



# CornerstoneMFT

## Cornerstone MFT ODBC User Authentication Quick Start Guide

**January 2010**

## Notices

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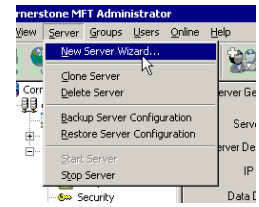
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**Please Note:** The following instructions will help you to set up Cornerstone MFT for user authentication with an ODBC (Open Database Connectivity) compliant database. Some screens in this guide contain options that do not pertain to ODBC User Authentication. If you need additional information regarding these steps, please see the [Cornerstone MFT User Guide](#). For the purpose of this ODBC User Authentication Quick Start Guide, we will guide you through these options without configuring additional settings. A listing of Frequently Asked Questions (FAQ) is also available at our [Knowledgebase Support Center](#)

# Configuring the Cornerstone Administrator

1. Run the *Cornerstone Administration utility* and start the **New Server Wizard**.



2. When the *Administer Domain* window appears, select the radio button to connect to the Local Domain\*. Choose the Host Address by using the drop-down arrow. Type the **Administration Port**, **Administration Username**, and **Administration Password** and click **OK**.



\*NOTE: The ODBC based user authentication requires configuration of an ODBC data source for the PC on which Cornerstone MFT is physically installed so this process must be performed through a Local Domain connection. Configuring ODBC based user authentication through a Remote Domain session is not supported.

3. Select the Server Type and click **Next**.

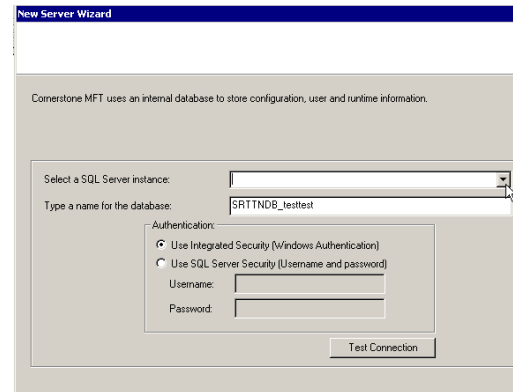


4. Type a unique **Server Name**. Click the drop-down arrow to choose your **IP Address**. (*Any available IP address* indicates that the server will listen on all IP addresses that are configured on the PC along with the local IP address of 127.0.0.0, also known as *localhost*.) Type the **WAN address**. You do not need to type "**http**", for example, "**myserver.com**". Select the check box to start this server when Cornerstone MFT starts. When you are finished, click **Next**.\*

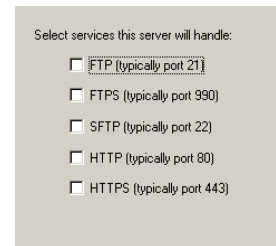


\*If you need to create standard UNIX directories you can find additional information in the [Cornerstone MFT User's Guide](#).

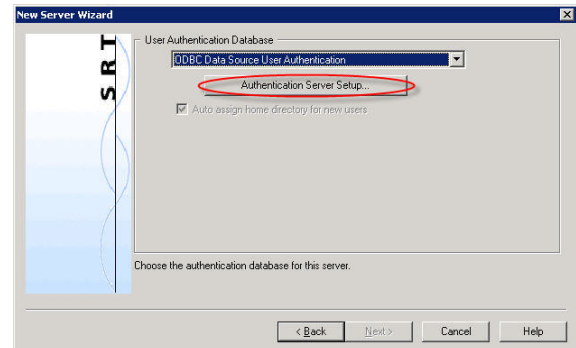
5. Cornerstone uses an internal database to store configuration, user, and runtime information. Use the drop-down arrow to select a SQL Server instance. Type a name for this database. Select **Windows Authentication** or **SQL Server Security**, and then click **Test Connection**. Once you connect successfully, click **Next**.



