

Antigen Plus SQL Server Installation

If you are Upgrading from a Version Earlier than AP7.5

Please email your current database (AP6.mdb or AP7.mdb) to customerservice@antigenplus.com. We will convert those data to the new version and return the new database for you to incorporate when you install the program.

Install .NET Framework 4.5

.NET Framework 4.5 is required. The latest version is actually 4.5.1, and this is the version we recommend. The general download page is:

[http://msdn.microsoft.com/en-us/library/5a4x27ek\(v=vs.110\).aspx](http://msdn.microsoft.com/en-us/library/5a4x27ek(v=vs.110).aspx)

This page links to an offline installer which can be placed on CD or USB key and installed without an internet connection.

Select a database server

You need to select a computer to be the database server for Antigen Plus. This computer can be (but does not have to be) one of the same computers that will run Antigen Plus. This computer needs to be on the same network (and for simplicity the same Windows domain) as the computers that will run Antigen Plus.

A database server is a potential single point of failure, so it is important that you take measures to ensure that your data is protected from equipment failure and user error. At a minimum, this means automated off-site backups. Because databases are in constant use, they cannot be backed up adequately by filesystem backups — you must also set up database backups that will allow you to restore the database to a consistent state. (Antigen Plus contains commands to manually backup and restore the Antigen Plus local database, but these tools are not a substitute for automated offsite backups.) Microsoft has an article that describes how to automate backups of SQL Server Express at:

<http://support.microsoft.com/kb/2019698>

In this guide, we have selected a computer named “LABSERVER” to be our database server. When you see that name below, substitute the name of your chosen database server.

Download SQL Server

You can download SQL Server 2012 Express for free from Microsoft’s website at:

<http://www.microsoft.com/en-us/download/details.aspx?id=29062>

There are many versions of SQL Server available there. We recommend the “WT” versions (with tools) for either x86 or x64, as these include the management tools needed to create, backup and restore databases. If you have a 64-bit version of Windows, you should download the file ENU\x64\SQLEXPRT_x64_ENU.exe.

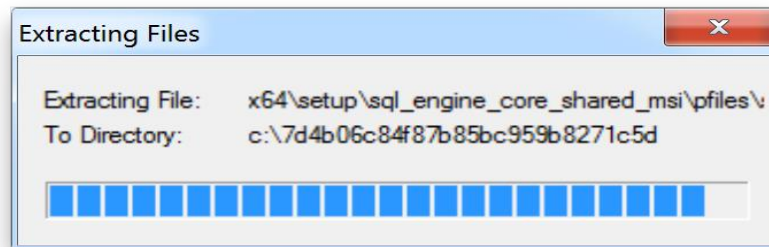
For the 32-bit version of Windows, download ENU\x86\SQLEXPRT_x86_ENU.exe. These files do not require internet access once they are downloaded, so you can download them on one computer and transfer them by CD or USB key to a machine without internet access.

Install SQL Server

There are many options available when installing SQL Server. This guide will show you the simplest options to create a basic Antigen Plus database server.

In most cases a restart will be required after the install. Schedule the install for a time when you will be able to restart the computer.

Run the SQL Server Express installer. First it will extract files to your disk:



Then it will request permission to install software on your computer.

