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## ASTRA V: SQL Server Configuration

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To use SQL Server as the repository for Experiment and Sample Set data files, the following conditions are required:

You must have an activation key supplied by Wyatt Technology to enable the “ASTRA w/Security Pack” feature. This feature is sold as an add-on to ASTRA to provide additional security and support 21 CFR Part 11.

Windows 2000, XP Professional, and VISTA (XP Home does not support the minimum network requirements to run ASTRA with the Security Pack feature enabled).

This document will take you through a series of steps to complete the configuration of establishing a SQL Server database for use by ASTRA.

**It's recommend that you create a separate database for use with ASTRA**, Maintenance of the database(s) used by ASTRA is easier when the database(s) only contains data accessed by ASTRA. We also recommend you to backup the database(s) used with ASTRA on a daily basis.

**Note:** For explanation purposes, this document will refer to the database as “ASTRA\_Experiment” (you may name the database as you deem fit).

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- Step 1 – Setup User Accounts for ASTRA and database access
  - Step 2 – Setup a database, refer to the section corresponding to one of the following SQL versions:
    - SQL Server 2002
    - SQL Server Express 2005
    - SQL Server 2008
  - Step 3 – Configure database security, refer to the section corresponding to one of the following SQL versions:
    - SQL Server 2002
    - SQL Server Express 2005
    - SQL Server 2008
  - Step 4 – Enable Discovery of the SQL Service
  - Step 5 – Setup an ODBC connection to database
  - Step 6 – Configure ASTRA to use the ODBC connection
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### Step 1 – Setup User Accounts for ASTRA and database access

When the Security Pack feature is enabled User accounts and Groups managed as Microsoft Windows User Accounts and Groups are used to control access to ASTRA and its features. The Groups will also be used to control access to the database.

- A. Create the required Local Groups or Domain Groups for access permissions for ASTRA.

Once the Security Pack feature is enabled ASTRA will require a User Account membership in one of the following Windows Groups.

**NOTE:** the group names that follow are **case sensitive** and there is **one space** between the word **ASTRA** and the category description.

#### **ASTRA Administrator**

This group provides Administrative access permissions to ASTRA. Membership to this group permits access to all features of ASTRA, including maintenance privileges to delete data. This group has all of the privileges of ASTRA Researcher, ASTRA Technician and ASTRA Guest.

#### **ASTRA Researcher**

Ability to perform non-Administrative actions (create/modify data files, configuration of instruments and data collection). Membership in this group excludes the ability to delete data. This group has all of the privileges of ASTRA Technician and ASTRA Guest group.

#### **ASTRA Technician**

This group has the ability to use existing templates for data collection, analysis and saving resulting from the usage of a template. The group of existing Sample Set and/or Experiment Templates is restricted to templates created by an ASTRA Research or ASTRA Administrator account and those installed with ASTRA. This group has all of the privileges of ASTRA Guests.

#### **ASTRA Guest**

This group permits read-only access permission to ASTRA and stored data. This group can open data files for viewing analysis results and/or printing. This group does not have the ability to modify stored data. This group can be used for auditing the log files and data.

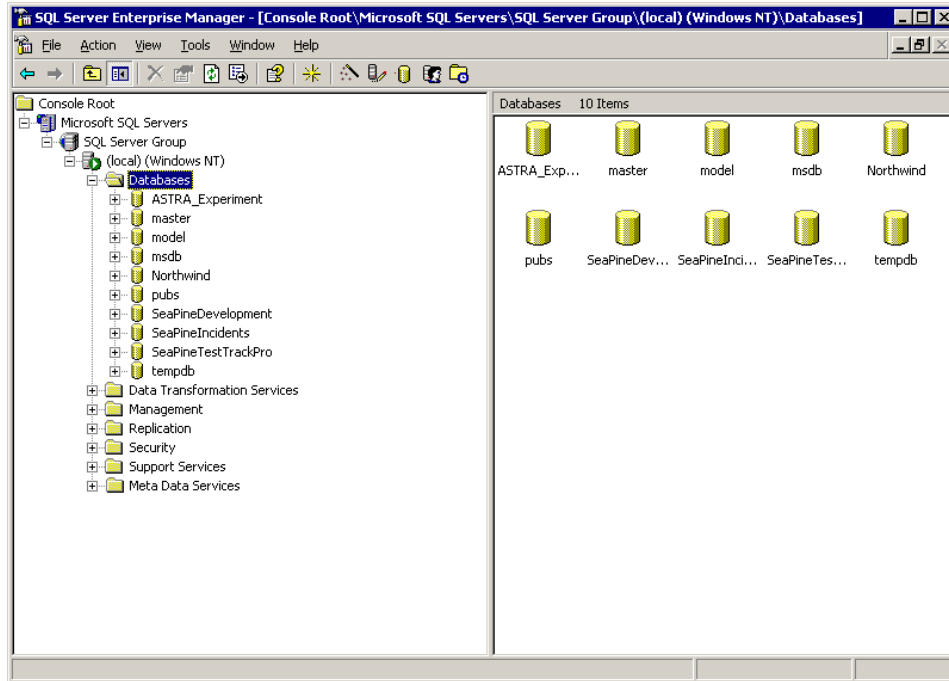
- B. Create necessary User Account(s); add the User Account(s) to one of the Groups from step A.

### Step 2 – Setup a SQL Server 2002 Database

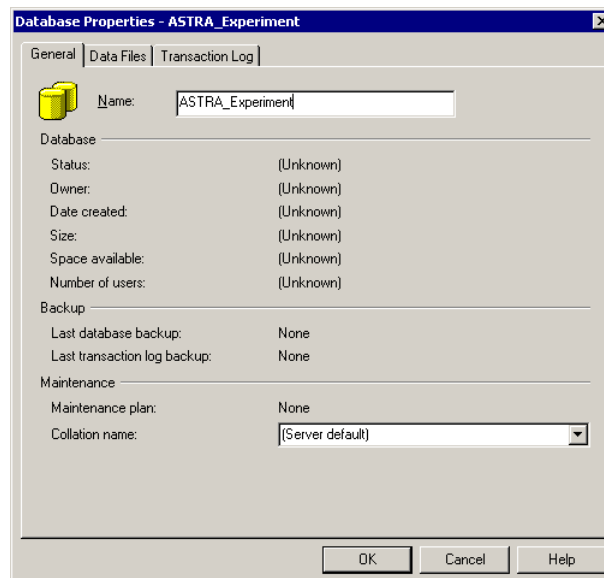
It's recommend that you create a separate database for use with ASTRA, Maintenance of the database(s) used by ASTRA is easier when the database(s) only contains data accessed by ASTRA. We also recommend you to backup the database(s) used with ASTRA on a daily basis.

The following steps will guide you through the process of creating and configuring a **new database** for use with ASTRA.

- A. Run SQL Server Enterprise Manager.
- B. Navigate to “Databases” section.



- C. Right-click on Databases and select “New Database...”. The Database Properties dialog will be displayed.

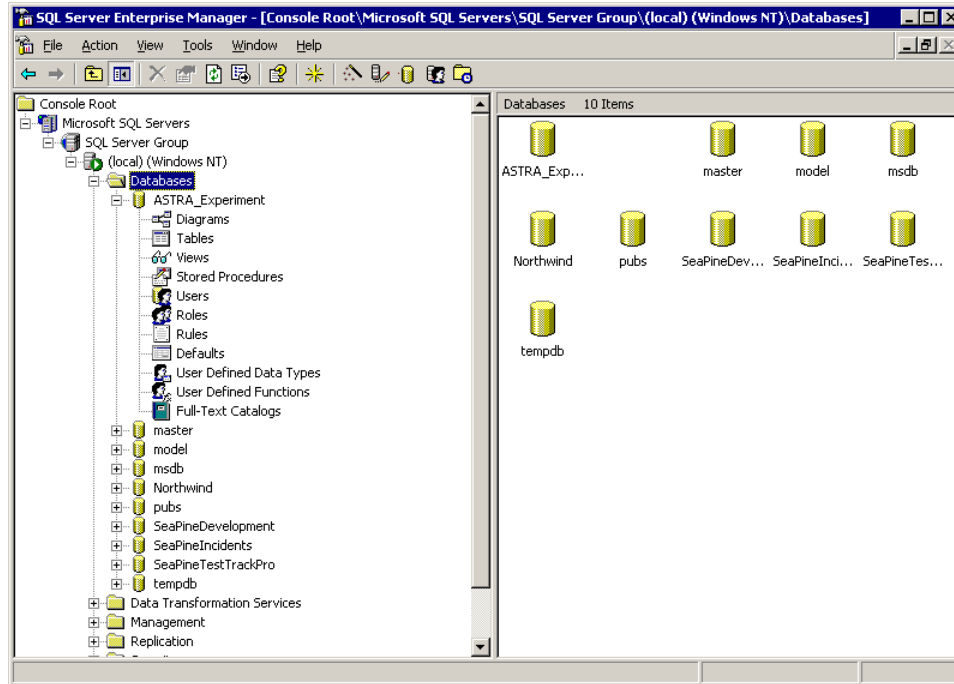


- D. Enter a unique database name and press OK. A new Databases entry with the specified name will be listed under Databases in the left pane.