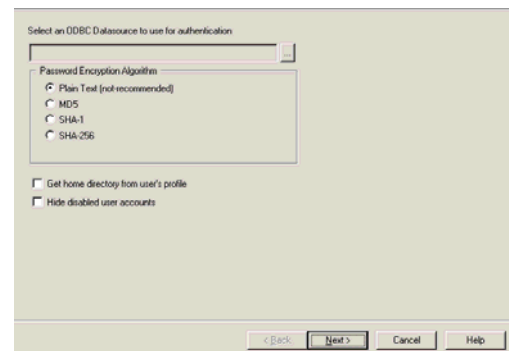
6. Select the **Services** that this server will handle.



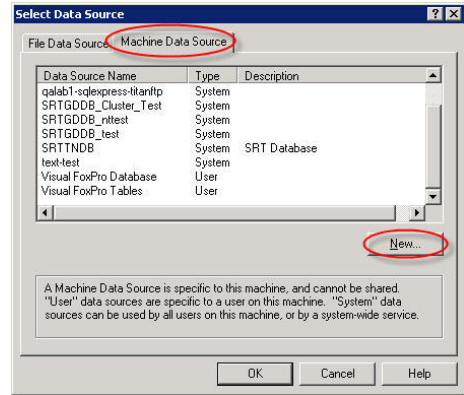
7. Select **ODBC Data Source User Authentication** from the drop-down menu and then click the **Authentication Server Setup** button. This will launch the *ODBC User Authentication Sub-wizard*.



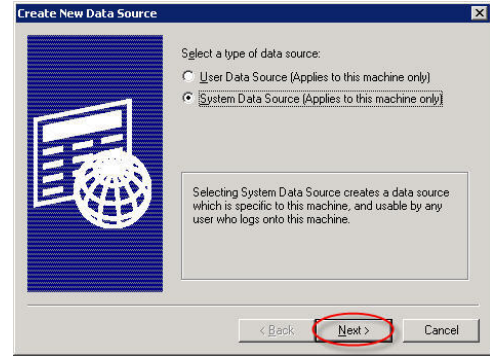
8. The *ODBC Data Source Manager* will allow you to create a new ODBC data source or to select an existing ODBC data source. This data source will store the group, user, and membership information to be used by Cornerstone MFT. Click the "..." browse button to launch the *ODBC Data Source Manager*.



9. Select the **Machine Data Source** tab. Click **NEW** to set up a new data source. If your data source is already listed, select your data source from the list.



10. The *ODBC Administrator Wizard* will launch. To set up a System Data Source, make sure that **System Data Source\*** is selected and then click **Next**.



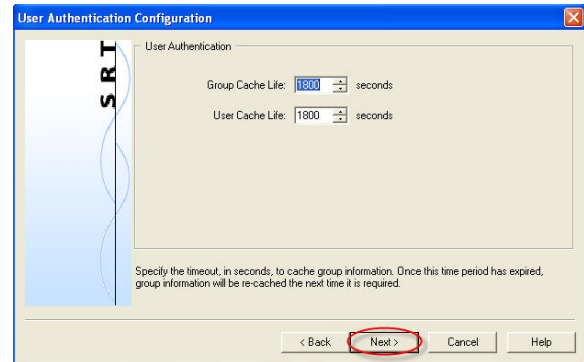
\*Cornerstone MFT runs as a system service and requires a system data source.

The ODBC data source configuration options vary based on your specific ODBC database.

We recommend that you use SQL 2005 or later, no other databases are supported.

- [To view Database Schema Column Descriptions and Schema Example, see Appendix A.](#)
- [To Create an ODBC data source for SQL Server, see Appendix B.](#)

11. Once you have configured your ODBC data source from the appendix, adjust your *Group Cache Life* and your *User Cache Life* using the up/down arrows.\*



