How to protect, restore and recover SQL 2005 and SQL 2008 Databases

Introduction

This document discusses steps to set up SQL Server Protection Plans and restore protected databases using our software. In addition, recovery options are discussed and recovery steps are provided to replace an existing database or to attach the restored database alongside the original database. Contact your SQL database administrator for additional support.

Prerequisites

Each SQL Server you wish to protect requires Microsoft CLR Types and Microsoft SQL Management Objects for SQL 2008. If needed, these components will be installed automatically the first time a SQL Plan runs on that server. The setup programs for these components are available to remote computers over the network by UNC path: \\<ArchiveIQServerName>\AIQRemote$. They are also available from the Microsoft web site.

On each SQL Server you wish to protect, verify that the SQL VSS Writer is present by running VSSADMIN LIST WRITERS from a command prompt.

Local SQL Plan Creation

1. After launching the **Archive Manager** console, Right Click on the node **Local Plans** and select **Add SQL Server Protection Plan**.

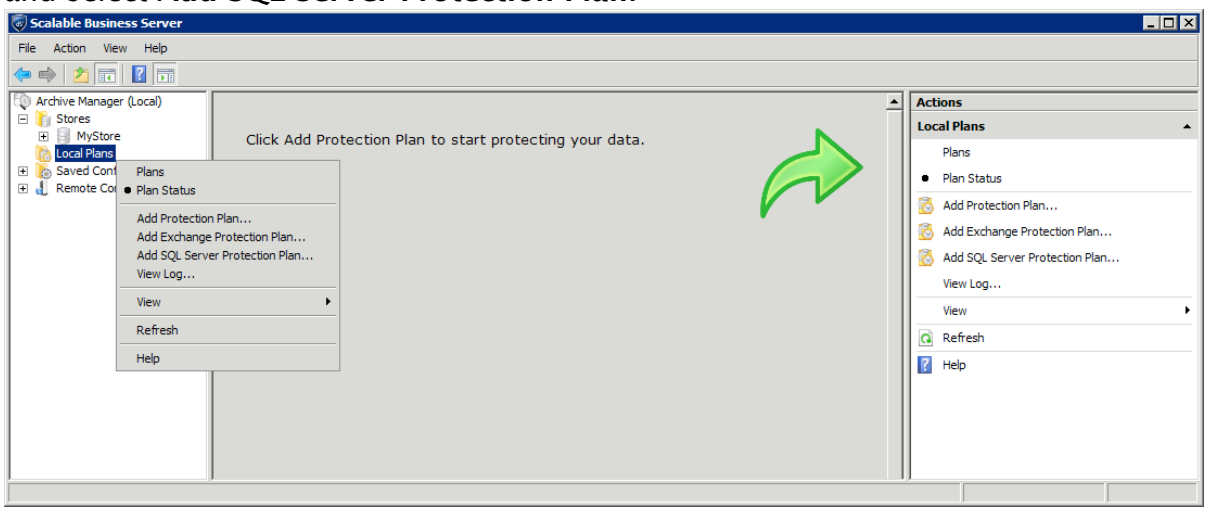

Figure 1: Select Add SQL Server Protection Plan.

2. The Add SQL Server Protection Plan wizard will take a moment to launch as it searches for all SQL databases installed on the server. When the wizard appears, a list of databases grouped by instance names will be displayed showing each database's operation state and recovery model. Select the databases you wish to protect.

Selected databases that have a Full Recovery recovery model can have their log files truncated during Protection Plan execution by checking **Truncate logs with full backups.** This switch is ignored for databases configured with the Simple recovery model.

Click Next to continue.

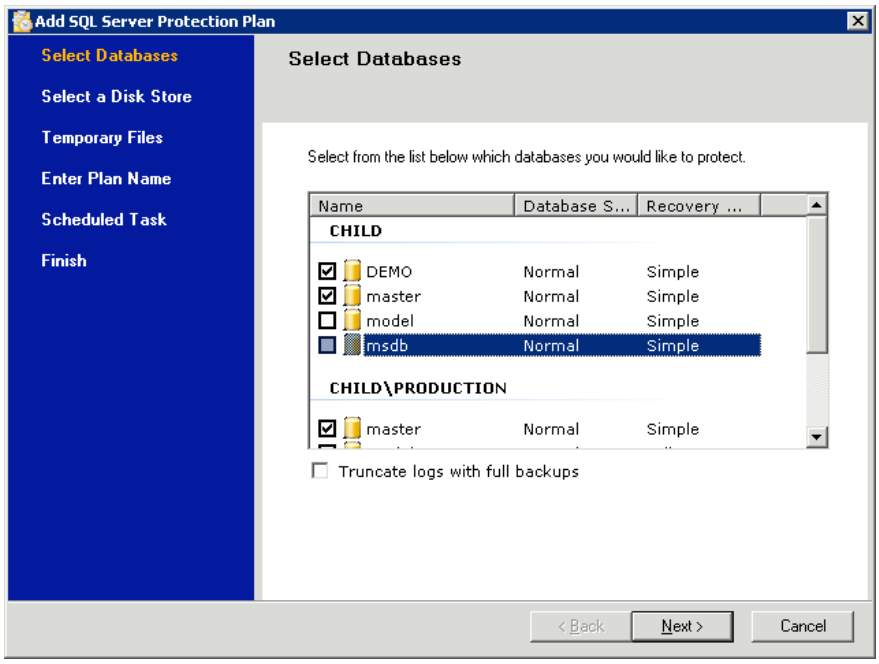

Figure 2: Select the databases to protect.

3. Select a Store for this Protection Plan's protected data; **click Next.**

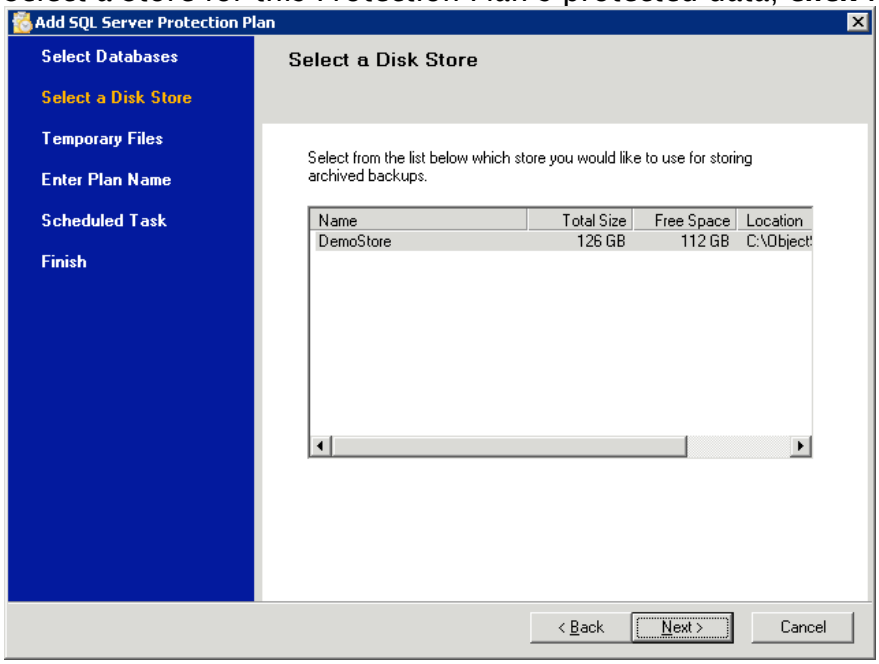

Figure 3: Select a Store to keep protected data.

4. After the Store is selected, you will be given an opportunity to change the temporary files directory used during processing; **click Next.**

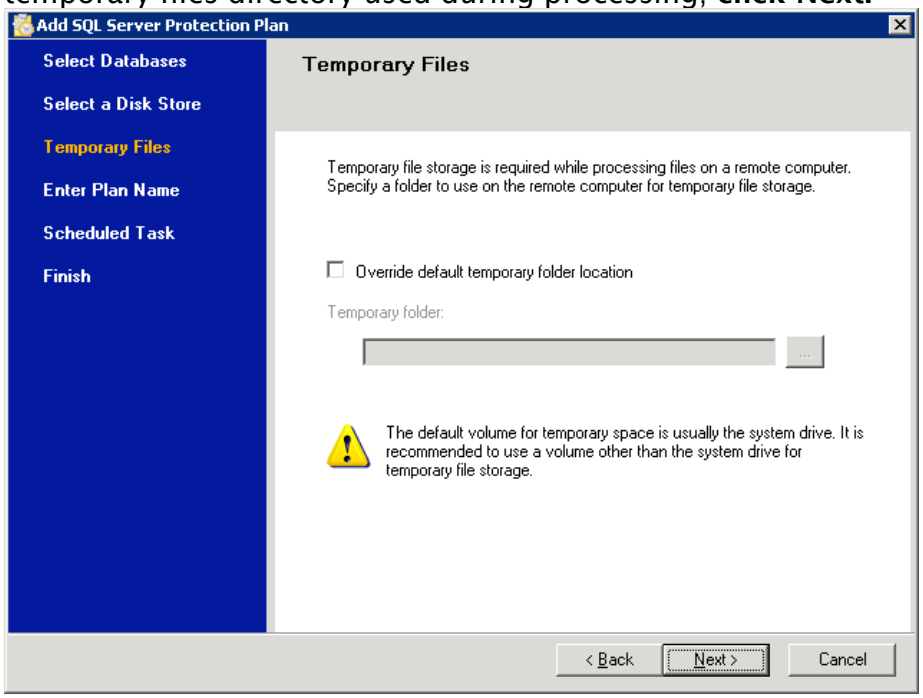

Figure 4: Change the temporary processing location.