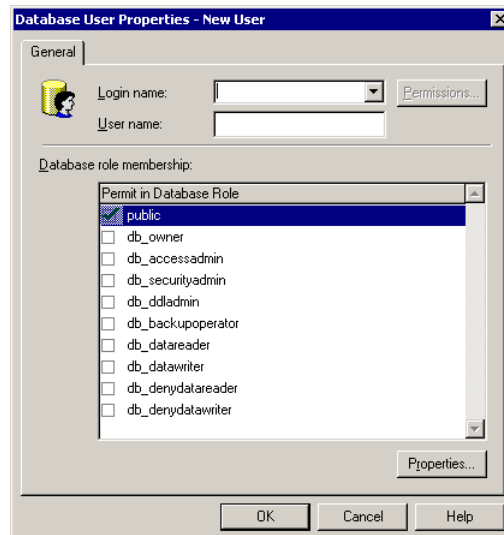
**Note:** For explanation purposes, this document will refer to the database as “ASTRA\_Experiment” (you may name the database as you deem fit).

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- E. Expose the database properties for the new database by expanding the tree for **ASTRA\_Experiment**.

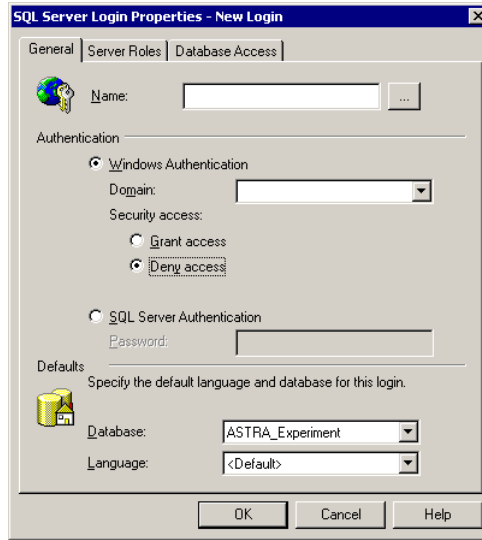


- F. Right-click on the Users entry for **ASTRA\_Experiment** and select "New Database User...". The Database User Properties – New User dialog will be displayed.



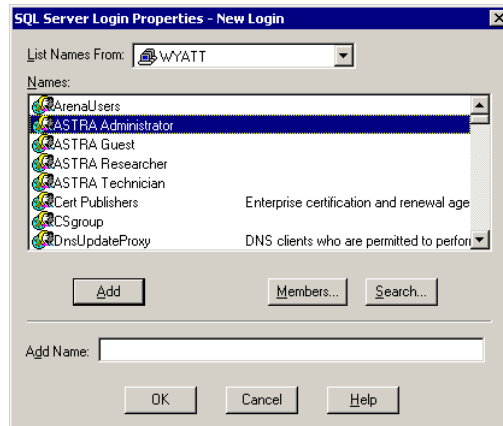
## ASTRA V: SQL Server Configuration

G. In the “Login name” field select <new>. The New Login dialog will be displayed.



H. In the “Database” field near the bottom of the dialog select **ASTRA\_Experiment**.

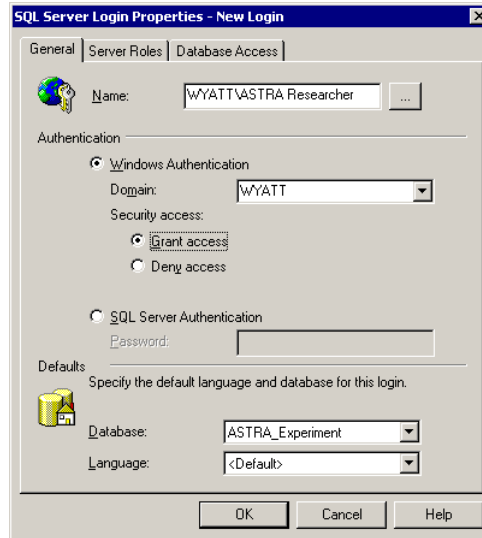
I. Press the “...” Browse button following the “Name” field. The following dialog is displayed.



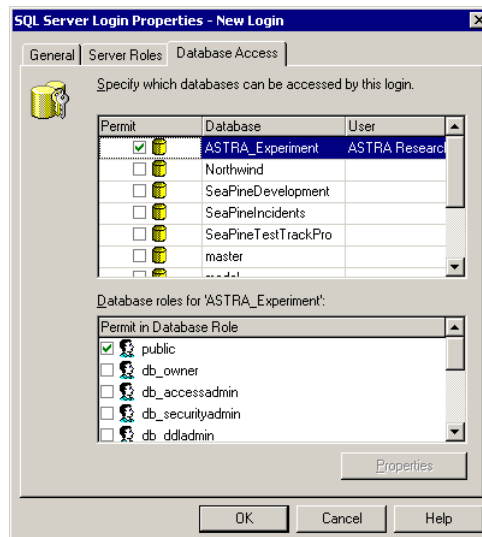
### Step 3 – Configure SQL Server 2002 database security

Use the “List Names From” field to select the domain containing the ASTRA groups created in Step 1 – Setup User Accounts for ASTRA and SQL Server Database Access.

- A. Select one of the ASTRA groups created in Step 1 – Setup User Accounts for ASTRA and SQL Server Database Access and press the **Add** button to place, then press OK. The following dialog will be updated with the selection.



- B. Grant access permissions by selecting “Grant Access” under Windows Authentication.
- C. Select the Database Access tab. The following dialog will be displayed.



- D. Select Permit row for **ASTRA\_Experiment** and enable access by toggling the check mark for Permit.
- E. Select any column of the **ASTRA\_Experiment** row and set the **Database roles for 'ASTRA\_Experiment'** in lower section of the dialog, enabling the following:
- db\_ddladmin
  - db\_datareader
  - db\_datawriter

**Note:** db\_owner should not be enabled, if enabled other user accounts might be restricted from accessing the tables and records created by the specified user account.

## **ASTRA V: SQL Server Configuration**

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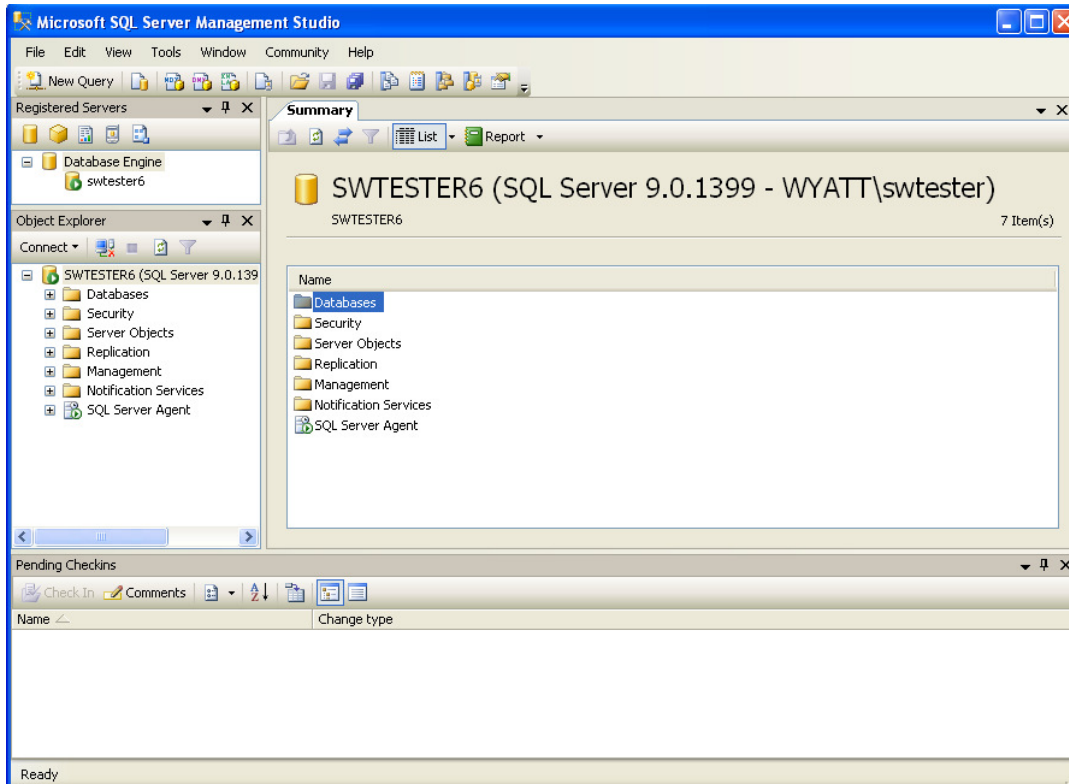
- F.** Repeat steps F through N for all ASTRA access groups.
- G.** Exit the Enterprise Manager.

### Step 2 – Setup a SQL Server Express 2005 database

It's recommend that you create a separate database for use with **ASTRA**, Maintenance of the database(s) used by ASTRA is easier when the database(s) only contains data accessed by ASTRA. We also recommend you to backup the database(s) used with ASTRA on a daily basis.