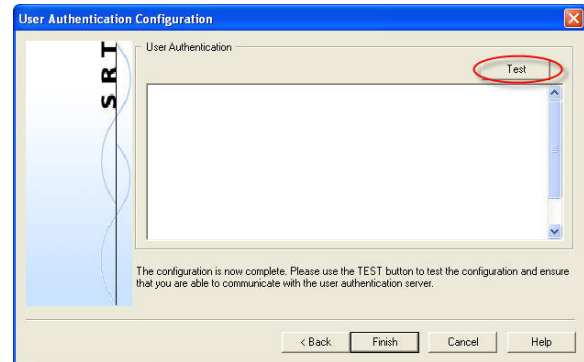
\*Cornerstone MFT will cache user and group information to increase performance and decrease the load on your back-end database. The number of seconds that Cornerstone caches this information is controlled by the User Cache Life and Group Cache Life values. The Group Cache Life value is used by Cornerstone MFT to determine how long to wait before refreshing the group information and also the list of members of that group. Once the cache life has expired, Cornerstone will flag the cached group information as “stale” and the next time Cornerstone needs that group information it will reload the group properties (and the list of members of the group) from the remote database. This means that if you modify the membership of the group by adding new users, or deleting users from the group, those changes will not appear in Cornerstone until the Group Cache Life value has expired and Cornerstone can reload that information. Therefore, if you have a dynamic system where the users/groups change frequently, set the Group Cache Life value to a short value, such as 300 seconds (5 minutes).

The same applies to the User Cache Life setting. If you make a change to a user account in the back-end database, these changes will not appear in Cornerstone until the User Cache Life value has expired on that user account. The exception to the rule is the user's password. Cornerstone never caches user passwords so any changes to the user's password in the ODBC database will take effect immediately.

Warning: Avoid setting the Cache Life values too small. If you set the values too small, the performance could degrade because Cornerstone will be spending too much time flushing and reloading the user/group information from the database.

If you add and delete users frequently, change the Group Cache to 300 seconds.

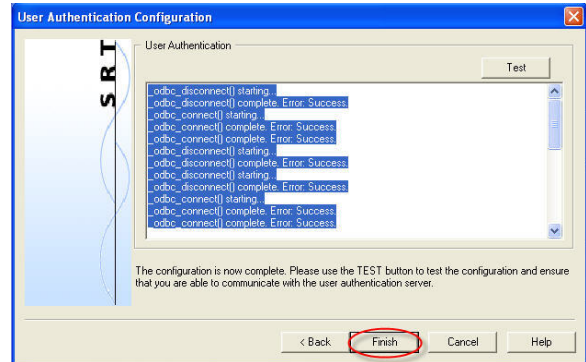
12. Click **Test** to test the configuration and ensure that you are able to communicate with the database server. It is important to note that all tests must complete successfully or your Cornerstone MFT will not function properly.



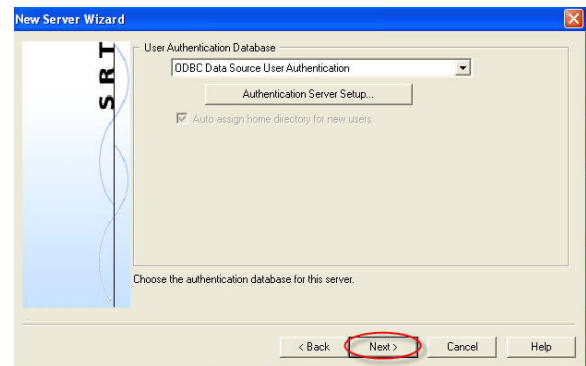
13. If Cornerstone MFT can successfully communicate with the database the message that displays is *Success*. Click **OK**. (If an error is displayed, either Cornerstone was not able to connect to the database, or there was a problem with the back-end database.)
14. After Cornerstone MFT successfully connects to the database, Cornerstone MFT will attempt to generate a list of groups. Click **Yes** to test the generation of a list of groups. This will ensure that Cornerstone is able to query the list of groups from the sr\_uagroups table and that the sr\_uagroups table exists and that it has data in it.
15. Click **Yes** to test the generation of a list of Users. This will ensure that Cornerstone is able to query the list of users from the sr\_uusers table and that the sr\_uusers table exists and that it has data in it.\*

\***PLEASE NOTE:** Cornerstone MFT does not create groups or users when using ODBC User Authentication; this is performed outside of Cornerstone. Cornerstone MFT merely uses the existing group and user data found in sr\_uagroups, sr\_uusers, and sr\_uamembers. Your tables should be correctly populated during this step as Cornerstone will be testing the configuration.