5. The next option allows you to give the Plan a friendly, descriptive name; **click Next.**

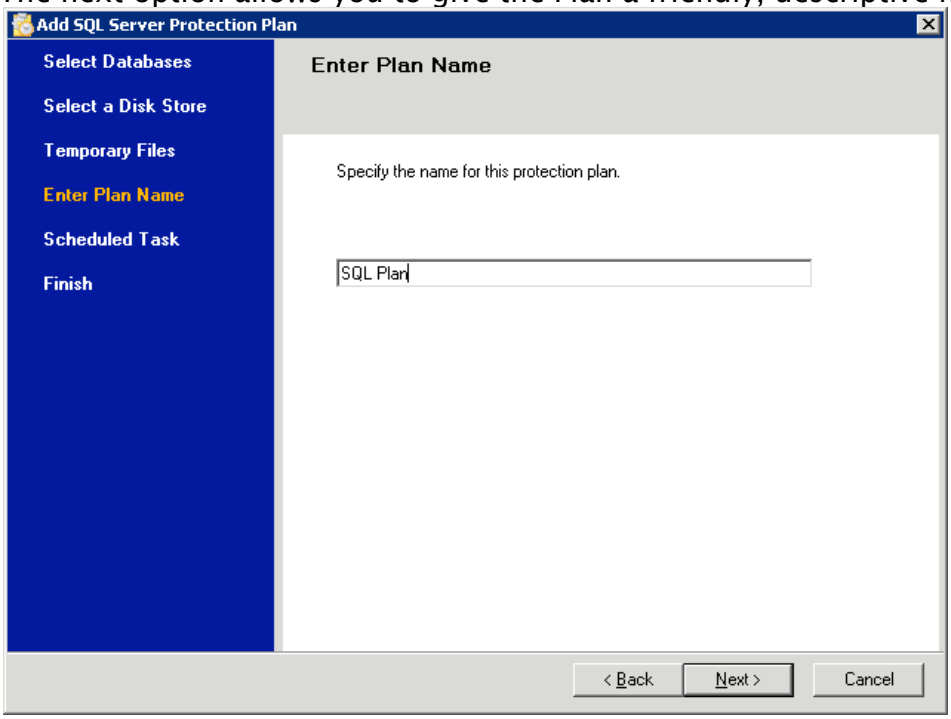

Figure 5: Name the Plan.

6. The Plan needs proper credentials in order to run. Enter credentials; **click Next.**

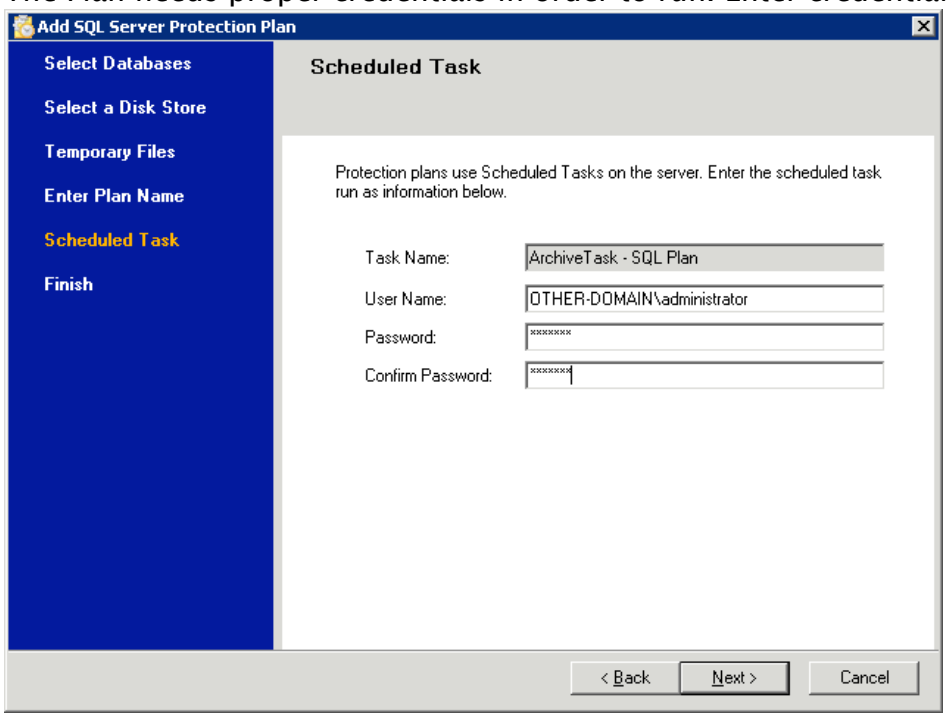

Figure 6: Provide credentials for Plan execution.

7. Review the Plan configuration summary; **click Finish.**

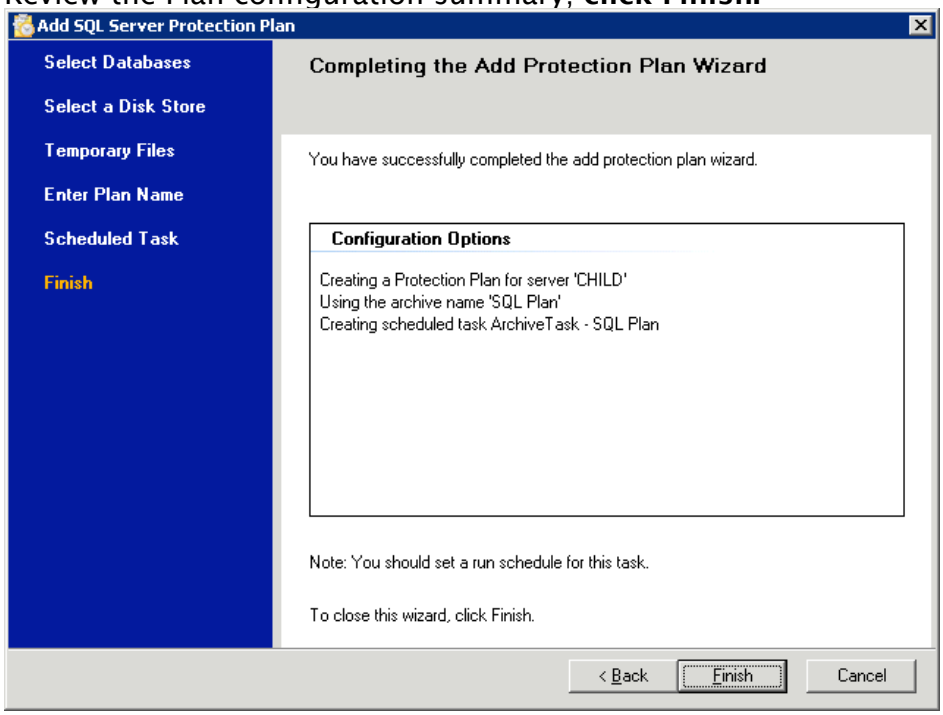

Figure 7: Summary

Remote Installation

1. Launch the **Archive Manager** console, then select the node “All Computers” under the Remote Computers node.

   Note: You can create your own logical computer groupings by choosing the Add Group action from Remote Computers node. Add your remote computers under the new groups as desired.

2. Right Click on **All Computers** (or your custom group) and select Add Server.

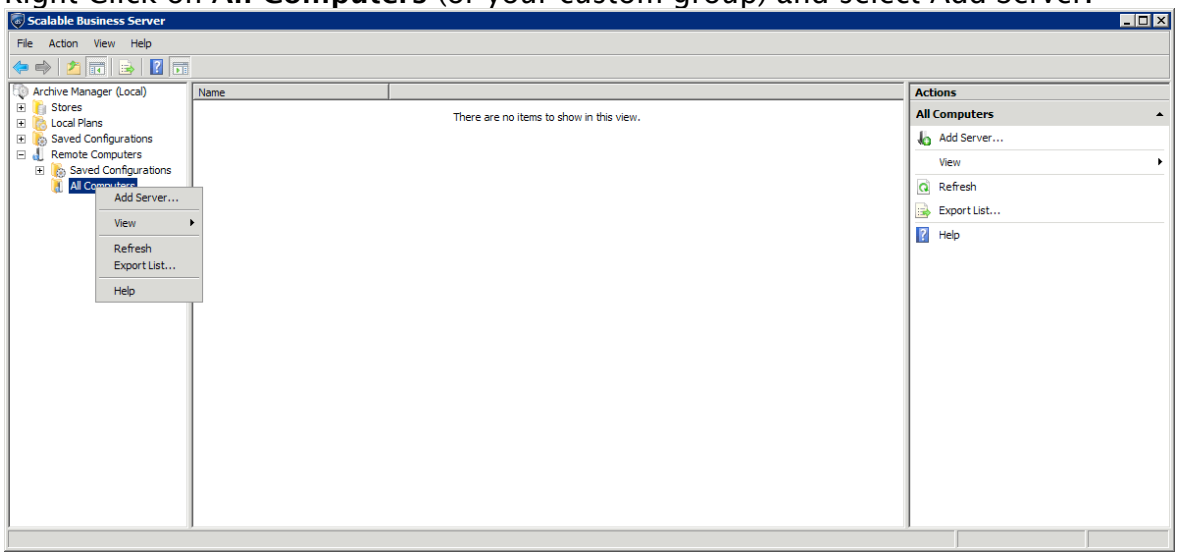

Figure 73: Add Remote Server

3. When an **Add Server** Dialog appears, enter the computer name of the SQL Server you are adding. The added server will appear under the Remote Computers node.

