

# MES DATABASE UTILITY

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## PURPOSE

The Database Utility is designed to simplify the creation and maintenance of Paper-Less MES SQL databases for one or more Paper-Less MES environments. The database utility allows you to: Save, Save-As, Restore, Delete, Rename, Create New, Compact and Upgrade the MES SQL databases.

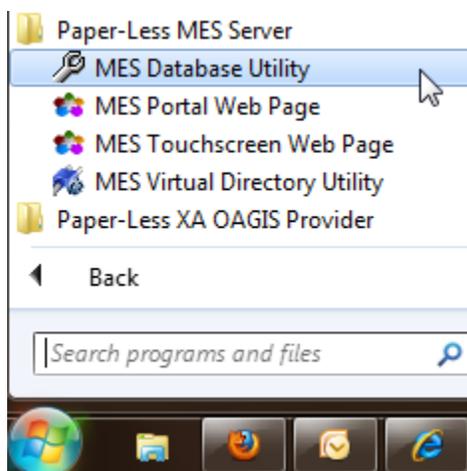
## NOTES

**IMPORTANT:** When a new Paper-Less MES SQL database is created, it is highly recommended that a SQL Server database maintenance plan be created to automatically truncate the database transaction logs on a scheduled basis. **Failure to do this will result in the database transaction log growing indefinitely, consuming all available hard drive space.**

**IMPORTANT:** If a database transaction log grows too large (greater than 40 GB), **it can prevent the MES Suite Client from starting** because SQL Server is unable to expand the transaction log before a timeout is reached.

## ACCESSING THE DATABASE UTILITY

The Paper-Less MES database Utility installs on the Paper-Less MES Server, under C:\All Programs\Paper-Less MES Server\MES Database Utility.



## INITIALIZING

A splash screen will be displayed to indicate that the program is initializing. Once initialization is completed, the splash screen will automatically close.

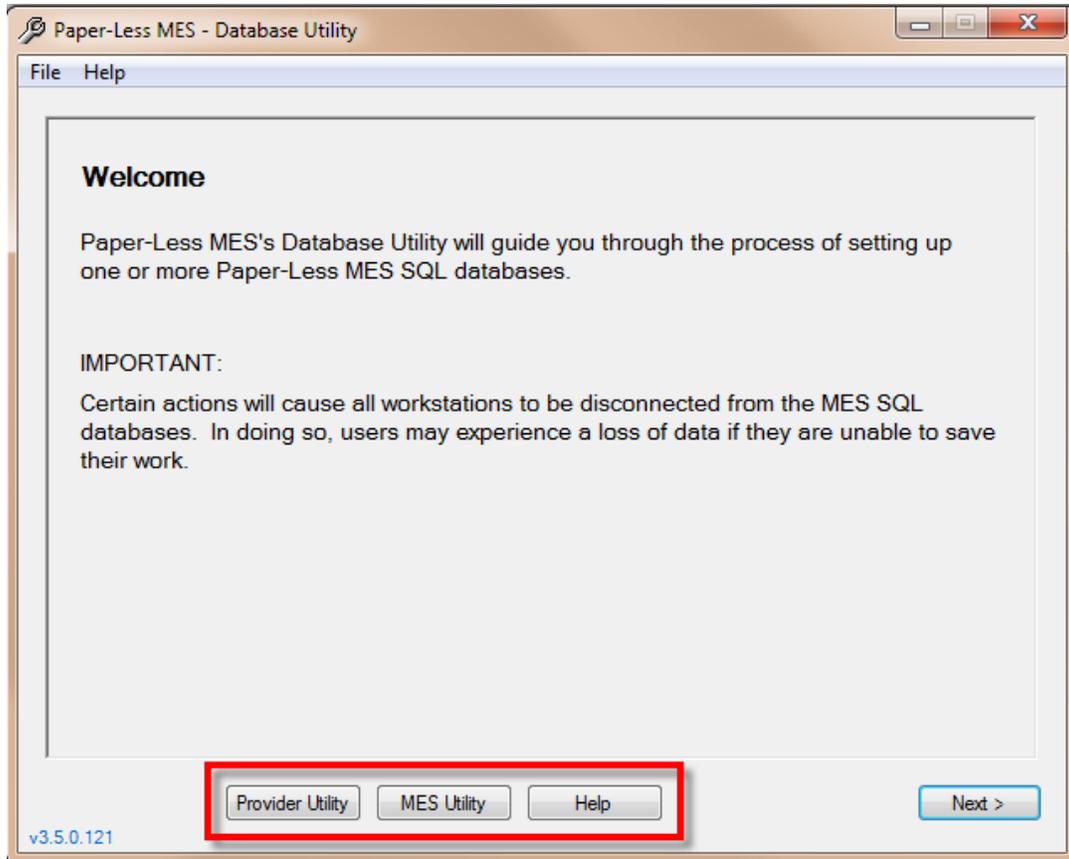
## WELCOME

The Paper-less Database Utility will guide you through the process of setting up one or more Paper-Less MES SQL databases. On the bottom of the screen are three buttons that provide easy access to MES database configuration settings. These buttons will be available throughout the Database Utility to provide quick and easy navigation between utilities.

**Provider Utility:** Opens the user to the Provider Utility (OAGIS, for example). The Provider application must be installed.

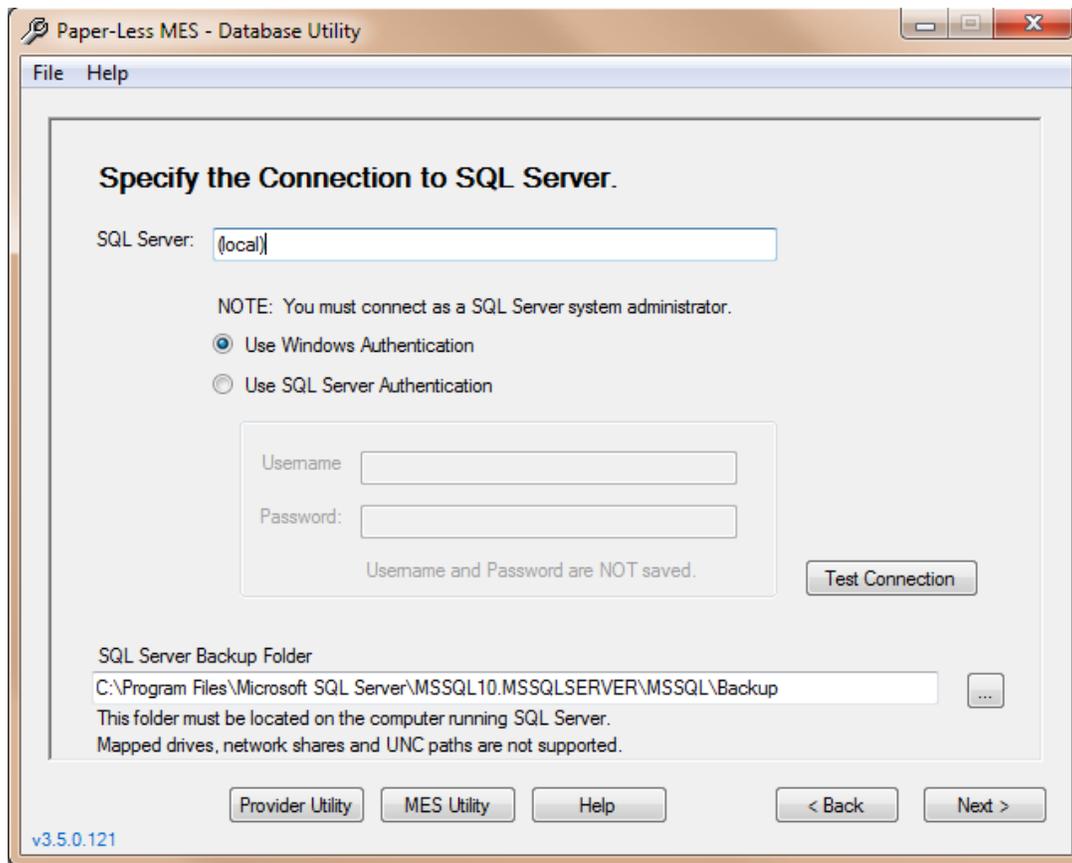
**MES Utility:** Opens the user to the Virtual Directory Settings Utility for Paper-Less MES.

**Help:** Opens the Database Utility help documentation.



Click the Next button to continue.

# SQL SERVER



**SQL Server:** The name of the SQL Server instance to connect to. If the Paper-Less MES Server is installed on this computer, the SQL Server name will be automatically filled in.

To connect to SQL Server on this computer, use (local) or the name of this computer.  
To connect to SQL Server on another computer, use the name of the computer.  
To connect to a named instance of SQL Server, include a backslash and instance name.

For example: ComputerName\InstanceName

**Authentication:** You must connect to SQL Server as a SQL Server system administrator.

**Use Windows Authentication:** The Windows user account (or one of the Windows groups that this Windows account is a member of). The user account must also be a SQL Server system administrator.

**Use SQL Authentication:** The SQL user account. The user account must be a SQL Server system administrator.

**Username:** Specify the SQL login's username.

**Password:** Specify the SQL login's password.

NOTE: The SQL login's username and password are not saved.

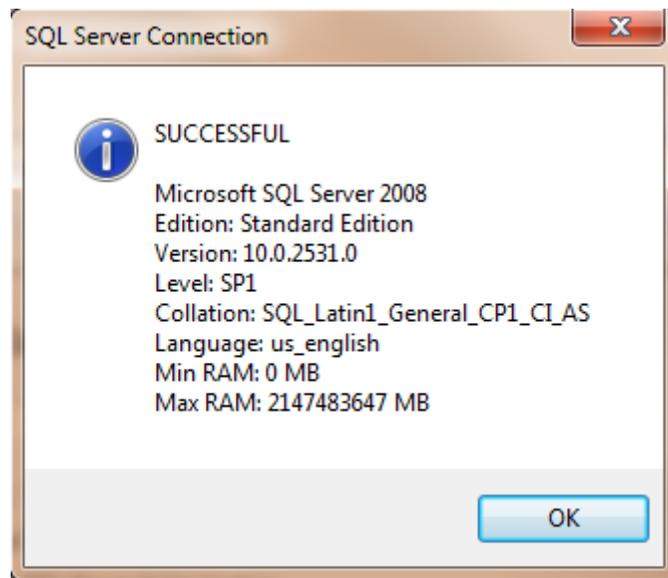
**SQL Server Backup Folder:** Several actions involve backing up the Paper-Less MES SQL databases. The folder specified here must exist on the computer running SQL Server. Mapped drives, network shares and UNC paths are not supported.

**IMPORTANT:** The SQL Server service runs under an account that must have sufficient privileges to access the SQL backup folder.

**IMPORTANT:** Depending on the action being performed, the Database Utility will delete and/or overwrite SQL backup files. It is highly recommended that you choose a different location than the folder used for normal backups and disaster recovery. At a minimum, create a subfolder (i.e. MES DBU) for exclusive use by the Database Utility.

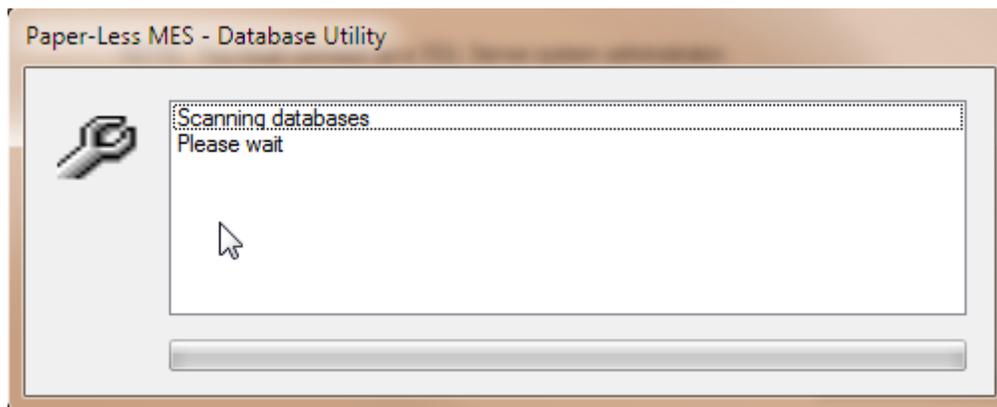
**Test Connection:** SQL Server connection information and backup folder location are automatically validated when the Next button is clicked. To see the validation results, click “Test Connection”.

If the SQL Server information is valid, the following screen will be displayed:



Click **OK**.

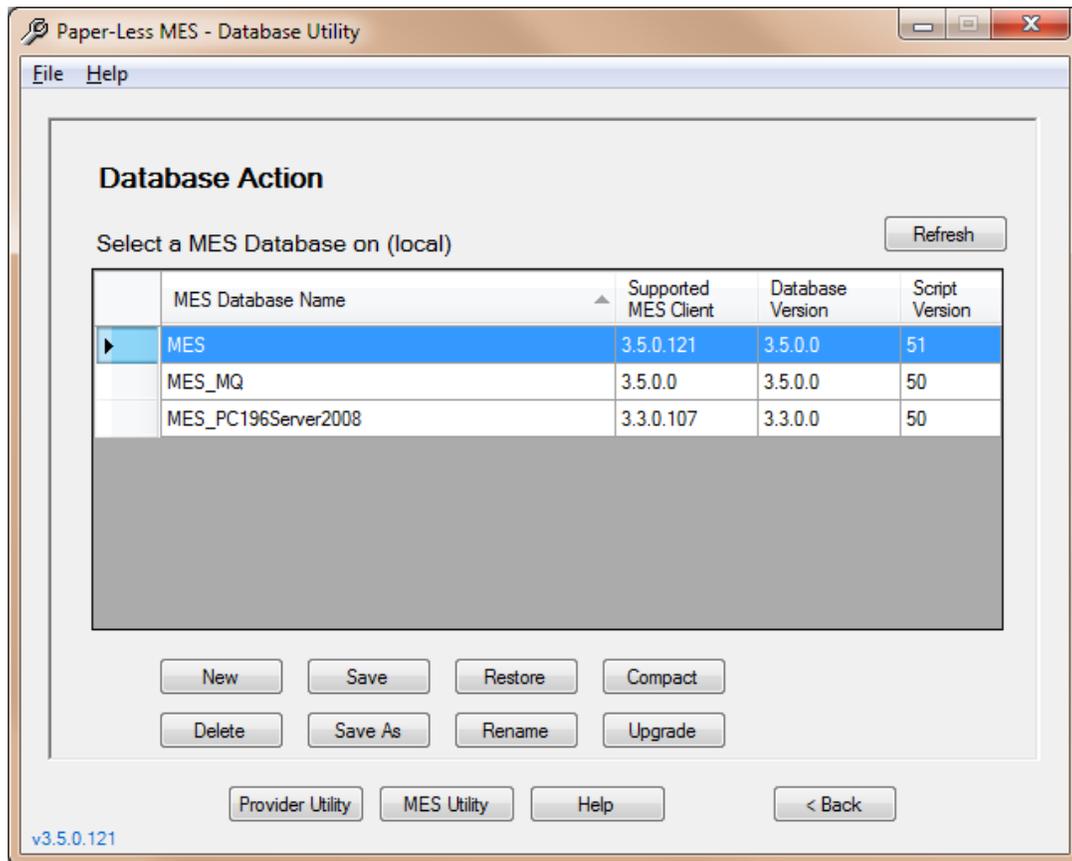
Click **Next** to continue.



Scanning the list of SQL databases can take several seconds to complete depending on the total number of SQL databases that are present in the instance of SQL Server being scanned.

When completed, this progress screen will automatically close.

## DATABASE ACTION



Select one or more MES SQL databases.

Click the desired action—**New**, **Delete**, **Save**, **Save As**, **Restore**, **Rename**, **Compact** or **Upgrade**.

Follow the instructions to complete the action or click **Back** to return here.

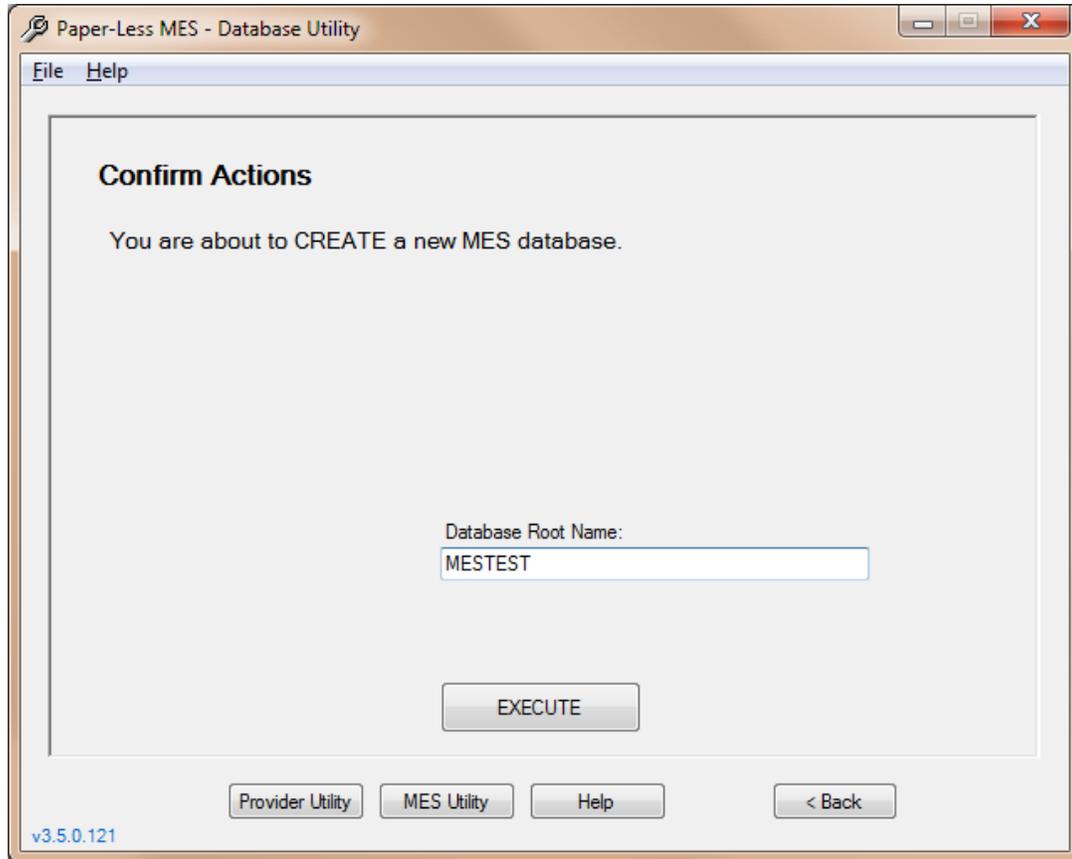
Click **Refresh** at any time to refresh the list of MES SQL databases.

If one or more of the selected MES SQL databases is at a release level that is not supported by this version of the Database Utility, a dialog will display.

If you have another installation of the MES Server at a higher release level, use that version of the Database Utility to work with the selected MES SQL databases. Otherwise, upgrade MES Server.

# DATABASE UTILITY ACTIONS

## NEW

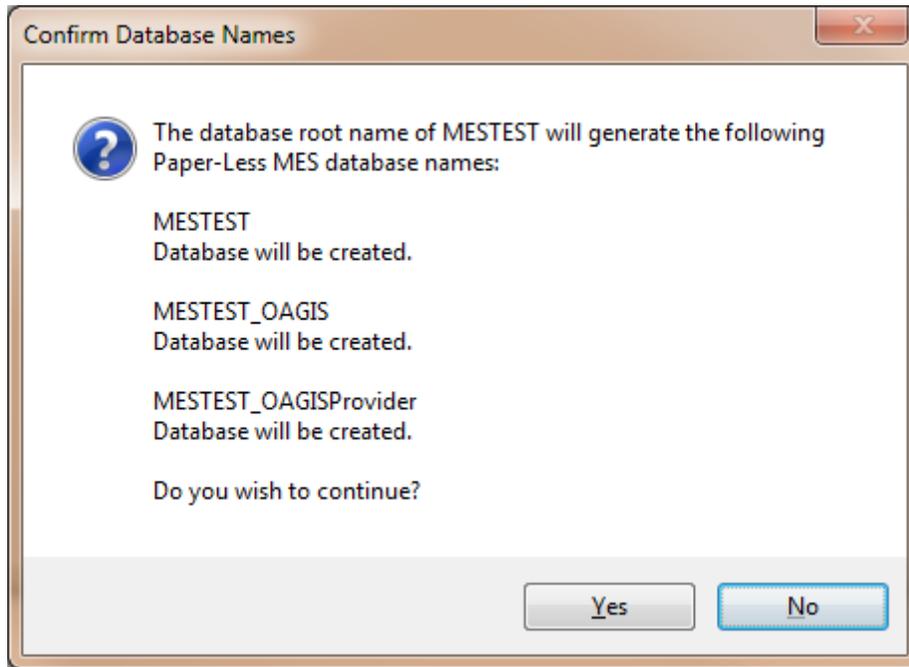


This action will create a new MES SQL database and its supporting SQL databases.

**Database Root Name:** Used to generate the names of the MES SQL databases.

If you enter a database root name of MES, the following SQL databases will be created:

- MESTEST
- MESTEST\_OAGIS
- MESTEST\_OAGISProvider



When you execute the action, the Database Utility will use the database root name to generate the Paper-Less MES SQL database names.

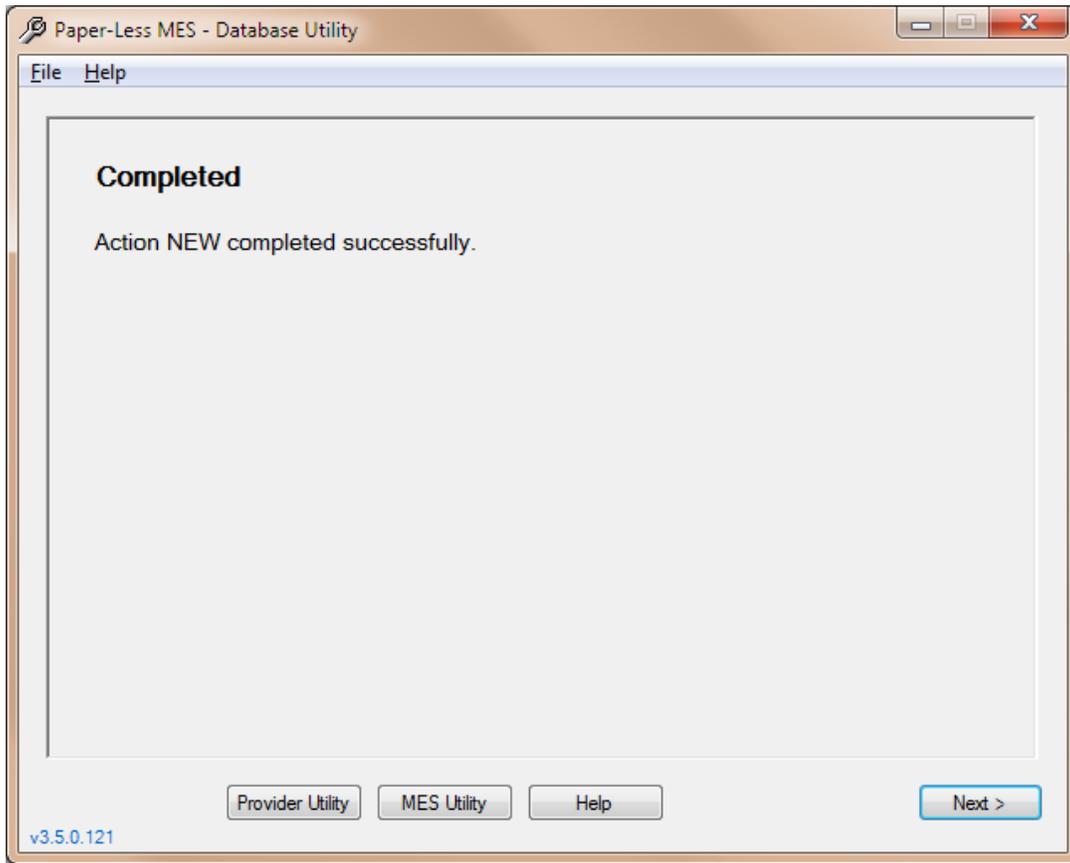
Then, it will check to see if the SQL databases already exist and/or any SQL backup files exist.