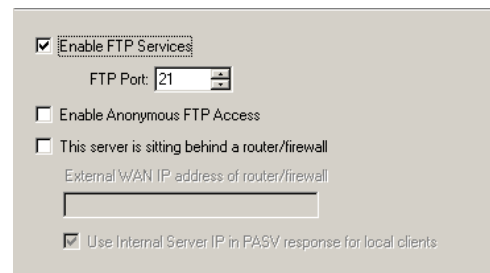
16. Click **Finish** to exit the *ODBC User Authentication sub-wizard*.



17. You are now returned to the *Cornerstone New Server Wizard*. Click **Next**.

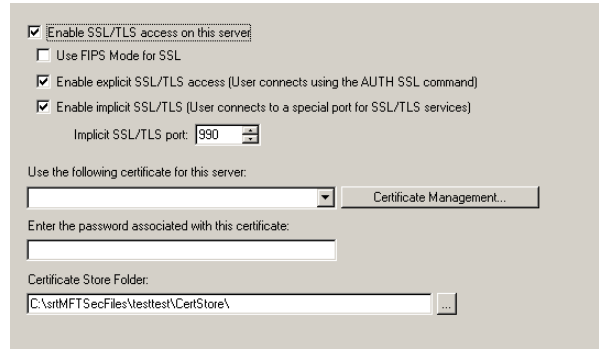


18. If you wish to enable FTP Services select the *Enable FTP Services* check box. Select the *FTP Port* number by using the up/down arrows. To enable anonymous FTP access, select the check box. If your server is sitting behind a router/firewall select this check box and type the external WAN address of the router/firewall. You do not need to type "**http**", for example, **mywanaddress.com**. When you are finished with *FTP Services* options\* click **Next**.



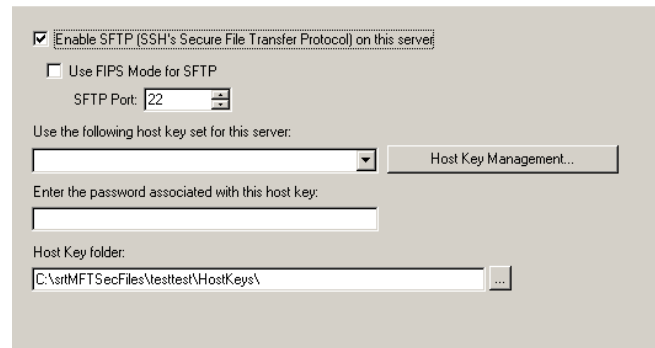
\*For more detailed information pertaining to these configuration options see the [Cornerstone MFT User's Guide](#).

19. To enable SSL/TLS access on this server select this check box and choose the appropriate sub-option. Click the drop-down arrow to choose the certificate. Click **Certificate Management** to configure a certificate for this server. Enter the password associated with the certificate. Use the "..." button to browse to the *Certificate Store Folder*. When you are finished configuring SSL/FTPS Security Settings,\* click **Next**.

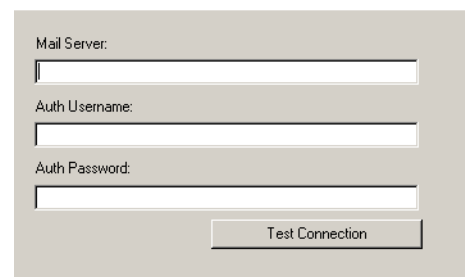


\*For more detailed information pertaining to these configuration options see the [Cornerstone MFT User's Guide](#).