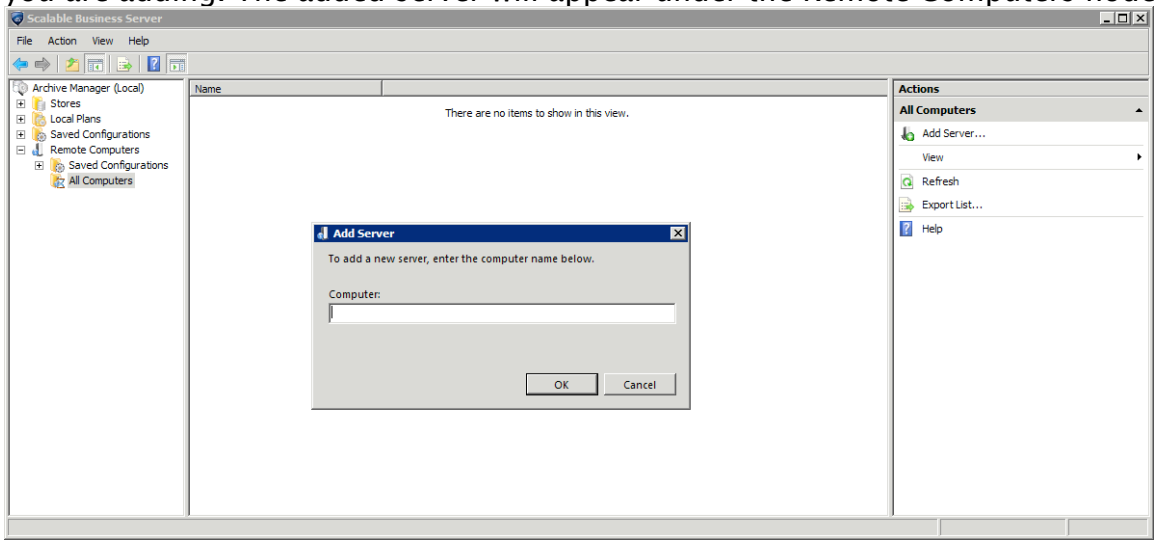

Figure 74: Add Remote Computer Name

4. Select the new server, then click its **Add SQL Server Protection Plan** action.

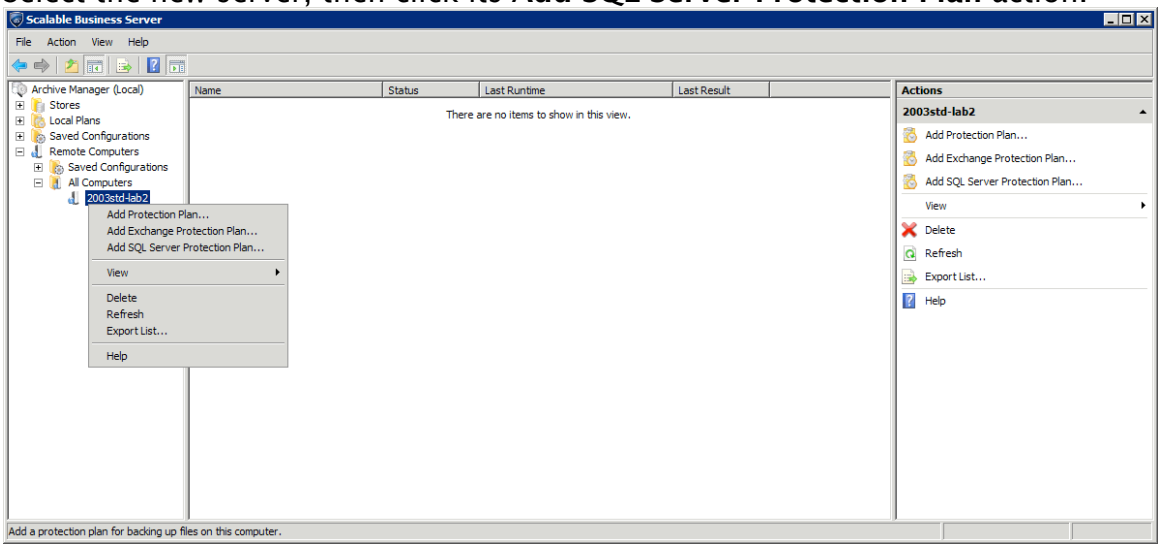

Figure 75: Add SQL Protection Plan

5. The Add SQL Server Protection Plan wizard will take a moment to launch as it searches for all SQL databases installed on the server. When the wizard appears, a list of databases grouped by instance names will be displayed showing each database's operation state and recovery model. Select the databases you wish to protect.

   Selected databases that have a Full Recovery recovery model can have their log files truncated during Protection Plan execution by checking **Truncate logs with full backups.** This switch is ignored for databases configured with the Simple recovery model.

   Click Next to continue.

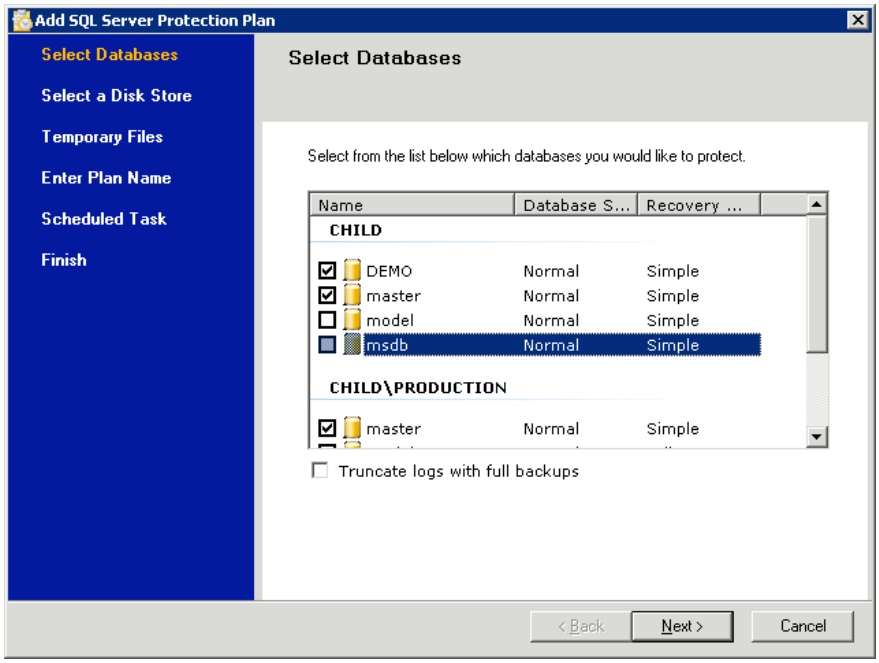

Figure 76: Select the databases to protect.

6. Select a Store for this Protection Plan's protected data; **click Next.**

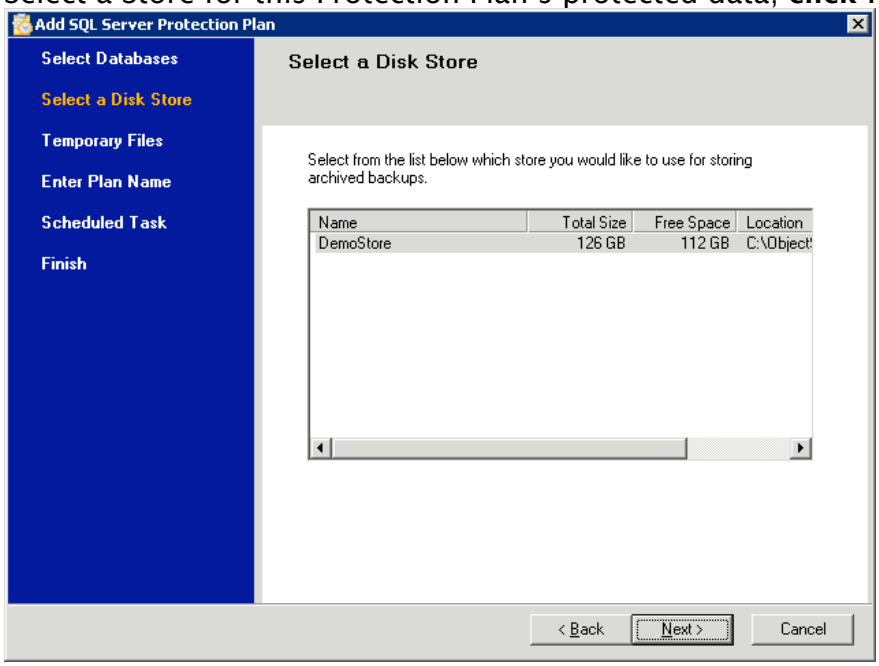

Figure 77: Select a Store to keep protected data.

7. After the Store is selected, you will be given an opportunity to change the temporary files directory used during processing; **click Next.**

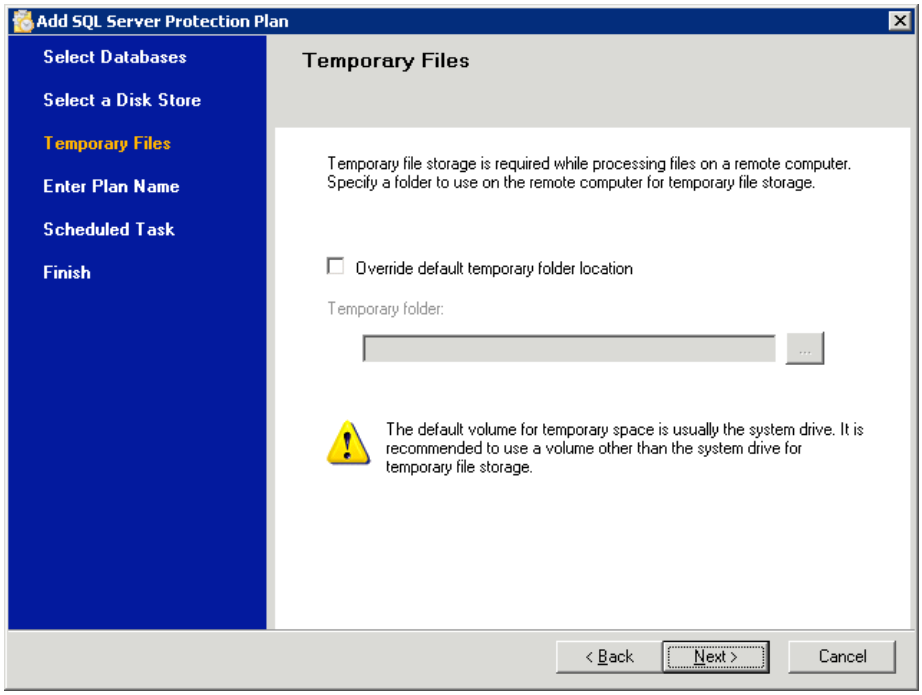

Figure 78: Set new temporary location.

