The method used at your site is usually determined by your IT department. Quantum Plus can use either method. We'll show how to create both types of logins.

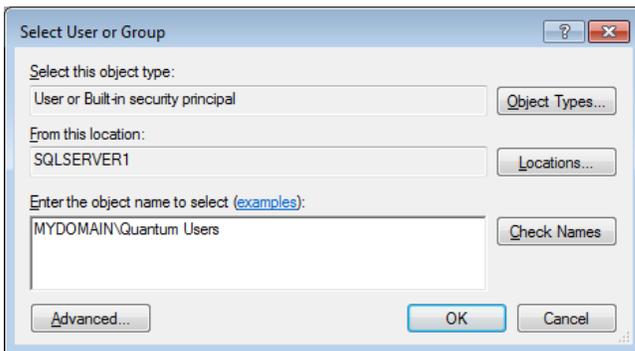
Click on the + sign beside Security.



To create a login with SQL Server Authentication, right click on Logins and select New Login. On the Login – New screen, enter “Quantum” for the Login name. Select SQL Server authentication and supply a password:



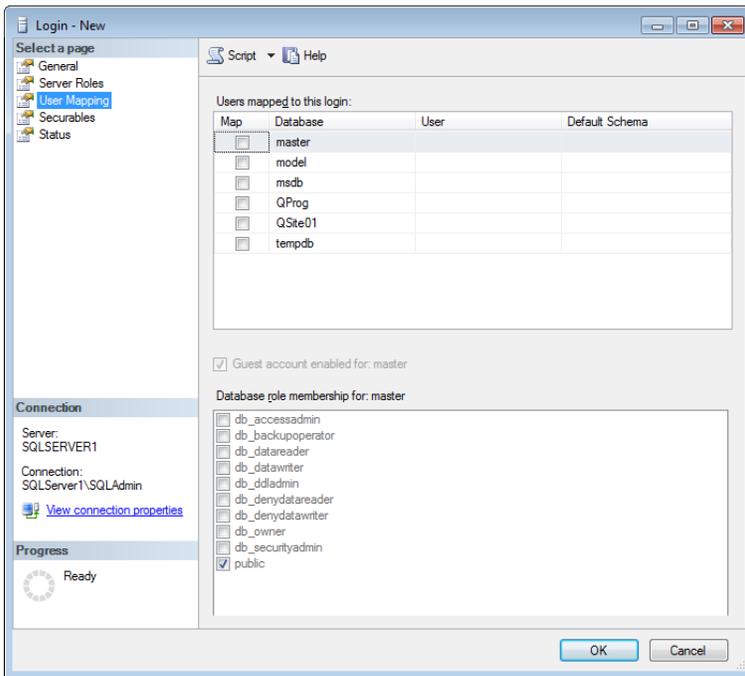
To create a login with Windows Authentication, right click on Logins and select New Login. On the Login – New screen, select Windows Authentication, then click on the Search button. The Select User or Group screen lets you select individual Windows users or User groups to have login rights to the server:



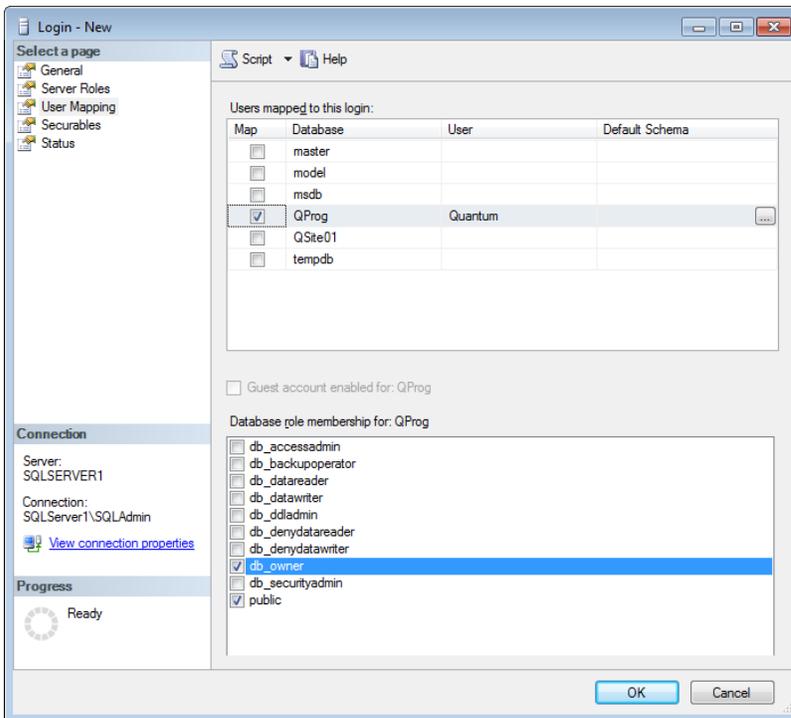
You can create an individual login for each Windows user who will be using Quantum Plus, or create a login for a Windows User Group (such as “Quantum Users”) and add the individual Windows Users to the group. Granting access to a group has the advantage that you don’t have to run the Management Studio to add a new login each time a new Windows User is added to the list of people using Quantum Plus; just make them members of the Quantum Users (or whatever name you chose) User Group.