Click **Yes** to create the new database.

If the database names already exist, the database Utility will make you aware of it, asking you whether or not you'd like to continue and overwrite the existing ones.

Click **Yes** to continue.

A message will display once the new database has been completed successfully. Press Next to return to the Database Utility main page.



# SAVE



This action will backup the selected Paper-Less MES SQL databases and their supporting SQL databases.

A folder is automatically created with the same name as the database root name.

For simplicity, a SQL backup file will contain only one backup set. Multiple copies of the same MES SQL databases are not supported. Therefore, any existing SQL backup files with the same names in the specified folder are overwritten.

For example:

|                                                    |                              |
|----------------------------------------------------|------------------------------|
| C:\Program Files\Microsoft SQL Server\MSSQL\BACKUP | ←SQL Backup Folder           |
| \MES                                               | ←Database Root Name Folder   |
| MESTEST.BAK                                        | ←Main MES SQL database       |
| MESTEST_OAGIS.BAK                                  | ←Supporting MES SQL database |
| MESTEST_OAGISProvider.BAK                          | ←Supporting MES SQL database |

# RESTORE



This action will restore the selected Paper-Less MES SQL databases and their supporting SQL databases.

No-one should be connected to Paper-Less MES when a SQL database is restored.

If a Paper-Less MES connection is left open and is working with data, unpredictable results can occur when it attempts to make use of the data it has in memory.

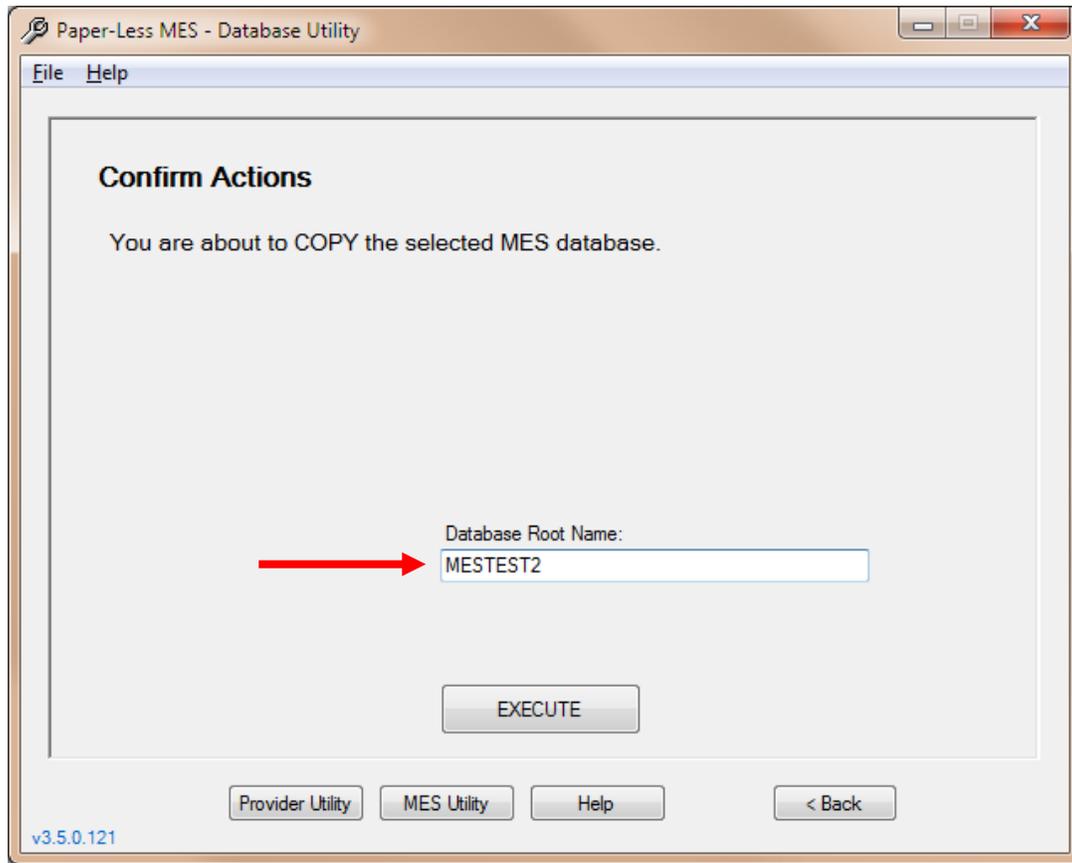
For example, test results are being entered in test entry for a specific manufacturing order. After the SQL databases are restored, the manufacturing order as well as the test header information may no longer exist causing the test entry screen to display an error message. Simply restart the Paper-Less MES session.

In order to restore a database, SQL Server must be able to obtain an exclusive lock on the database which means that no other users can be connected to the database. Therefore, all users will be disconnected from the selected SQL databases so that the databases can be restored successfully.

**NOTE:** If the SQL backup files are missing or inaccessible, a dialog will be displayed.

Ensure that the SQL backup files are located in the correct folder with the correct filename. The full path and filename are shown in the dialog. Remember, the folder shown here must exist on the computer running SQL Server.

# SAVE-AS

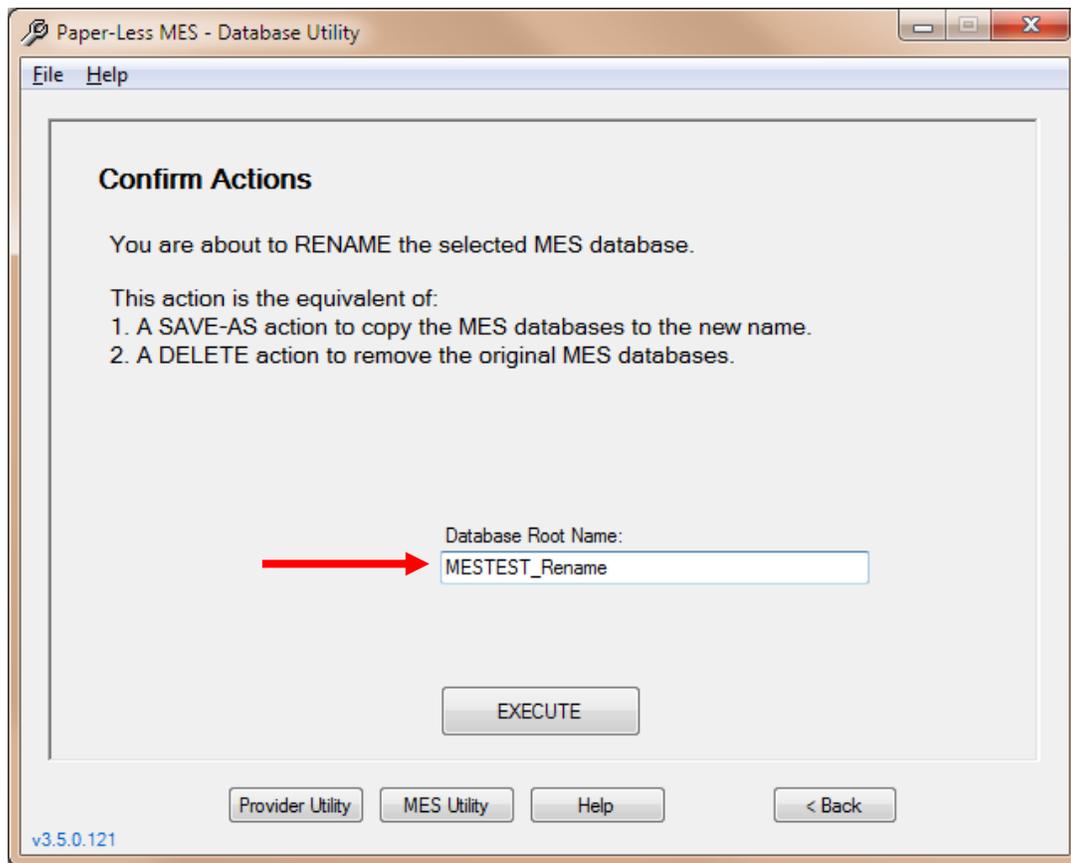


This action will copy the selected MES SQL database and its supporting SQL databases.

The Database Utility will perform a SAVE action using the new database root name followed by a RESTORE action.

**Database Root Name:** Refer to the NEW action.

# RENAME

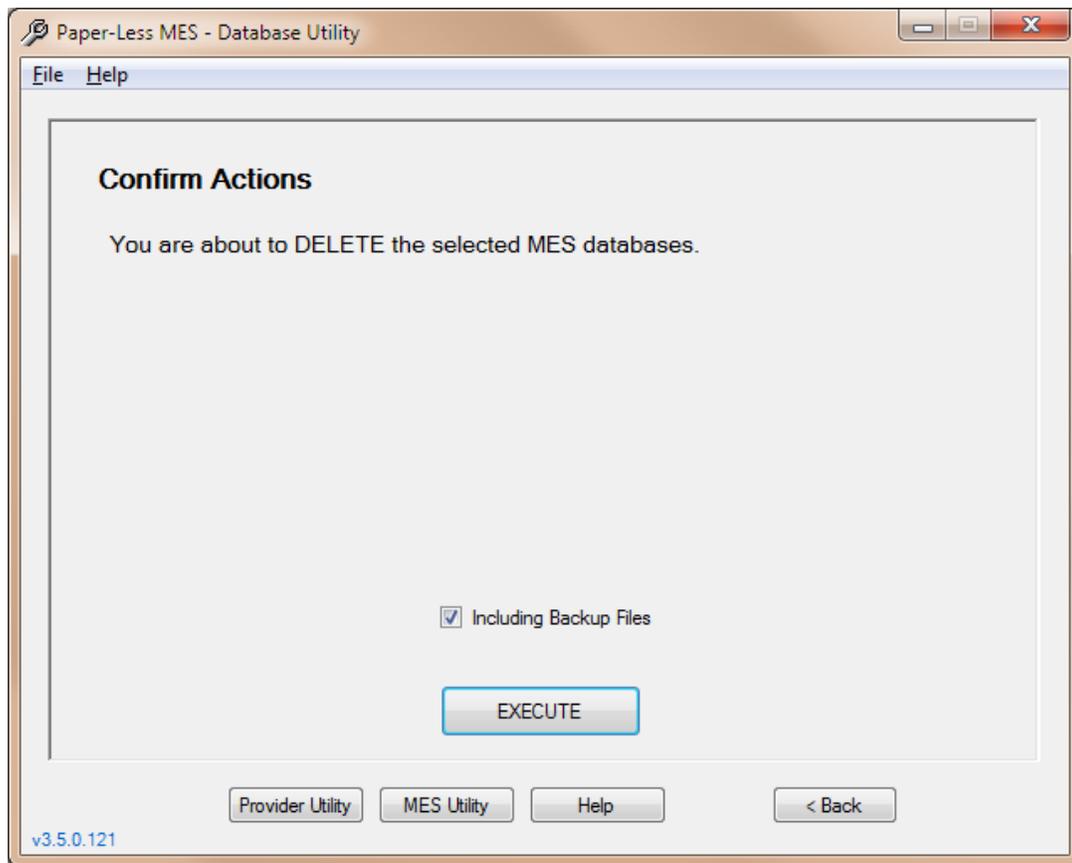


This action will rename the selected MES database and its supporting SQL databases.

The Database Utility will perform a SAVE-AS action using the new database root name followed by a DELETE action.

**Database Root Name:** Refer to the NEW action.

# DELETE



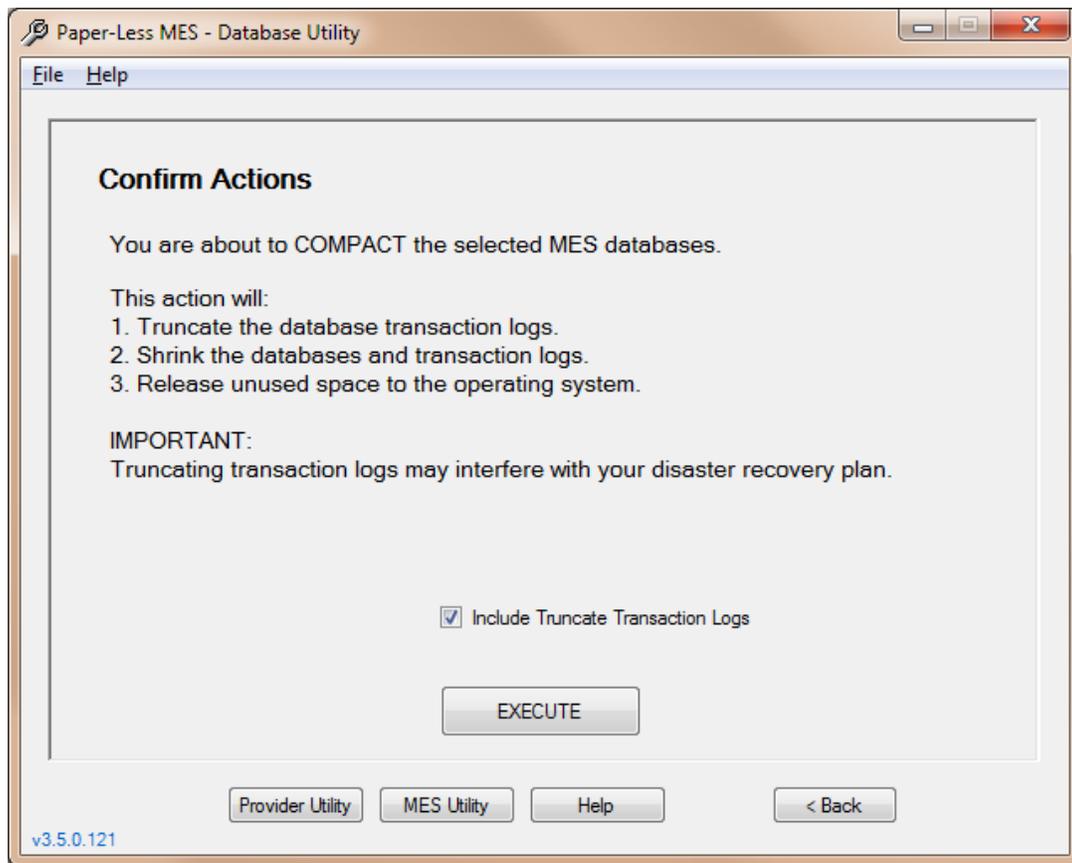
This action will delete the selected MES SQL databases and their supporting SQL databases.

**Including Backup Files:** Select this option to delete any backup files that are present in the SQL backup folder that was specified when connecting to SQL Server.

**IMPORTANT:** Any file that ends with a BAK extension will be deleted from the folder. If the folder is empty, the folder will be deleted.

**IMPORTANT:** It is highly recommended that you choose a different location than the folder used for normal backups and disaster recovery. At a minimum, create a subfolder (i.e. MES DBU) for exclusive use by the Database Utility.

# COMPACT

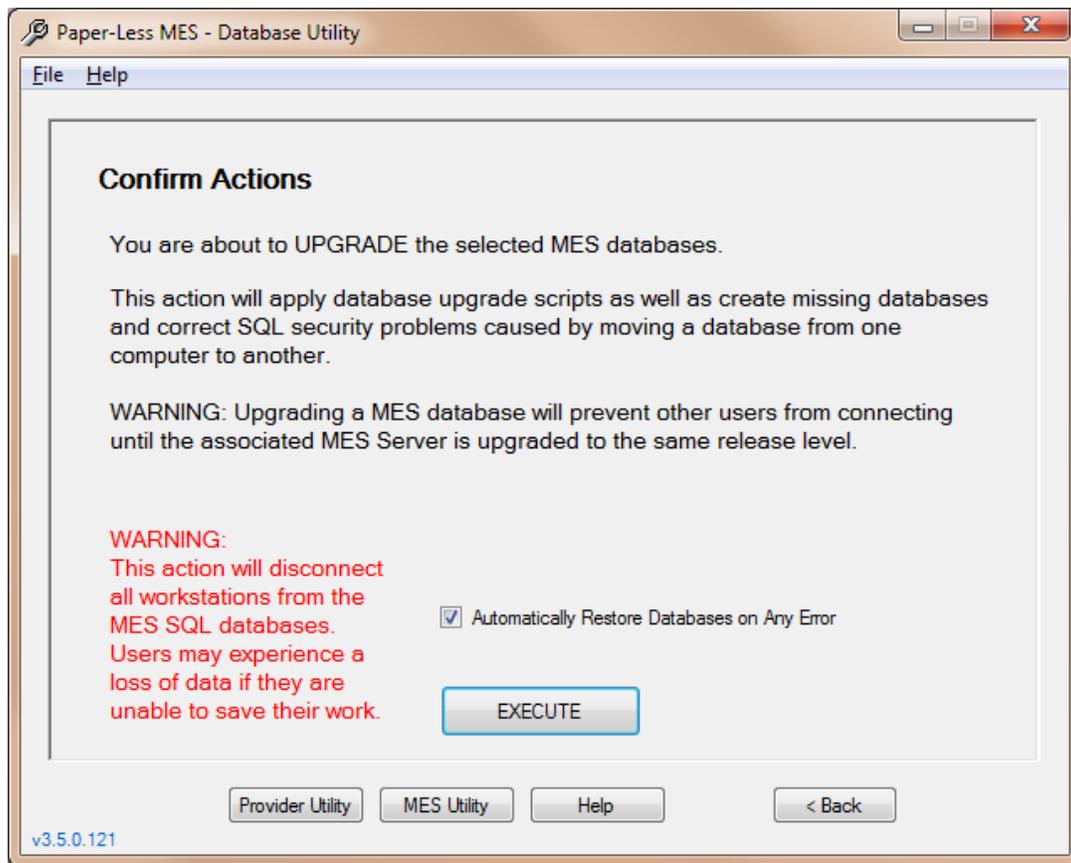


This action will compact the selected MES SQL databases and their supporting SQL databases.

**Include Truncate Transaction Logs:** Select this option to include the truncation of the database transaction logs.

**IMPORTANT:** Choosing to truncate the database transaction logs has consequences. It will free the most hard drive space but could leave the MES databases exposed to data loss in the event of a hardware failure, etc. It is highly recommended that a **SAVE** action be done immediately afterwards and the backup files be relocated to another computer or media as soon as possible. Ideally, these SQL backup files should be placed with the normal database backups as they become the primary means of restoring the MES SQL databases until the next regularly scheduled backup is completed.

# UPGRADE



This action will upgrade the selected MES SQL databases and their supporting SQL databases. The MES SQL databases will be upgraded to the same release level as the MES Server.

**TIP:** After a successful upgrade, it is highly recommended that a **SAVE** action is performed so that a future **RESTORE** action does not revert the MES SQL databases to an earlier release level. If this happens, simply perform the **UPGRADE** action again.

**IMPORTANT:** The MES SQL databases are automatically backed up before any upgrade is done. The SQL backup files are stored in the same folder location as a **SAVE** action. However, they are named differently so as to not to interfere with the normal **SAVE** and **RESTORE** actions of the Database Utility.

The SQL backup filenames for an **UPGRADE** action are prefixed with a date and timestamp.

For example:

2009-06-05\_09.24.28\_MES.BAK  
2009-06-05\_09.24.28\_MES\_OAGIS.BAK  
2009-06-05\_09.24.28\_MES\_OAGISProvider.BAK

# DATABASE MAINTENANCE PLANS

## OVERVIEW

It is crucial that you incorporate a regularly scheduled backup strategy for the MES SQL databases. Without this, you are placing your MES data at risk. Your company's IT Department, IS Department or SQL Server DBA is the recommended authority to put this strategy in place. It is strongly recommended that a database professional be used to implement this critical operation. In the absence of this, we have provided a guide that will get you started.

The purpose of this tutorial is to configure SQL Server to backup the Paper-Less MES SQL databases. This tutorial is intended for customers that do not have a SQL Server database administrator to configure a backup policy.

The following tutorial assumes that you have used the default "MES" Database Root Name. Substitute your Database Root Name for "MES" if you have used a different Database Root Name.

**Note: Only Microsoft SQL Server 2005 & 2008 are currently supported. Microsoft SQL Server 2000 is no longer supported.**

### **IMPORTANT:**

1. The Database Maintenance Plans illustrated here are not designed to be your sole backup strategy or disaster recovery plan. Refer to SQL Server Books Online and other third party reference materials for assistance in developing a backup strategy and disaster recovery plan.
2. If you are using third party backup software that meets your backup strategy and disaster recovery planning, the backup portion of plan 1 may be skipped. However, the other portions of plan 1 that deal with reorganization, integrity checking and database shrinking should be implemented to keep the MES SQL databases optimized.
3. **Plan 2 must be implemented to prevent the database transaction logs from consuming all available hard drive space and/or shutting down the MES Suite due to the inability of SQL Server to expand the database transaction log.**  
For example: If a database transaction log is 50GB and is set to grow automatically by 10 percent, then SQL Server would need 5GB of hard drive space the next time the database transaction log is expanded.

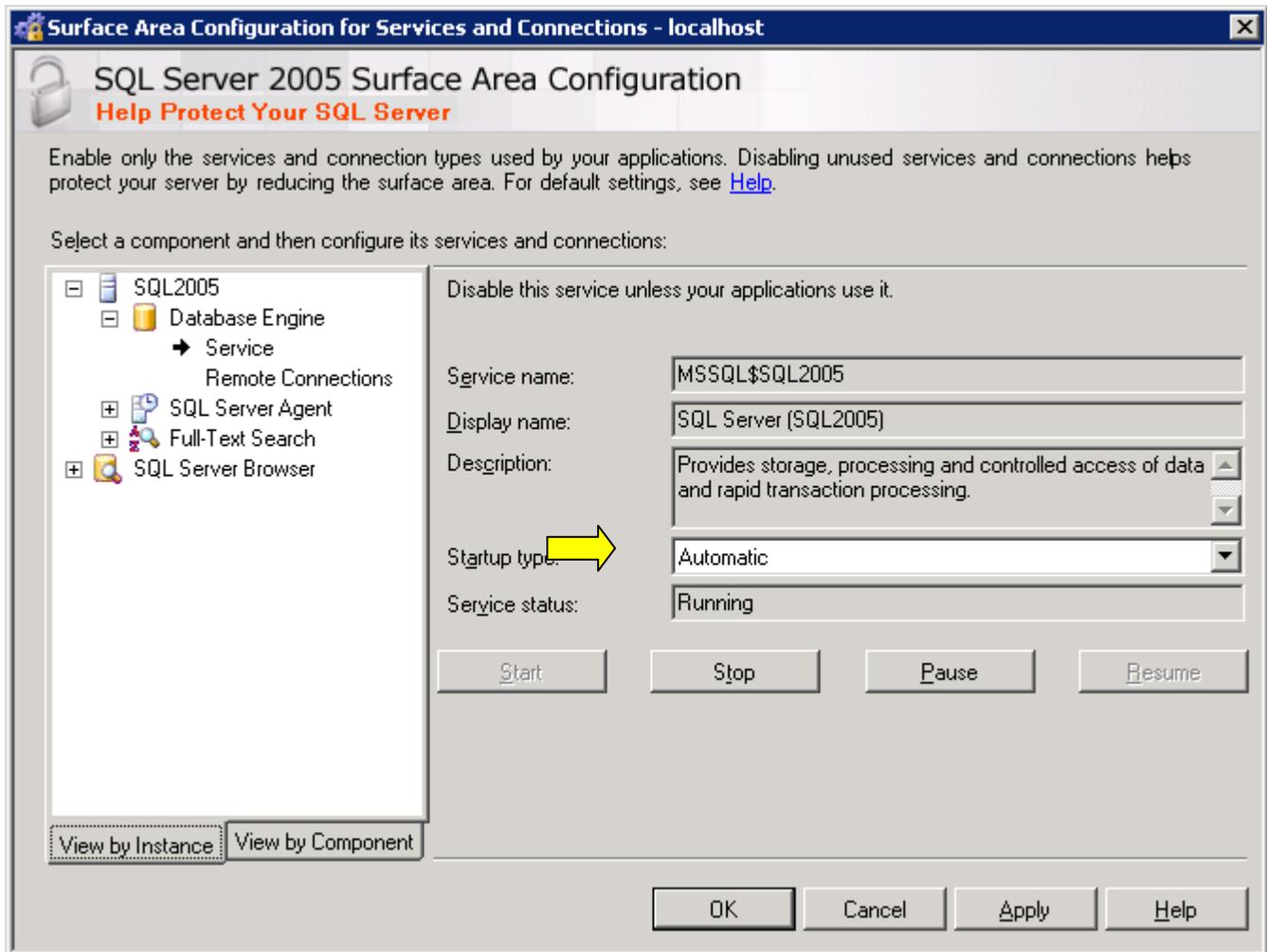
# SQL SERVER 2005 AND SQL SERVER AGENT

Database maintenance plans as well as other SQL Server jobs are executed by the SQL Server Agent. You must ensure that SQL Server and the SQL Server Agent are running and set to automatically start with the operating system.