8. Name the protection plan; **click Next.**

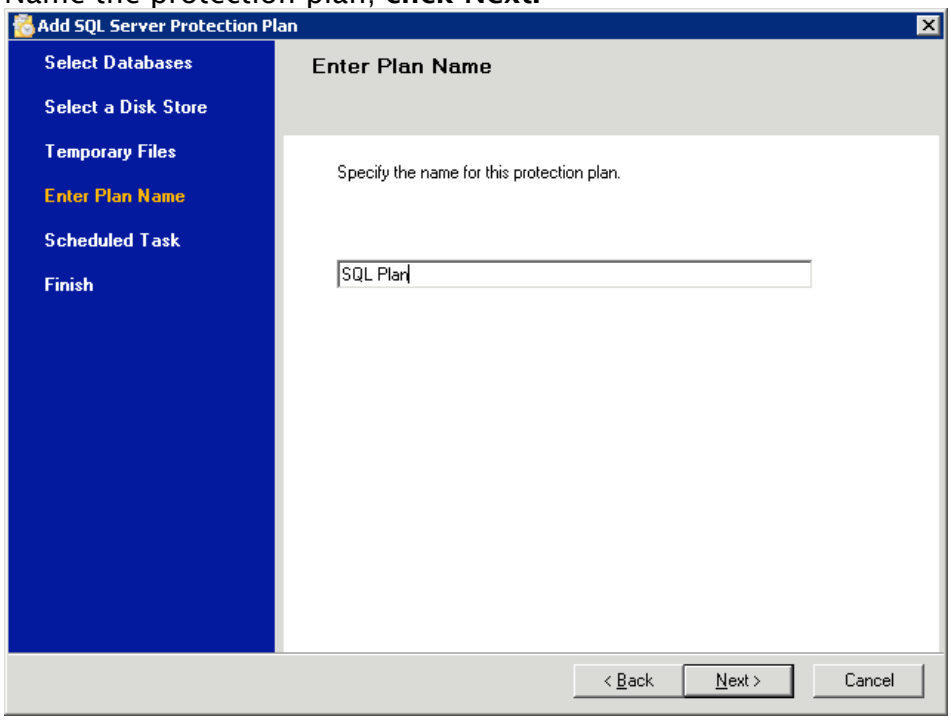

Figure 79: Name the Plan.

9. The Plan needs proper credentials in order to run. Enter credentials; **click Next.**

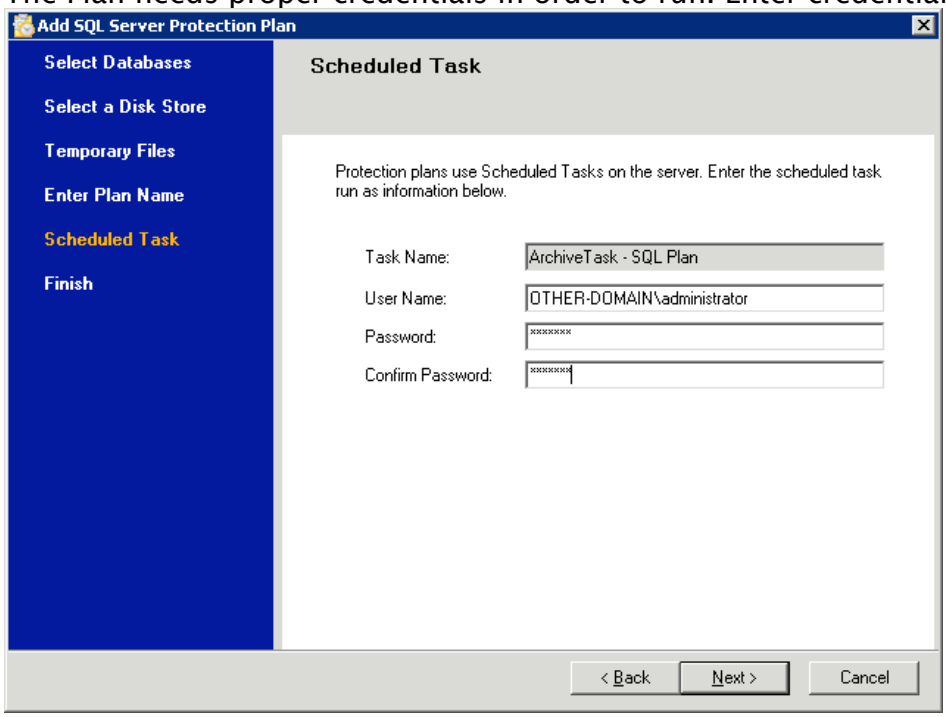

Figure 80: Supply Credentials for Plan execution.

10. Review the Plan configuration summary; **click Finish.**

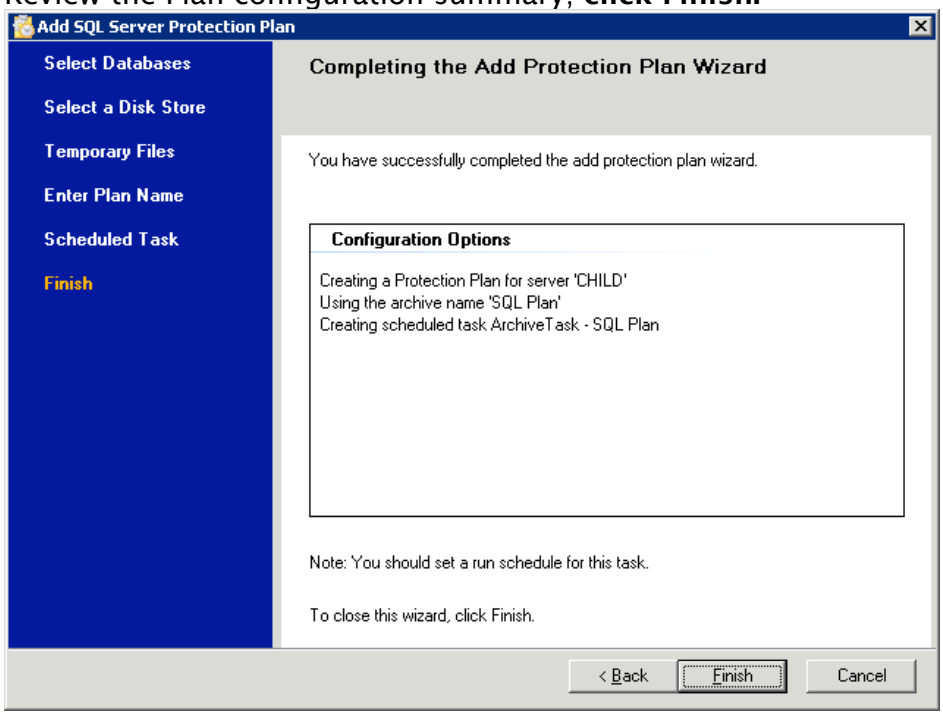

Figure 81: Summary.

Protect SQL

A SQL Server Protection Plan protects all of the files for each of its selected databases. The software queries SQL for database locations; there is no need to configure specific folders. As a Plan runs, a progress update is displayed in the User Interface.

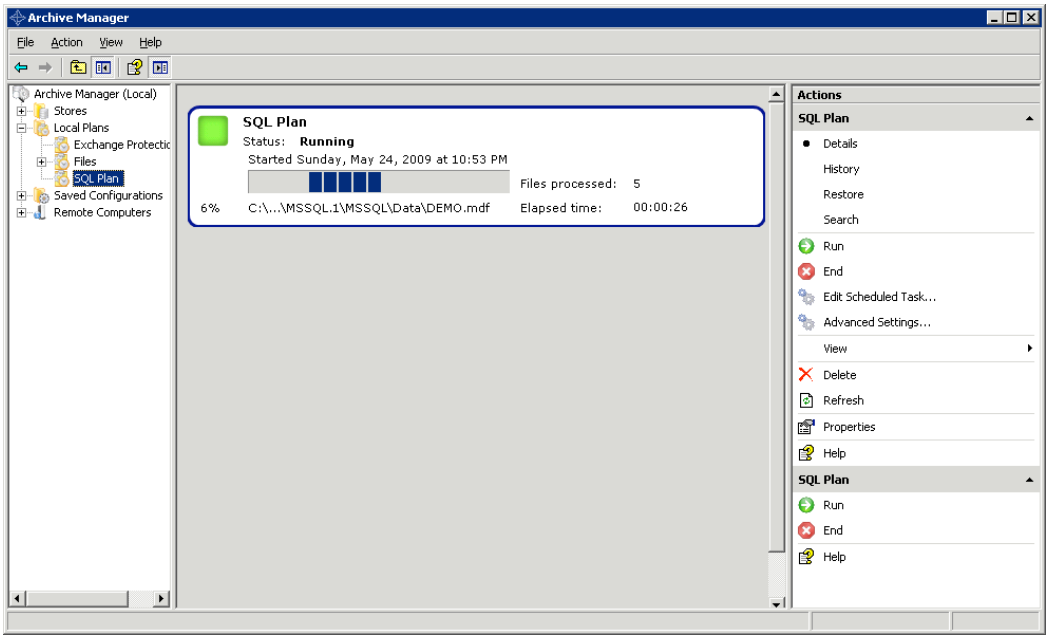

Figure 82: Progress Update.