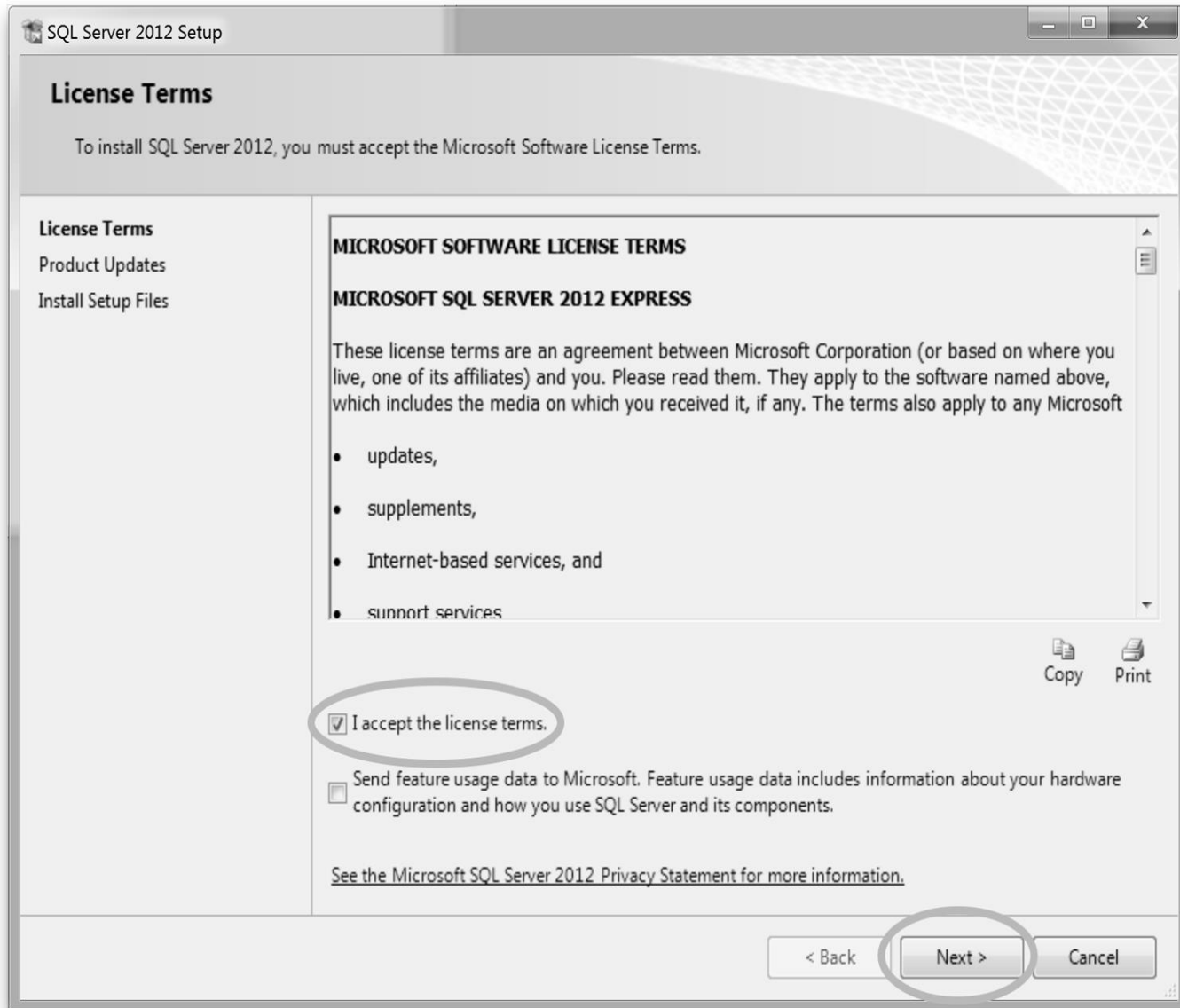


Then the
SQL
Server

Installation Center will open. This tool handles both initial installation and later upgrades to SQL Server. Click on the “New SQL Server stand-alone installation” option.

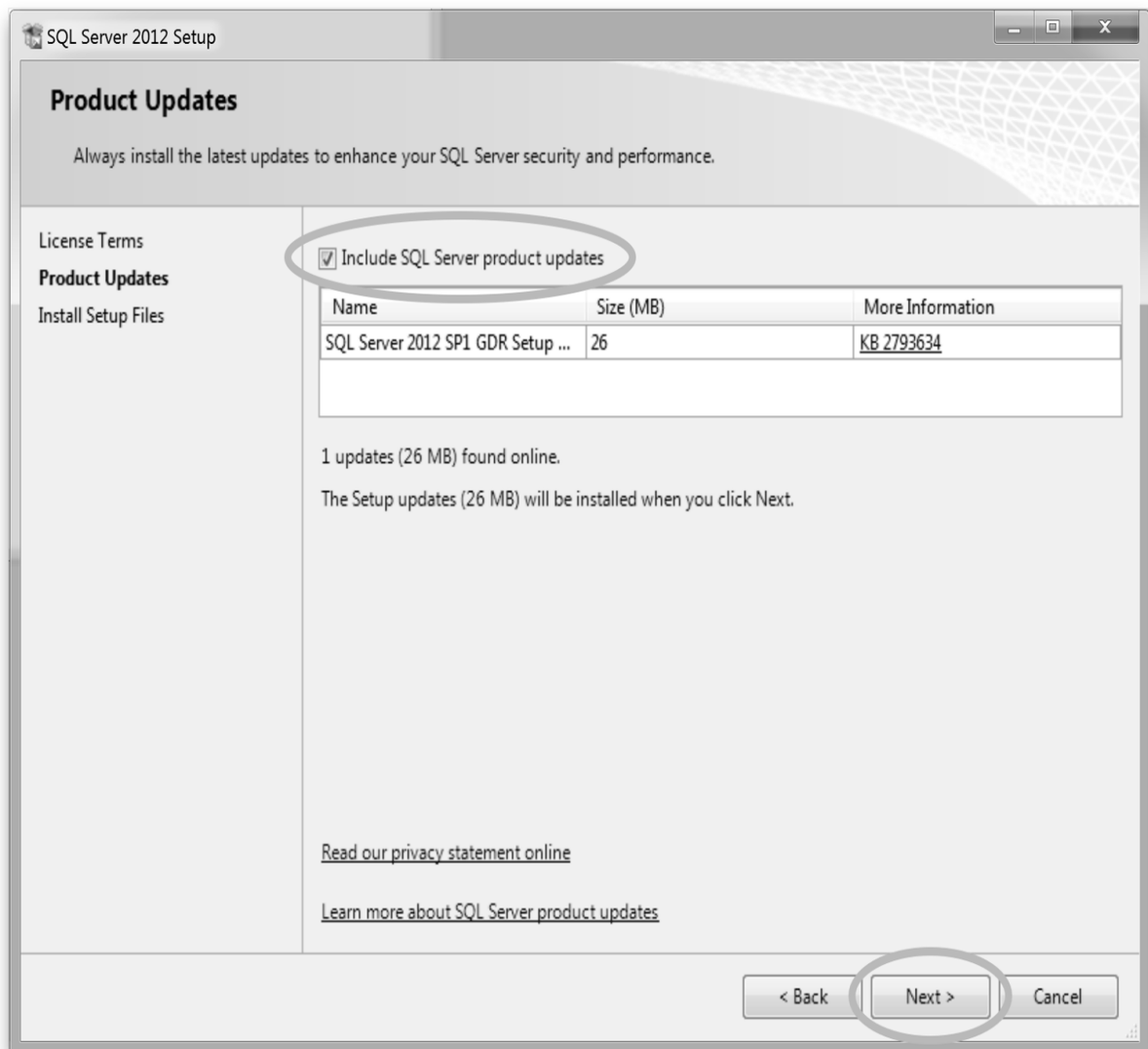


Several screens will flash by, followed by the License Terms:

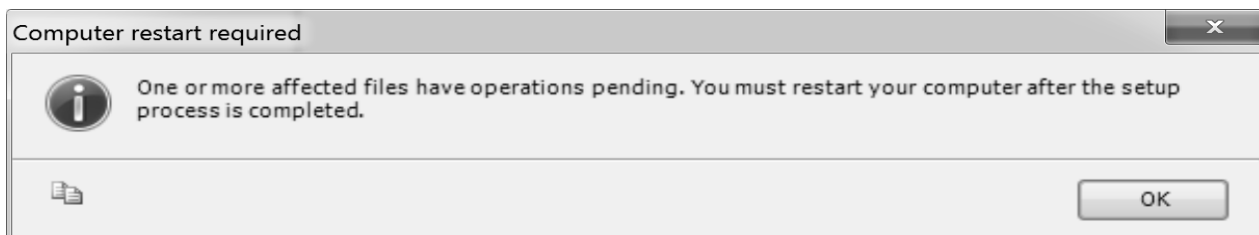


Accept the license terms and click Next.