In SQL Server 2005 Surface Area Configuration:



Click **Surface Area Configuration for Services and Connections**.



Select **Service** under the **Database Engine** component.

Select **Automatic** for the Startup Type.

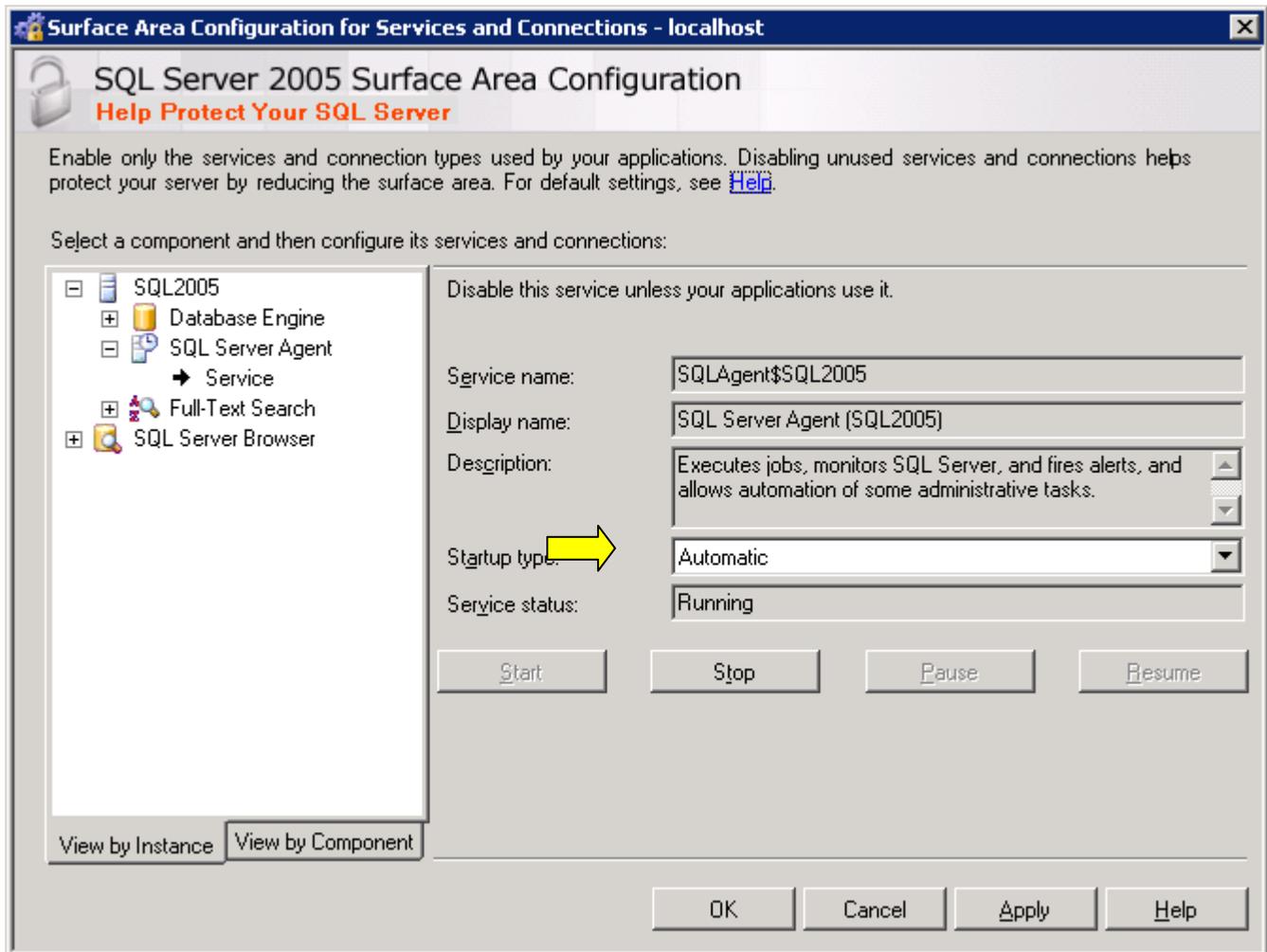
If the database engine is not running, click **Start**.

**NOTE:** The name of the SQL Server 2005 computer does vary.

The default instance of SQL Server running on this computer is (local) or the name of the computer.

The default instance of SQL Server running on another computer is the name of the computer.

A named instance of SQL Server is ComputerName\InstanceName.



Select **Service** under the **SQL Server Agent** component.

Select **Automatic** for the Startup Type.

If the SQL Server Agent is not running, click **Start**.

Click **OK**.

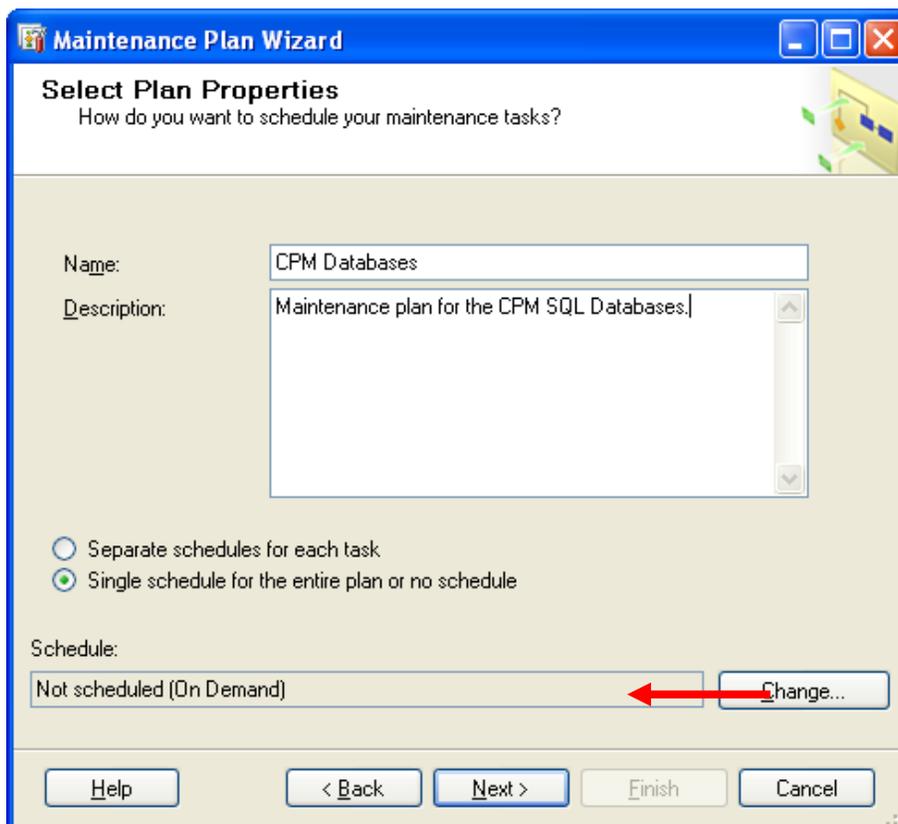
Both SQL Server and SQL Server Agent are now set to automatically start with the operating system.





Click **Next**.

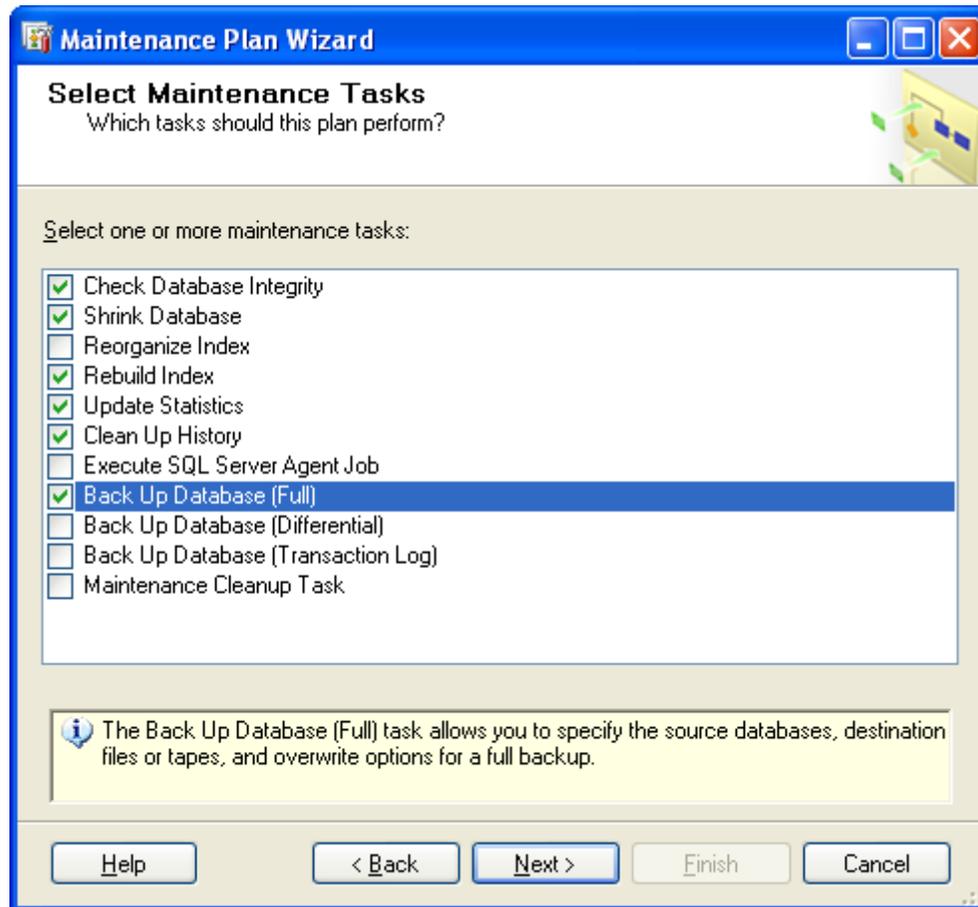
Enter a **Name**. For example: MES Databases.  
Enter a **Description**.



Click on the Change button to open the Job Schedule Properties and make changes.

The screenshot shows the 'Job Schedule Properties - CPM Databases' dialog box. The 'Name' field is 'CPM Databases' and there is a 'Jobs in Schedule' button. The 'Schedule type' is 'Recurring' and is 'Enabled'. The 'One-time occurrence' section has a date of '4/17/2008' and a time of '2:31:55 PM'. The 'Frequency' section is set to 'Weekly' with '1' week(s) on 'Sunday'. The 'Daily frequency' section has 'Occurs once at' set to '12:00:00 AM'. The 'Duration' section has a 'Start date' of '4/17/2008' and 'No end date' selected. The 'Summary' section contains a description: 'Occurs every week on Sunday at 12:00:00 AM. Schedule will be used starting on 4/17/2008.' At the bottom are 'OK', 'Cancel', and 'Help' buttons.

Once the schedule has been set, click **Next**.



Select the desired Maintenance Tasks.

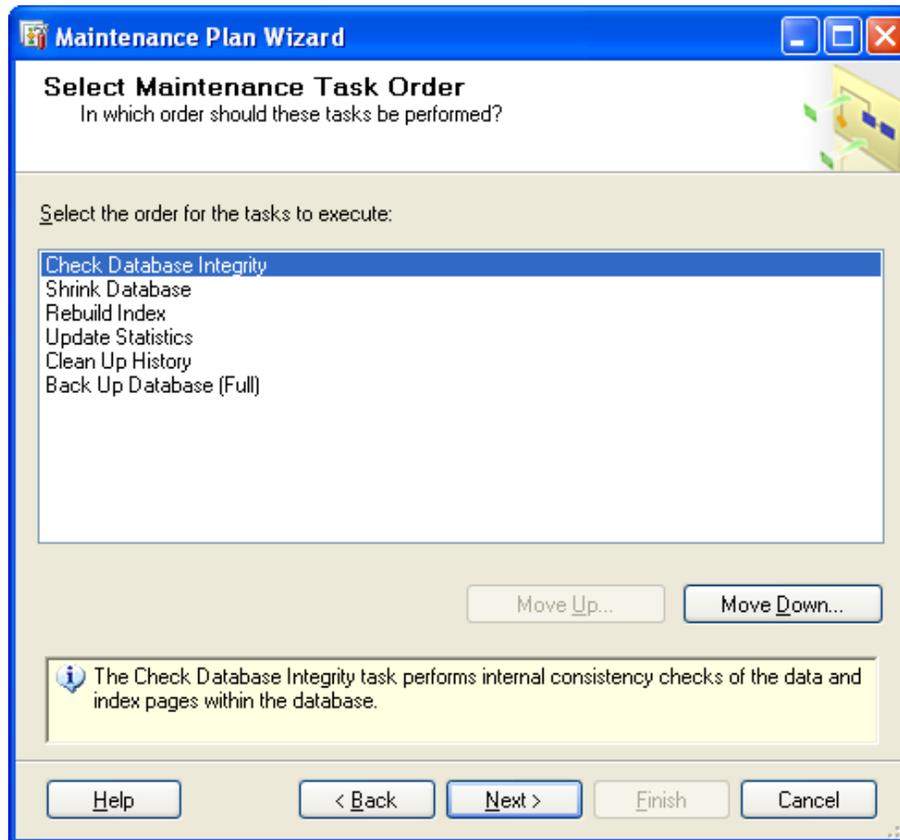
It is highly recommended that the following Maintenance Tasks be performed:

- Check Database Integrity
- Shrink Database
- Rebuild Index
- Update Statistics
- Clean Up History
- Back Up Database (Full)

**NOTE:** For simplicity, all of the maintenance tasks are done in one maintenance plan. Each situation is different and when combined with company policies, it is quite common to divide the Maintenance Tasks and create several database maintenance plans on different schedules and frequencies.

For example: In a large database, rebuilding the indexes may be done once per week or month while reorganize index is done daily. It may be desirable to shrink the database less frequently and/or choose to retain the extra free space to eliminate database file fragmentation on the hard disk drive.

Click **Next**.

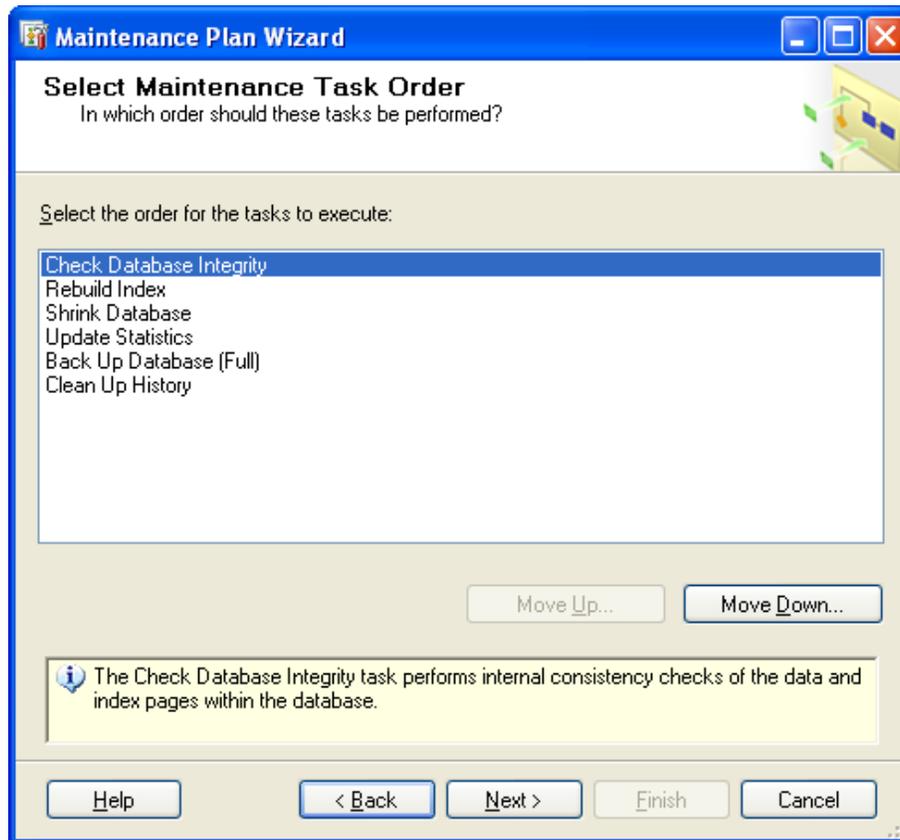


Select a Maintenance Task.

Click **Move Up** and **Move Down** to change the maintenance task order.

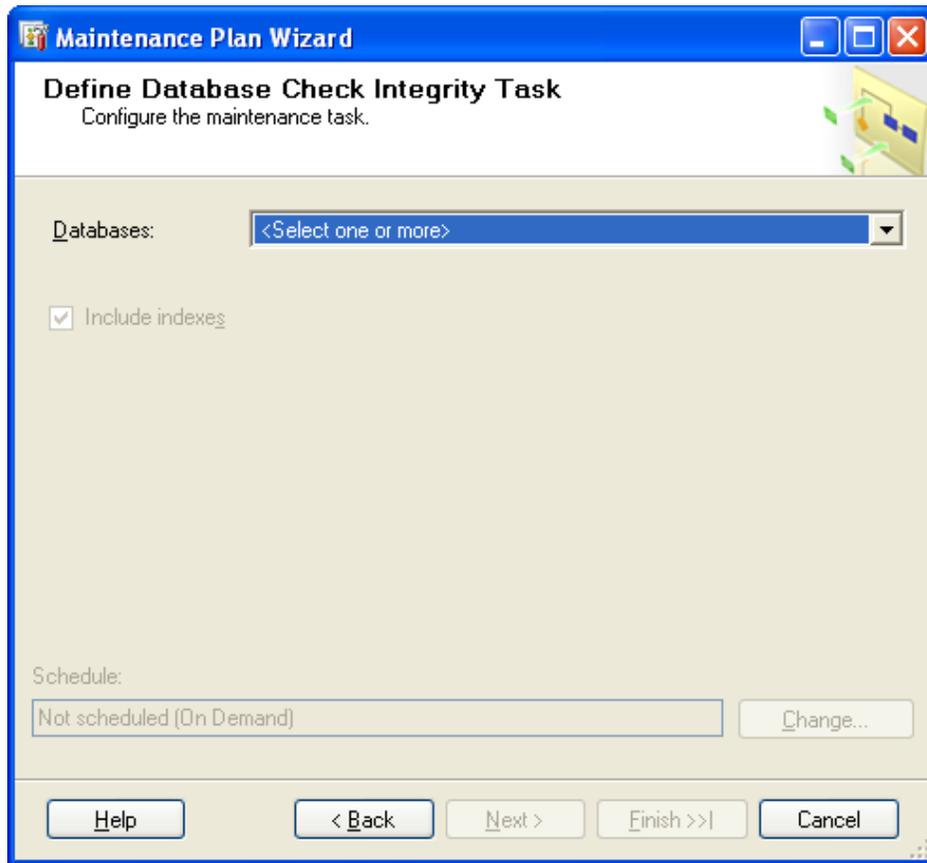
It is recommended that the Maintenance Tasks be done in the following order:

1. Check Database Integrity
2. Rebuild Index
3. Shrink Database
4. Update Statistics
5. Back Up Database (Full)
6. Clean Up History

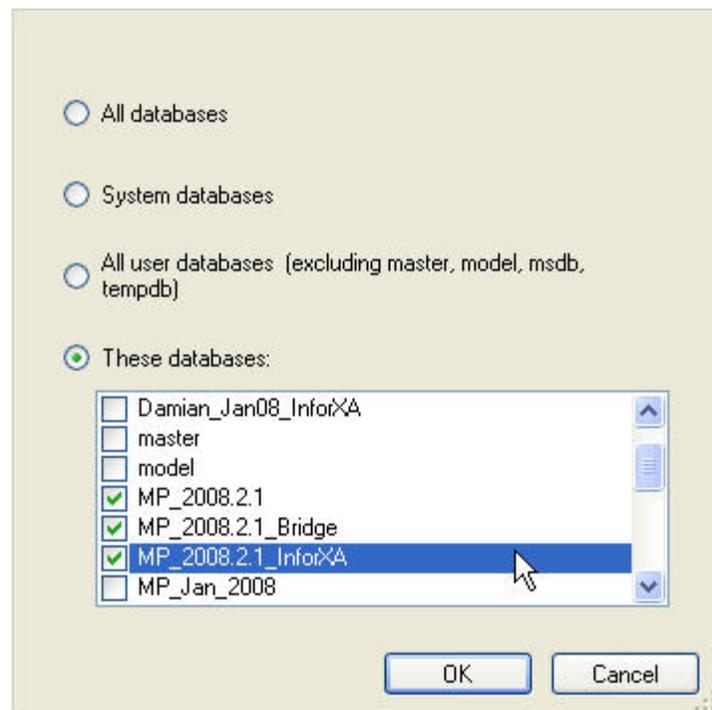


**NOTE:** For simplicity, all of the maintenance tasks are done in one maintenance plan. Each situation is different and when combined with company policies, it is quite common to change the order of the Maintenance Tasks.

Click **Next**.



Click **<Select one or more>** databases.

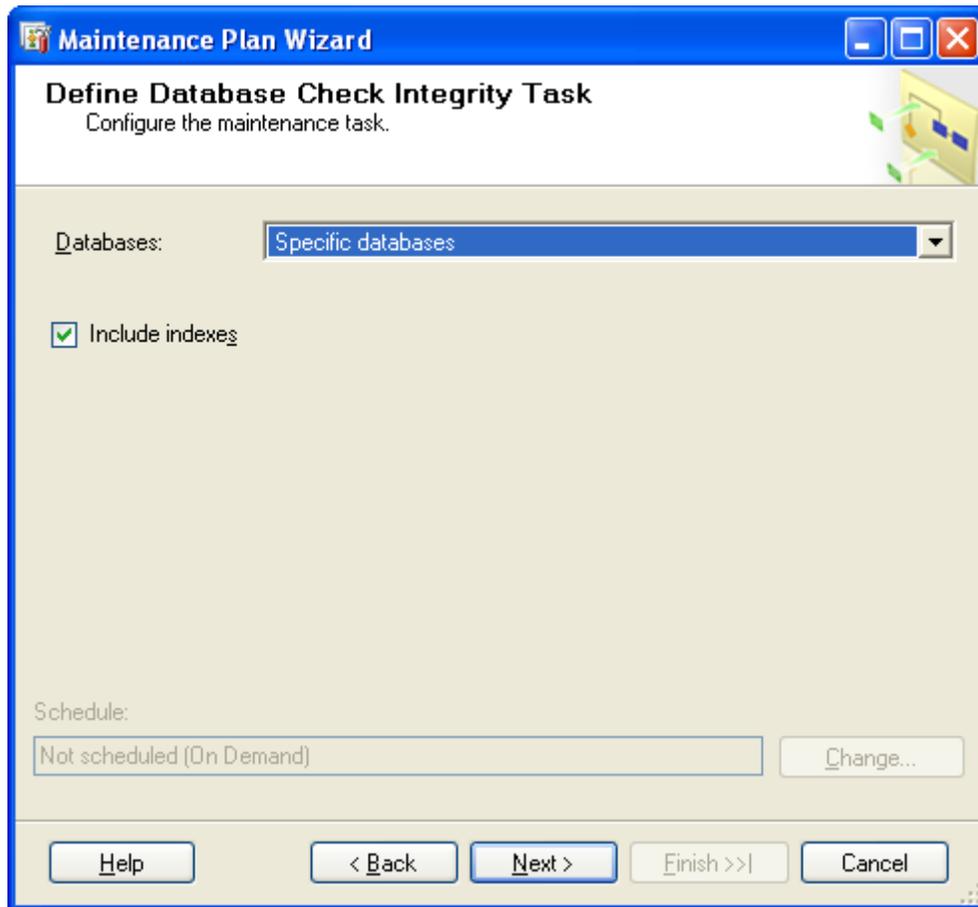


Select **These databases**.  
Select the MES SQL databases.