After a plan runs, eligible logs are truncated if the **Truncate logs with full backups** option was chosen. A Plan's History action allows you to view statistics of each run.

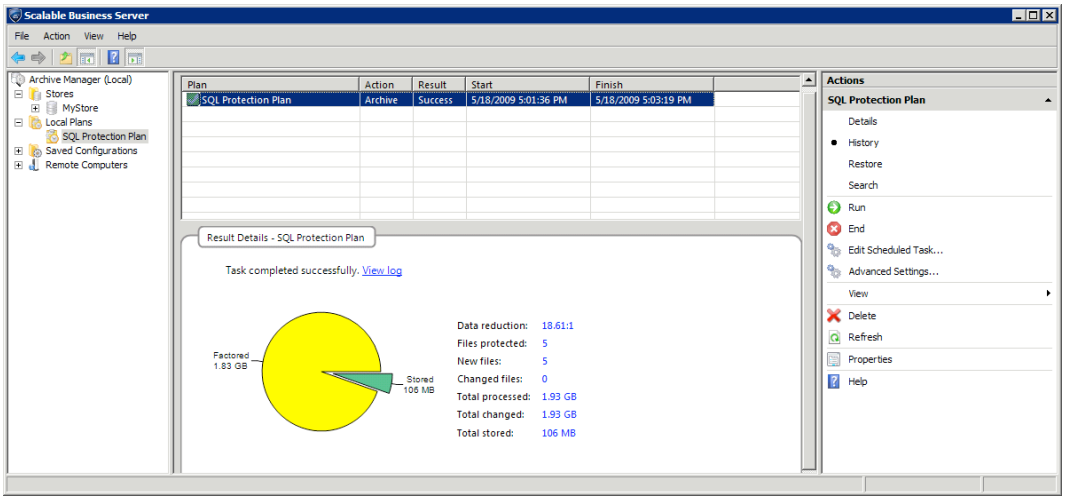

Figure 83: Storage Statistics.

Restore

A SQL database can be in its own unique folder but the log files and secondary database files may or may not be in the same location. You must select a folder to restore to, then you will need to perform some recovery steps to actually begin using

the restored database; you can't just restore to the original location and have everything work automatically. The files and original folder structure will be created below your chosen restore folder.

When restoring a database you do not need to shut down existing databases or SQL instances.

To restore, open **Archive Manager**, select the relevant SQL plan, then select the Restore action. Choose a date from which to restore (dates in bold font are dates when the plan was run). Highlight the desired restore point, then click the Restore button.

1. Select the plan and desired restore point, then click the **Restore** button.

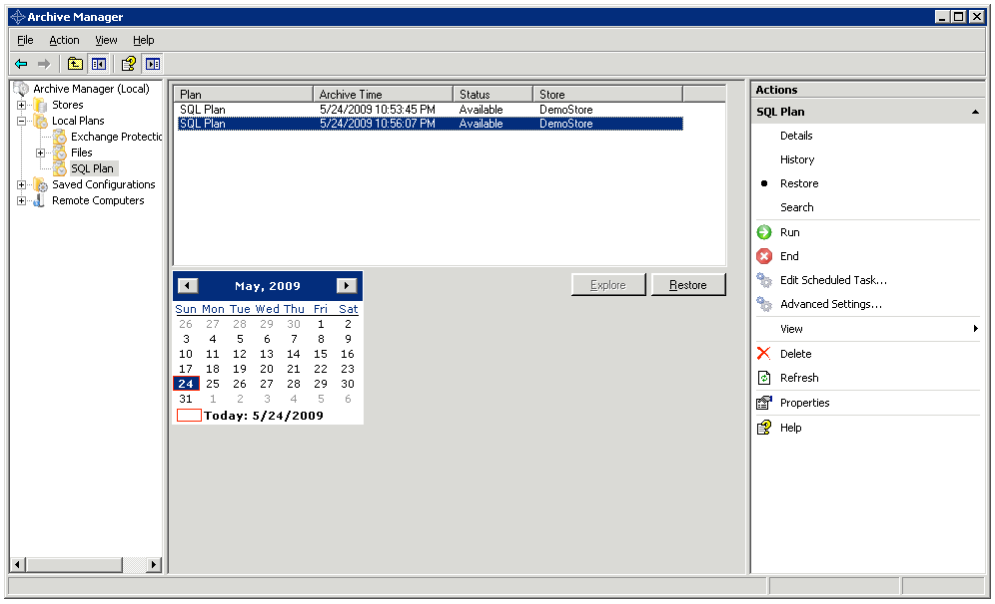

Figure 84: Select Plan

2. Select a Database or Databases to restore; **Click Restore** to open the **Database Restore** screen.

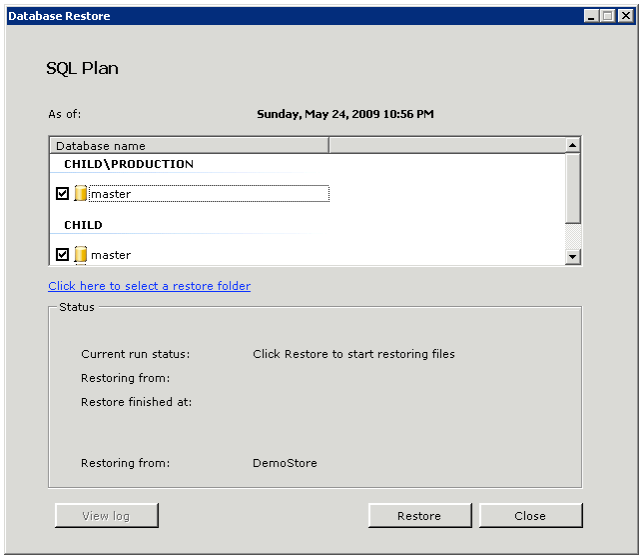

Figure 85: Select databases to restore

3. In the Database Restore screen, click "**Click here to select a restore Folder**" to select a restore folder. All files will be restored to a folder below the selected restore folder. The folder's name will be based on the Plan name.

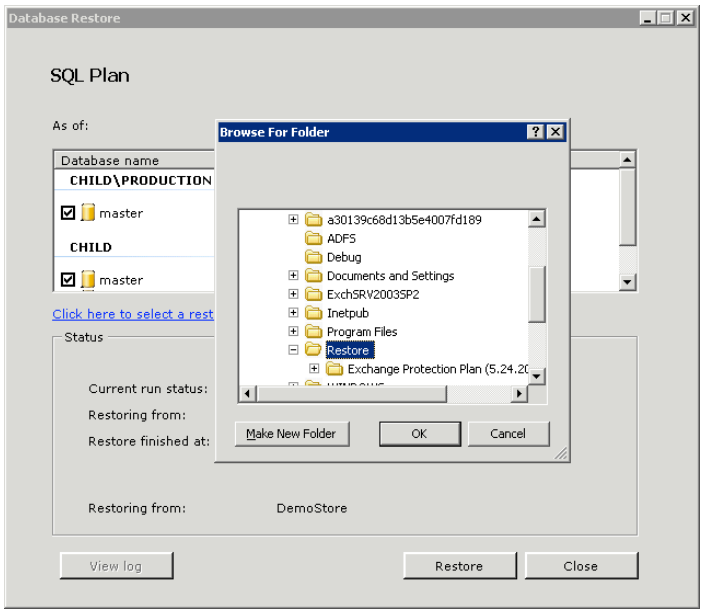

Figure 86: Select destination

4. Click Restore. A dialog box will indicate completion status.

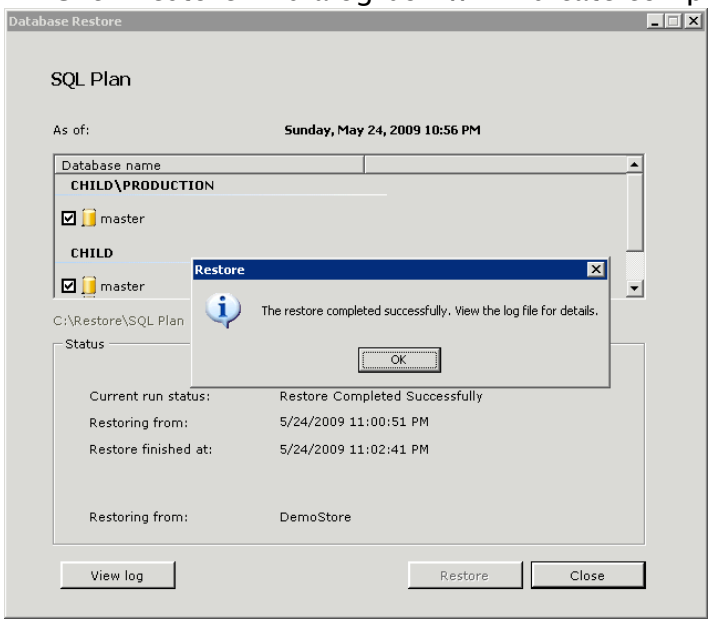

Figure 87: Click Restore

Recovery

When a backup application with SQL Server VSS Writer integration protects a SQL database, SQL marks the database file header stating the file is in a Dirty Shutdown state. The header also records the internal virtual log files within the transaction log files required to recover the database and allow it to mount.

Suggested best practice is to attach the restored databases using the SQL Server Management Studio, by right clicking the databases node under the instance where you wish to restore the database. SQL Server Management Studio will guide you in selecting the MDB files needed to attach the databases, and it will automatically recover the databases when you click OK. No further recovery action is needed.

You will need to move or import any tables you wish to recover using the SQL IMPORT wizard, or, if necessary, you can import the attached database into a new database where you want your data to reside. Continued use of the restored/attached database is not recommended.