The following steps will guide you through the process of creating and configuring a **new database** for use with ASTRA:

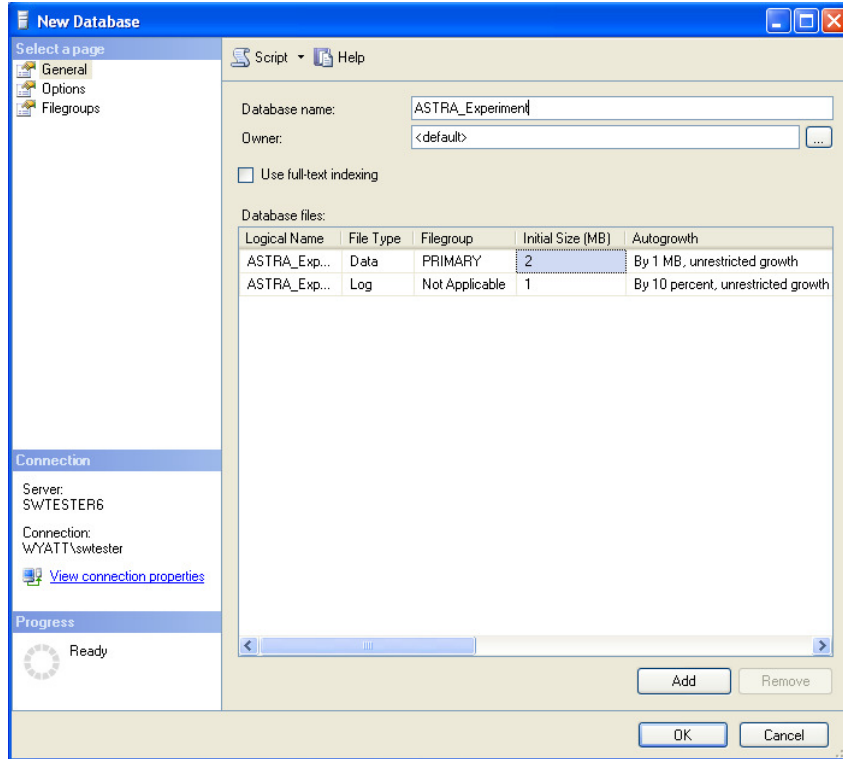
- A. Open SQL Server Management Studio Express.
- B. When prompted with the "Connect to Server" window, type in the name of the server you are using (Local machine is default).
- C. Navigate to "Databases" section.





## ASTRA V: SQL Server Configuration

- D. Right-click on Databases and select “New Database...”. The Database Properties dialog will be displayed.



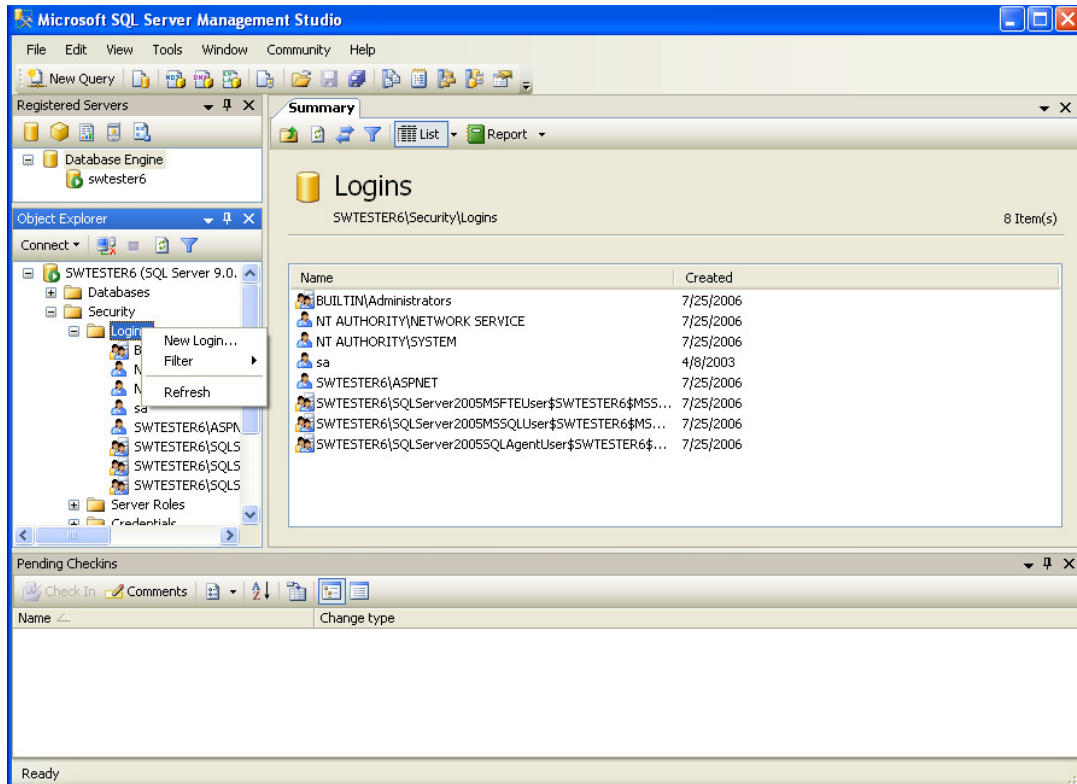
- E. Enter a unique database name and press OK. A new Databases entry with the specified name will be listed under Databases in the Object Explorer pane.

**Note:** For explanation purposes, this document will refer to the database as “ASTRA\_Experiment” (you may name the database as you deem fit).

### Step 3 – Configure SQL Server Express 2005 database security

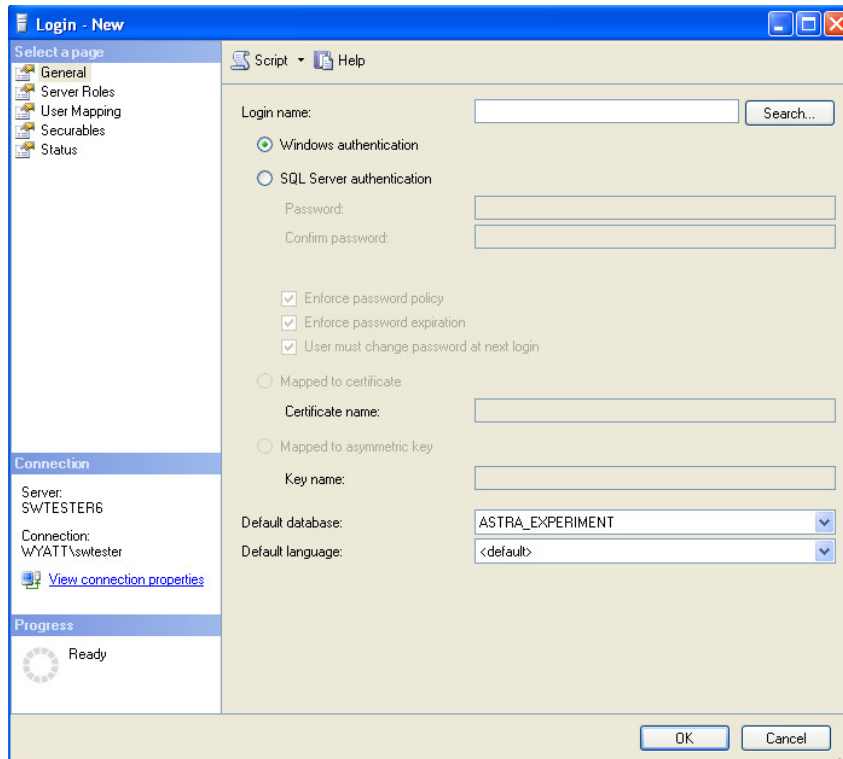
The Windows account Groups that were setup in “Step 1 – Setup User Accounts for ASTRA and database access“, will be used to configure the security for the ASTRA\_Experiment database.

- A. In the “Object Explorer” pane, navigate to the user setup through Security -> Logins. Right click on the ‘Logins’ node and select ‘New Login...’

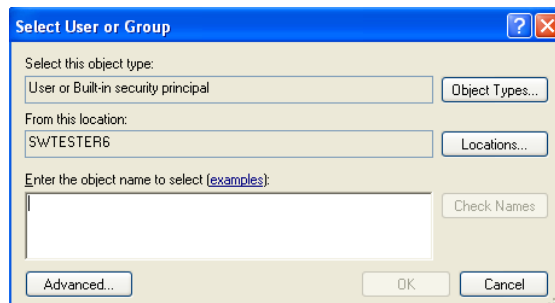


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B. In the “Default Database” field near the bottom of the dialog select ASTRA\_Experiment.



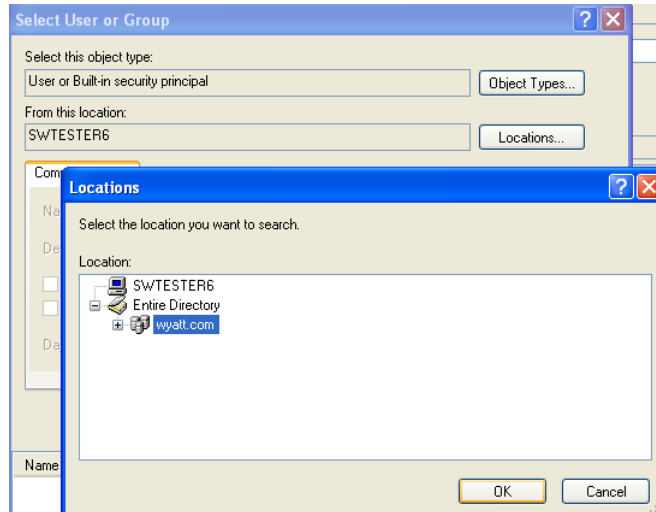
C. Press the “Search...” Browse button following the “Login Name” field. The following dialog is displayed.