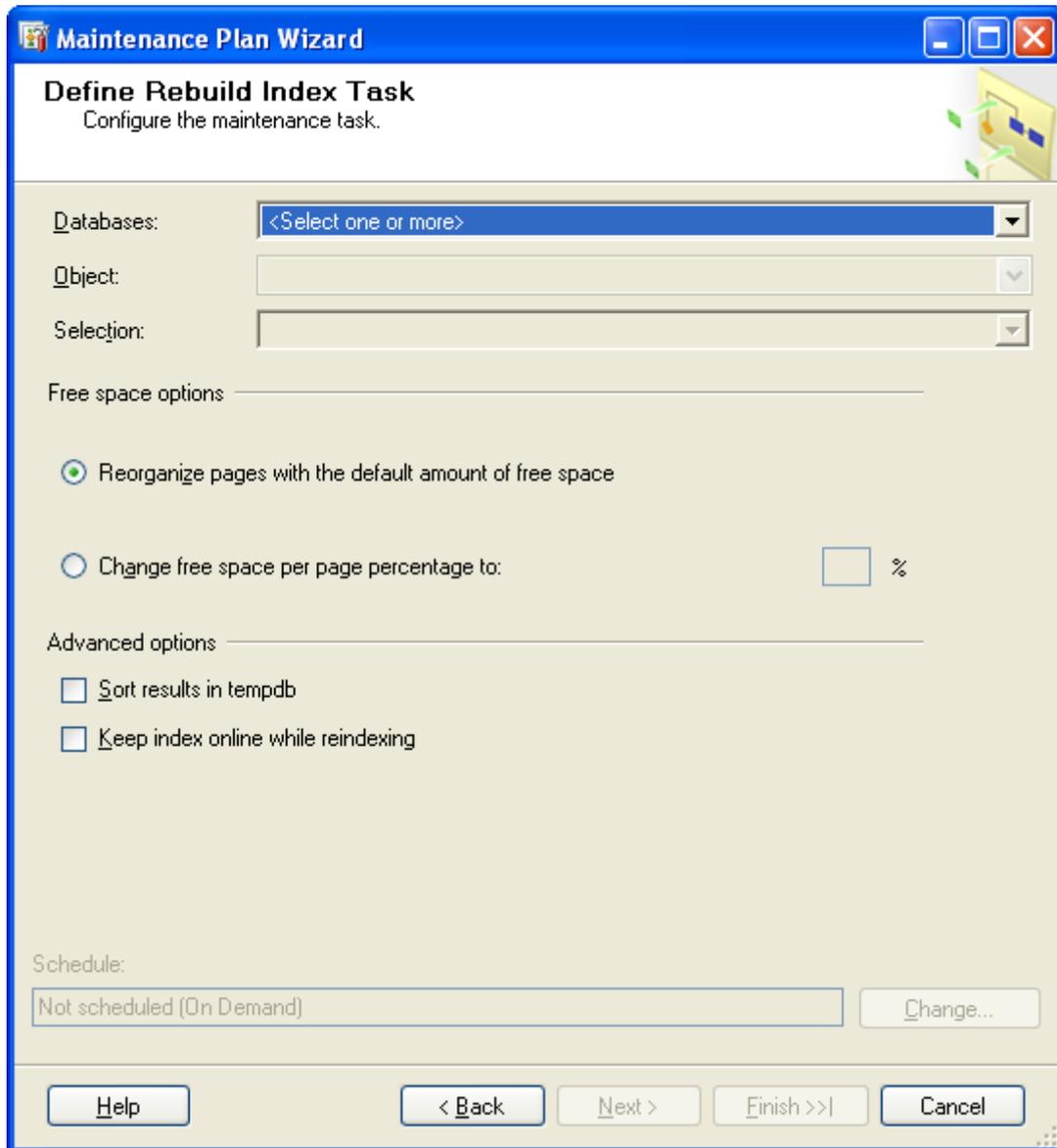
**NOTE:** The names of your MES SQL databases may be different than shown above.

**NOTE:** If you have multiple environments, select all MES SQL databases.

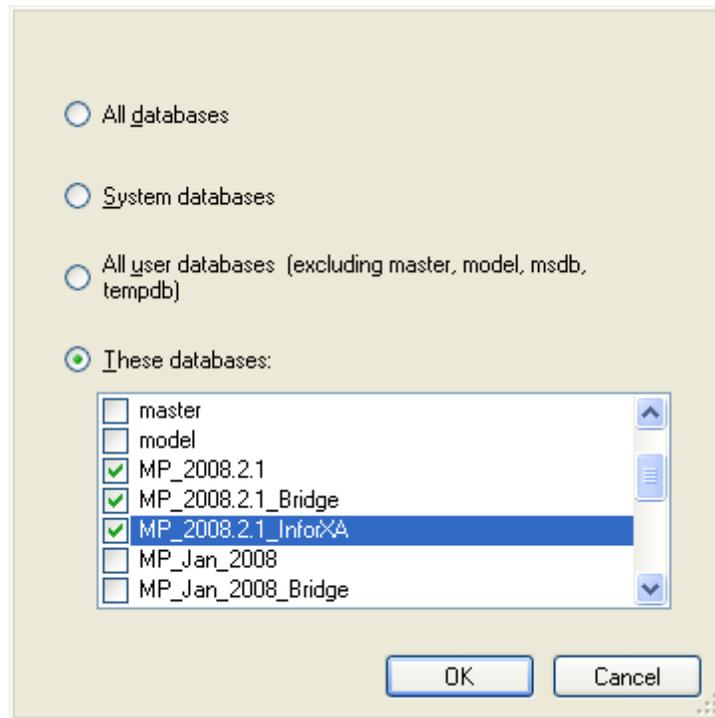
Click **OK**.



Click **Next**.



Click **<Select one or more>** databases.



Select **These databases**.

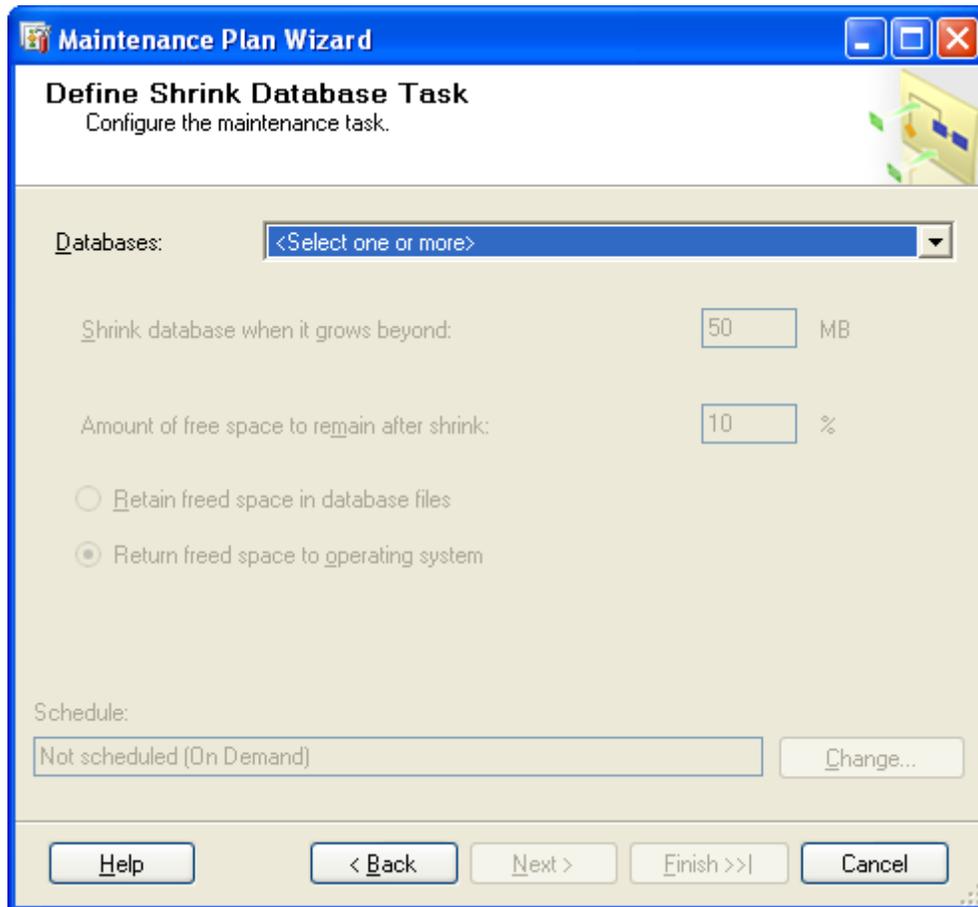
Select the MES SQL databases.

**NOTE:** The names of your MES SQL databases may be different than shown above.

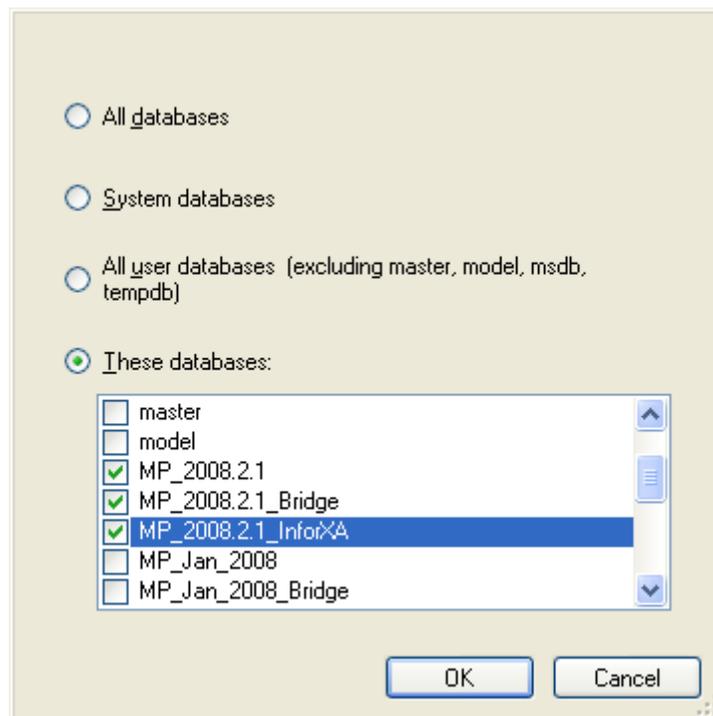
**NOTE:** If you have multiple environments, select all MES SQL databases.

Click **OK**.

Click **Next**.



Click **<Select one or more>** databases.



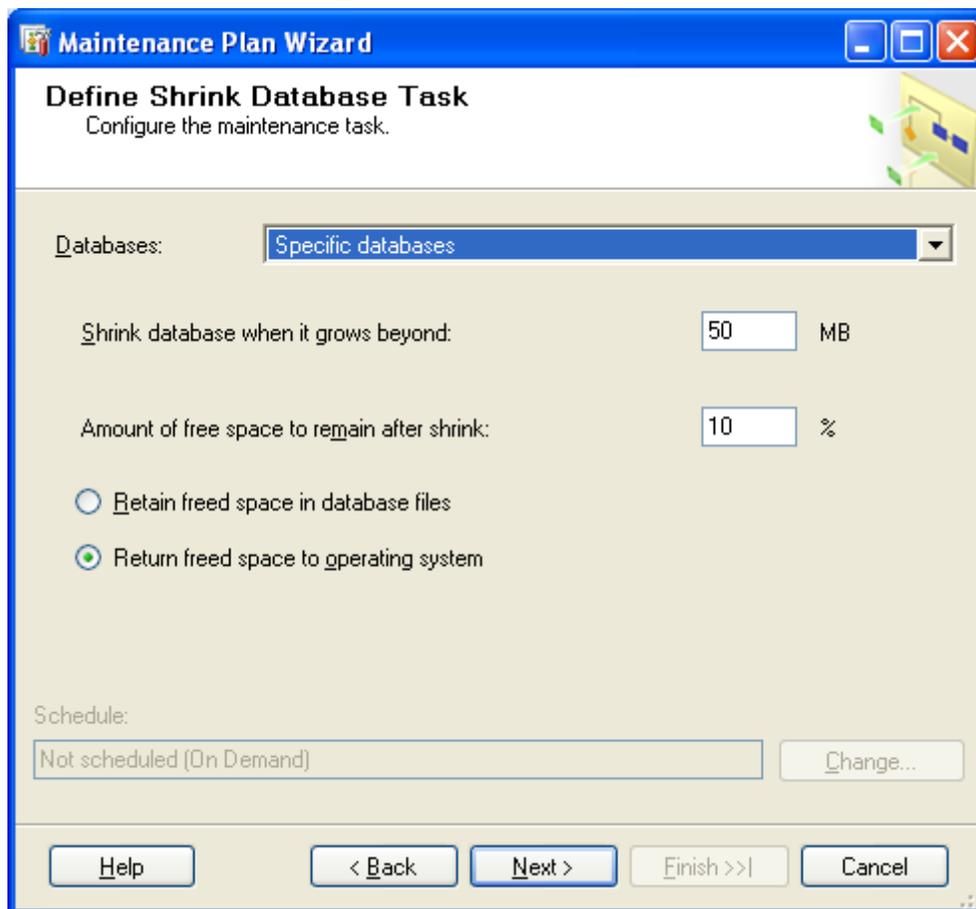
Select **These databases**.

Select the MES SQL databases.

**NOTE:** The names of your MES SQL databases may be different than shown above.

**NOTE:** If you have multiple environments, select all MES SQL databases.

Click **OK**.



The screenshot shows the 'Maintenance Plan Wizard' dialog box, specifically the 'Define Shrink Database Task' step. The title bar reads 'Maintenance Plan Wizard'. Below the title bar, the main heading is 'Define Shrink Database Task' with the subtitle 'Configure the maintenance task.' To the right of the subtitle is a small icon of a folder with arrows. The dialog contains the following fields and options:

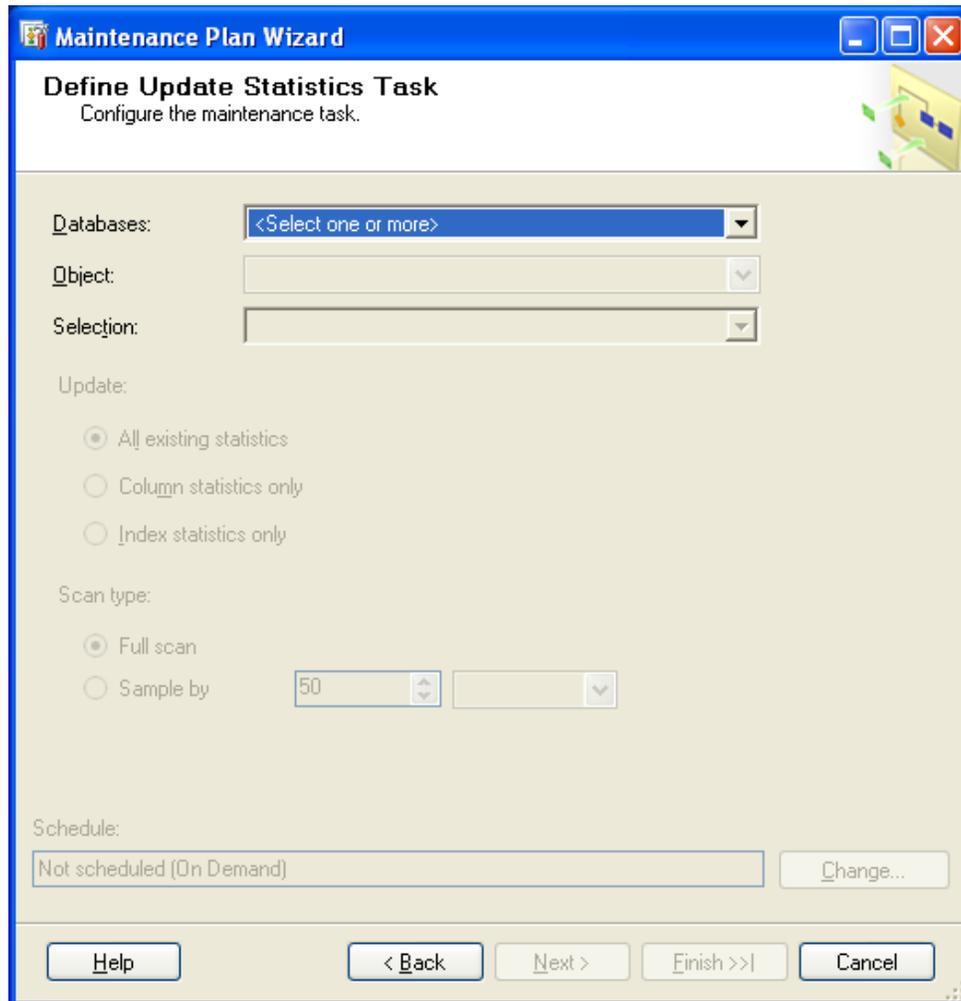
- Databases:** A dropdown menu currently set to 'Specific databases'.
- Shrink database when it grows beyond:** A text input field containing '50' followed by 'MB'.
- Amount of free space to remain after shrink:** A text input field containing '10' followed by a percentage symbol '%'. Below this field are two radio button options:
  - Retain freed space in database files
  - Return freed space to operating system
- Schedule:** A text input field containing 'Not scheduled (On Demand)' and a 'Change...' button to its right.

At the bottom of the dialog, there are five buttons: 'Help', '< Back', 'Next >', 'Finish >>', and 'Cancel'.

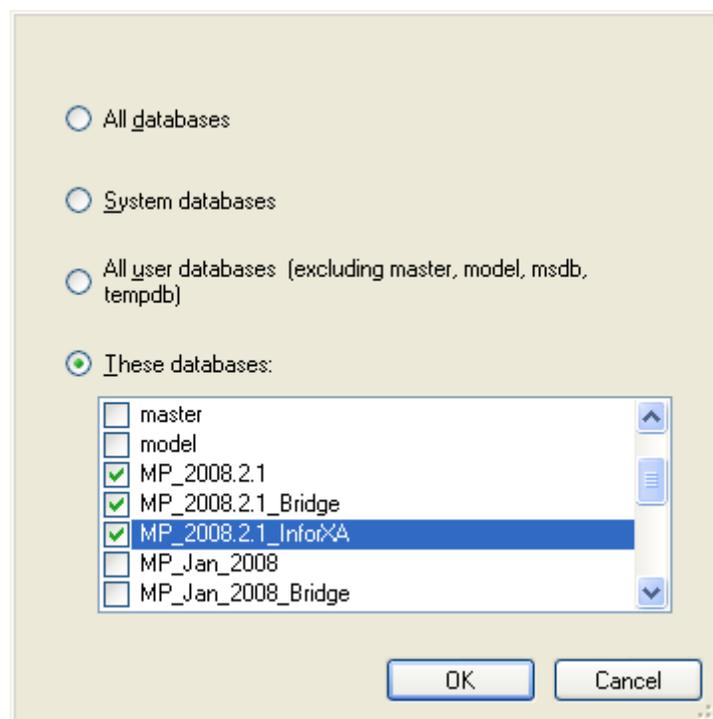
If desired, change the amount of free space to remain after shrink.

Choose whether to retain the freed space or return the freed space to the operating system.

Click **Next**.



Click **<Select one or more>** databases.



Select **These databases**.

Select the MES SQL databases.

**NOTE:** The names of your MES SQL databases may be different than shown above.

**NOTE:** If you have multiple environments, select all MES SQL databases.

Click **OK**.

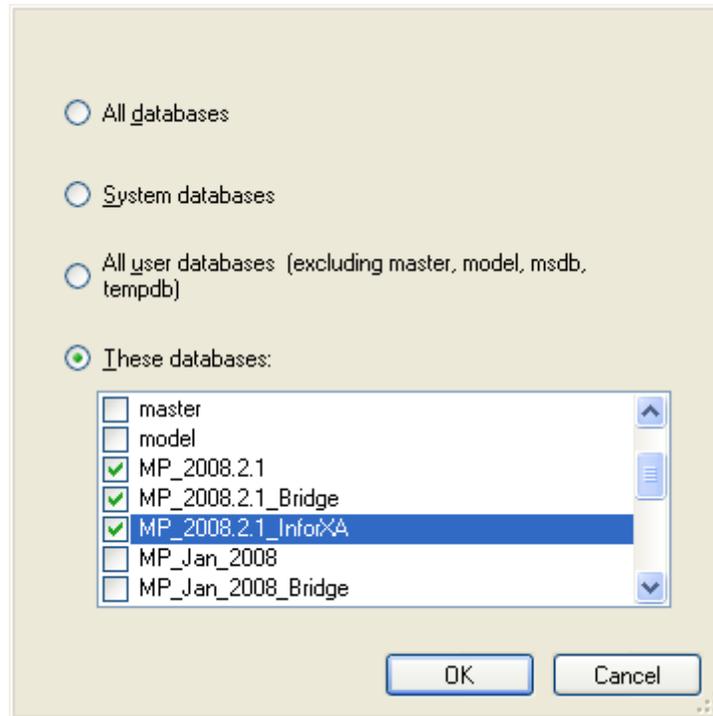
Click **Next**.

The screenshot shows the 'Maintenance Plan Wizard' dialog box, specifically the 'Define Back Up Database (Full) Task' step. The window title is 'Maintenance Plan Wizard' and the subtitle is 'Define Back Up Database (Full) Task'. Below the subtitle is the instruction 'Configure the maintenance task.' The dialog is divided into several sections:

- Backup type:** A dropdown menu set to 'Full'.
- Database(s):** A dropdown menu with the text '<Select one or more>'.
- Backup component:** Radio buttons for 'Database' (selected), 'Files and filegroups', and 'Backup set will expire:'.
  - Under 'Backup set will expire:', there are radio buttons for 'After' (selected) and 'On'. The 'After' option has a spinner box set to '14' and the unit 'days'. The 'On' option has a date dropdown set to '5/ 1/2008'.
- Back up to:** Radio buttons for 'Disk' (selected) and 'Tape'.
- Back up databases across one or more files:** A radio button (unselected) with an empty list box and buttons for 'Add...', 'Remove', and 'Contents'.
- If backup files exist:** A dropdown menu set to 'Append'.
- Create a backup file for every database:** A radio button (selected) with a sub-option 'Create a sub-directory for each database' (unselected).
  - Foljder:** A text box containing 'C:\Program Files\Microsoft SQL Server\MSSQL.1\MSSQL\Bac' and a browse button '...'.
  - Backup file extension:** A text box containing 'bak'.
- Verify backup integrity:** An unselected checkbox.
- Schedule:** A text box containing 'Not scheduled (On Demand)' and a 'Change...' button.

At the bottom of the dialog are five buttons: 'Help', '< Back', 'Next >', 'Finish >>', and 'Cancel'.

Click <**Select one or more**> databases.