Steps To Replace Existing Database

1. Using SQL Server Management Studio, connect to the SQL Instance where you wish to restore the database.

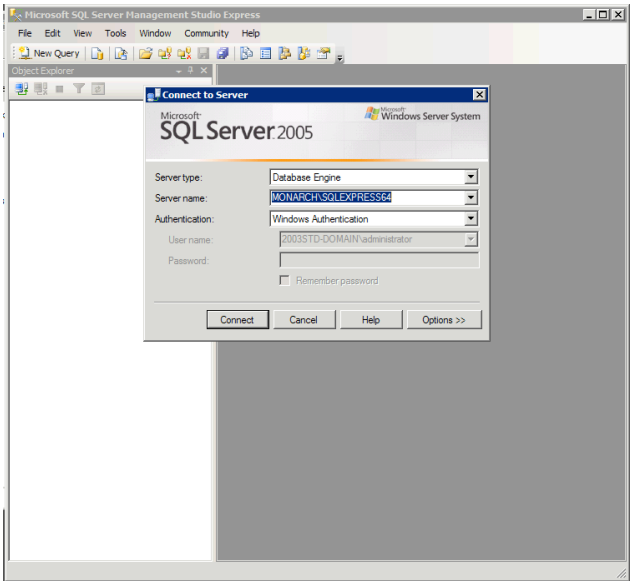

Figure 22: Attach to Instance.

2. Identify the database you wish to restore.

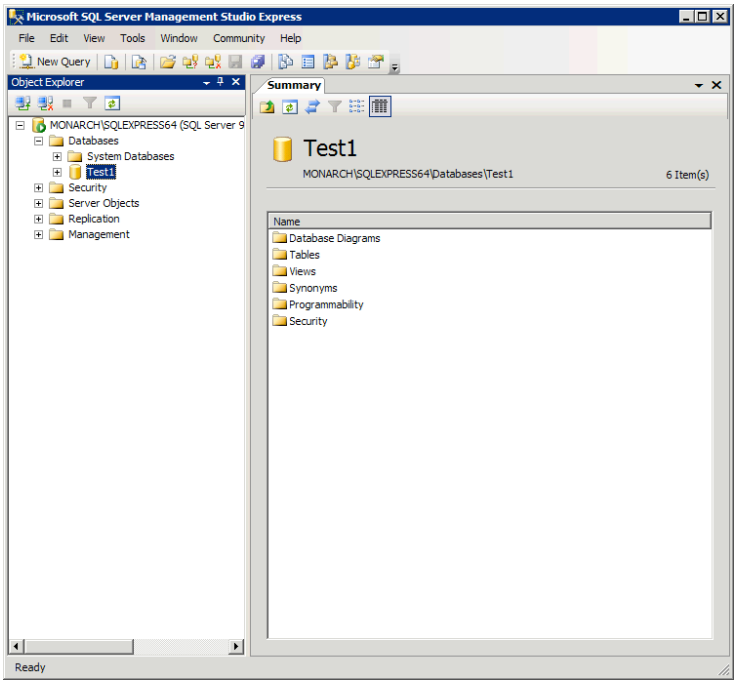

Figure 23: Select database.

3. Detach the database you wish to restore. This will not delete the data files.

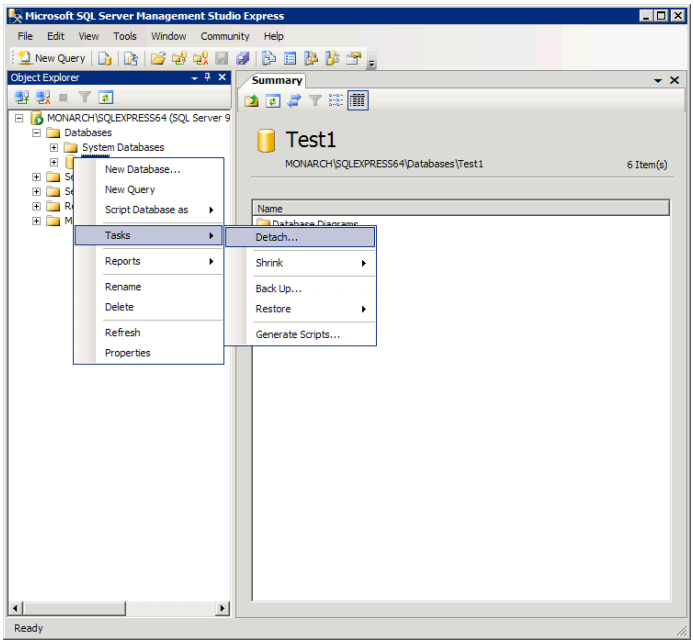

Figure 24: Detach database.

4. Use SQL form to disconnect connections to the database.

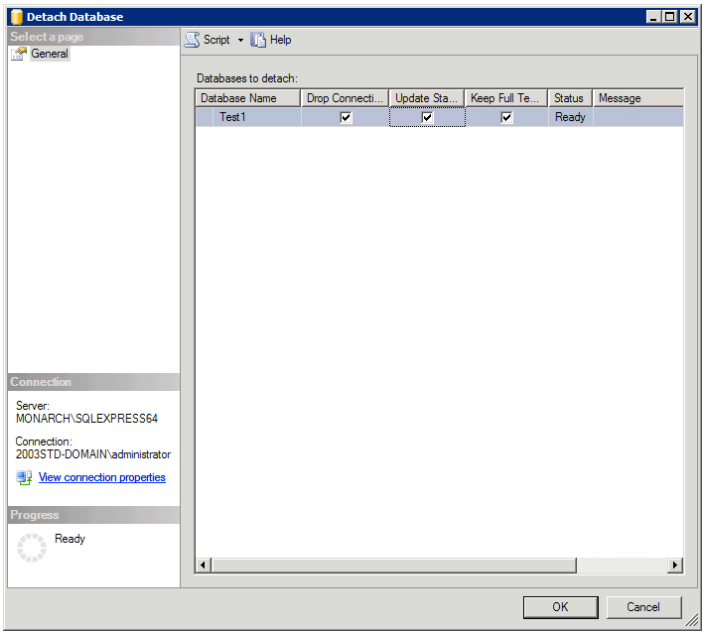

Figure 25: Drop current connections.

5. Locate the original files belonging to the database and add a .old extension to the files. There will always be a minimum of two files, one with a .MDF extension, and at least one with a .LDF extension. When all steps are completed and the database has been recovered, delete these files.

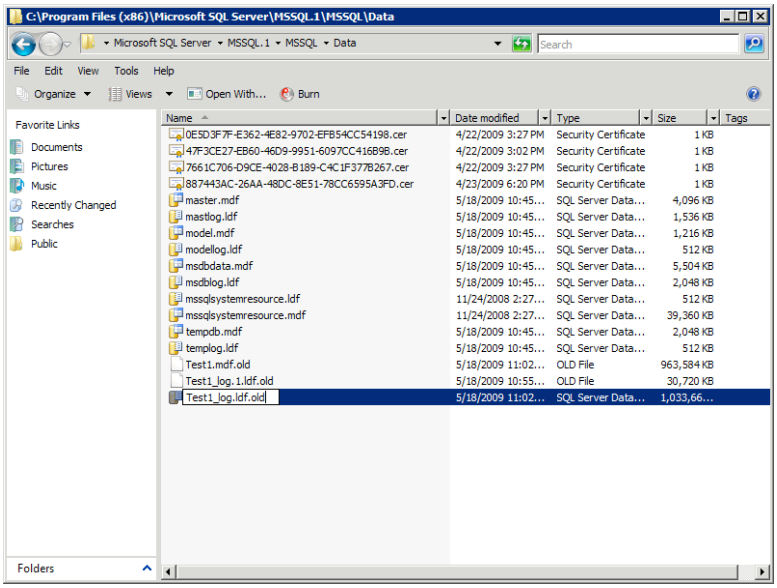

Figure 26: Rename Files.

6. In the folder named in the restore process, find the files belonging to the database you wish to restore. Copy these files to the original location where the database files were located.

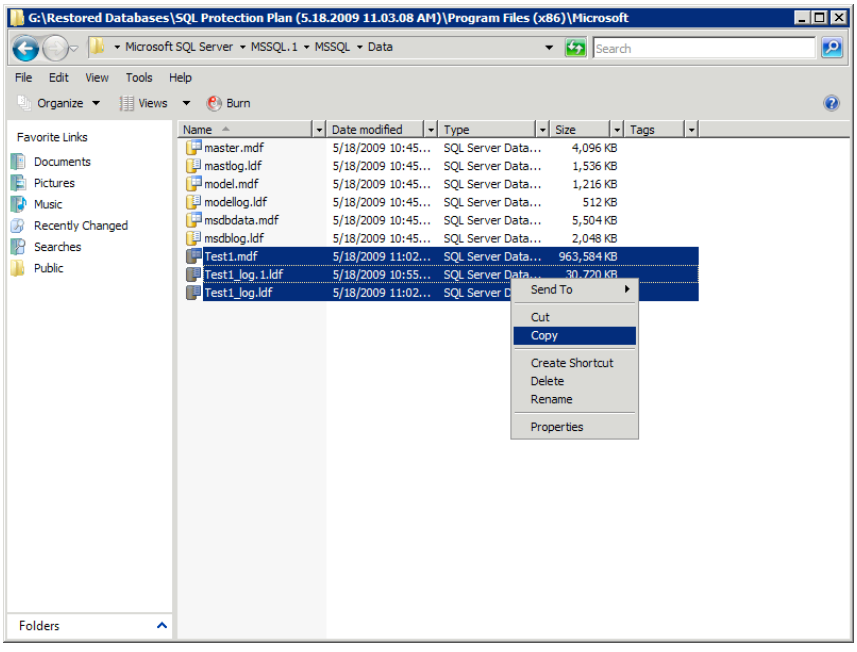

Figure 27: Copy Files.