Giving the login access to the databases

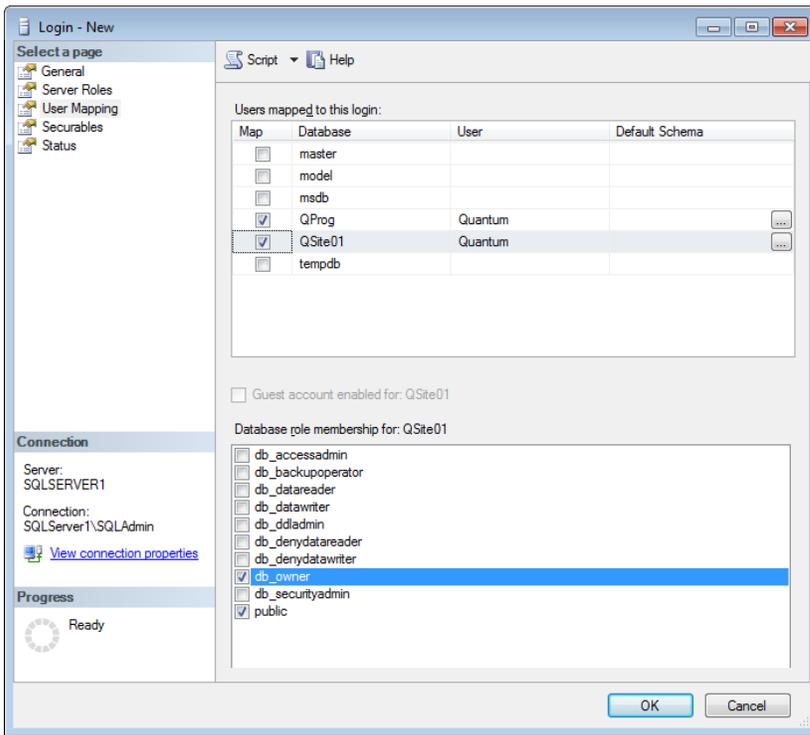
For either type of login, select User Mapping from the menu:



Check the box next to QProg in the database list, then check the db_owner box in the Database role membership box:

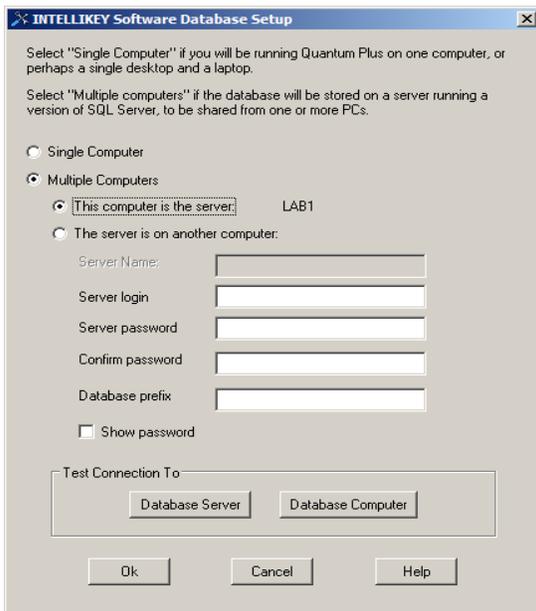


Repeat for the QSite01 database:



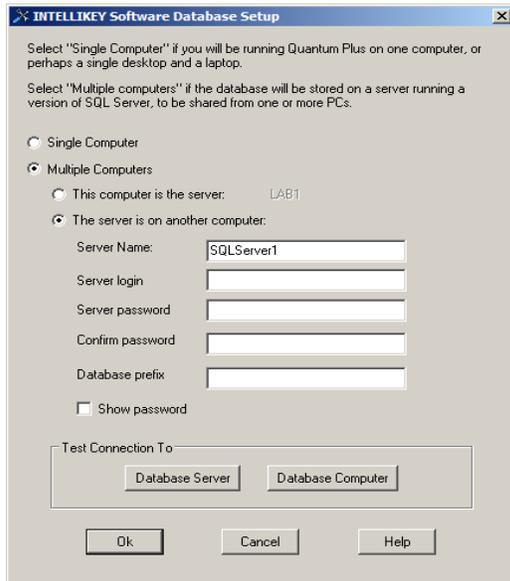
Configuring Quantum Plus

The first time you run Quantum Plus, it will ask you about your database setup. Select “Multiple Computers”. If you have installed Quantum Plus on the same computer that is running SQL Server, select the option that says, “This computer is the server”:

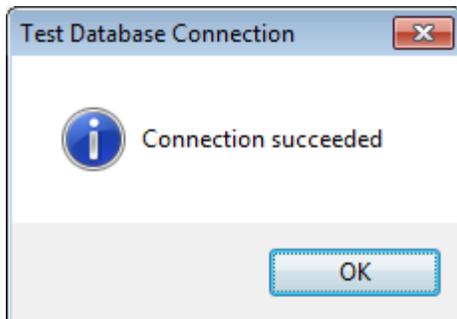


If you’re setting up additional copies of Quantum Plus on other computers, select “The server is on another computer” and enter the name of the SQL Server computer for the “Server Name”.

If you're using Windows Authentication for the server, leave the "Server login" and password entries blank. If using SQL Server Authentication, enter "Quantum" for the Server Login and supply the password you selected in the Management Studio new login setup:



Click the "Test Connection to ... Database Server" button. If everything is set up correctly, you should see a confirmation message:



Troubleshooting

Every site has a different network and security setup, so it's difficult say exactly what might cause the connection to fail. The most common causes are not configuring SQL Server to use the Named Pipe and TCP/IP protocols, not having the SQL Browser service running, or not configuring Windows firewall to let SQL Server communicate through the firewall.

Another common cause is that the network isn't configured correctly to recognize the name of the SQL Server computer. To work around this, you can enter the IP address of the server computer (192.168.3.55, for example) for the Server Name.