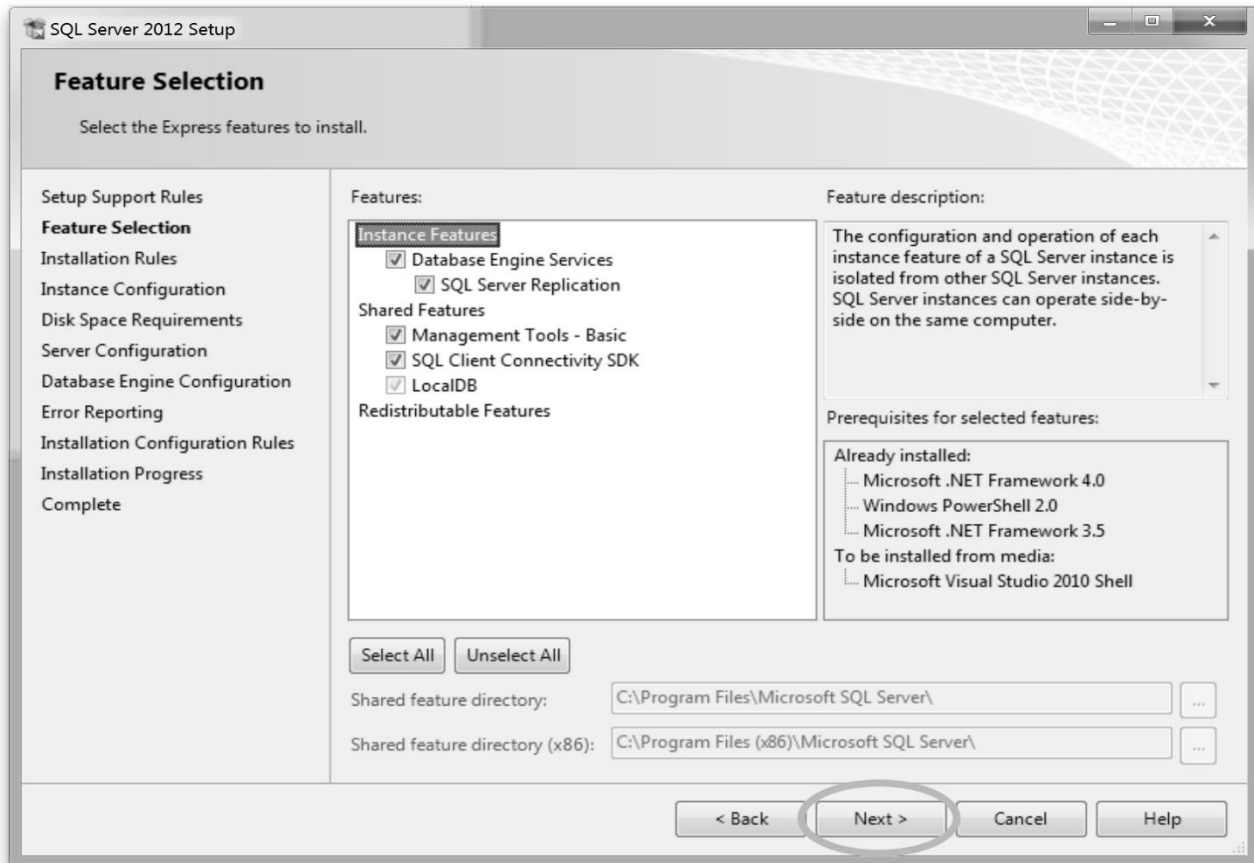
If you have internet access, the installer will recommend downloading and installing the latest updates. We recommend that you include these updates.



The installer will now download updates and extract the setup files. Once this is done, you may get a notice that a restart will be required. Click OK.

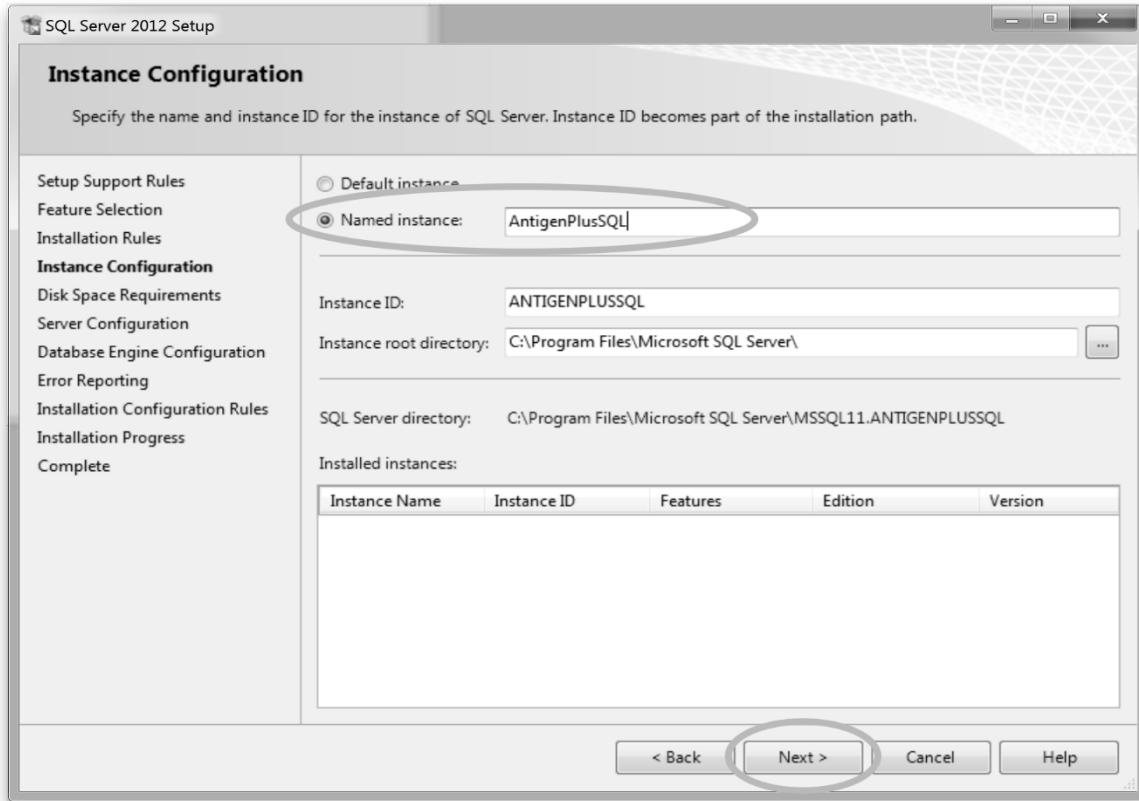


Next comes the Feature Selection dialog. The default is to install all features, which is what we recommend.