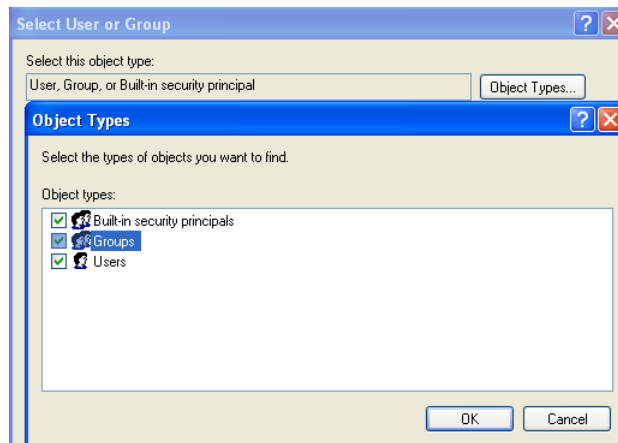
Alternately, you can select the “Advanced...” button to browse between your users/groups instead of typing in the name.

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D. Select the location to authenticate against (usually your corporate domain).

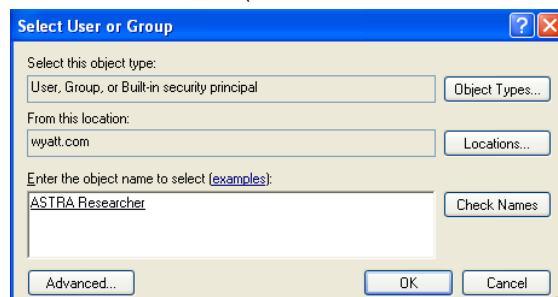


E. Under “Object Types...” make sure the “Groups” box is checked.



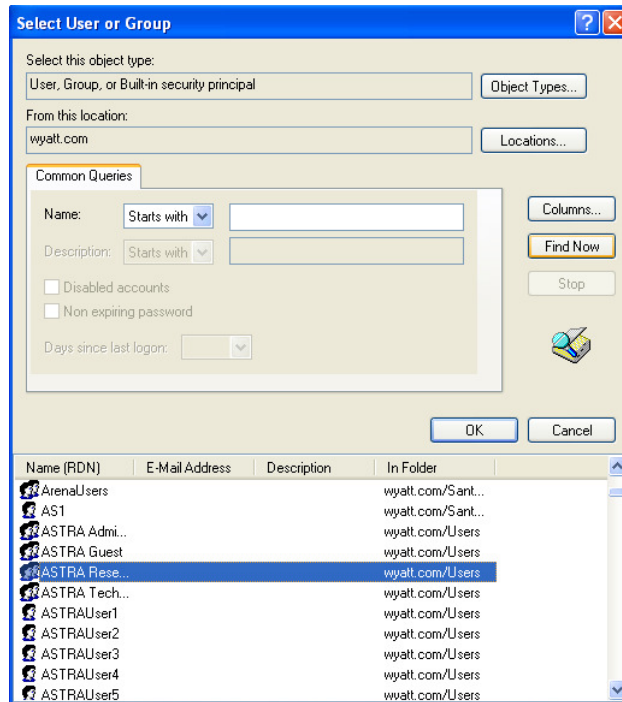
F. Configure User Group permissions

1. Select one of the ASTRA groups created in Step 1 and type in the name of the group in the 'Enter the object name to select' textbox (we used ASTRA Researcher).

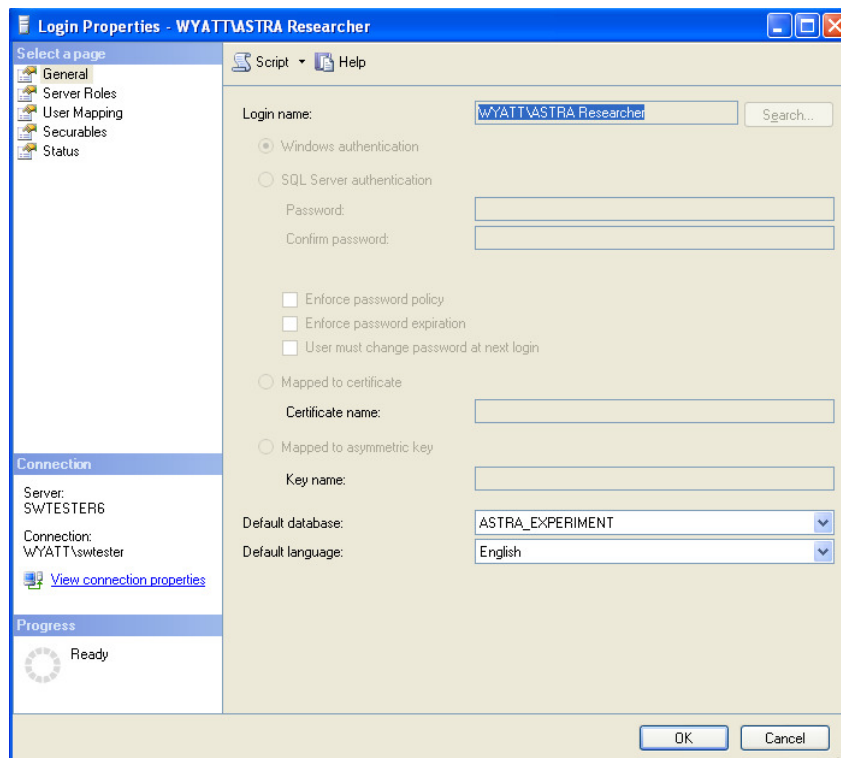


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- Alternatively, if you are using the Advanced version, click “Find Now” and select the User from your list.

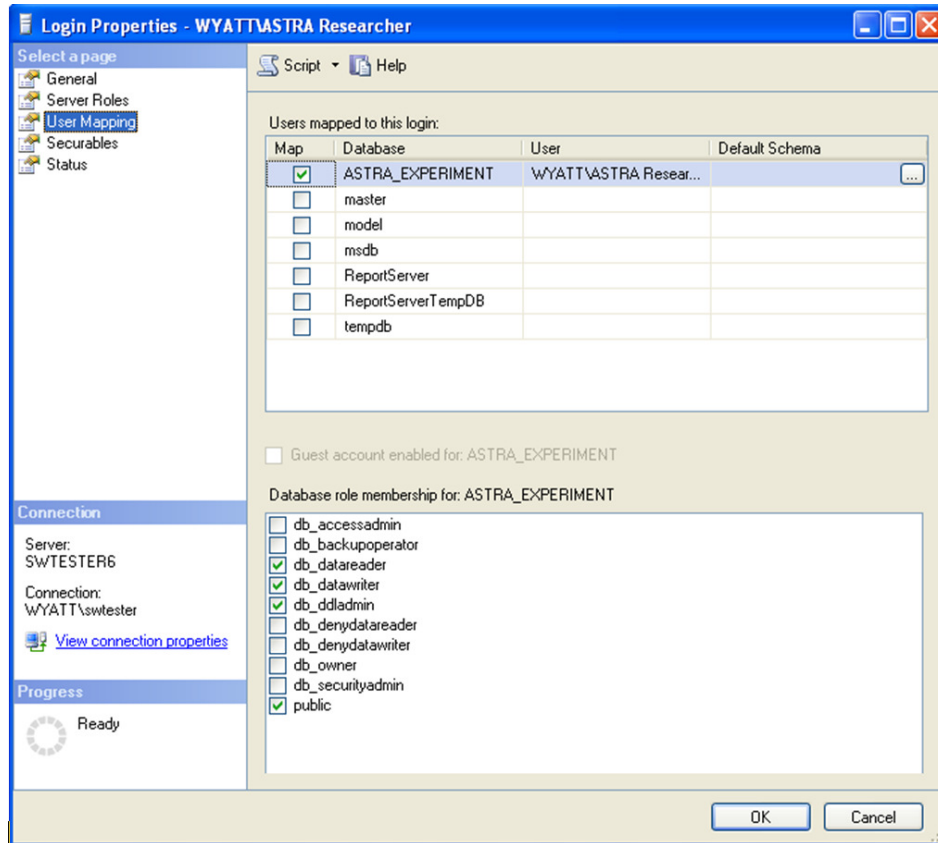


- Press the “OK” button, which returns you to the “Login – New” screen. Make sure the login type is set to “Windows authentication”.



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H. To add the group to the Database permissions, Select “User Mapping” from the left pane.



I. Check the Map box for the ASTRA\_Experiment database.

J. Set the Database roles for 'ASTRA\_Experiment' in the lower section of the dialog, enabling the following:

- db\_ddladmin
- db\_datareader
- db\_datawriter

**Note:** db\_owner should not be enabled, if enabled other user accounts might be restricted from accessing the tables and records created by the specified user account.