20. To enable SFTP (SSH's Secure File Transfer Protocol) on this server select the check box and choose the SFTP port (default port 22) using the up/down arrows. Choose the *host key set* by using the drop-down arrow. Click **Host Key Management** for host key configuration options. Type the password associated with the host key. Click the browse "..." button to browse to the *Host Key folder*. For more detailed information pertaining to these configuration options, see the [Cornerstone MFT User's Guide](#). Click **Next** when you are finished configuring SSH/SFTP Security Settings.



21. Type the URL or IP address of the SMTP mail server that will be used to send email notifications to users. You may test the connection by clicking **Test Connection**. (For more detailed information pertaining to these configuration options see the [Cornerstone MFT User's Guide](#).) When you are finished click **Next**, and then click **Finish** to create the server.



22. Once the server is created, the server starts and appears in the main Cornerstone MFT Administrator window. A green icon appears to indicate that the server is running. At this point, there are no external ODBC groups or users mapped to Cornerstone MFT.\*

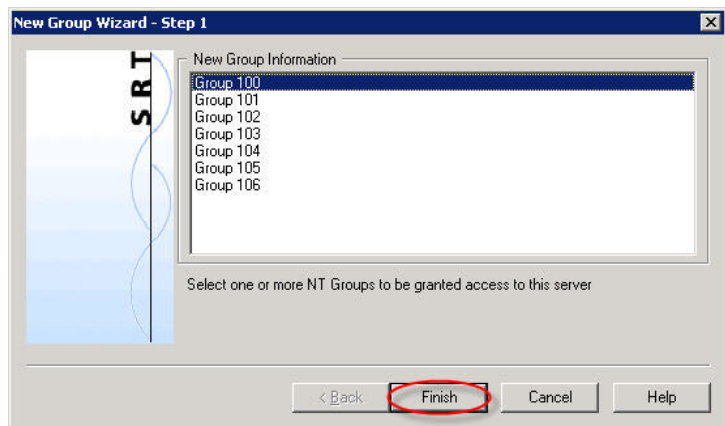
\***PLEASE NOTE:** All Cornerstone MFT users must belong to a group. Before any users can access the system, you must add one or more groups to the server. Because Cornerstone MFT uses an external user database, groups that will participate in the Cornerstone MFT must be selected/mapped into Cornerstone MFT from the external database. To do this, you must run the *New Group Wizard* to add a new group to the Cornerstone MFT.

The Cornerstone MFT User Authentication systems are driven by unique ID's that are assigned to users and groups. Group ID's must start at 100, must be unique, and must range from 100 to 999. User ID's must start at 1000, must be unique, and can range from 1000 to 2,000,000,000.

For more information about the Database Schema, see the [Database Schema Appendix A](#).

23. Click on Groups in the *Cornerstone MFT Administrator*. Click **New Group Wizard** to launch the wizard.

24. The *New Group Wizard* has one page. On that page will be a list of all groups that exist in the external ODBC database (see the sr\_uagroups table in [Appendix A](#) of this quick start guide). Select one or more groups that will participate in the Cornerstone MFT. We have selected **Group 100**, which has one user, **User1001**. Click **Finish** to attach these Groups (and member users) to Cornerstone MFT.



25. **Group 100** and **User 1001** are now attached to the server. Please note that *membership* is defined in the sr\_uamembers table. The sr\_uamembers table will dictate which users appear when the group is included in Cornerstone. *Each user must be a member of a group.*

26. It is now time to test the server.\*

Open a command prompt and type:

**ftp** and then press the Enter key.

Type either:

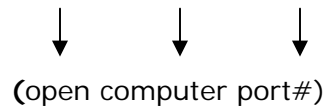
**open localhost**

-OR-

**the IP Address that you specified in step 4.**

If you specified a port number in [Step 18](#) you must add the port number.

For example, type: open localhost 21



```
C:\WINDOWS\system32\ftp.exe
ftp> open localhost
Connected to wsjodi.
220 Service ready for new user.
User (wsjodi:(none)): user1001
331 User name okay, need password.
Password:
230 Welcome user1001 from 127.0.0.1. You are now logged in to the server.
ftp>
```

This will begin an FTP session with the local Cornerstone MFT that you created.