7. Using SQL Server Management Studio, right-click the databases node and select Attach to start the process of attaching the restored database to the instance.

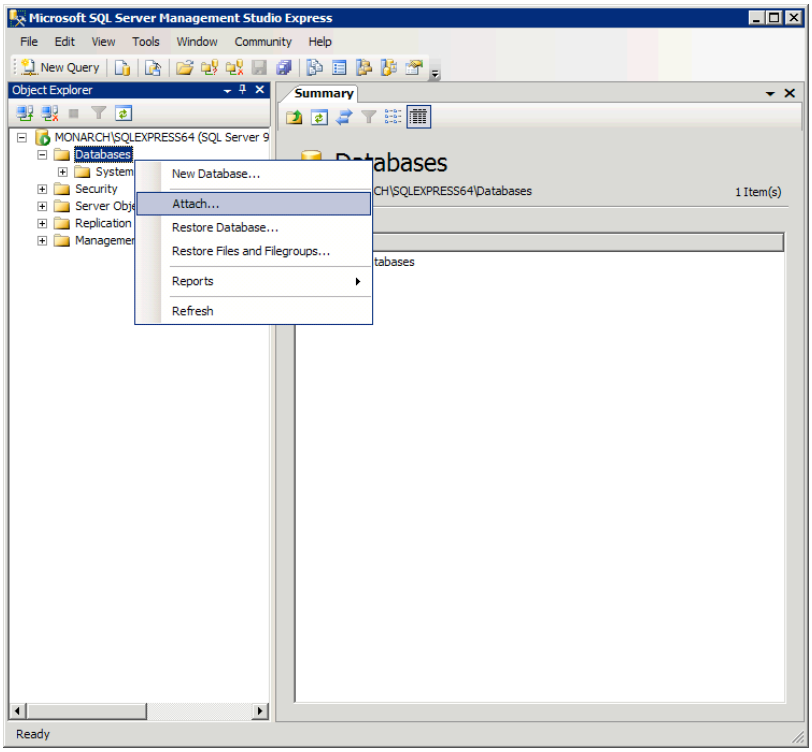

Figure 28: Attach to Database.

8. When the Attach panel comes up, Click 'Add' to select the MDF file from the restored files. The LDF files will automatically be named when you click **OK**.

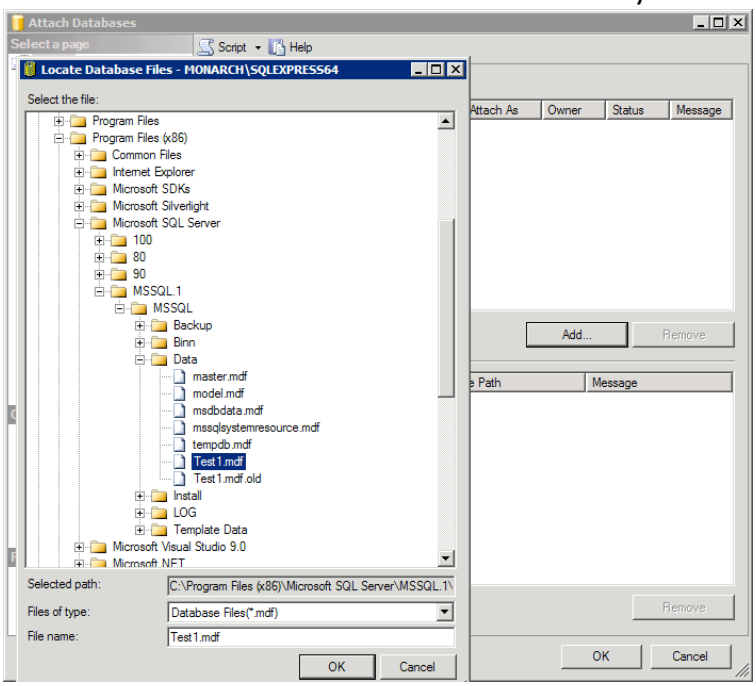

Figure 29: Select MDF File.

9. When you are finished selecting the MDF files for the databases you wish to attach, click OK. The Progress box in the lower left corner will show the processes reattaching the database(s).

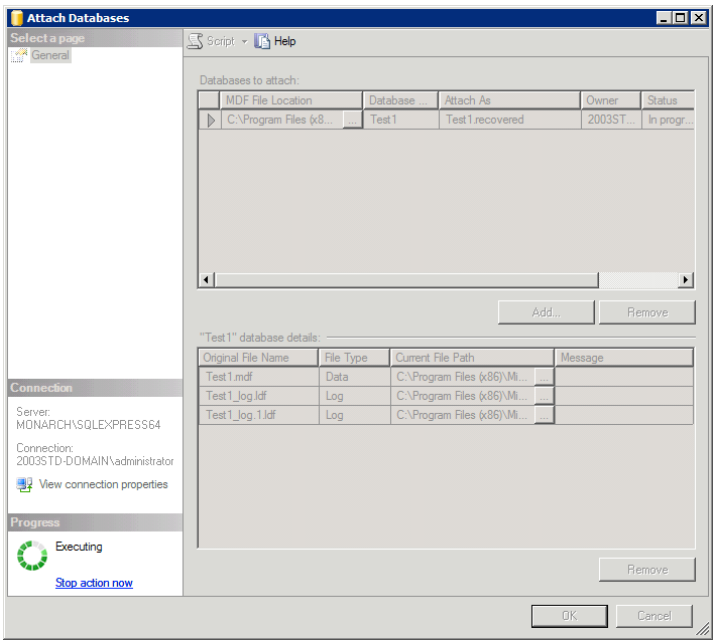

Figure 30: Attach Processing.

10. At this point, your database will be online and in a state ready for connections.

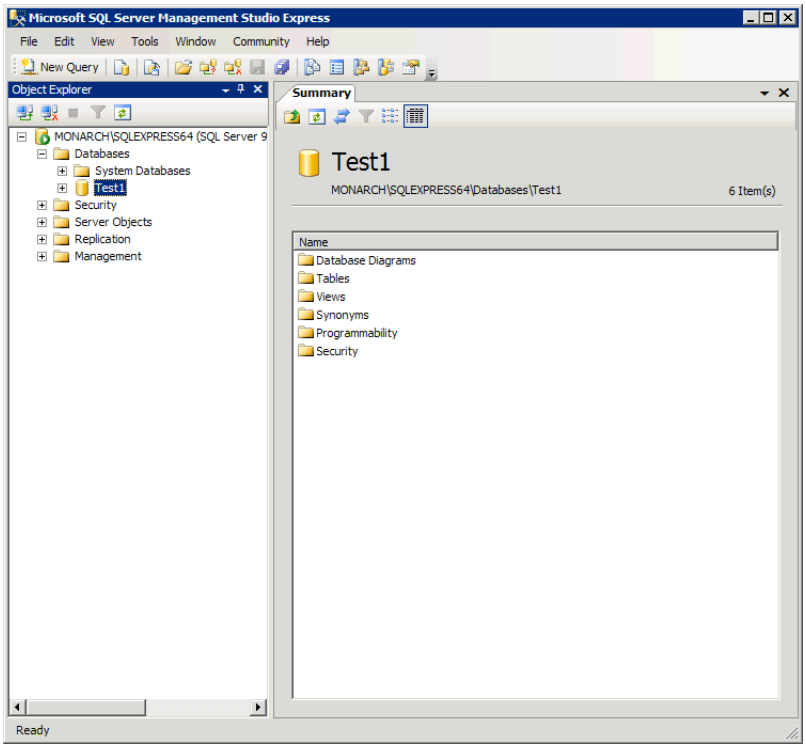

Figure 31: Operation Complete.

Steps to attach the restored database alongside the original database

1. Identify the database you wish to attach.

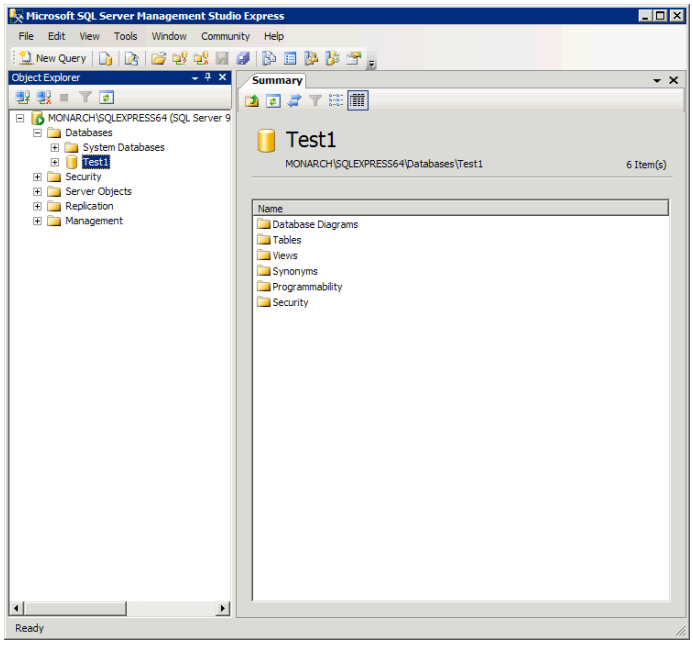

Figure 32: Identify Database.

2.In the folder named in the restore process, find the files belonging to the database you wish to attach. Copy these files to an alternate location where the database files can be mounted.