K. Repeat steps A through J for all ASTRA access groups.

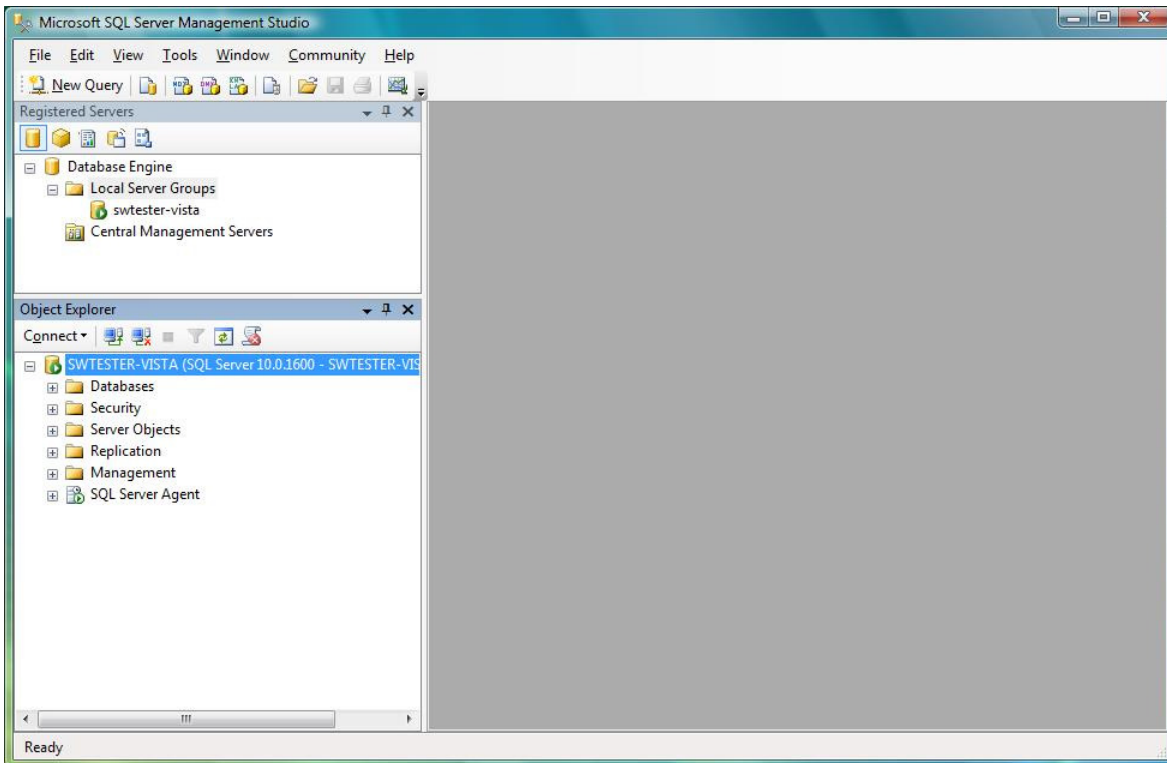
L. Exit the Management Studio.

### Step 2 – Setup SQL Server 2008 database

It's recommend that you create a separate database for use with **ASTRA**, Maintenance of the database(s) used by ASTRA is easier when the database(s) only contains data accessed by ASTRA. We also recommend you to backup the database(s) used with ASTRA on a daily basis.

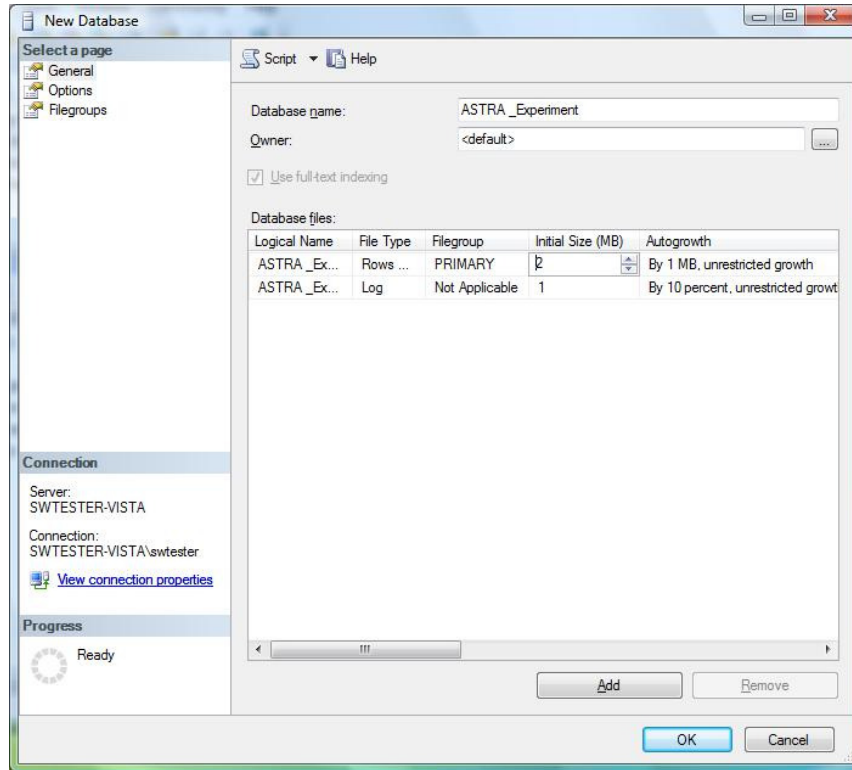
The following steps will guide you through the process of creating and configuring a **new database** for use with ASTRA:

- A. Open SQL Server Management Studio Express.
- B. When prompted with the "Connect to Server" window, type in the name of the server you are using (Local machine is default).
- C. Navigate to "Databases" section.



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- D. Right-click on Databases and select “New Database...”. The Database Properties dialog will be displayed.



- E. Enter a unique database name and press OK. A new Databases entry with the specified name will be listed under Databases in the Object Explorer pane.

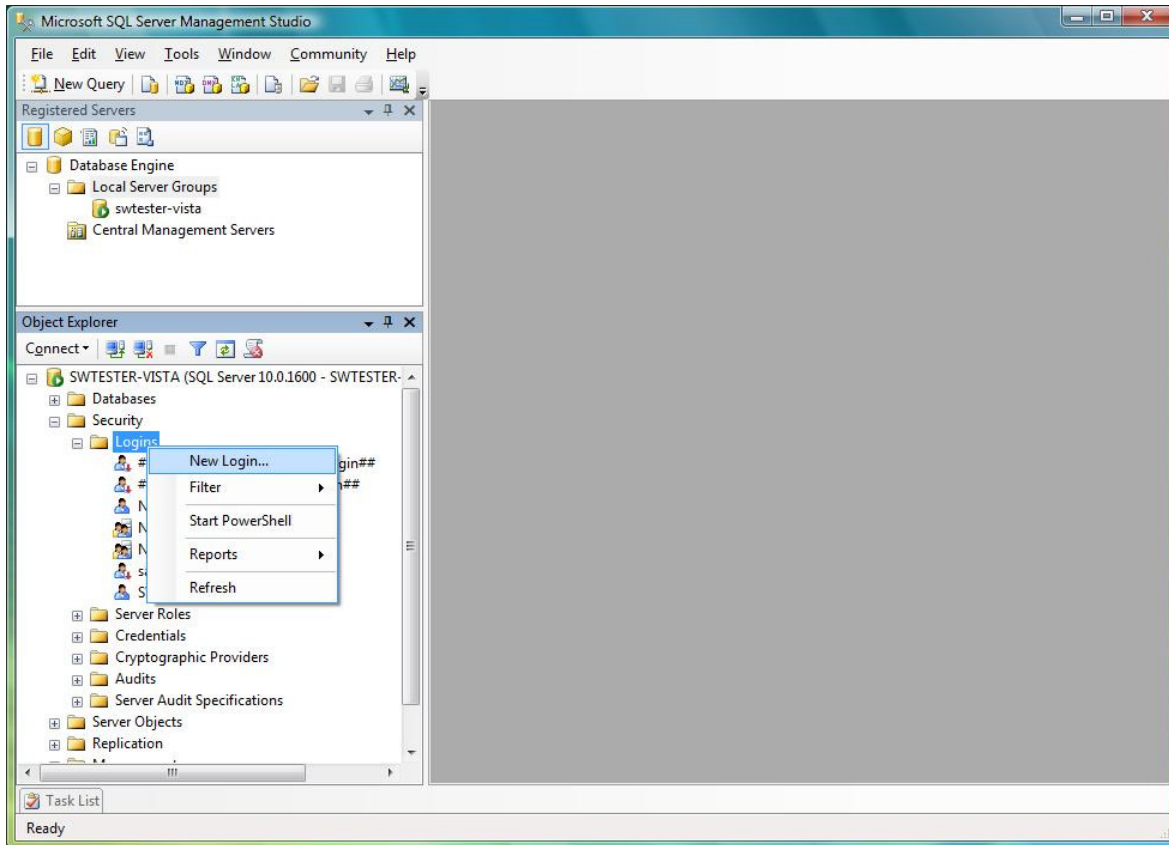
**Note:** For explanation purposes, this document will refer to the database as “ASTRA\_Experiment” (you may name the database as you deem fit).