Click Next to get to the Instance Configuration dialog:

For clarity, we recommend that you create a named instance rather than a default instance, and enter a name that will help you identify the server. In this case we have chosen the name “AntigenPlusSQL”.

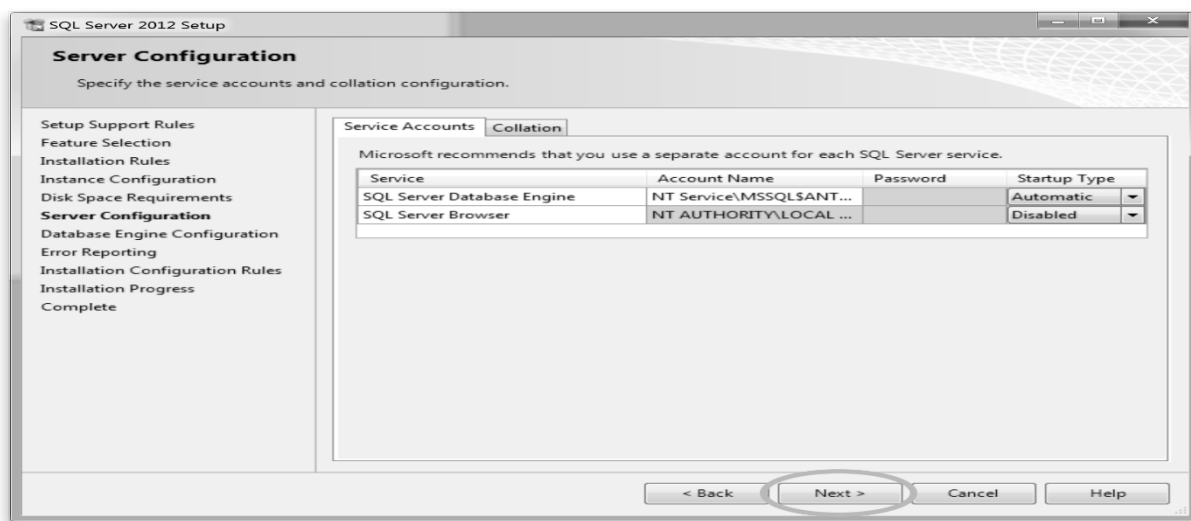


The screenshot shows the 'Instance Configuration' dialog box in the SQL Server 2012 Setup wizard. The left sidebar lists various setup steps, with 'Instance Configuration' currently selected. The main area has a heading 'Specify the name and instance ID for the instance of SQL Server. Instance ID becomes part of the installation path.' Below this, there are two radio buttons: 'Default instance' and 'Named instance:'. The 'Named instance:' option is selected and circled in red. To its right is a text box containing 'AntigenPlusSQL'. Below this, there are fields for 'Instance ID:' (containing 'ANTIGENPLUSSQL'), 'Instance root directory:' (containing 'C:\Program Files\Microsoft SQL Server\'), and 'SQL Server directory:' (containing 'C:\Program Files\Microsoft SQL Server\MSSQL11.ANTIGENPLUSSQL'). At the bottom, there is a table titled 'Installed instances:' with columns 'Instance Name', 'Instance ID', 'Features', 'Edition', and 'Version'. The 'Next >' button at the bottom right is also circled in red.

Instance Name	Instance ID	Features	Edition	Version
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Enter a name for your SQL Server and click Next to get to the Server

Configuration screen.



The screenshot shows the 'Server Configuration' dialog box in the SQL Server 2012 Setup wizard. The left sidebar lists various setup steps, with 'Server Configuration' currently selected. The main area has a heading 'Specify the service accounts and collation configuration.' Below this, there are two tabs: 'Service Accounts' and 'Collation'. The 'Service Accounts' tab is selected. Below the tabs, there is a text box stating 'Microsoft recommends that you use a separate account for each SQL Server service.' Below this, there is a table with columns 'Service', 'Account Name', 'Password', and 'Startup Type'. The table contains two rows: 'SQL Server Database Engine' with account 'NT Service\MSSQL\$ANT...' and startup type 'Automatic', and 'SQL Server Browser' with account 'NT AUTHORITY\LOCAL ...' and startup type 'Disabled'. The 'Next >' button at the bottom right is circled in red.

Service	Account Name	Password	Startup Type
SQL Server Database Engine	NT Service\MSSQL\$ANT...		Automatic
SQL Server Browser	NT AUTHORITY\LOCAL ...		Disabled

All of the default settings on this screen are fine, so click Next to go to the Database Engine Configuration screen.

On this screen you can choose either to rely exclusively on Windows for user authentication, or to also allow usernames and passwords that are specific to the SQL Server. In this guide, we assume that you may not have the authority to create groups on your Windows domain, so we choose the second option for flexibility. You will need to enter a password for the system administrator (sa) account, which you will need to remember for later access.

The screenshot shows the 'Database Engine Configuration' window in the SQL Server 2012 Setup. The window has a title bar 'SQL Server 2012 Setup' and a subtitle 'Specify Database Engine authentication security mode, administrators and data directories.' The left sidebar lists various setup steps, with 'Database Engine Configuration' highlighted. The main area has four tabs: 'Server Configuration', 'Data Directories', 'User Instances', and 'FILESTREAM'. The 'Server Configuration' tab is active, showing options for authentication mode and password setup. The 'Mixed Mode (SQL Server authentication and Windows authentication)' radio button is selected. Below it, the 'Enter password' and 'Confirm password' fields are filled with dots. The 'Next >' button at the bottom right is highlighted.

SQL Server 2012 Setup

Database Engine Configuration

Specify Database Engine authentication security mode, administrators and data directories.