When prompted, enter the user name: **user1001**

When prompted, enter the user's password: **password**

You are now logged on to the Cornerstone MFT.

Type **quit** to exit DOS and return to Windows.

\*If you [enabled SFTP](#), please see step 27 for an alternate method to test the server.\*

27. If you enabled SFTP you can download an SFTP client, such as psftp.exe, to test your server. After you have downloaded your SFTP client:

Open a command prompt and type: **psftp** and then press the enter key.

Type either:

**open localhost**

-OR-

**the IP Address that you specified in [step 4](#).**

If you specified a port number in [Step 18](#) you must add the port number.

For example, type: open localhost 22

↓       ↓       ↓  
(open computer port#)

This will begin an SFTP session with the local Cornerstone MFT that you created.

When prompted, enter the user name: **user1001**

When prompted, enter the user's password: **password**

You are now logged on to the Cornerstone MFT.

Type **quit** to exit DOS and return to Windows.

## Appendix A: Database Schema Column Descriptions

### Table: sr\_uagroups

This table stores the group lists that Cornerstone MFT accesses by way of the Cornerstone MFT Administration utility.

- **groupid** – This is a 4-byte numeric value that uniquely identifies each group in the system. Group ID's must be numbers only, must be unique, and must be within the range of 100-999.
- **gname** – This is a text field that stores a human readable name associated with the group. This field must contain alpha-numeric printable/readable ASCII characters only. The maximum length of a group name in Cornerstone MFT is 131 characters.
- **gdesc** – This is a text field that stores a human readable description associated with a group. This field must contain alpha-numeric printable/readable ASCII characters only. The maximum length of a group description in Cornerstone MFT is 131 characters.

### Table: sr\_uusers

This table stores the list of users who can be granted access to the Cornerstone server. Since Cornerstone is a "group" based server, only users who are members of a group included in Cornerstone MFT will be permitted to access the server.

- **userid** – This is a 4-byte numeric value that uniquely identifies each user in the system. User ID's must be numbers only, must be unique, and must be within the range of 1000-2,000,000.
- **uname** – This is a text field that stores the user name for a user. This field must contain alpha-numeric printable/readable ASCII characters only. No spaces are permitted in a user name. User names are not case sensitive; however, using only lowercase characters in a user name is recommended. The maximum length of a user name in Cornerstone MFT is 131 characters.
- **upass** – This text field contains either the user's password, or a hash of the user's password depending on the type of password masking that has been chosen in the Cornerstone Administrator during the setup process. Cornerstone currently supports Plaintext, MD5, SHA-1, RIPE-MD-160, and SHA-256 hashing algorithms for passwords.
- **ufullname** – This text field contains the user's full name. This field must contain alpha-numeric printable/readable ASCII characters only. This field allows a maximum length of 131 characters.

- **uhomedir** – This text field contains the fully qualified path for the user’s home directory. This can be a local path or a UNC (Universal Naming Convention) that points to a remote data location. Note: do not use a mapped drive letter. Cornerstone MFT runs as a system service so it does not have access to mapped drives which are “user” based. Use a UNC instead.
- **uenabled** – This Boolean field tells Cornerstone MFT if the user account is enabled or disabled. If this value is 1, then the user will be permitted to log on to the Cornerstone server. If this value is 0, the user will not be permitted to log on to the Cornerstone server even if they specify a valid password.

#### **Table: sr\_uamembers**

This table stores a mapping of Users to Groups. Since Cornerstone is a Group based server, users must belong to a group that has been included in the Cornerstone Administrator.

- **'groupid'** – This field contains the unique Group ID for the group that will be allowed to access the Cornerstone MFT.
- **'userid'** – This field contains the unique User ID for the user that will be a member of the group accessing Cornerstone MFT.