### Step 3 – Configure SQL Server 2008 database security

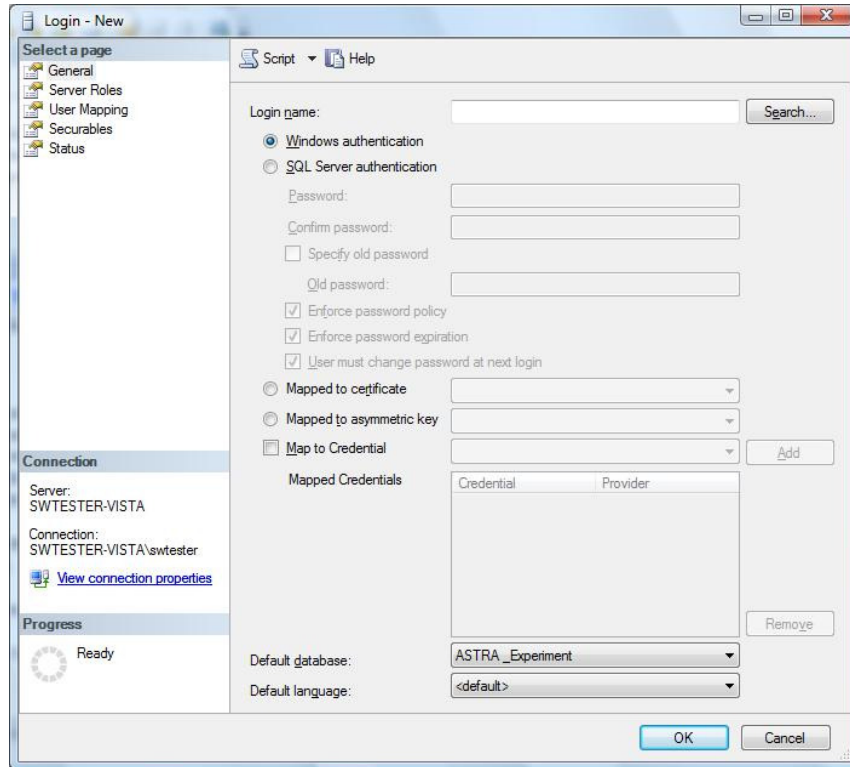
The Windows account Groups that were setup in “Step 1 – Setup User Accounts for ASTRA and database access“, will be used to configure the security for the ASTRA\_Experiment database.

- A. In the “Object Explorer” pane, navigate to the user setup through Security -> Logins. Right click on the ‘Logins’ node and select ‘New Login...’

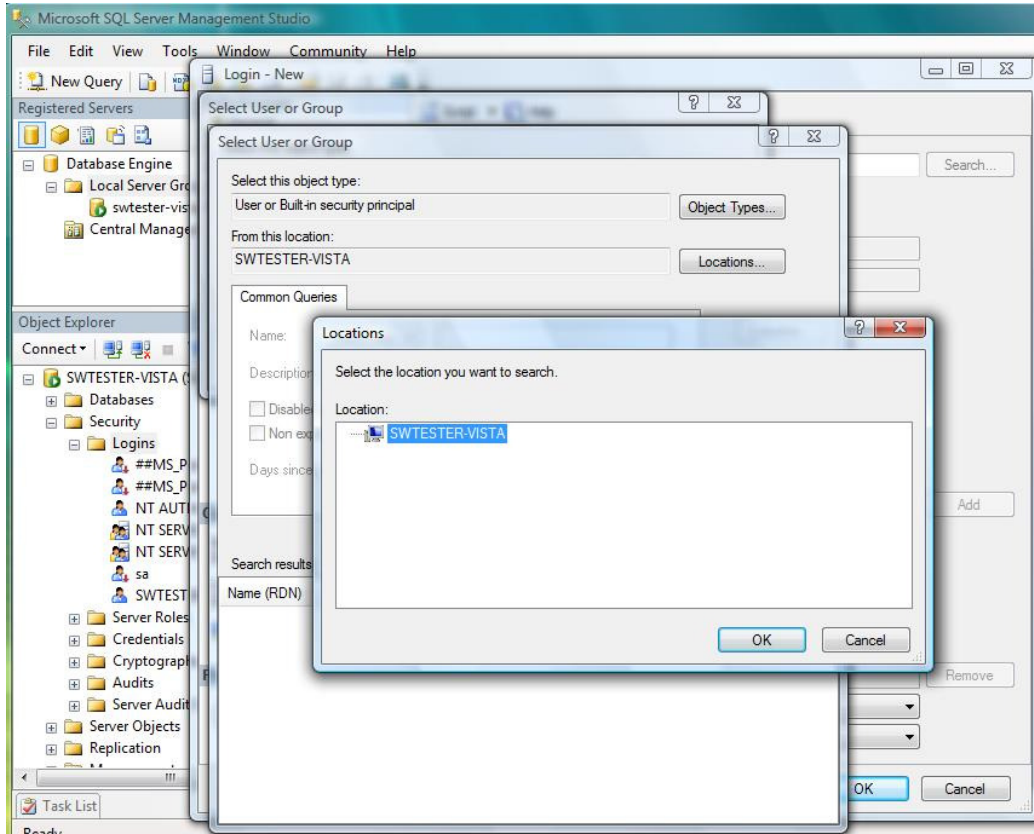


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B. In the “Default Database” field near the bottom of the dialog select ASTRA\_Experiment.



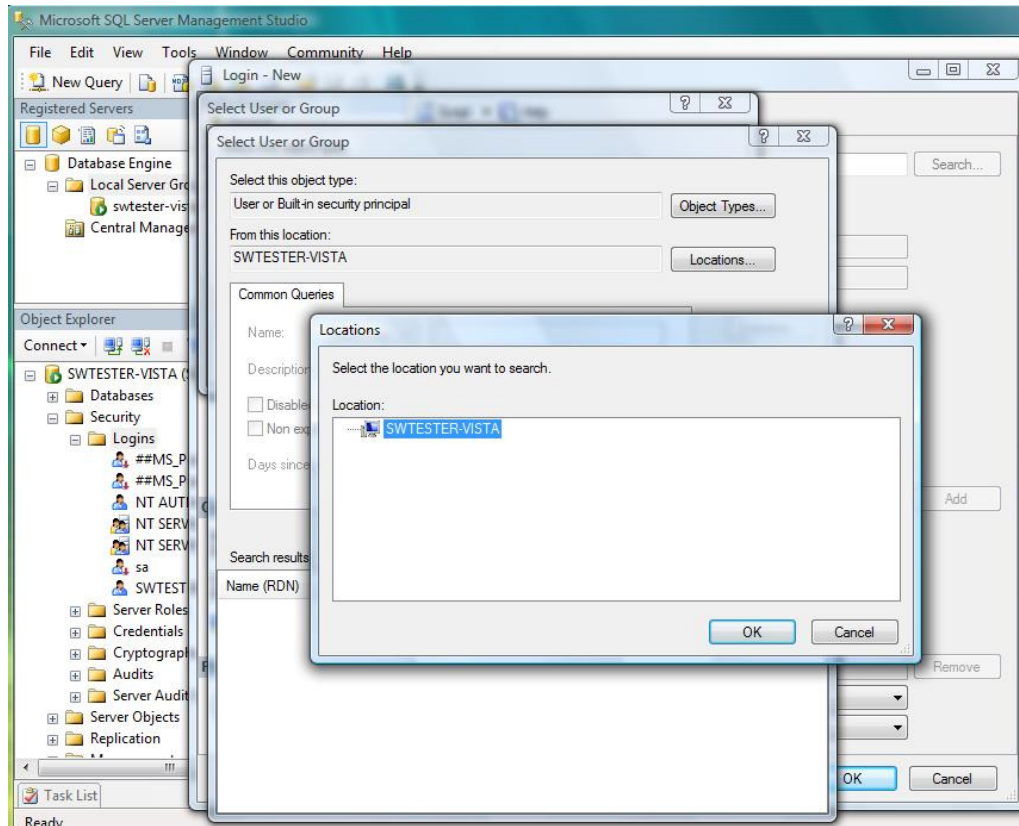
C. Press the “Search...” Browse button following the “Login Name” field. The following dialog is displayed:



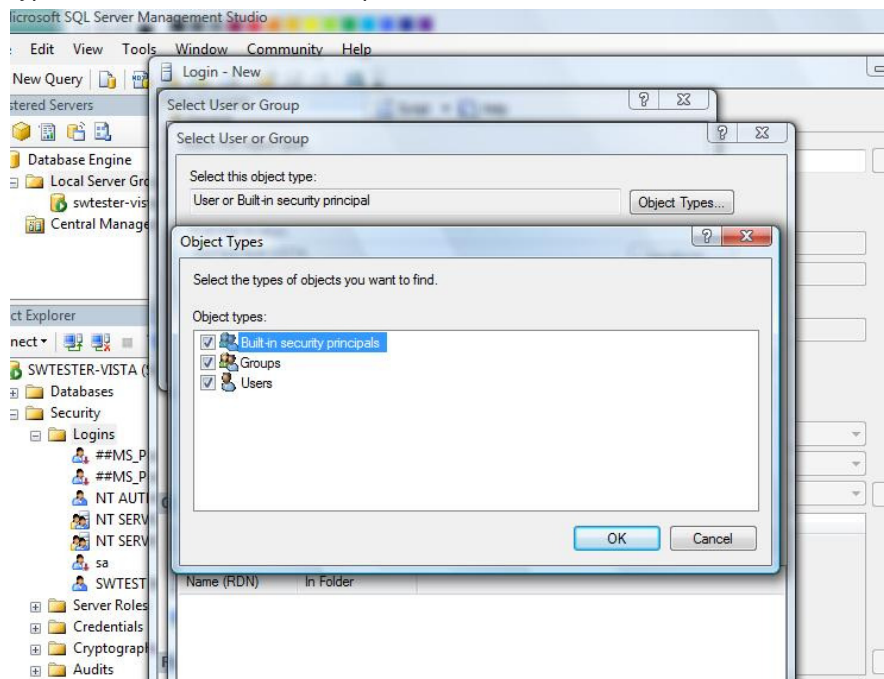
Alternately, you can select the “Advanced...” button to browse between your users/groups instead of typing in the name.