Setup Support Rules
Feature Selection
Installation Rules
Instance Configuration
Disk Space Requirements
Server Configuration
Database Engine Configuration
Error Reporting
Installation Configuration Rules
Installation Progress
Complete

Server Configuration | Data Directories | User Instances | FILESTREAM

Specify the authentication mode and administrators for the Database Engine.

Authentication Mode

☐ Windows authentication mode

☒ Mixed Mode (SQL Server authentication and Windows authentication)

Specify the password for the SQL Server system administrator (sa) account.

Enter password: •••••

Confirm password: •••••

Specify SQL Server administrators

LABSERVER\samalone (samalone)

Add Current User | Add... | Remove

SQL Server administrators have unrestricted access to the Database Engine.

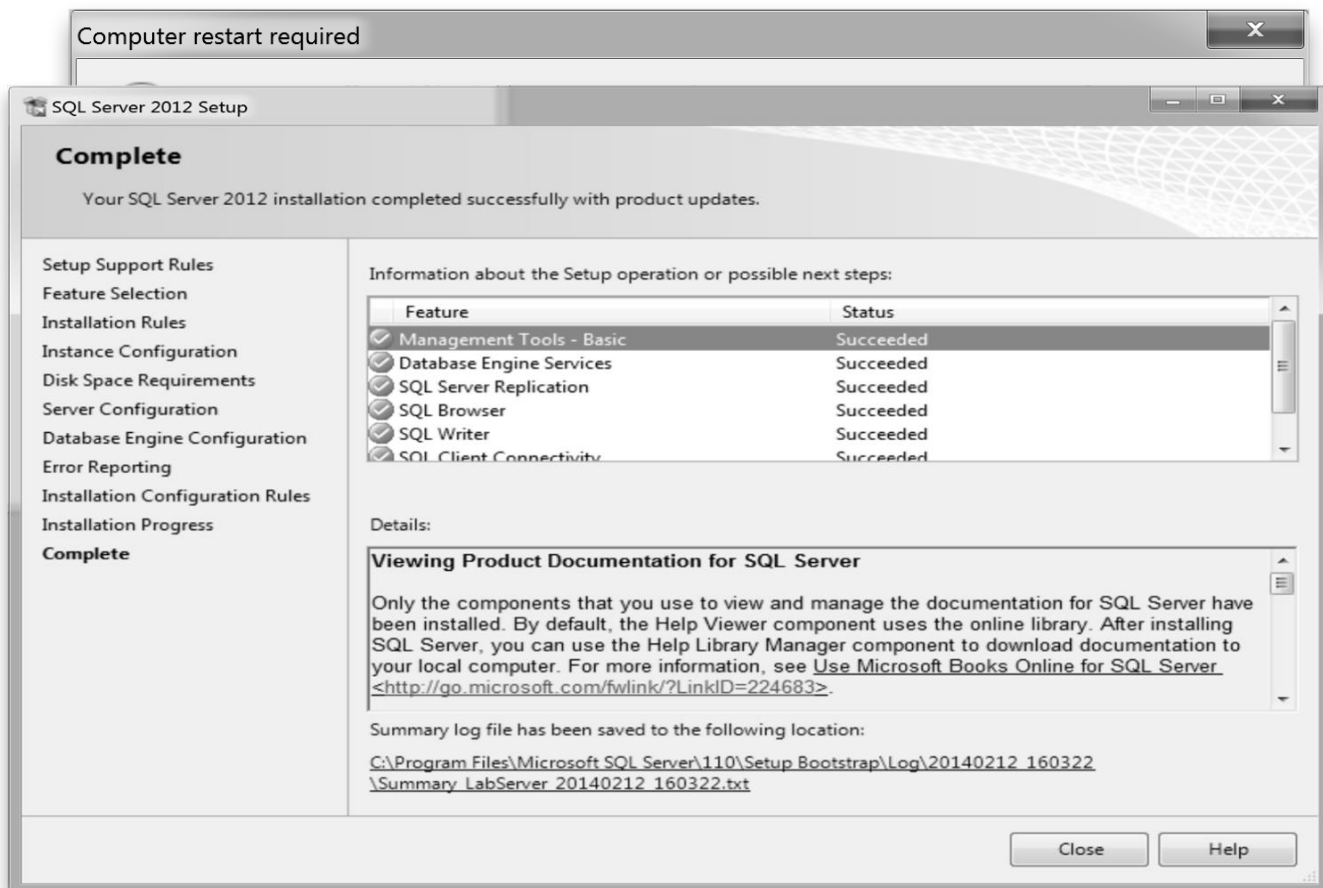
< Back | **Next >** | Cancel | Help

When you have entered and confirmed the sa password, click Next to go to the Error Reporting screen.



The default here is fine, so click Next to begin the installation.

Have a nice cup of tea while you wait. Once again, you may get a warning that a restart is required.



Assuming the installation completes without error, you should reach the Complete screen.

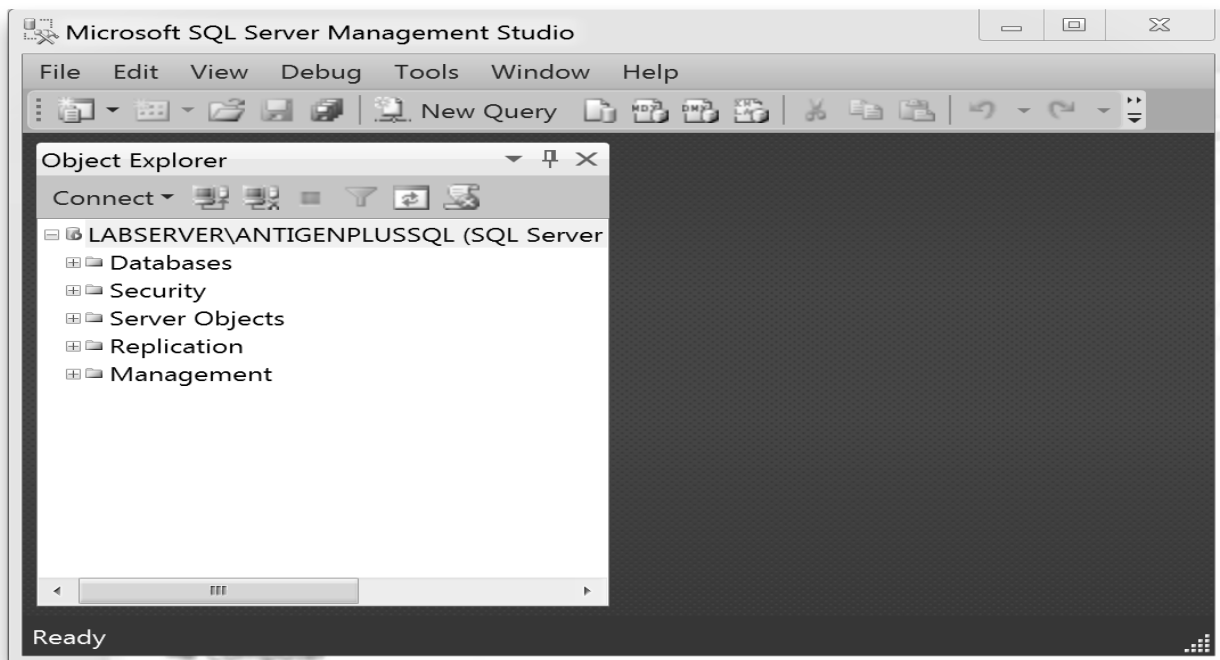
Click the Close button to close Setup, and click the close box on the separate Installation Center window. If you encountered either of the restart warnings above, we recommend that you restart Windows at this time, even if the installer does not force you to restart.