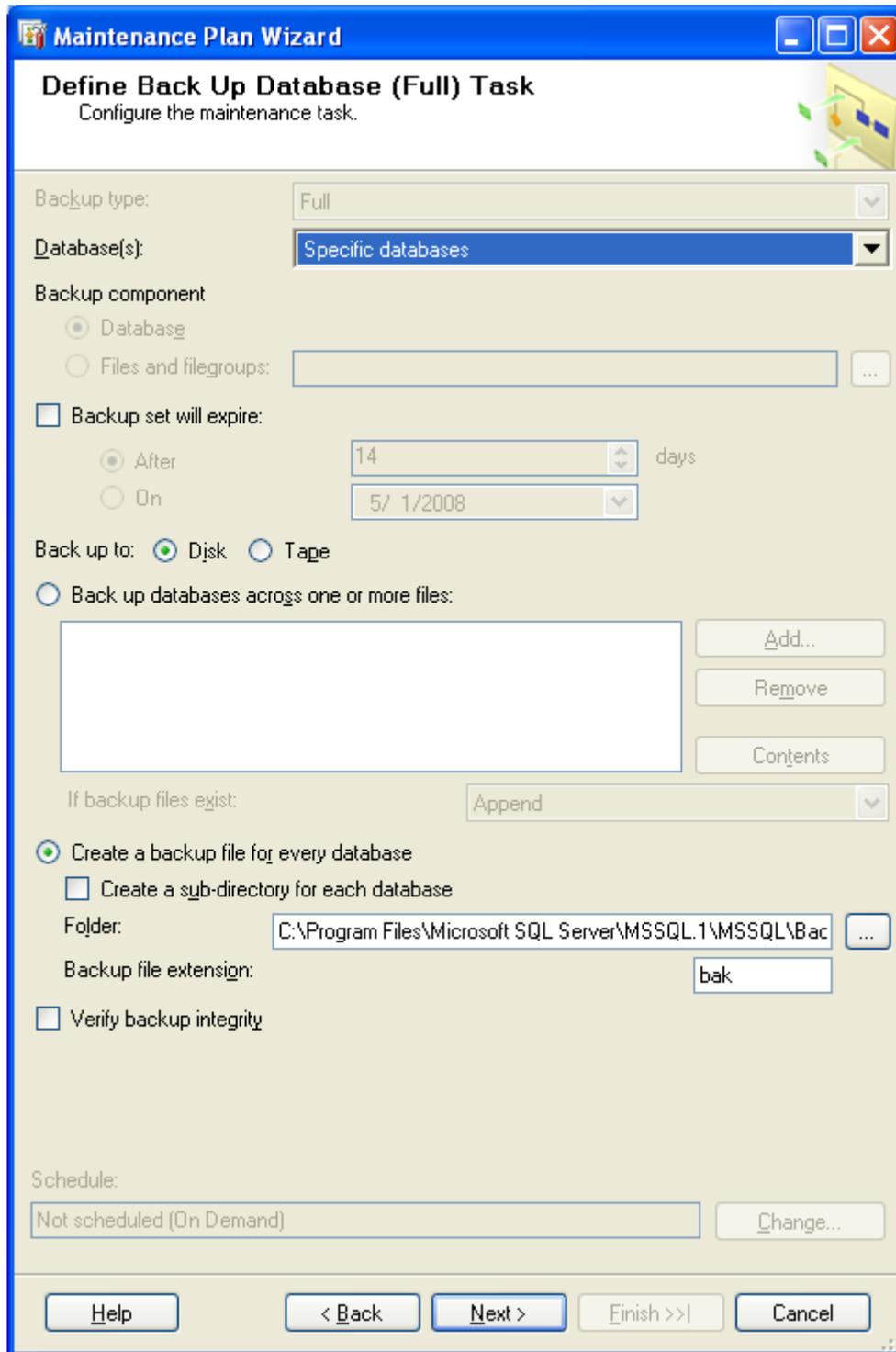
Select **These databases**.

Select the MES SQL databases.

**NOTE:** The names of your MES SQL databases may be different than shown above.

**NOTE:** If you have multiple environments, select all MES SQL databases.

Click **OK**.



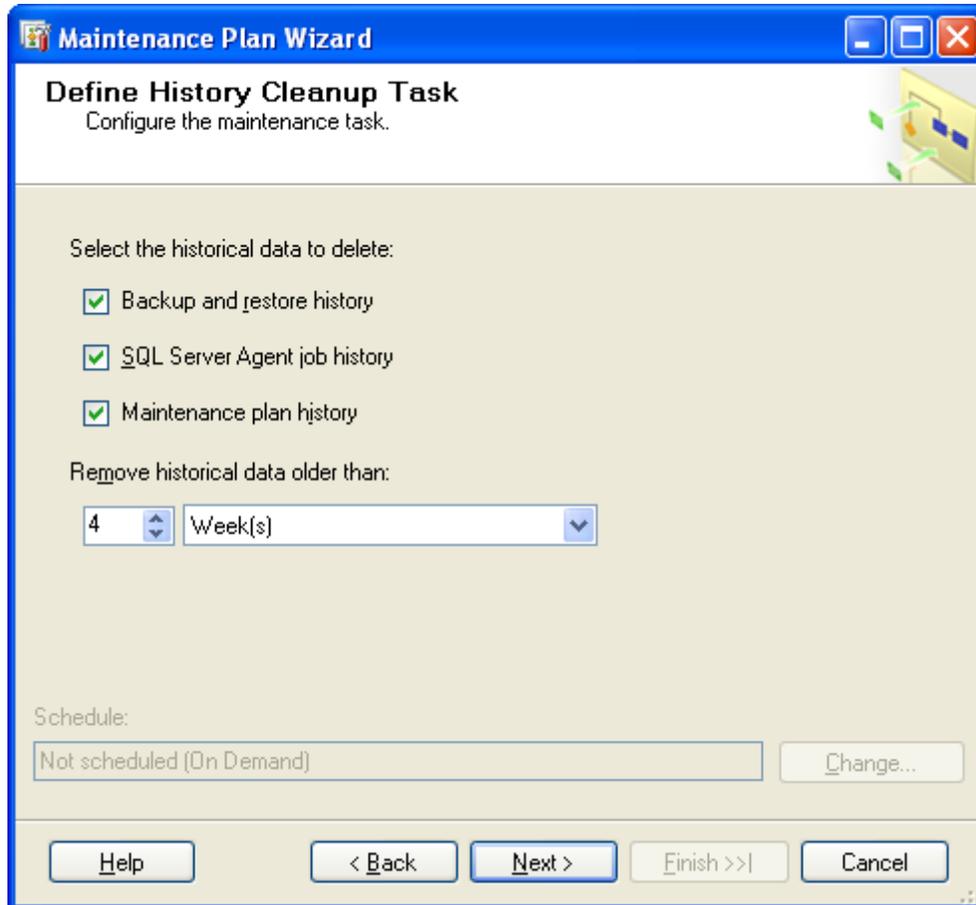
Select the backup destination—**Disk** or **Tape**.

Specify the appropriate information for either a disk or tape backup.

For easier organization, select **Create a sub-directory for each database**.

Select **Verify backup integrity** to ensure the database can be restored from the media.

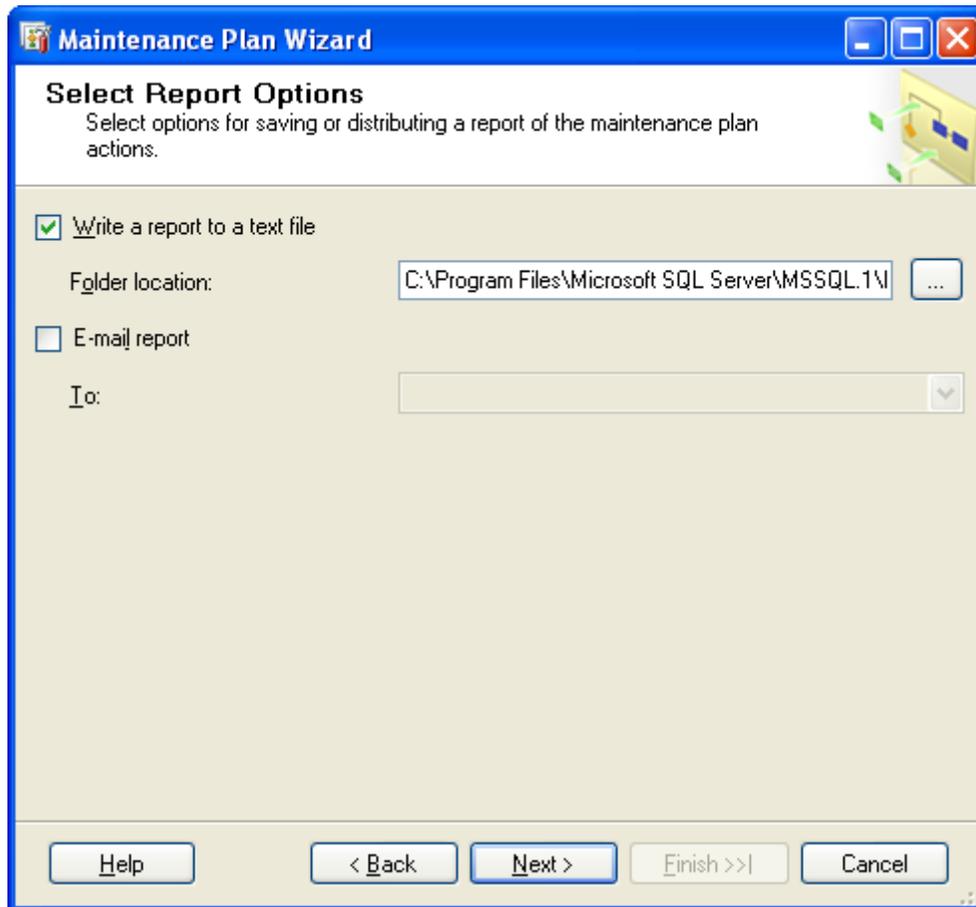
Click **Next**.



Select the desired historical data to delete.

Select the desired retention period.

Click **Next**.



If you wish to Write a report to a text file, define the folder location.

Select the report options as desired.

TIP: To send an e-mail report, configure SQL Server 2005's Database Mail and a SQL Server Agent Operator first. Refer to SQL Server 2005 Books Online.

Click **Next**.

On the **Complete the Wizard** screen, review the Maintenance Plan.

Click **Finish**.

**Maintenance Plan Wizard**

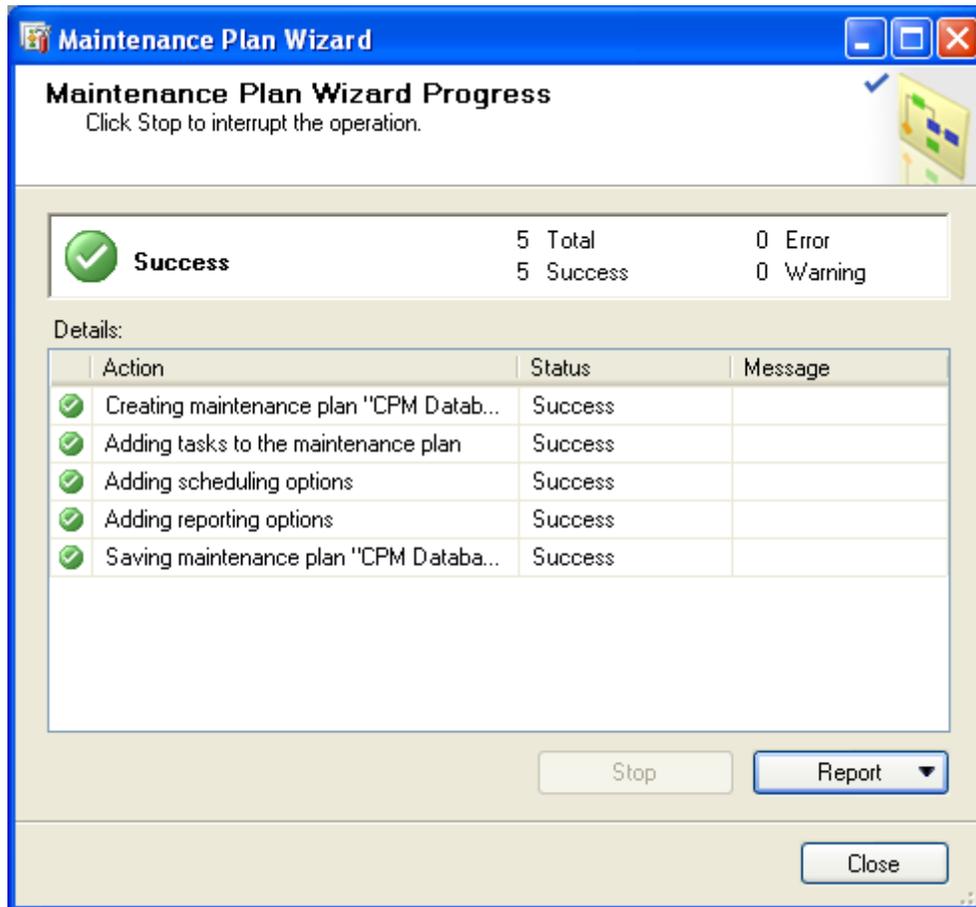
**Maintenance Plan Wizard Progress**  
Click Stop to interrupt the operation.

 **1 Remaining**      5 Total      0 Error  
4 Success      0 Warning

Details:

| Action                                                                                                                    | Status  | Message |
|---------------------------------------------------------------------------------------------------------------------------|---------|---------|
|  Creating maintenance plan "CPM Datab... | Success |         |
|  Adding tasks to the maintenance plan    | Success |         |
|  Adding scheduling options               | Success |         |
|  Adding reporting options                | Success |         |
| Saving maintenance plan "CPM Databa...                                                                                    |         |         |

    ▼



Click **Close**.

This maintenance plan will create one SQL Server Agent Job.

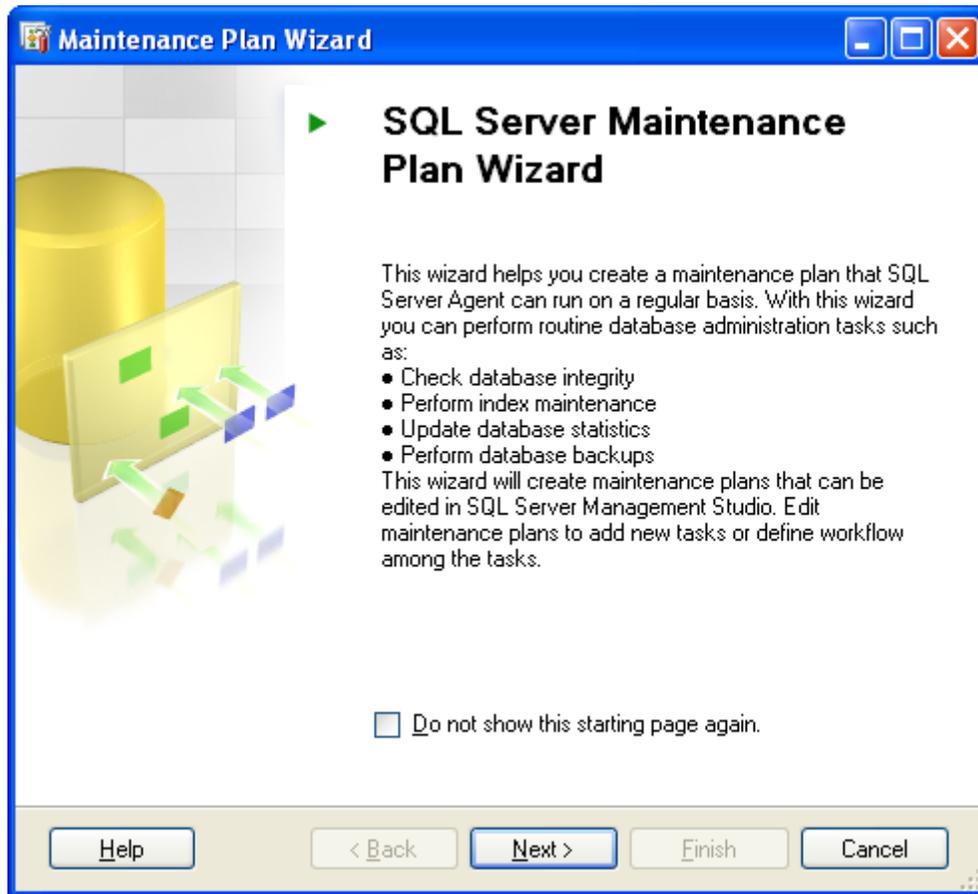
To view the SQL Server Agent Jobs:

1. Expand **SQL Server Agent**.
2. Click **Jobs**.
3. If the jobs do not appear, right-click in the right pane and select **Refresh**.

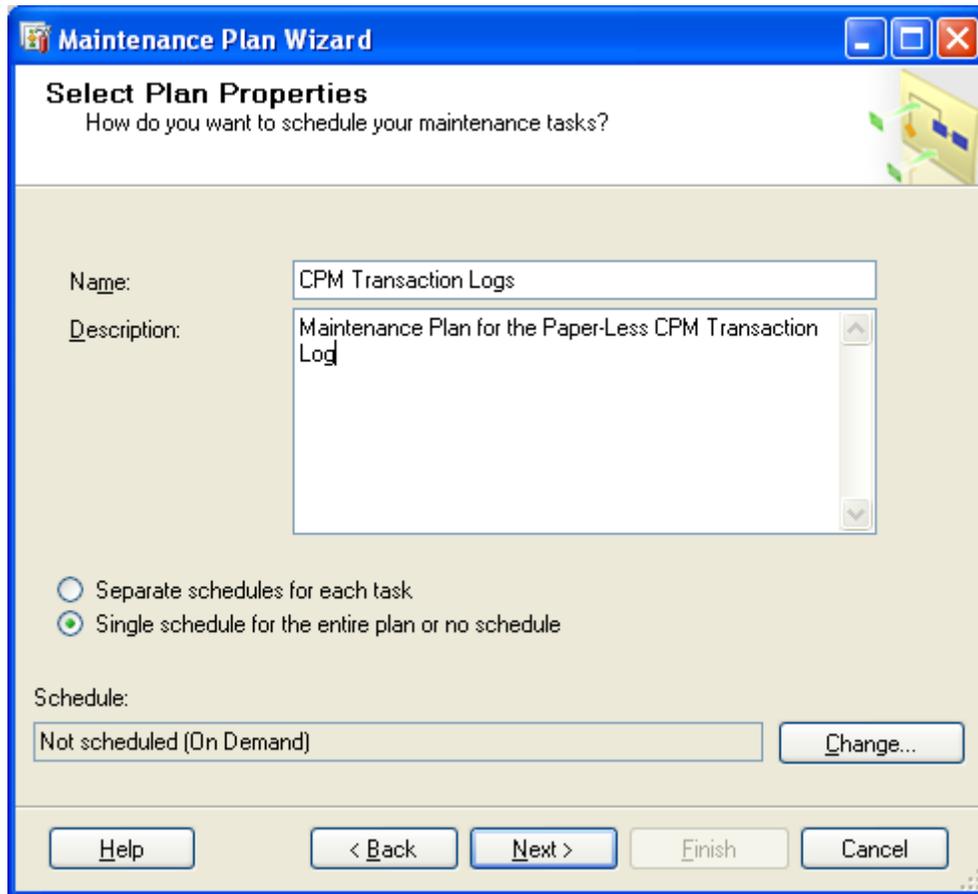
**NOTE:** SQL Server Agent must be running for the scheduled jobs to execute.

**TIP:** Refer to **Backing Up and Restoring Databases** in SQL Server 2005 Books Online for additional information.





Click **Next**.

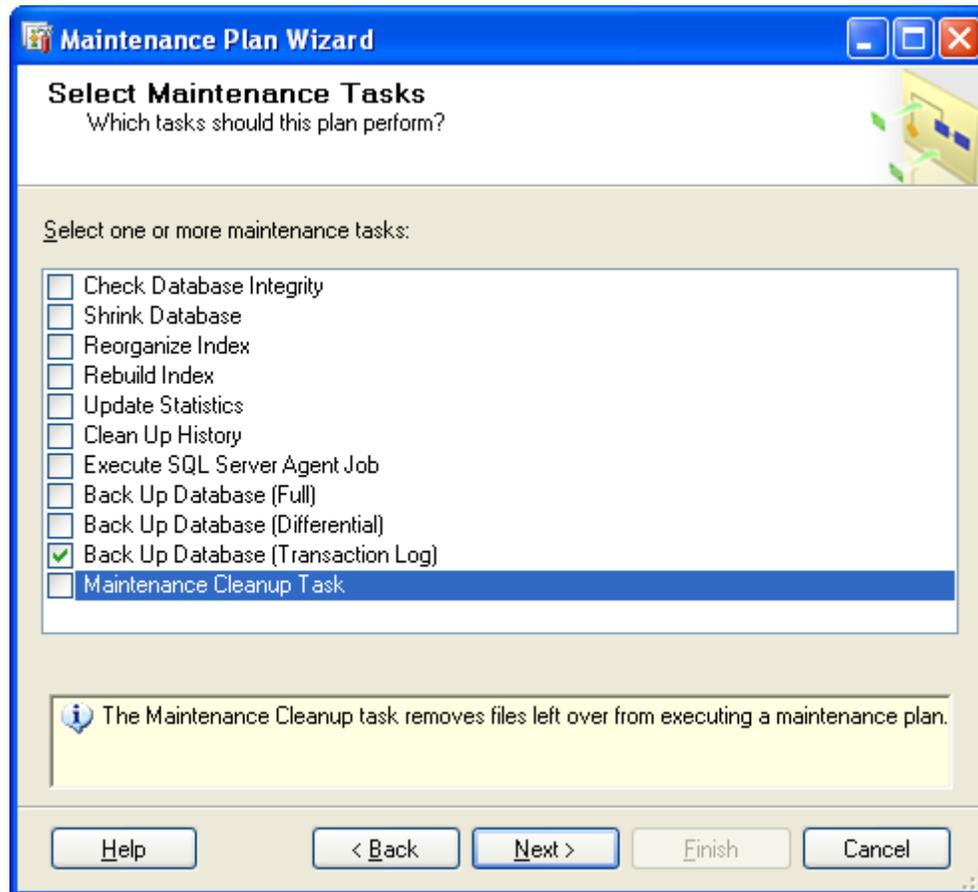


Enter a **Name**. For example: MES Transaction Logs.

Enter a **Description**.

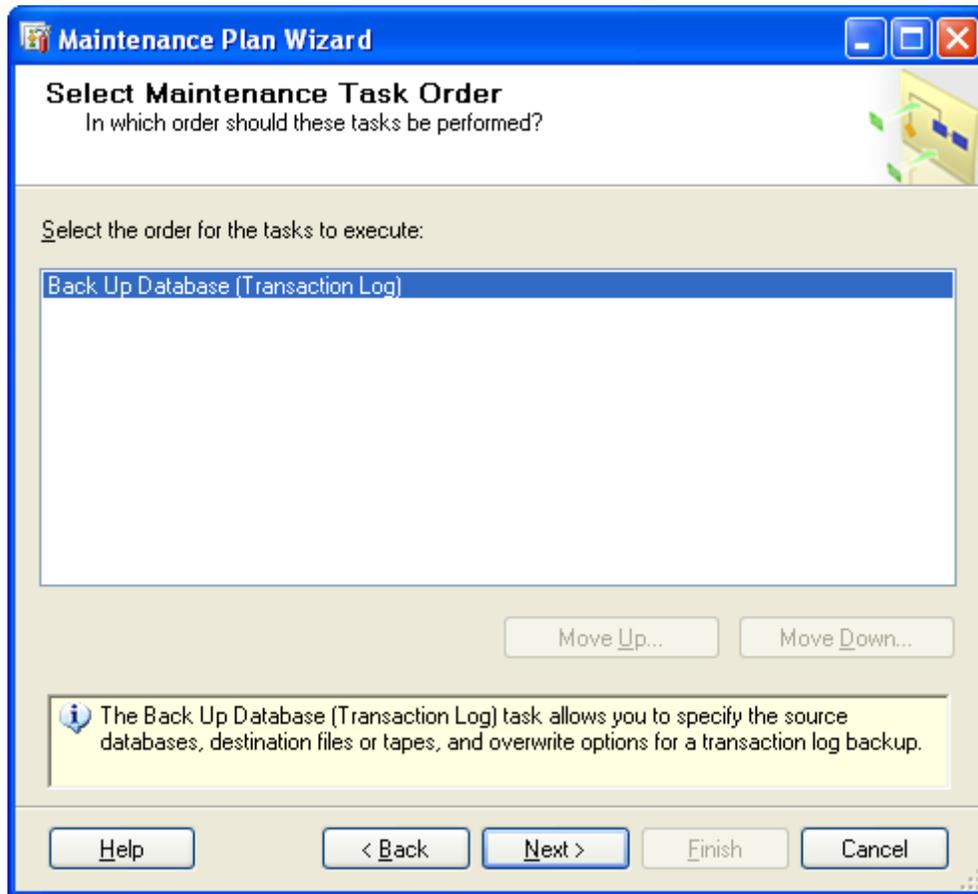
Select **Authentication** method.