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D. Select the location to authenticate against (usually your corporate domain).



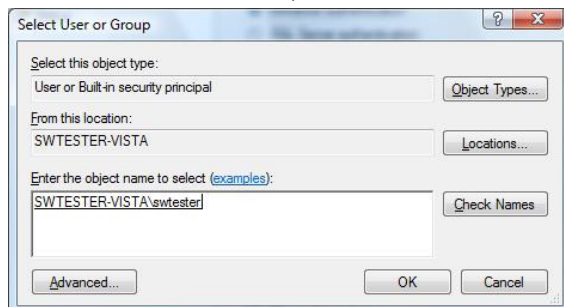
E. Under “Object Types...” make sure the “Groups” box is checked.



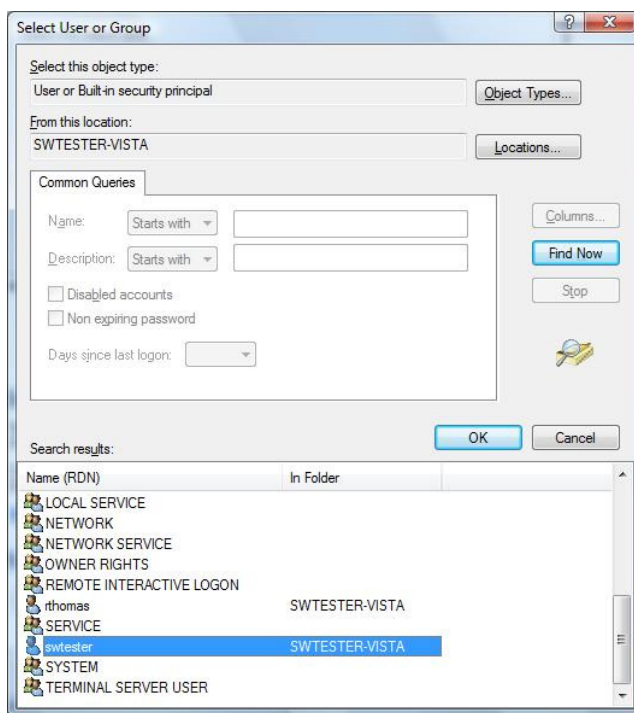
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### F. Configure User Group permissions

1. Select one of the ASTRA groups created in Step 1 and type in the name of the group in the 'Enter the object name to select' textbox (we used ASTRA Researcher).

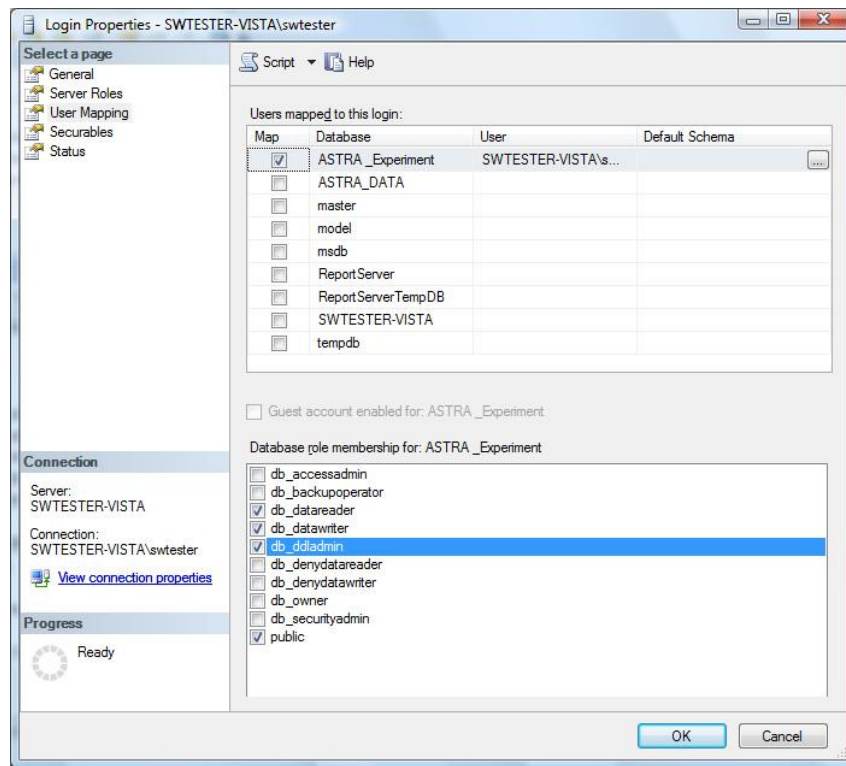


2. Alternatively, if you are using the Advanced version, click "Find Now" and select the User from your list.

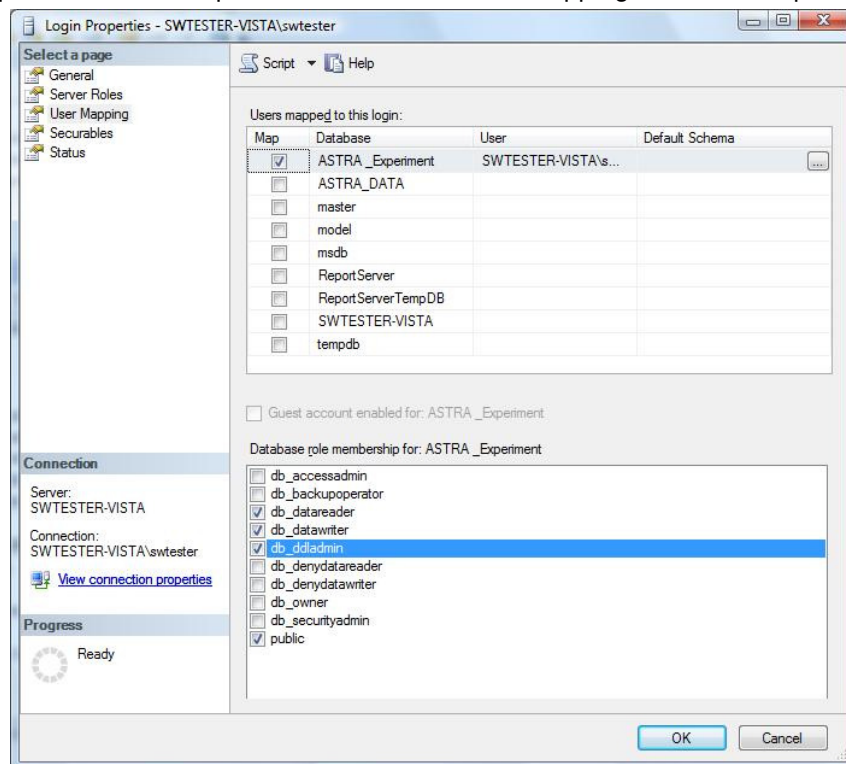


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- G. Press the “OK” button, which returns you to the “Login – New” screen. Make sure the login type is set to “Windows authentication”.



- H. To add the group to the Database permissions, Select “User Mapping” from the left pane.



- I. Check the Map box for the ASTRA\_Experiment database.

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J. Set the Database roles for 'ASTRA\_Experiment' in the lower section of the dialog, enabling the following:

- db\_ddladmin
- db\_datareader
- db\_datawriter

**Note:** db\_owner should not be enabled, if enabled other user accounts might be restricted from accessing the tables and records created by the specified user account.

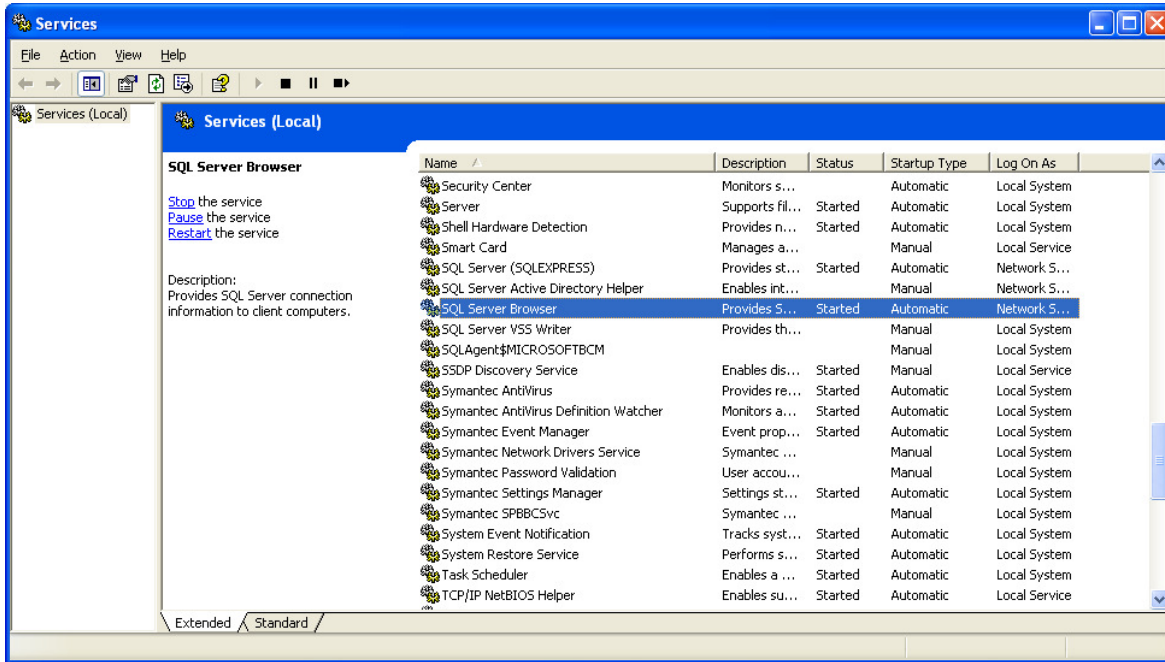
K. Repeat steps A through J for all ASTRA access groups.