Create a database login

After the restart you need to create login that will be used by Antigen Plus to connect to the SQL Server. To do this, go to the Start menu and run Microsoft SQL Server 2012 > SQL Server Management Studio. A “Connect to Server” window will appear with the correct defaults to connect to the server you just installed. In this case it is the AntigenPlusSQL server on the LabServer computer.



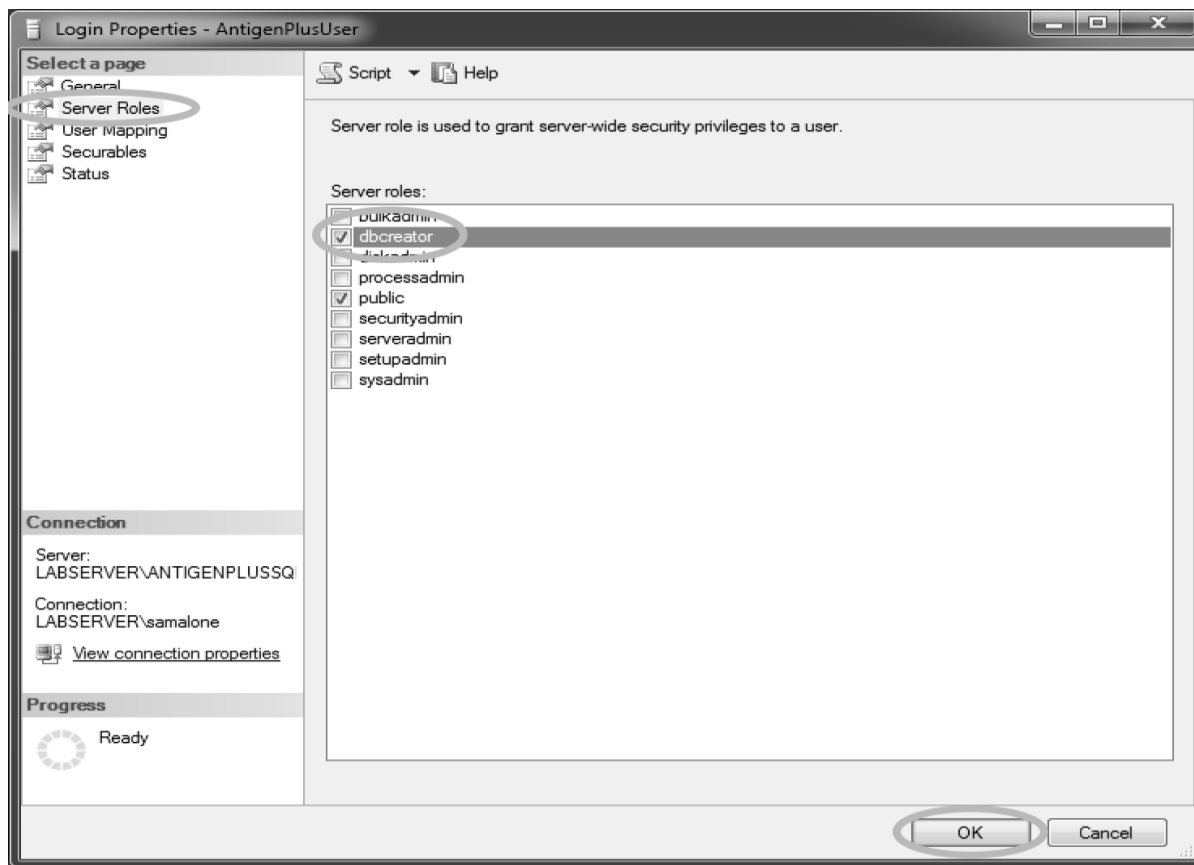
Click Connect to connect to the server. The Object Explorer shows your server.



We need a way of specifying who is allowed to access the Antigen Plus database. If your Windows domain already has users or groups that you would like to use for this purpose, you can use them, but for this example we are going to create a new login to connect to the database. Right-click on the Security object, then choose New > Login.

The screenshot shows the 'Login - New' dialog box in SQL Server Enterprise Manager. The dialog is for creating a new login. The 'Login name' field is set to 'AntigenPlusUser'. The 'Authentication' section has 'SQL Server authentication' selected. The 'Password' and 'Confirm password' fields are filled with masked characters. The 'Enforce password policy' checkbox is checked, and the 'Enforce password expiration' checkbox is unchecked. The 'Default database' is set to 'master' and the 'Default language' is set to '<default>'. The 'Server' is 'LABSERVER\ANTIGENPLUSSQL' and the 'Connection' is 'LABSERVER\samalone'. The 'Progress' bar shows 'Ready'.

We are creating a single database login that will be used by all Antigen Plus users. (A separate user account system is used within Antigen Plus, so we do not need separate logins at the database level.) We have named the login AntigenPlusUser, specified that it uses SQL Server authentication, given it a password, and turned off password expiration. Now go to the Server Roles page.