Click **Next**.

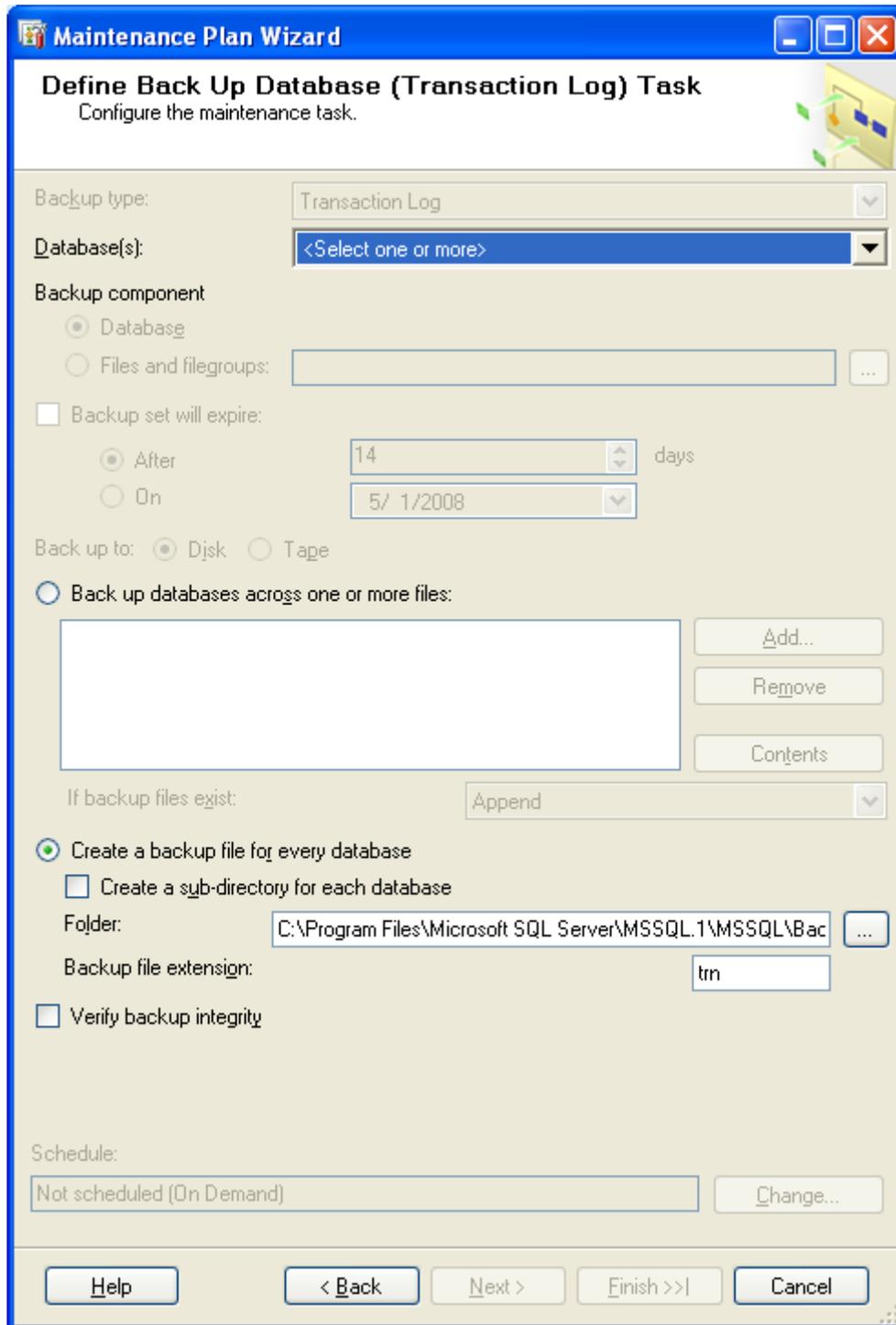


Select **Back Up Database (Transaction Log)** maintenance task.

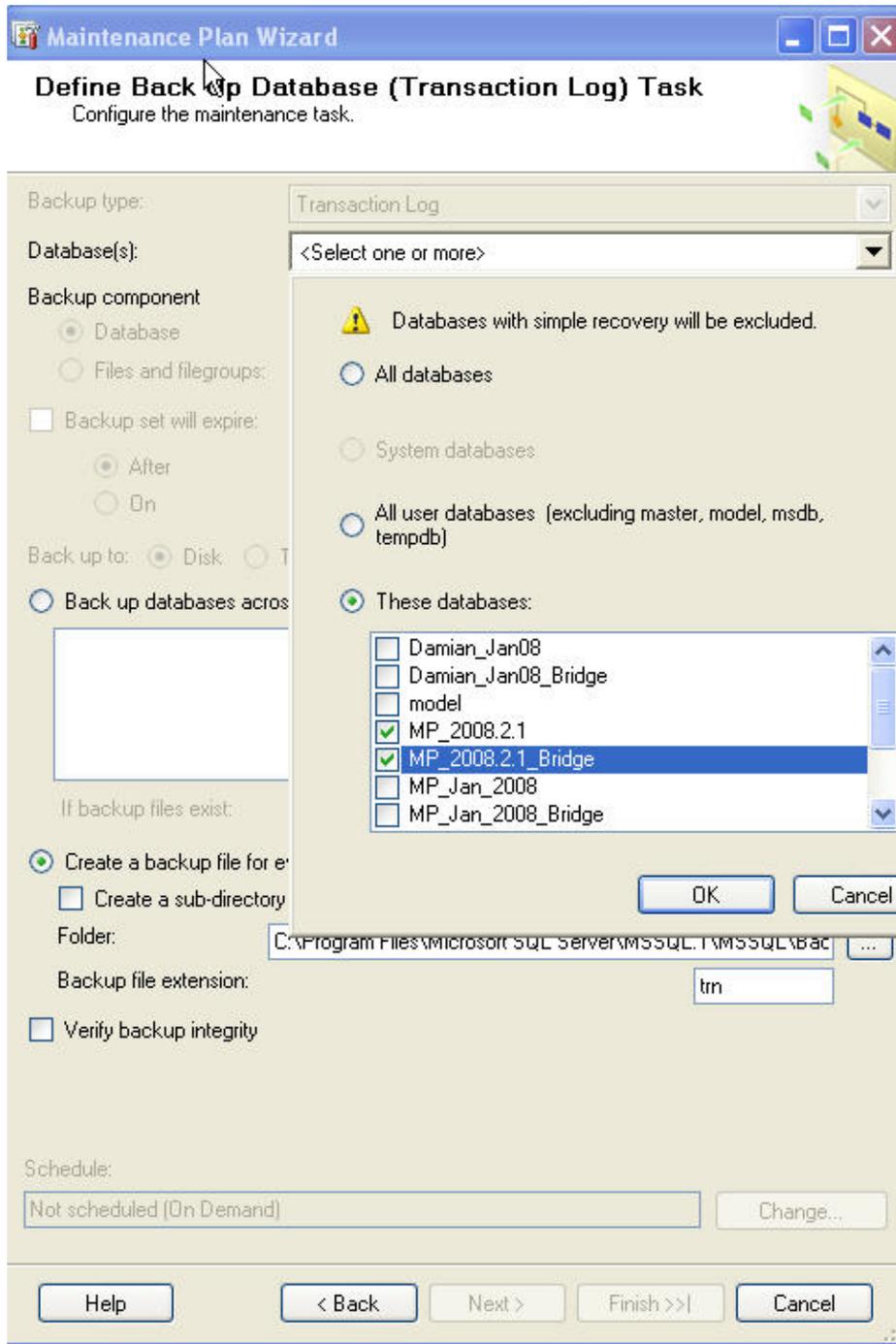
Click **Next**.



Click **Next**.



Click **<Select one or more>** databases.



Select **These databases**.

Select the MES SQL databases.

**NOTE:** The names of your MES SQL databases may be different than shown above.

**NOTE:** If you have multiple environments, select all MES SQL databases.

**IMPORTANT:** Do NOT select the MES\_InforXA (or <database root name>\_InforXA) databases. Only databases that are set to use SQL Server's FULL recovery model can have their transaction log backed up. MES\_InforXA database is usually set to SIMPLE recovery model and therefore, its transaction log cannot be backed up.

Click **OK**.

The screenshot shows the 'Maintenance Plan Wizard' dialog box, specifically the 'Define Back Up Database (Transaction Log) Task' step. The title bar reads 'Maintenance Plan Wizard' and the subtitle is 'Define Back Up Database (Transaction Log) Task'. Below the subtitle is the instruction 'Configure the maintenance task.' The dialog is divided into several sections:

- Backup type:** A dropdown menu set to 'Transaction Log'.
- Database(s):** A dropdown menu set to 'Specific databases'.
- Backup component:** Radio buttons for 'Database' (selected) and 'Files and filegroups:'. A text box and ellipsis button are next to 'Files and filegroups'.
- Backup set will expire:** A checkbox that is unchecked. Below it are radio buttons for 'After' (selected) and 'On'. The 'After' option has a spinner box set to '14' and the text 'days'. The 'On' option has a date picker set to '5/ 1/2008'.
- Back up to:** Radio buttons for 'Disk' (selected) and 'Tape'.
- Back up databases across one or more files:** A radio button that is unchecked. Below it is a large empty text box, an 'Add...' button, a 'Remove' button, and a 'Contents' button.
- If backup files exist:** A dropdown menu set to 'Append'.
- File creation options:** Radio buttons for 'Create a backup file for every database' (selected) and 'Create a sub-directory for each database' (unchecked). Below 'Create a sub-directory...' is a 'Folder:' text box containing 'C:\Program Files\Microsoft SQL Server\MSSQL.1\MSSQL\Bac' and an ellipsis button. Below that is a 'Backup file extension:' text box containing 'trn'.
- Verify backup integrity:** A checkbox that is unchecked.
- Schedule:** A text box containing 'Not scheduled (On Demand)' and a 'Change...' button.

At the bottom of the dialog are five buttons: 'Help', '< Back', 'Next >', 'Finish >>', and 'Cancel'.

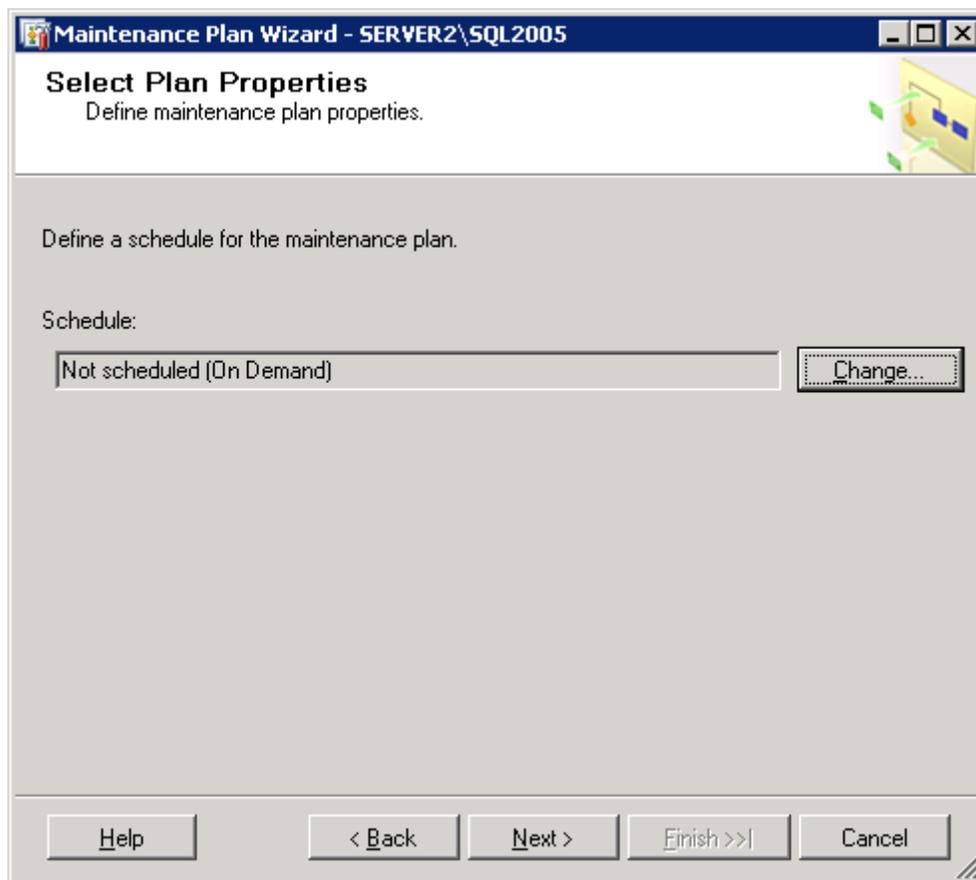
Select the backup destination—**Disk** or **Tape**.  
Specify the appropriate information for either a disk or tape backup.

If the transaction log backups are being kept for disaster recovery purposes:  
For easier organization, select **Create a sub-directory for each database**.  
Select **Verify backup integrity** to ensure the database can be restored from the media.

If the transaction log backups are being immediately discarded:  
Select **Back up databases across one or more files**.  
Click **Add** to add a backup file location.

Select to **Overwrite** the backup file if it exists.  
Unselect **Verify backup integrity**.

Click **Next**.



Click **Change**.

**New Job Schedule**

Name:

Schedule type:   Enabled

One-time occurrence

Date:  Time:

Frequency

Occurs:

Recurrs every:  week(s) on

Monday  Wednesday  Friday  Saturday  
 Tuesday  Thursday  Sunday

Daily frequency

Occurs once at:

Occurs every:  hour(s) Starting at:   
Ending at:

Duration

Start date:   End date:   
 No end date

Summary

Description:

Enter a job schedule **Name**.

Change the **Frequency** as desired.

**NOTE:** The schedule shown here will backup the transaction logs on Sunday at 2:00 AM.

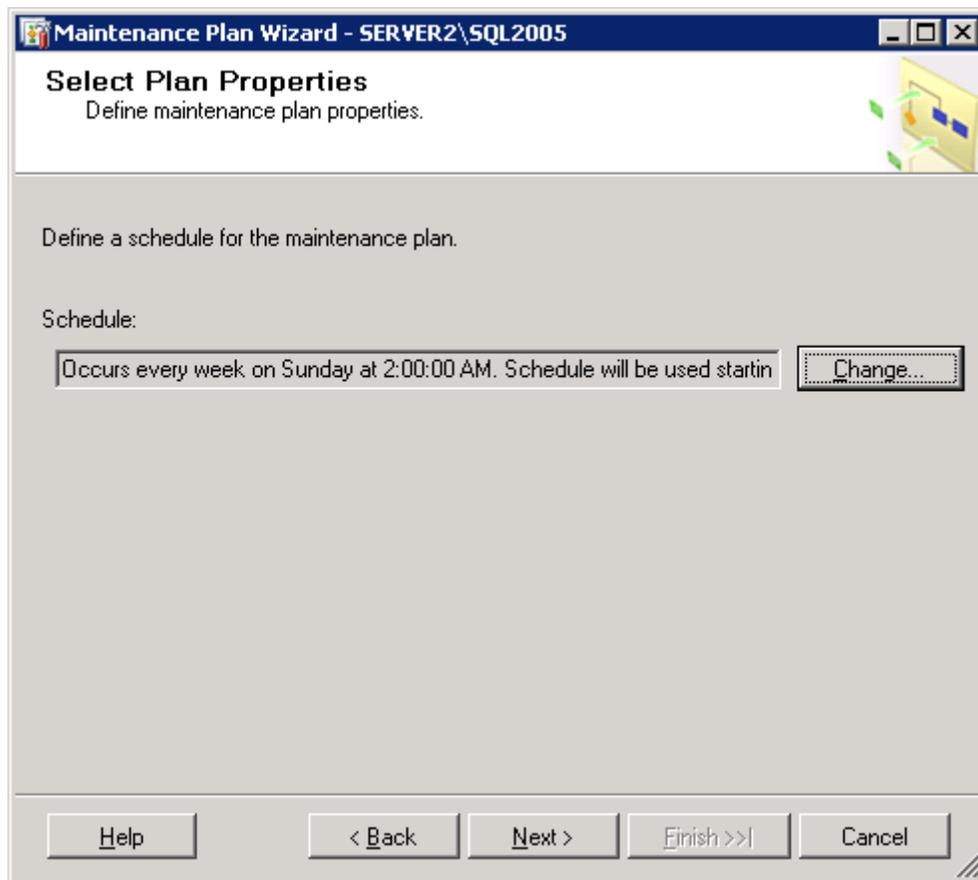
**NOTE:** Based on the server's overall job schedule, adjust the time accordingly.

**NOTE:** Frequency of the Transaction Log Backup is dependent on backup strategy and disaster recovery planning.

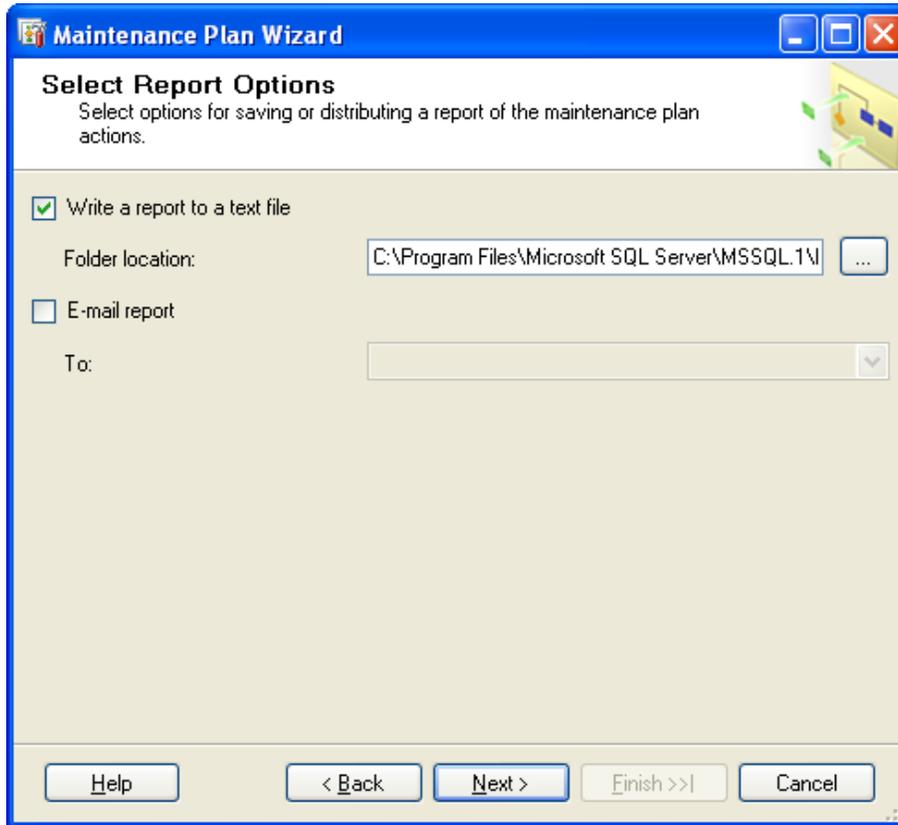
1. If you have established a daily backup of the MES SQL databases, this schedule may be changed to once per week or month because its primary purpose is to truncate the database transaction logs and prevent them from growing uncontrollably. The preceding statement is superseded if you wish to execute multiple transaction log backups throughout the day.
2. If you have established a weekly backup of the MES SQL databases, this schedule should be changed to daily. At a minimum, you should backup the transaction logs once per day. For added protection, the daily frequency can be changed as deemed necessary.

**NOTE:** If you intend to rely on transaction log backups, you must relocate the transaction log backup files to another computer or media as soon as possible. Failure to do so expose the MES SQL databases to loss of data in the event the MES SQL databases need to be restored to a point in time.

Click **OK** to close the **New Job Schedule** window.



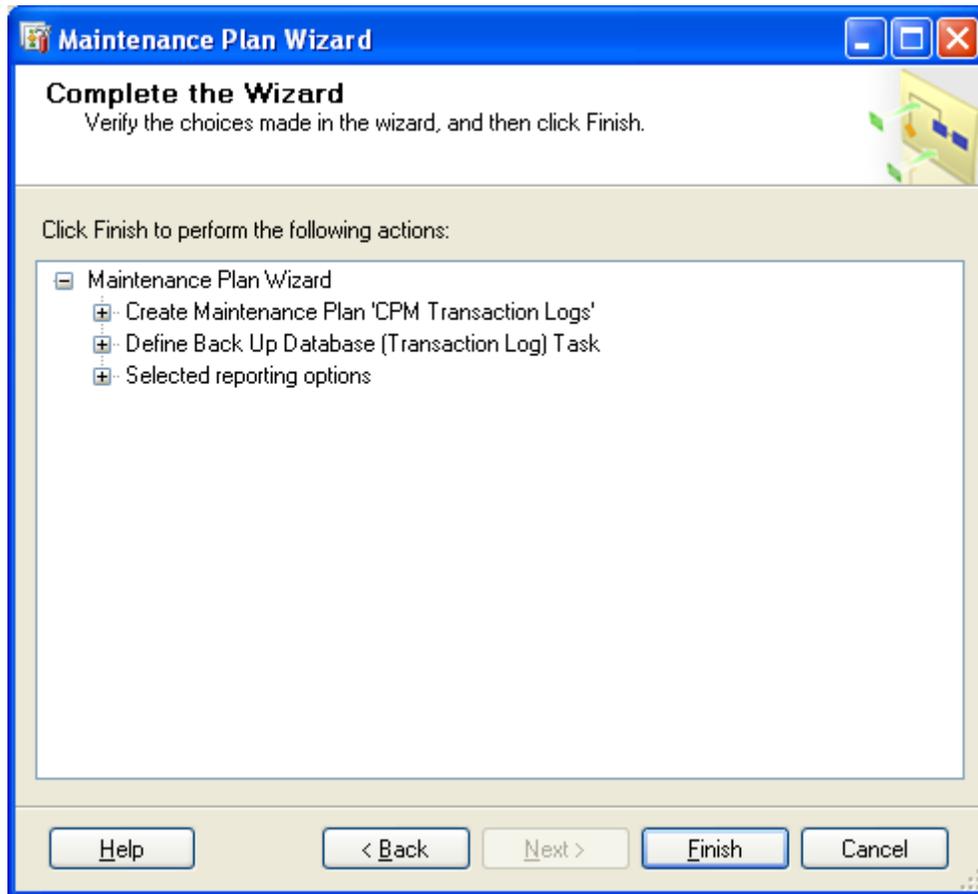
Click **Next**.



Select the report options as desired.