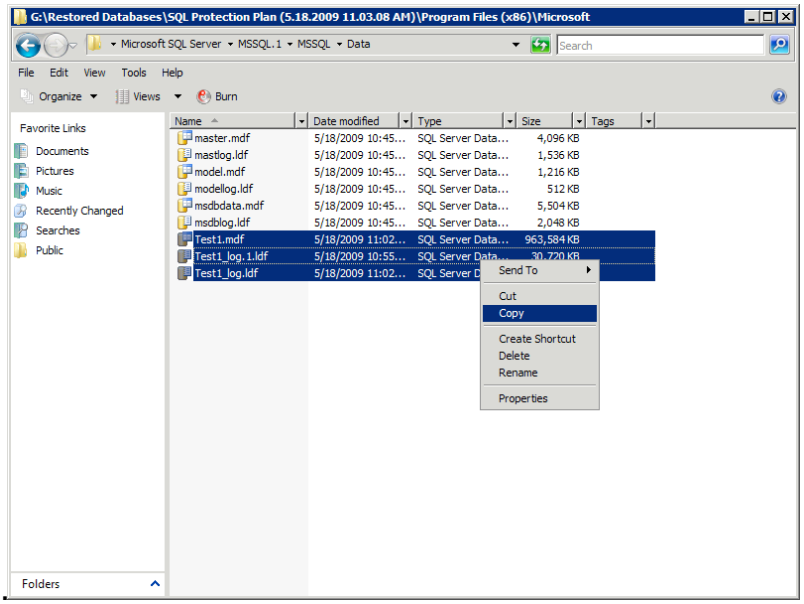

Figure 33: Copy Files.

3.Using SQL Server Management Studio, right-click the databases node and select Attach to start the process to attach the restored database to the instance.

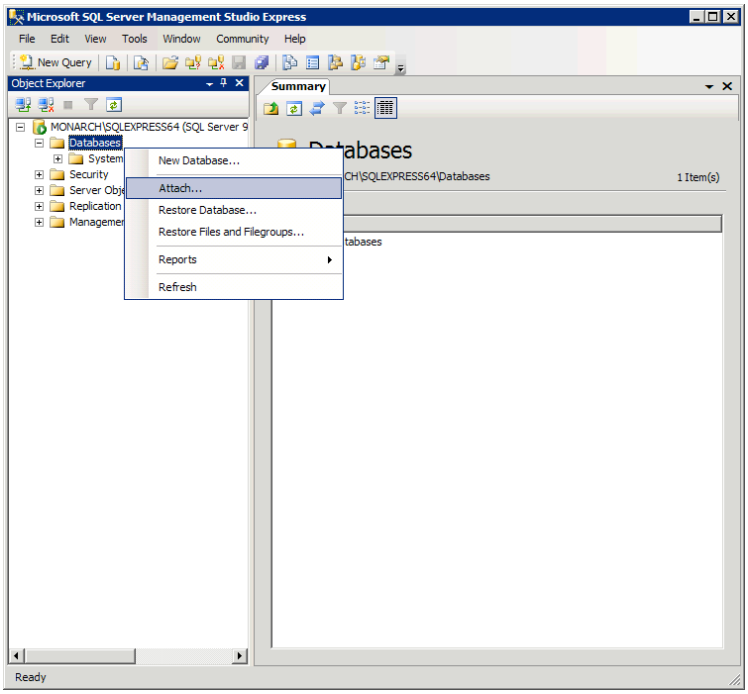

Figure 34: Start Attach Process.

4.When the Attach panel comes up, Click ‘Add’ to select the MDF file from the files restored. The LDF files will automatically be named when you click **OK**.

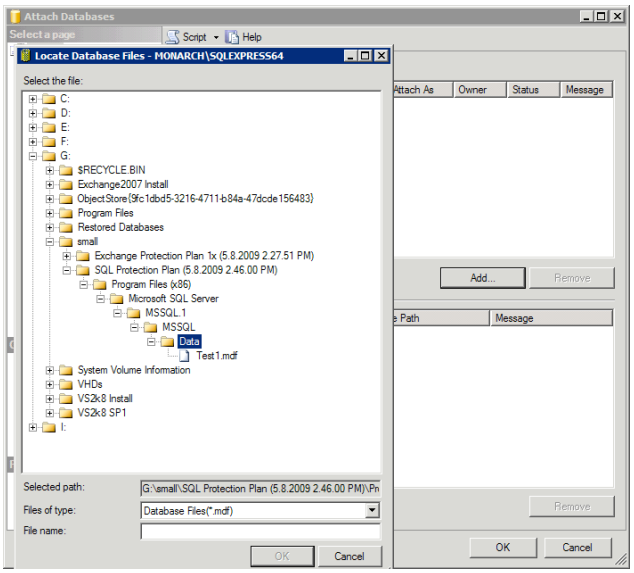

Figure 35: Select Files.

5.Since two databases cannot have the same name, you need to change the name of the database you are attaching. This is achieved by changing the **Attach As** value.

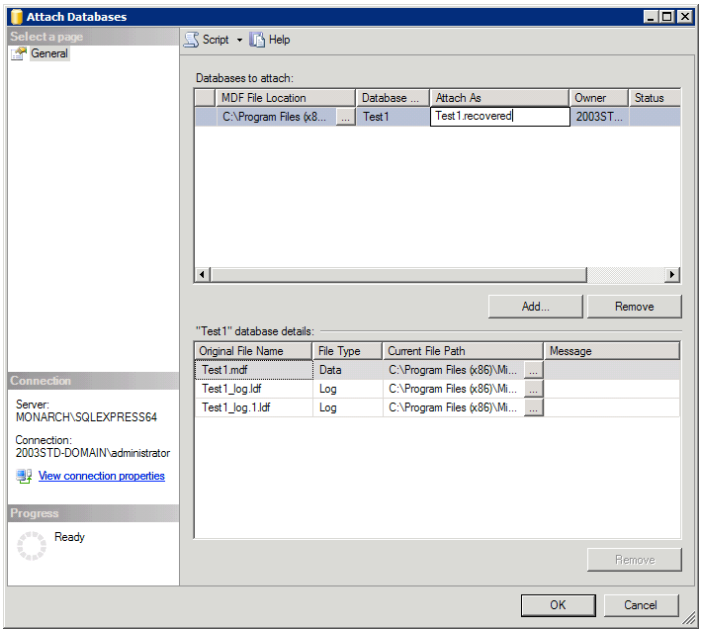

Figure 36: Rename Attached Database

6.When finished selecting the MDF files for the databases you wish to attach, click **OK**. You will see in the Progress box in the lower left corner the processes needed to reattach the database or databases.

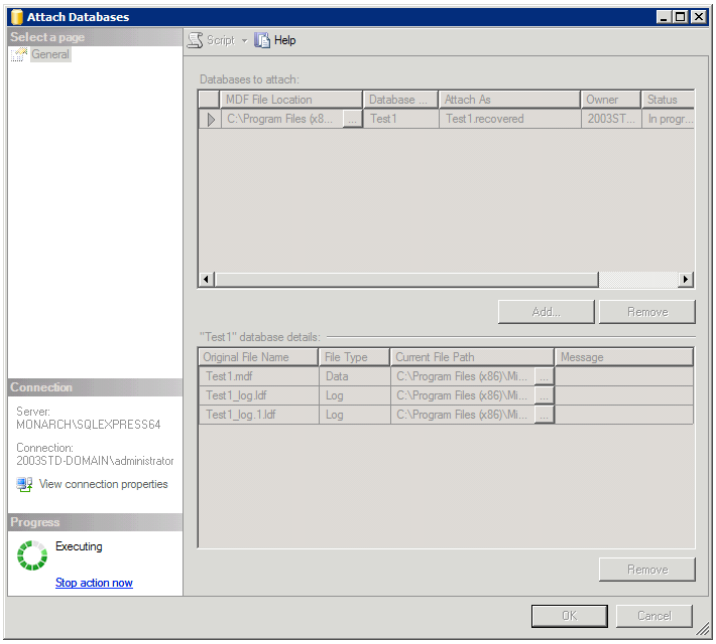

Figure 37: Attaching Database

7.At this point, your recovered database will be online and in a state ready for connections.

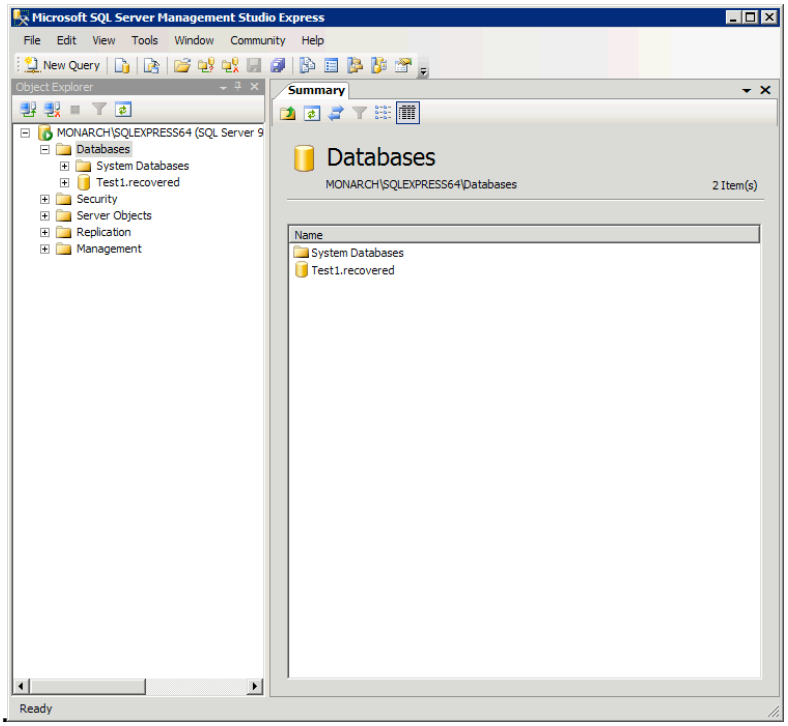

Figure 38: Attaching Database

After the database is attached, you may need to move or import any tables you wish to recover using the SQL IMPORT wizard, or, if necessary, import the attached database into a new database where you want you data to reside. Please contact your DBA if further data migration and merging is needed.