## Schema Example

**Table: sr\_uagroups**

<b>Name</b>	<b>Type</b>	<b>Size</b>
groupid	Long Integer	4
gname	Text	132
gdesc	Text	132

**Table: sr\_uusers**

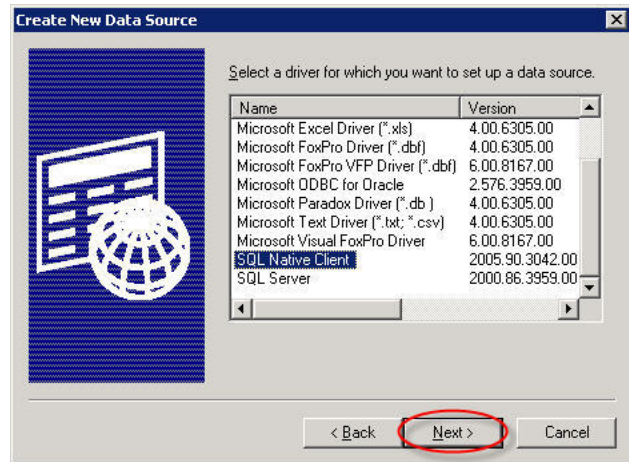
<b>Name</b>	<b>Type</b>	<b>Size</b>
userid	Long Integer	4
uname	Text	132
upass	Text	132
ufullname	Text	132
uhomedir	Text/Memo	1024
uenabled	Long Integer	4

**Table: sr\_uamembers**

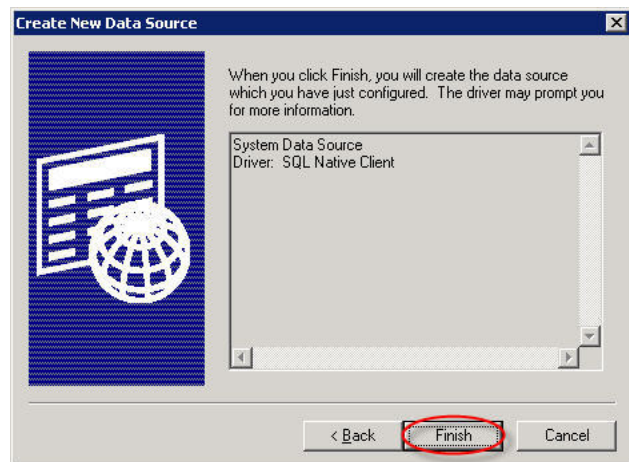
<b>Name</b>	<b>Type</b>	<b>Size</b>
groupid	Long Integer	4
userid	Long Integer	4

## Appendix B: Configuring Cornerstone to SQL Server Database

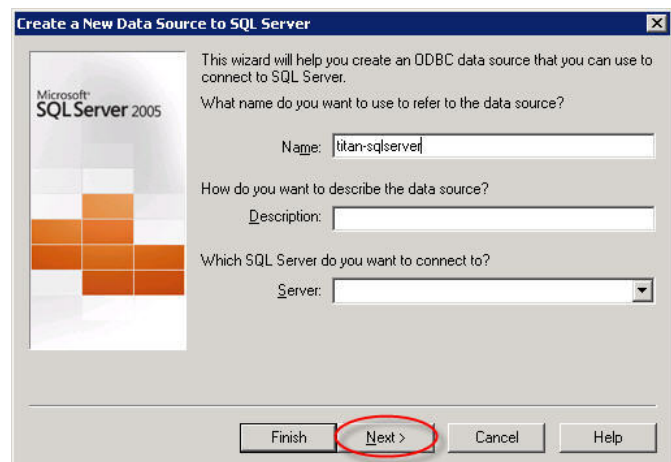
- From the list of available ODBC drivers, select **SQL Native Client** and then click **Next**.