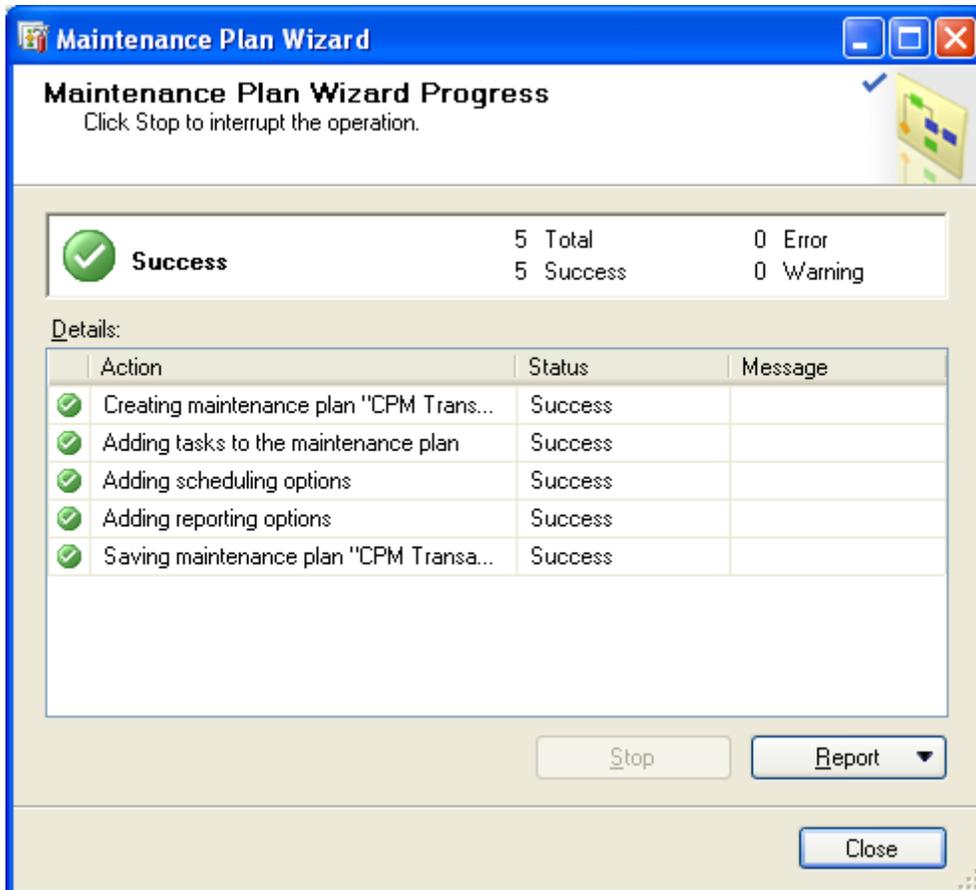
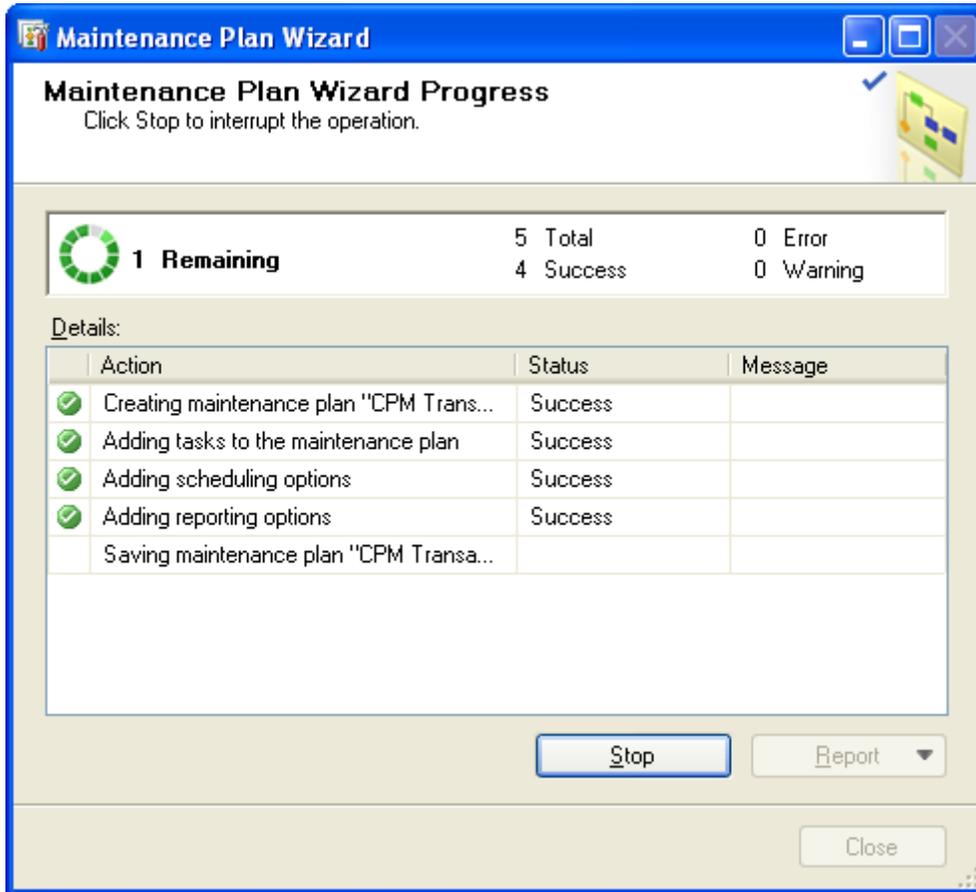
TIP: To send an e-mail report, configure SQL Server 2005's Database Mail and a SQL Server Agent Operator first. Refer to SQL Server 2005 Books Online.

Click **Next**.



Review the Maintenance Plan.

Click **Finish**.



Click **Close**.

This maintenance plan will create one SQL Server Agent Job.

To view the SQL Server Agent Jobs:

1. Expand **SQL Server Agent**.
2. Click **Jobs**.
3. If the jobs do not appear, right-click in the right pane and select **Refresh**.

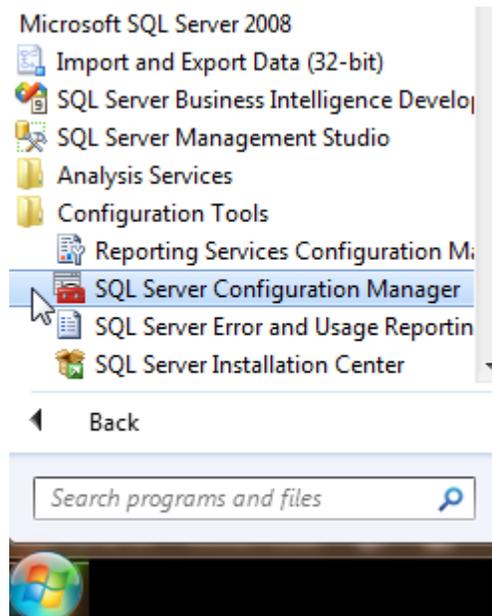
**NOTE:** SQL Server Agent must be running for the scheduled jobs to execute.

**TIP:** Refer to **Backing Up and Restoring Databases** in SQL Server 2005 Books Online for additional information.

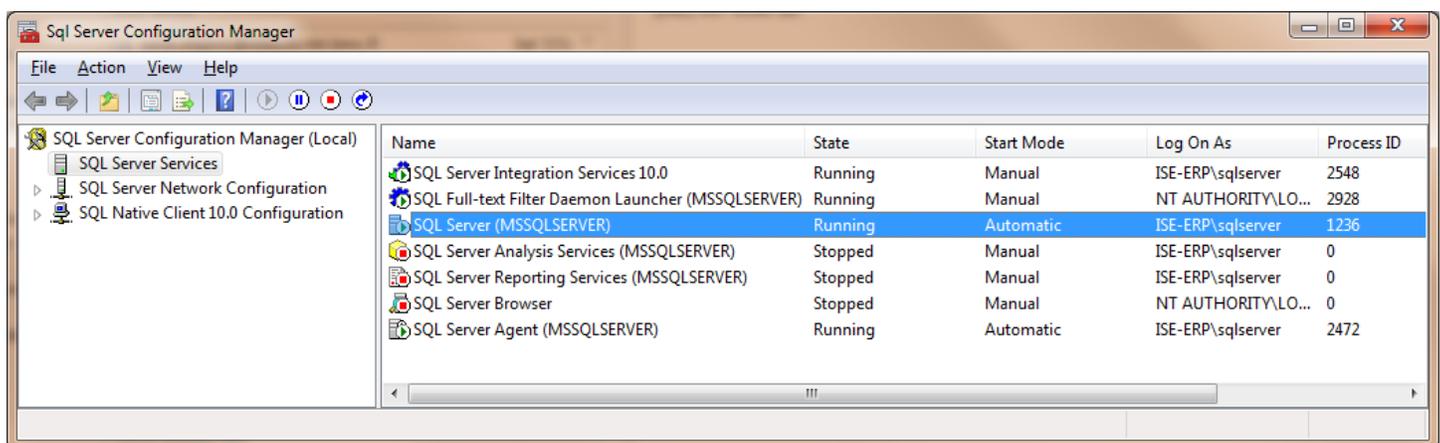
## SQL SERVER 2008 AND SQL SERVER AGENT

Database maintenance plans as well as other SQL Server jobs are executed by the SQL Server Agent. You must ensure that SQL Server and the SQL Server Agent are running and set to automatically start with the operating system.

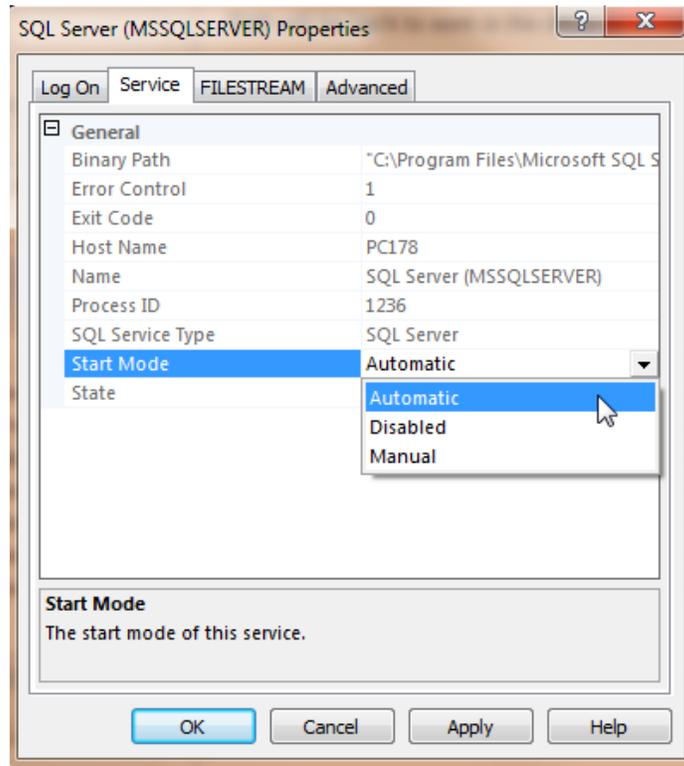
In SQL Server Configuration Manager:



Click **SQL Server Services**.

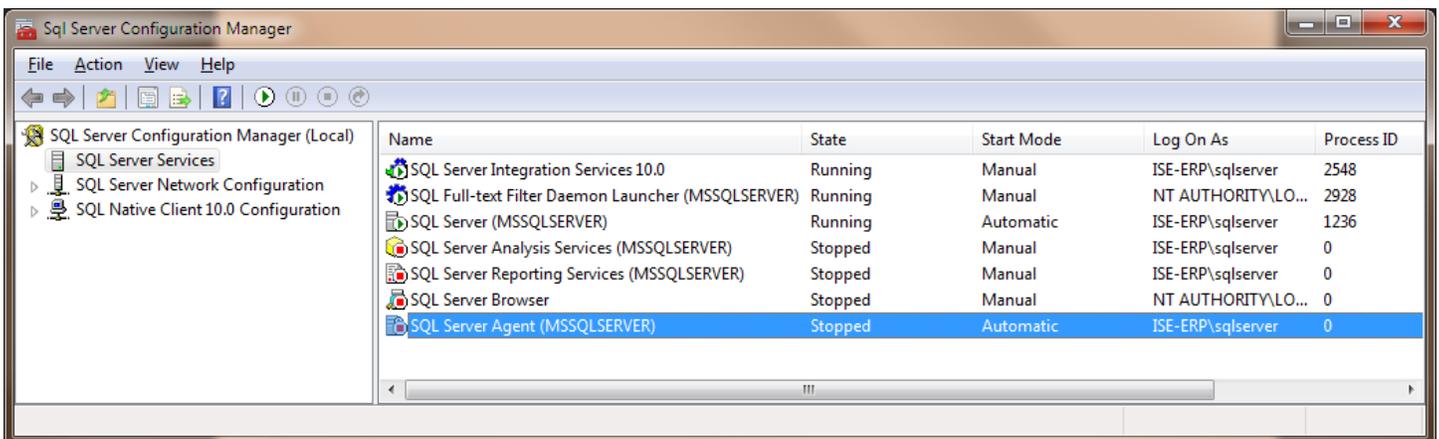


Select **SQL Server (MSSQLSERVER)** under SQL Server Services. Double click on the SQL Server Service to open the Properties box. If the database engine is not running, click **Start**. On the Service Tab, verify that the Start Mode is set to Automatic.



Click **OK** to validate your changes.

**NOTE:** The name of the SQL Server 2008 computer does vary. The default instance of SQL Server running on this computer is (local) or the name of the computer. The default instance of SQL Server running on another computer is the name of the computer. A named instance of SQL Server is ComputerName\InstanceName.



Select **SQL Server (MSSQLSERVER)** under SQL Server Services. Double click on the SQL Server Service to open the Properties box. If the database engine is not running, click **Start**. On the Service Tab, verify that the Star Mode is set to Automatic.

Click **OK**.

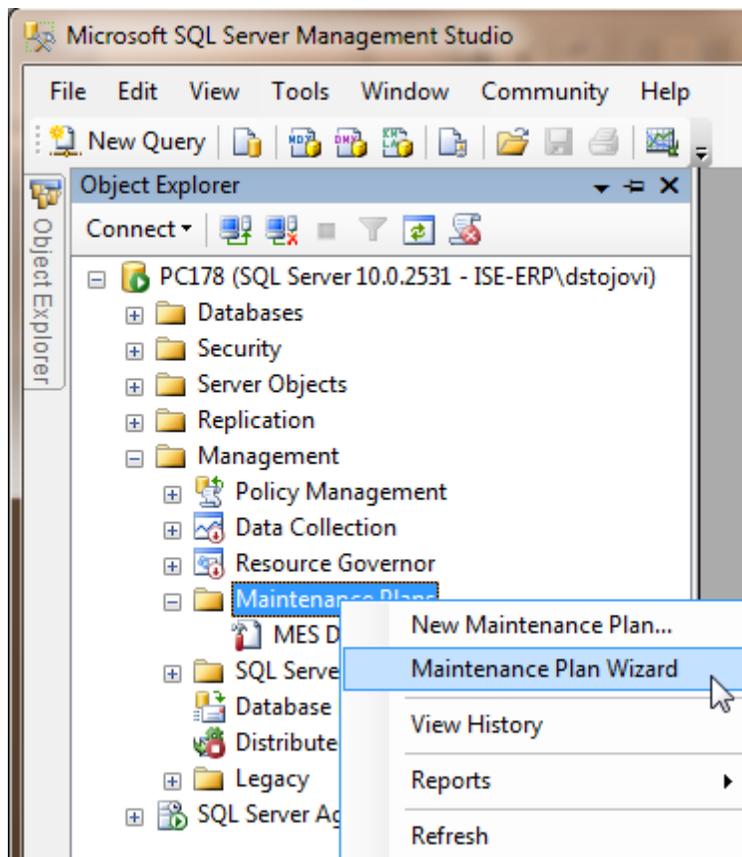
Both SQL Server and SQL Server Agent are now set to automatically start with the operating system.

## PLAN 1 – BACKUP, RE-ORGANIZE AND INTEGRITY CHECK

The purpose of this database maintenance plan is to provide general backup, data and index page reorganization, and integrity checking of the MES SQL databases.

- Every day at 12:00 AM
  7. Check Database Integrity
  8. Rebuild Index
  9. Shrink Database
  10. Update Statistics
  11. Back Up Database (Full)
  12. Clean Up History

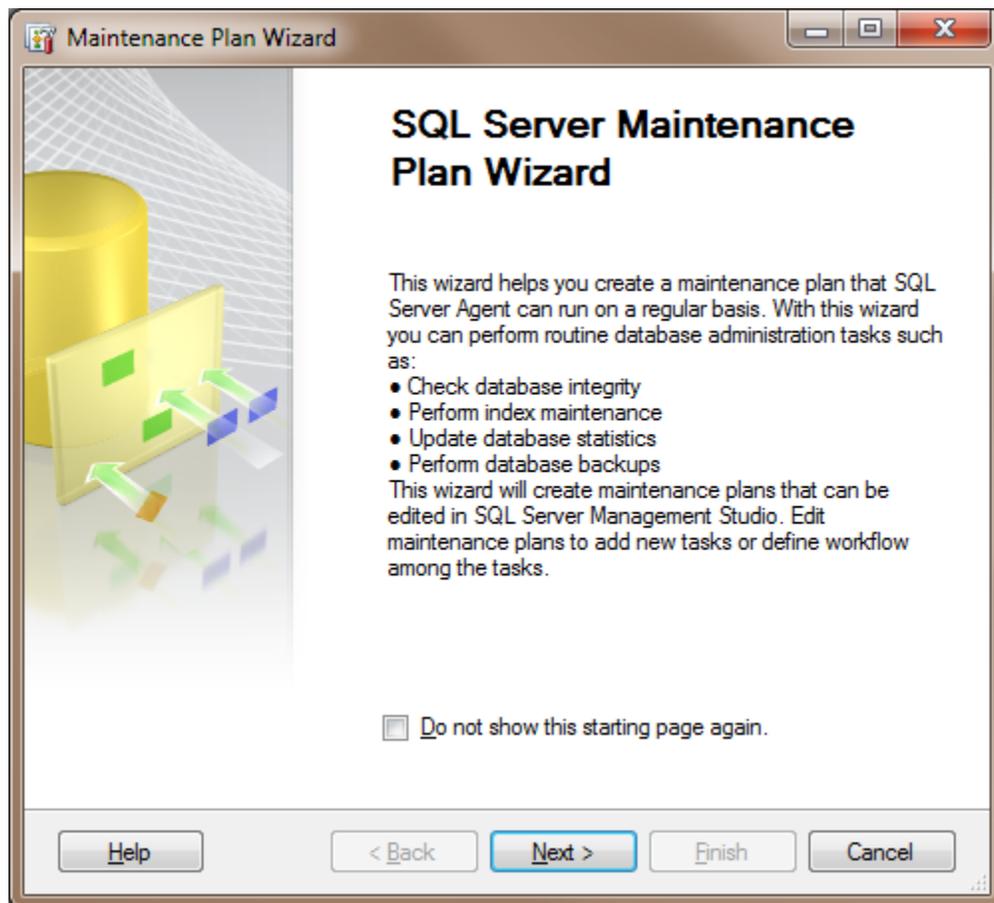
**NOTE:** This is not designed to be your sole backup strategy or disaster recovery plan.



In Microsoft SQL Server Management Studio:

Expand the **Management** folder.

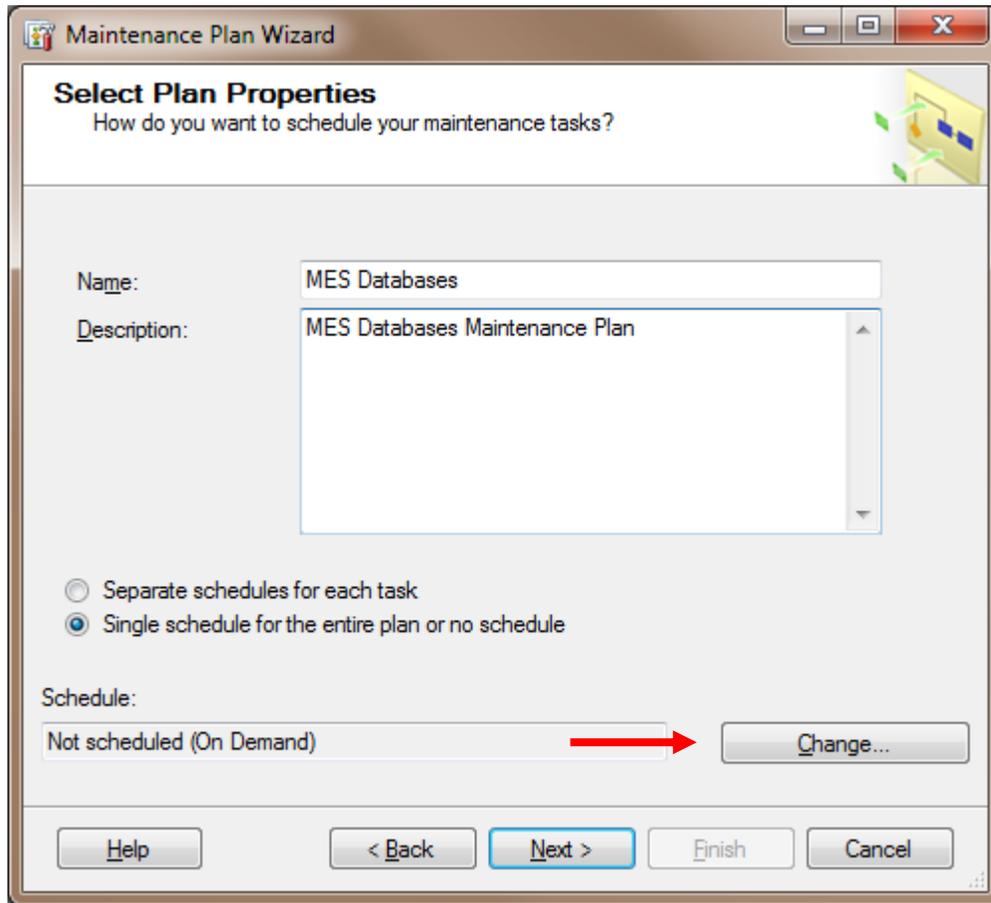
Right-click on **Maintenance Plans** and select **Maintenance Plan Wizard**. This will start the **SQL Server Maintenance Plan Wizard**.



Click **Next**.

Enter a **Name**. For example: MES Databases.

Enter a **Description**.



Click on the Change button to open the Job Schedule Properties and make changes.

**Job Schedule Properties - MES Databases**

Name:  Jobs in Schedule

Schedule type:   Enabled

One-time occurrence

Date:  Time:

Frequency

Occurs:

Rekurs every:  week(s) on

Monday  Wednesday  Friday  Saturday  
 Tuesday  Thursday  Sunday

Daily frequency

Occurs once at:

Occurs every:  hour(s) Starting at:   
Ending at:

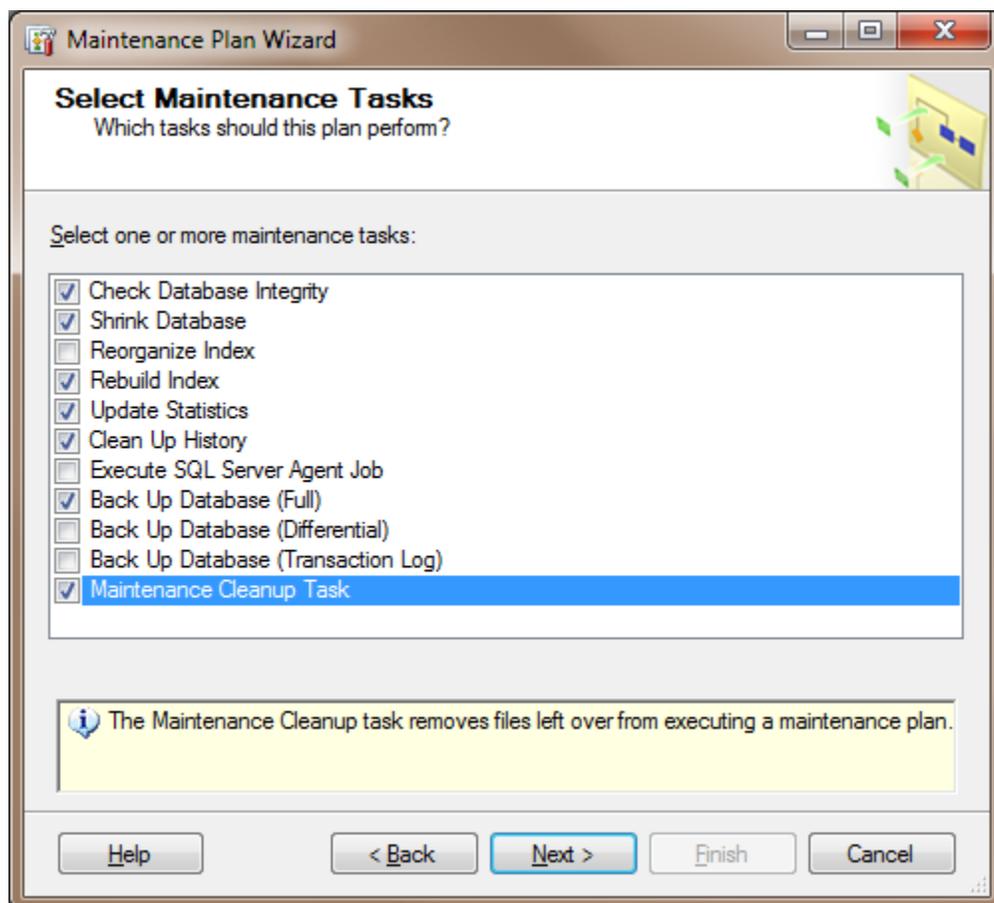
Duration

Start date:   End date:   
 No end date:

Summary

Description:

Once the schedule has been set, click **Next**.