Check the box labeled “dbcreator” so that this login will be allowed to create databases. With this done, you can click OK to create the login. We are now done with SQL Server Management Studio, so you can now exit that program.

Run Windows Update

If either .NET Framework or SQL Server was installed, we recommend immediately running Windows Update to upgrade these products to the latest versions.

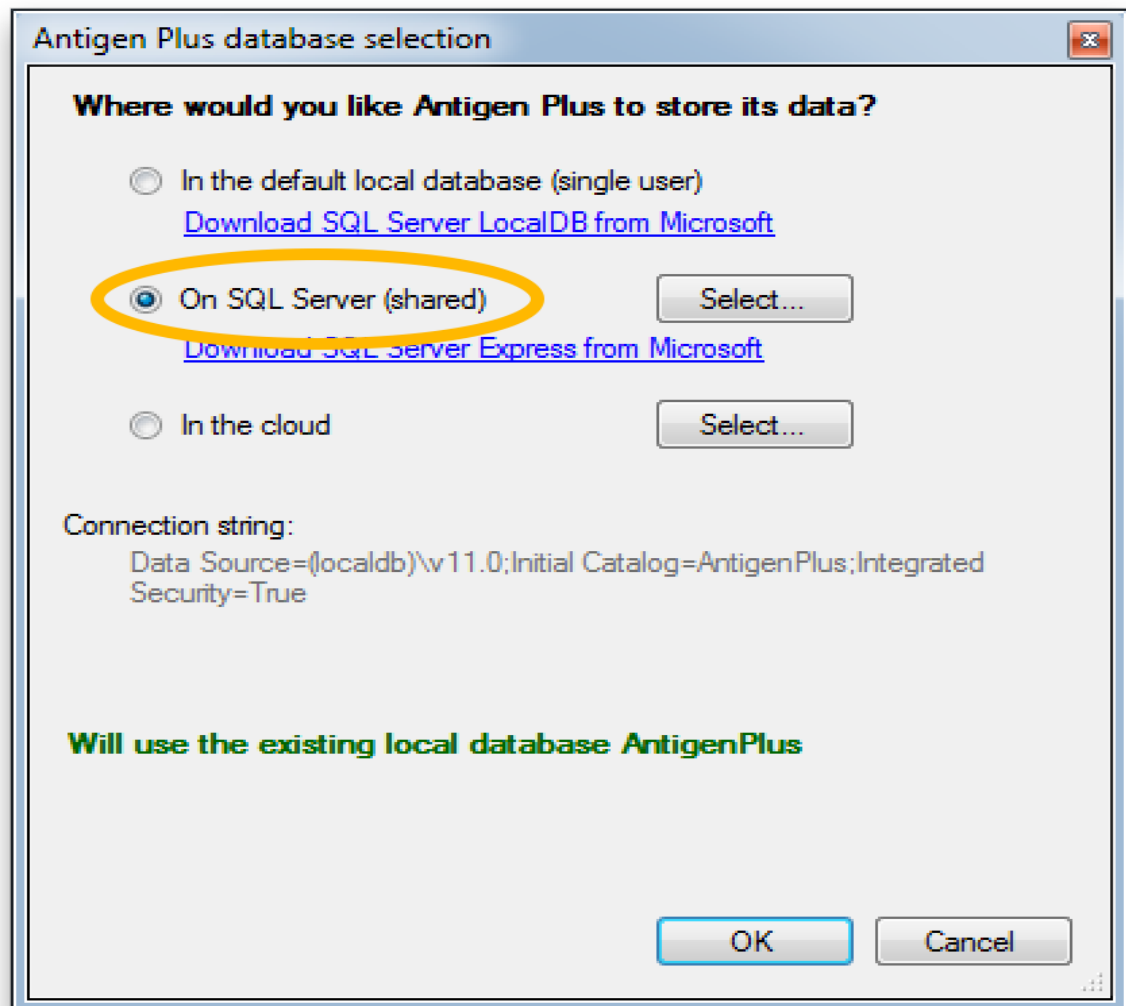
Install Antigen Plus

Double-click on the Antigen Plus .msi file to install it, or to upgrade from a previous version. The installer is quite terse, and does not display any message on success. If there are no errors, Antigen Plus is available from the Start menu.

After installation is completed, insure that **YOU ARE THE ONLY USER** the first time you run the program. Antigen Plus must verify the structure of the database, and cannot do so if there are other users. This is only necessary the first time a newly-installed program is run.