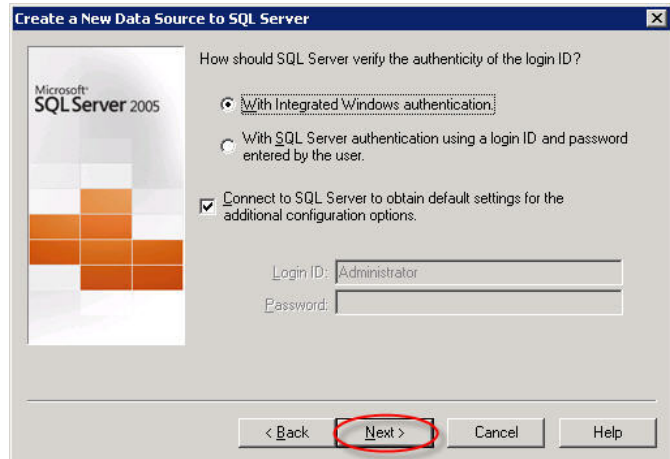
- Click **Finish** to create the data source.



- Type the name of your data source. We have named our data source **Cornerstone-sqlserver**. Use the drop-down arrow to choose the SQL server that you would like to connect to and then click **Next**.



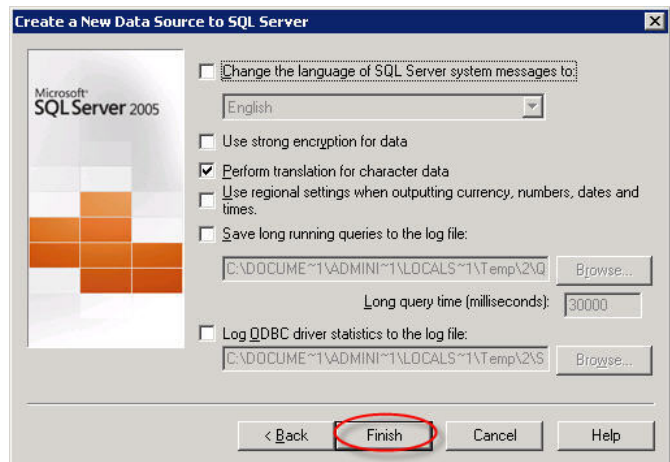
- Choose your preferred authentication method. We have chosen Integrated Windows authentication. Select the check box to connect to SQL Server to obtain default settings for additional configuration options.\* Click **Next**.



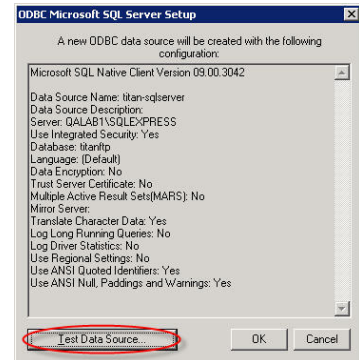
\*Cornerstone MFT will now attempt to log you on to the server. If you receive an error message, contact your SQL Server Administrator.

- Select the check box to change the default database. We recommend that you do not use the master database. Choose your database using the down arrow. Click **Next**.

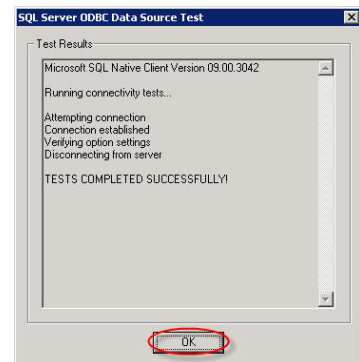
- Keep the default settings and click **Finish**.



7. Click **Test Data Source**.



8. You should see the **Tests Completed Successfully** message.\* Click **OK**.



\*If you receive an error message please contact your SQL Server Administrator.

9. You now have the ODBC System/Machine Data Source configured to point to the sample SQL Server database. Click **OK** to return to the *Cornerstone MFT Wizard*.

10. The **sqlserver** data source name is now displayed in the window. The sample database uses Plain Text\* Password Encryption, so make sure that option is selected. Click **NEXT** and return to the main body of the instruction [step 9](#) to continue with the remainder of the server setup wizard.

**\*Please note:** Plain Text is **not recommended** for production systems. It is used here for illustration purposes only. Also, if you need to be FIPS (Federal Information Processing Standard 140) compliant you cannot use RIPE-MD 160. The password format that you choose must match the encryption technique that you use.

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