L. Exit the Management Studio.

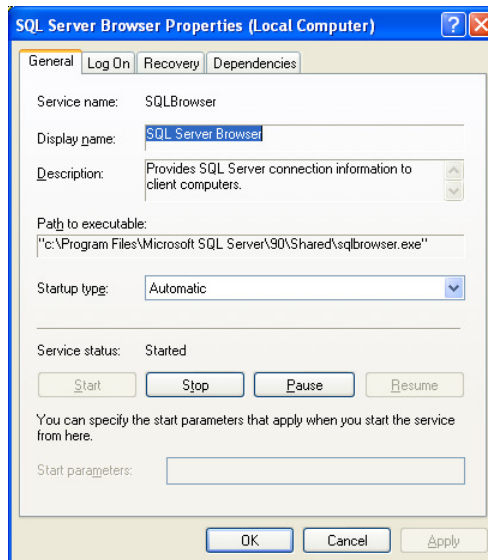
## Step 4 – Enable Discovery of the SQL Service

You need to be able to “see” the SQL Server Express instance so you can connect to it. Therefore, you will need to enable the **SQL Server Browser**.

- A. Start the “Services” utility from the Administrative Tools menu.



- B. Make sure the “Startup type” is set to “Automatic”, and that you have started the service.





### Step 5 – Setup an ODBC connection to the database

ASTRA communicates with the ASTRA\_Experiment database via an Open Database Connectivity (ODBC) connection. The ODBC enables ASTRA to use local or remote databases.

**Note:** Depending on your network security permissions, this step may require that you log onto the local computer with an account with Administrative permissions.

- A. Logon to the computer which will be running ASTRA.
- B. Open Data Sources (ODBC).

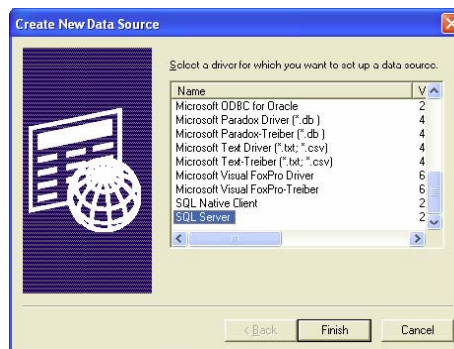
**Windows XP:** navigate to Start, Control Panel, Administrative Tools and select Data Sources (ODBC).

**Windows 2000:** navigate to Start, Settings, Control Panel, Administrative Tools and select Data Sources (ODBC).

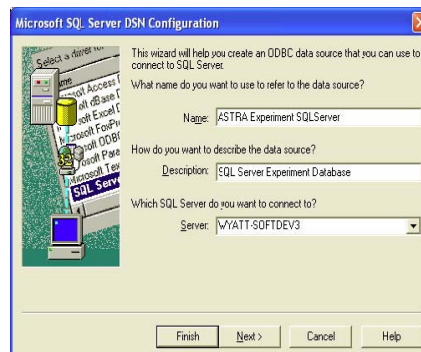
The ODBC Data Source Administrator will be displayed.



- C. Select the System DSN tab in the Administrator and press Add to create a reference to the existing SQL Server Database created in Step 2 – Configure SQL Server Database. The Create new Data Source dialog will be displayed.



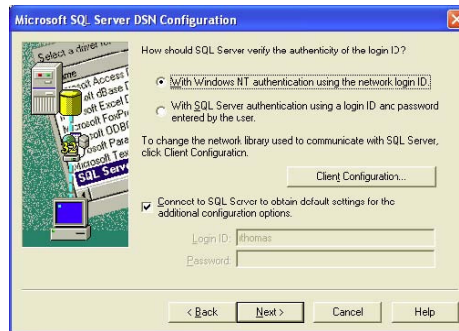
- D. Select "SQL Server" and press Finish. The Create a New Data Source to SQL Server dialog will be displayed.





## ASTRA V: SQL Server Configuration

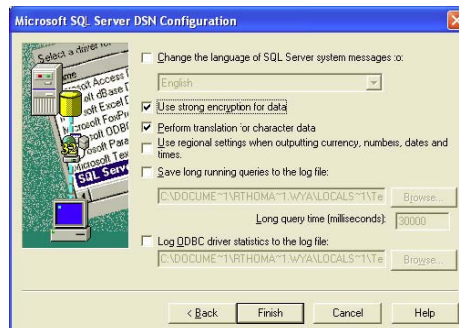
- E. Enter a unique name for the ODBC connection and select the server hosting the SQL Server Database.
- F. Press Next to proceed to the next step. The Microsoft SQL Server DSN Configuration will be displayed.



- G. Select "With Windows NT authentication using the network login ID".
- H. Enable "Connect to SQL Server to obtain default setting for the additional configuration options". Press Next to proceed to the next step. The following dialog will be displayed:



- I. Enable "Change the default database to:" and select the SQL Server Database from Step 2 – Configure SQL Server Database. Press the Next to proceed to the next step. The following dialog will be displayed:



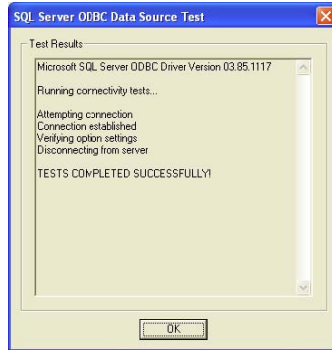
- J. Press Finish to complete the setup. The following dialog will be displayed:



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**K.** Press “Test Data Source...” to validate the setup. If successful, the following dialog will be displayed:

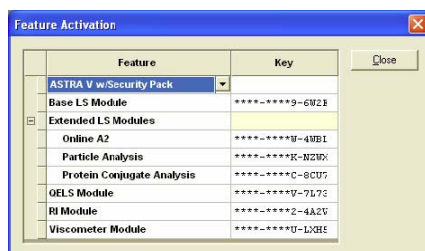


- L.** Press OK to close the SQL Server ODBC Data Source Test dialog.
- M.** Press OK to close the ODBC Microsoft SQL Server Setup dialog.
- N.** Press OK to close the ODBC Data Source Administrator dialog.

### Step 6 – Configure ASTRA w/Security Pack to use the database

ASTRA must be configured to use the ASTRA\_Experiment database. This step will guide you through the process of enabling database usage for the storage of Experiments and Samplesets and connecting to the ASTRA\_Experiment database.

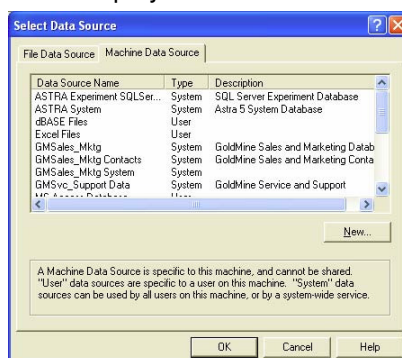
- A. Install ASTRA.
- B. Enable the Security pack feature in ASTRA (this feature enables 21 CFR compatibility).
  1. Run ASTRA
  2. From the **System** menu, select **Feature Activation**. The following dialog will be displayed:



3. Select “ASTRA V w/Security Pack” in the first feature entry and enter the Security Pack key received from Wyatt Technology and Press the Close button.
4. Exit ASTRA, to enable the Security Pack feature.

The next logon will require that you enter a **user name**, **password** and **domain** associated with an ASTRA access group setup in steps B through C to use ASTRA.

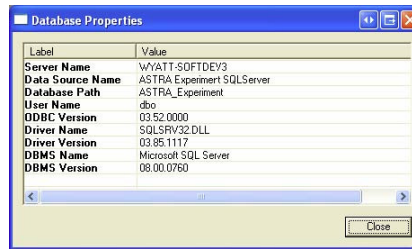
5. Run ASTRA, logon with an account with ASTRA Administrative group membership.
6. From the System menu, select Database Administration then select Connect to Database. The Select Data Source dialog will be displayed.



7. Select the Machine Data Source tab, then select the ODBC SQL Server database connection that was established in Step 3 – Setup ODBC connection to SQL Server Database.
8. Press OK to close the dialog.
9. Exit ASTRA to start using the selected database.
10. Run ASTRA, logon with an account with ASTRA Administrative group membership.

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11. From the System menu, select Database Administration then select Properties. The Database Properties dialog will be displayed:



12. Close the dialog by pressing Close.