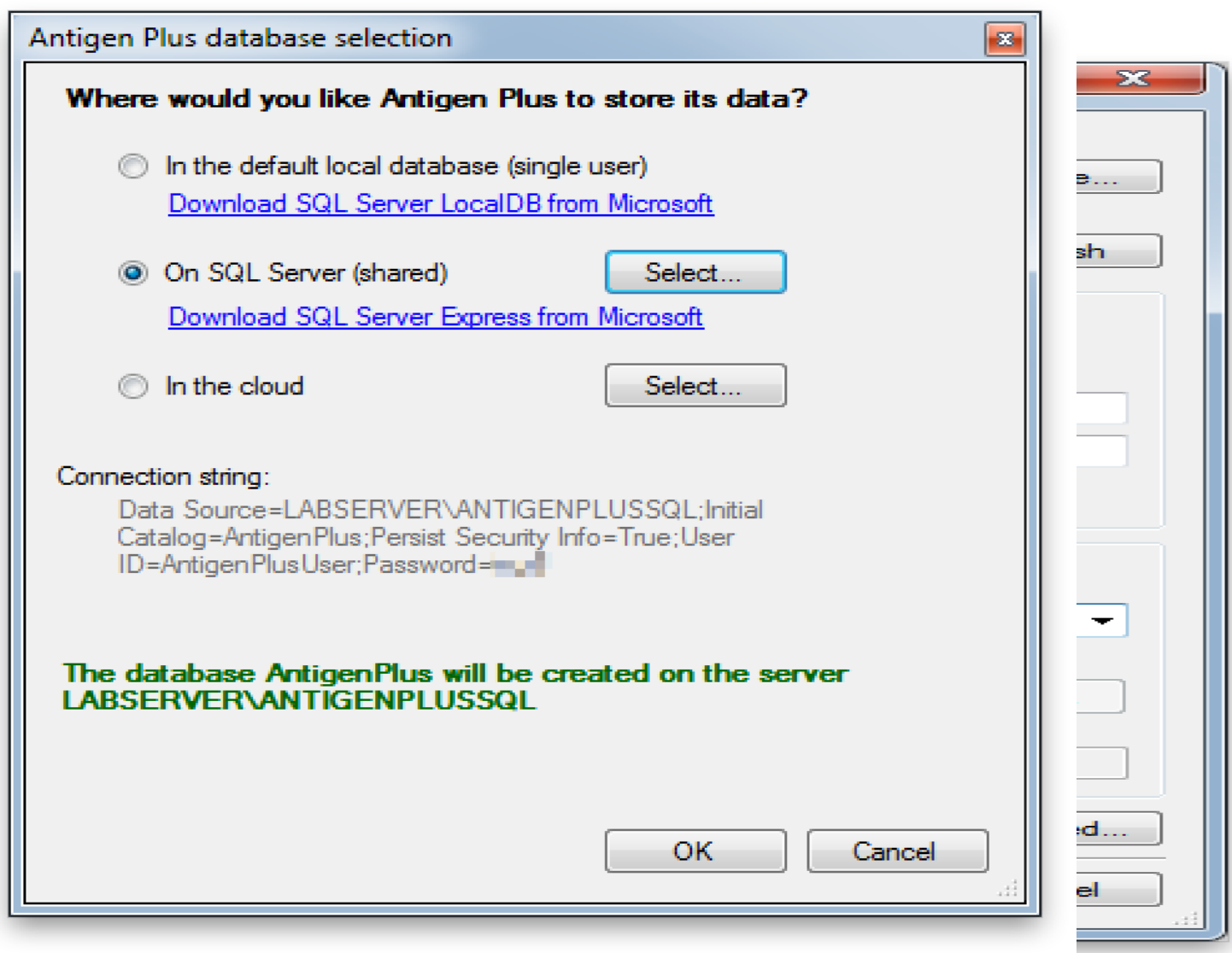
Create the Antigen Plus database

Next, start Antigen Plus. It will display the database selection screen:



Click the “On SQL Server (shared)” radio button and the Connection Properties dialog will appear.

There are several settings you need to enter here. Under Server name, enter the name of the computer that you’ve chosen as your server, followed by a backslash, followed by the name you chose earlier for your database server. Select “Use SQL Server Authentication”, and enter the user name and password for the login you created in SQL Server Management Studio. Under “Select or enter a database name”, enter a name for the Antigen Plus database. You will not be able to test the connection yet, because the database still has not been created. Just click the OK button in this dialog to return to the database selection dialog.



Click OK, and Antigen Plus will create and initialize the new database.

In the Cloud—you will be prompted for a log-in and password to use Antigen Plus stored for you on our cloud server when you are using the on-line version of the software.

Database Selection

Antigen Plus has two different database selection modes: loose and strict. The default is loose mode.

Loose mode

In loose mode, Antigen Plus users are free to select the database they want to work with and switch from one database to another. A system administrator can set a default database for new users, but users are still free to select a different database and the software will return them to their personal database the next time they launch Antigen Plus.

To set the default database for new users, edit the file `connections.config` in the Antigen Plus installation directory. There is an entry there for `DefaultLocalConnectionString` with an empty `connectionString` attribute. Copy the desired database connection string from the Select Database dialog and paste it into that attribute, so it looks something like:

```
<add name="DefaultLocalConnectionString"
      providerName="System.Data.SqlClient"
      connectionString="Data Source=LABSERVER\SQLEXPRESS;Initial Catalog=AntigenPlus;Integrated
Security=True" />
```

Tip: If you don't have permission to edit the `connections.config` file, copy it to the desktop, edit it there, and copy it back to the Antigen Plus installation folder. Windows will ask you for permission to make the replacement.

Strict mode

In strict mode, the system administrator sets the database connection strings and users cannot select their own database. Two changes are needed to run Antigen Plus in strict mode:

1. The connection string must be added to the file `connections.config` in the Antigen Plus installation directory.
2. The Antigen Plus shortcut in the Start menu should be replaced with a shortcut that includes the `/connection=ConnectionName` command-line argument. *ConnectionName* must match the name attribute of one of the connection strings in the `connections.config` file.

The shortcut placed in the Start menu by the Antigen Plus installer cannot be modified, but you can delete it and create a new one. To create a new shortcut, right-click the `AntigenPlus.exe` file in the Antigen Plus installation folder, select create shortcut, then drag the new shortcut to the desktop. (Or, then right-click on the new shortcut and choose "copy", then right-click on the Desktop and choose "Paste shortcut".) Then click on the shortcut properties and edit the Target field so that it looks like:

```
"C:\Program Files (x86)\Antigen Plus\AntigenPlus.exe" /connection=ConnectionName
```


Under Citrix, the typical workstation has a Citrix on-line plug-in at the bottom of the page, which shows available applications on the Citrix server where Antigen Plus was installed. The Antigen Plus launch can be modified by changing the Citrix properties as above. This change will force ALL who use Antigen Plus on the Citrix server to use the specified database, and they will find the menu item **Select database...** greyed out.

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To Run the Program

Double click the Antigen Plus icon to start the program. When the program loads, select the Options menu at the top of the screen. Type in the name and address of your facility as you want it to appear on all the printouts generated by the program.

As the first person to use the program, you will be logged in with your current Windows login and have administrator rights. If others share your log in, you should assign yourself a username and password, and, in any case, give yourself initials for use in the program. To do this, open the Users menu and open Account Settings and enter name, password, and initials (if you are the only one who uses this Windows login, a password is not necessary as long as you keep Login automatically from Windows account checked).

Logging Others In

In a network environment, you may automate the log in to Antigen Plus to match the Windows log in of each user. This will maintain a record of each individual user as long as everyone has a separate login to Windows. If users are sharing a Windows login, individual user accounts should be set up. Open the Users Menu/Maintain Accounts and enter information for each user. Users can change their passwords after logging in.