Select the desired Maintenance Tasks.

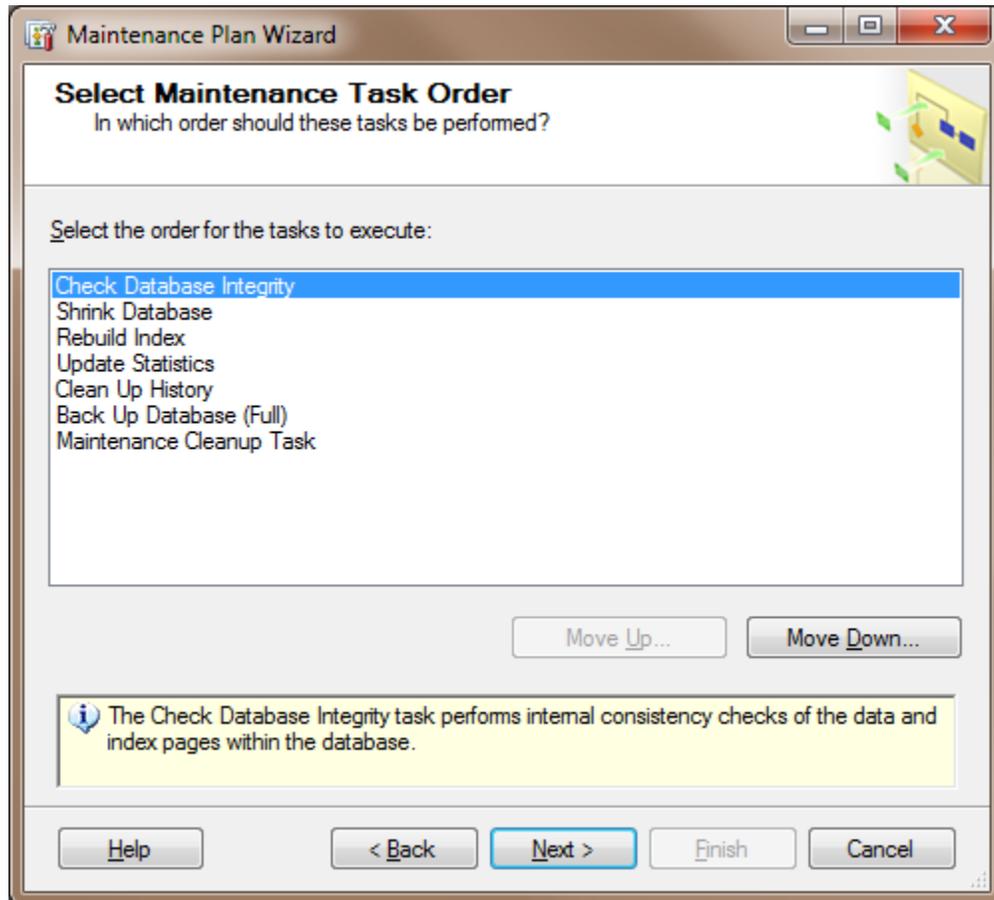
It is highly recommended that the following Maintenance Tasks be performed:

- Check Database Integrity
- Shrink Database
- Rebuild Index
- Update Statistics
- Clean Up History
- Back Up Database (Full)
- Maintenance Cleanup Task

**NOTE:** For simplicity, all of the maintenance tasks are done in one maintenance plan. Each situation is different and when combined with company policies, it is quite common to divide the Maintenance Tasks and create several database maintenance plans on different schedules and frequencies.

For example: In a large database, rebuilding the indexes may be done once per week or month while reorganize index is done daily. It may be desirable to shrink the database less frequently and/or choose to retain the extra free space to eliminate database file fragmentation on the hard disk drive.

Click **Next**.

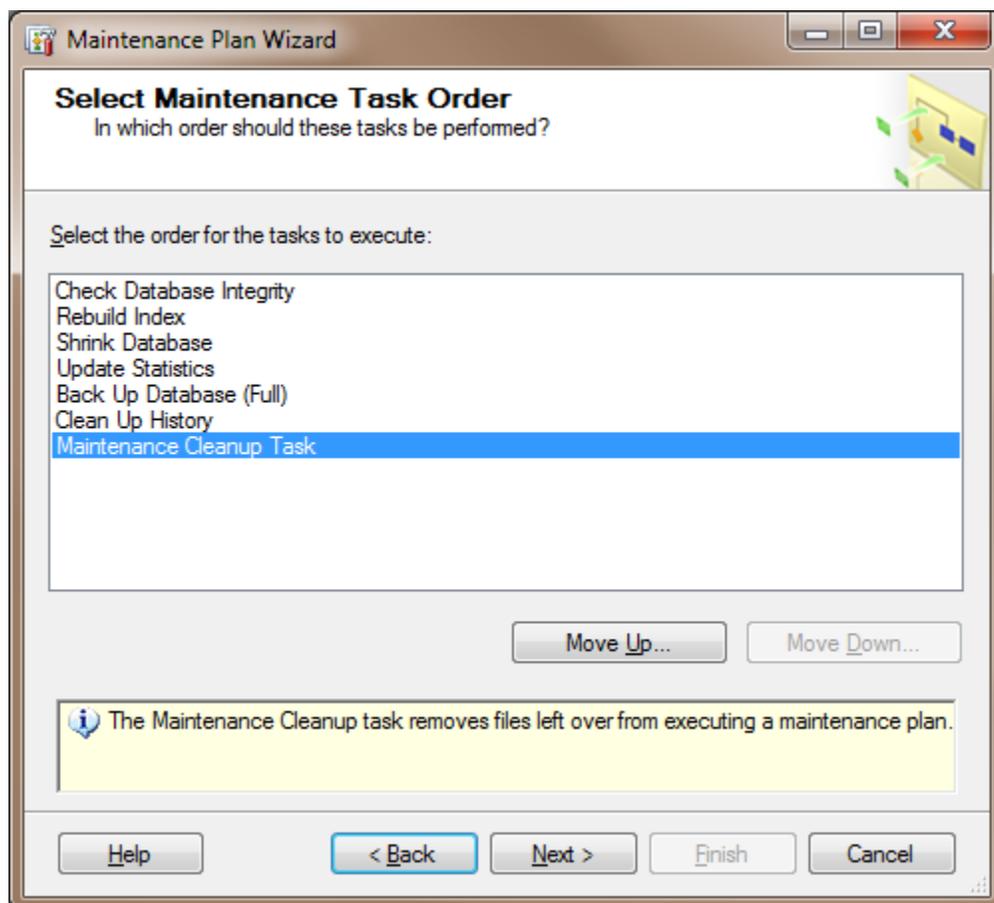


Select a Maintenance Task.

Click **Move Up** and **Move Down** to change the maintenance task order.

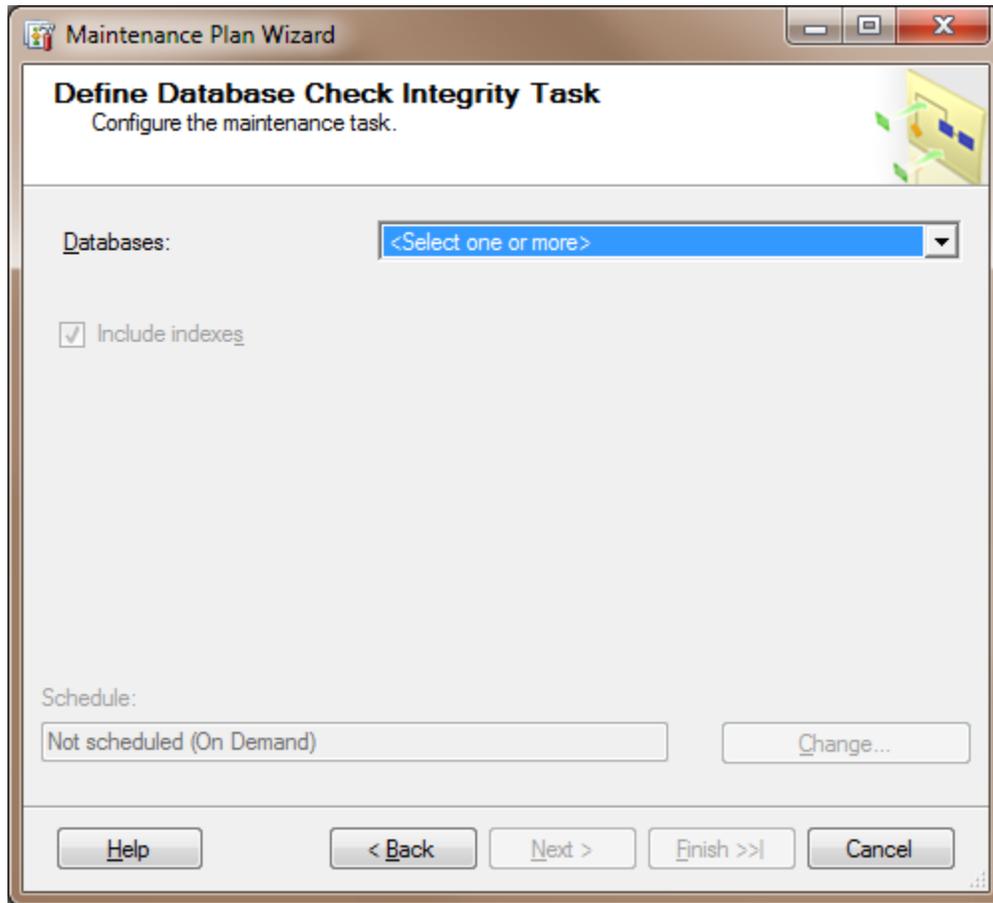
It is recommended that the Maintenance Tasks be done in the following order:

7. Check Database Integrity
8. Rebuild Index
9. Shrink Database
10. Update Statistics
11. Back Up Database (Full)
12. Clean Up History
13. Maintenance Cleanup Task

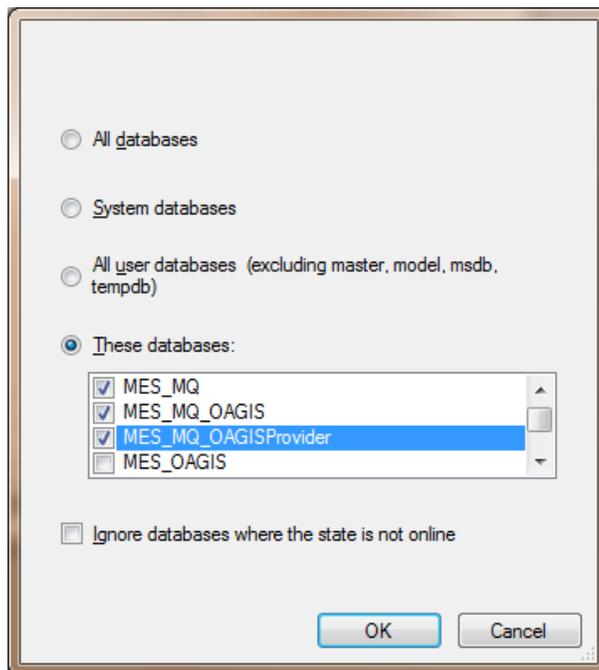


**NOTE:** For simplicity, all of the maintenance tasks are done in one maintenance plan. Each situation is different and when combined with company policies, it is quite common to change the order of the Maintenance Tasks.

Click **Next**.



Click **<Select one or more>** databases.



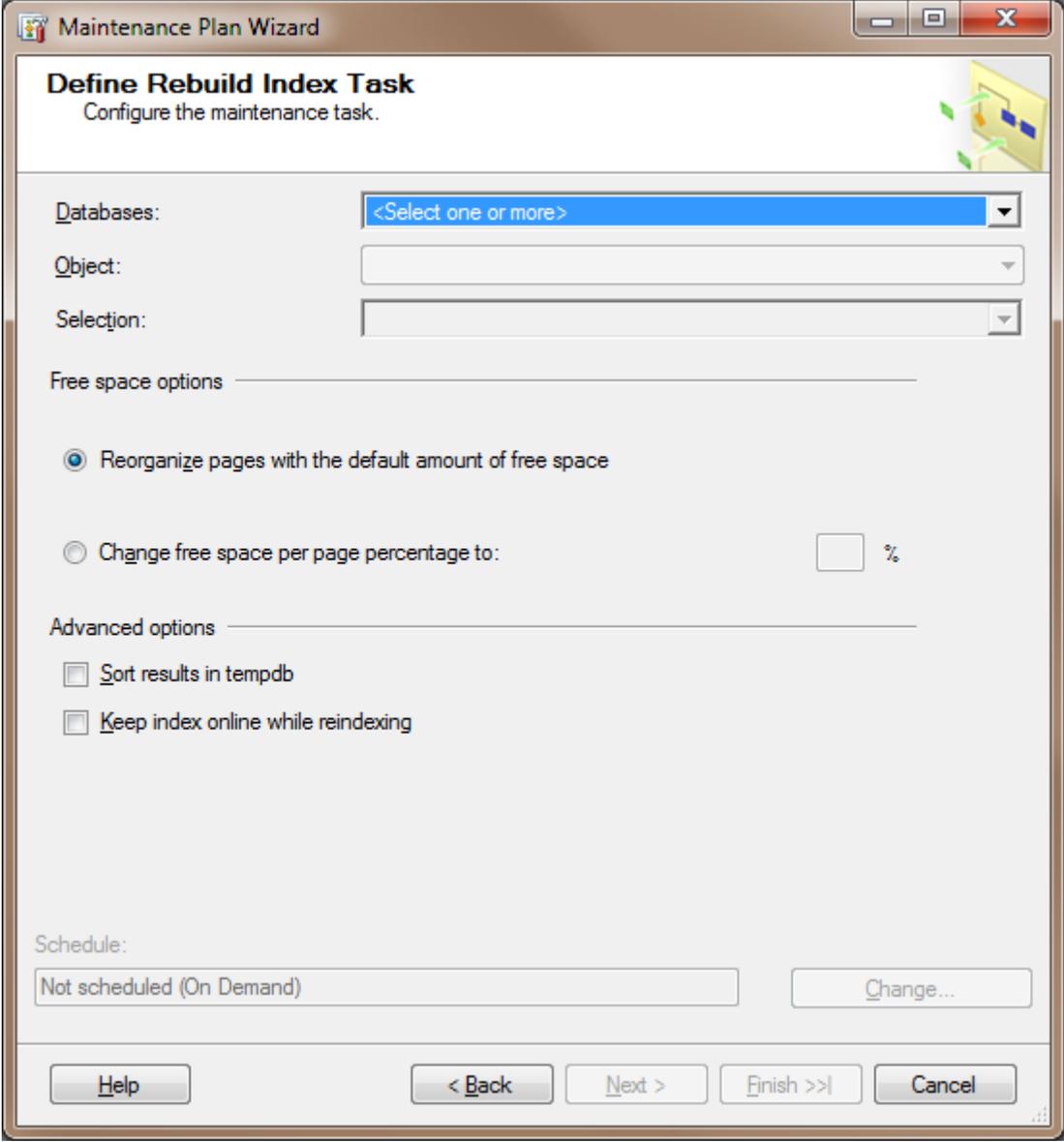
Select **These databases**.  
Select the MES SQL databases.

**NOTE:** The names of your MES SQL databases may be different than shown above.

**NOTE:** If you have multiple environments, select all MES SQL databases.

Click **OK**.

Click **Next**.

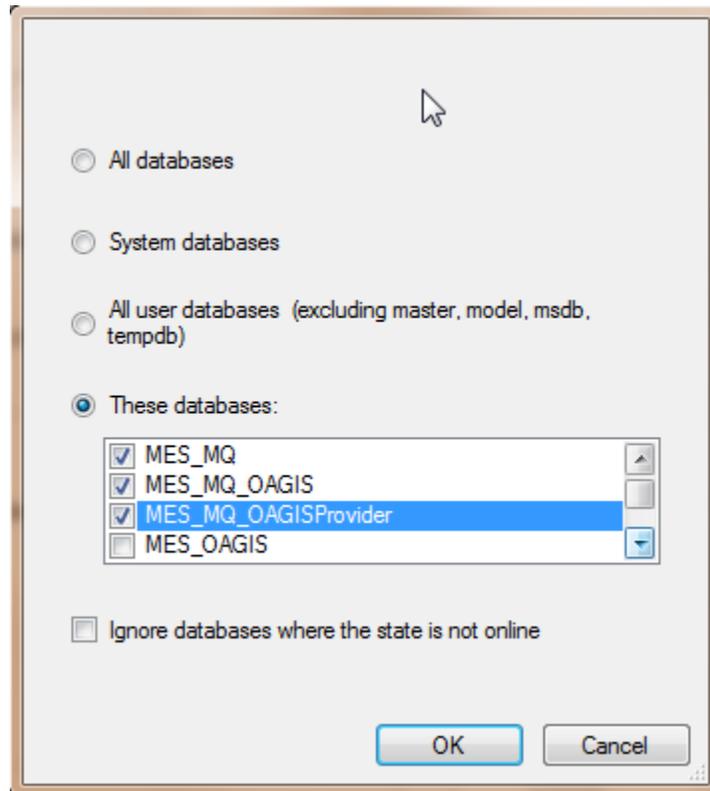


The screenshot shows the 'Maintenance Plan Wizard' dialog box, specifically the 'Define Rebuild Index Task' step. The title bar reads 'Maintenance Plan Wizard'. The main heading is 'Define Rebuild Index Task' with the subtitle 'Configure the maintenance task.'. There is a small icon of a folder with arrows in the top right corner. The dialog is divided into several sections:

- Databases:** A dropdown menu with the text '<Select one or more>'.
- Object:** An empty text input field.
- Selection:** A dropdown menu.
- Free space options:** A section with two radio buttons:
  - The first radio button is selected and labeled 'Reorganize pages with the default amount of free space'.
  - The second radio button is labeled 'Change free space per page percentage to:' followed by a text input field containing '0' and a '%' symbol.
- Advanced options:** A section with two checkboxes:
  - The first checkbox is labeled 'Sort results in tempdb'.
  - The second checkbox is labeled 'Keep index online while reindexing'.
- Schedule:** A text input field containing 'Not scheduled (On Demand)' and a 'Change...' button to its right.

At the bottom of the dialog, there are five buttons: 'Help', '< Back', 'Next >', 'Finish >>', and 'Cancel'.

Click **<Select one or more>** databases.



Select **These databases**.

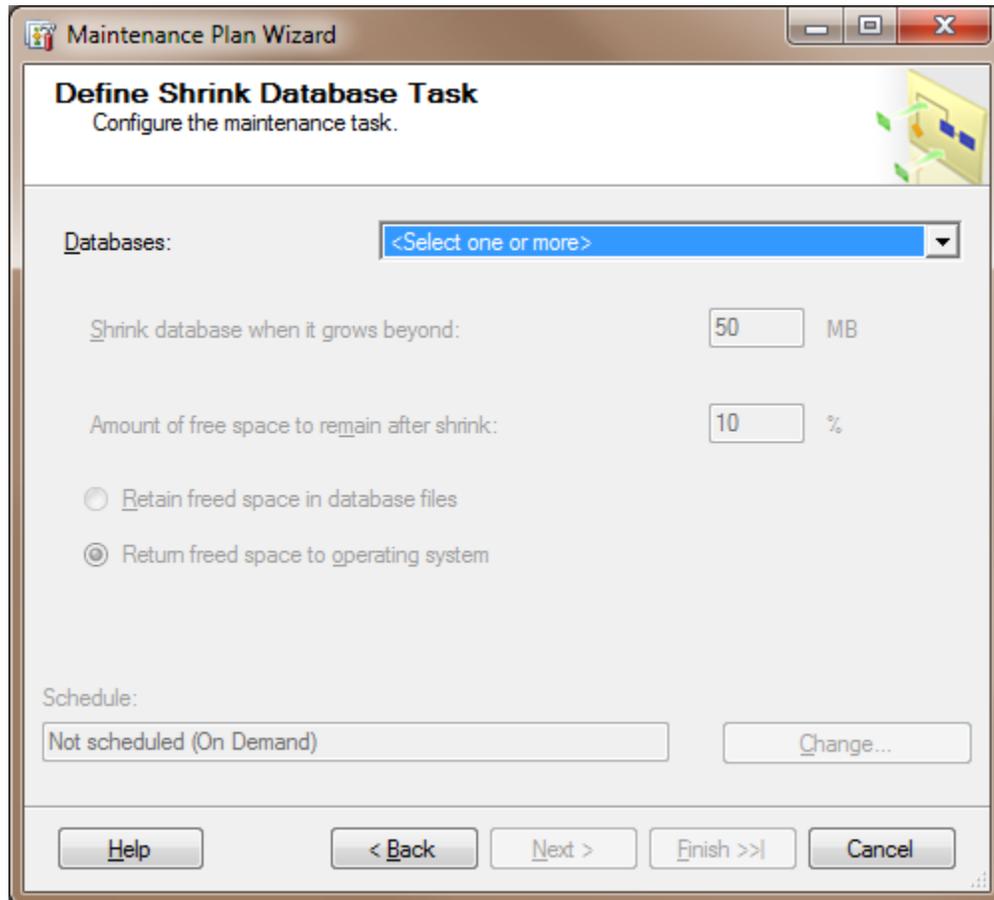
Select the MES SQL databases.

**NOTE:** The names of your MES SQL databases may be different than shown above.

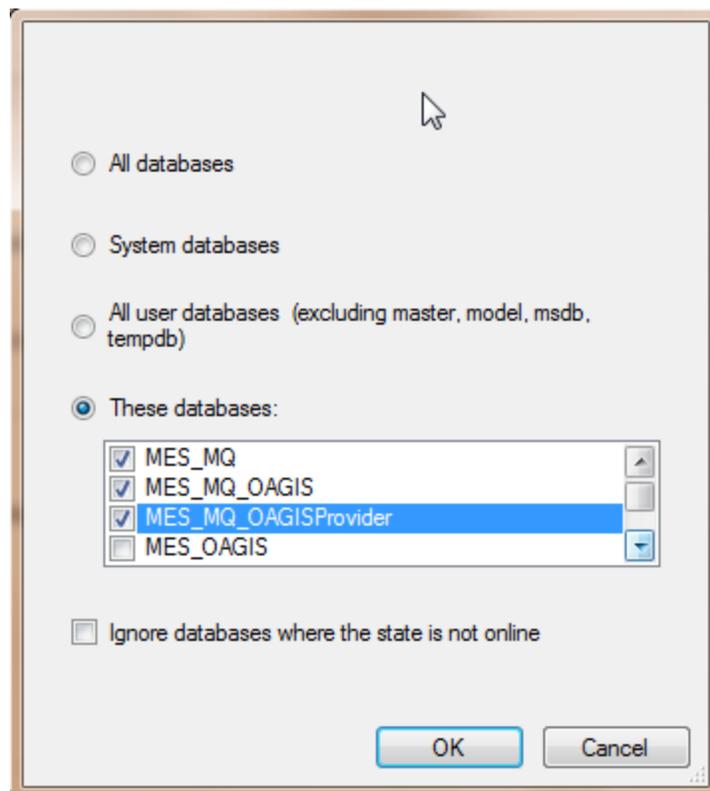
**NOTE:** If you have multiple environments, select all MES SQL databases.

Click **OK**.

Click **Next**.



Click **<Select one or more>** databases.



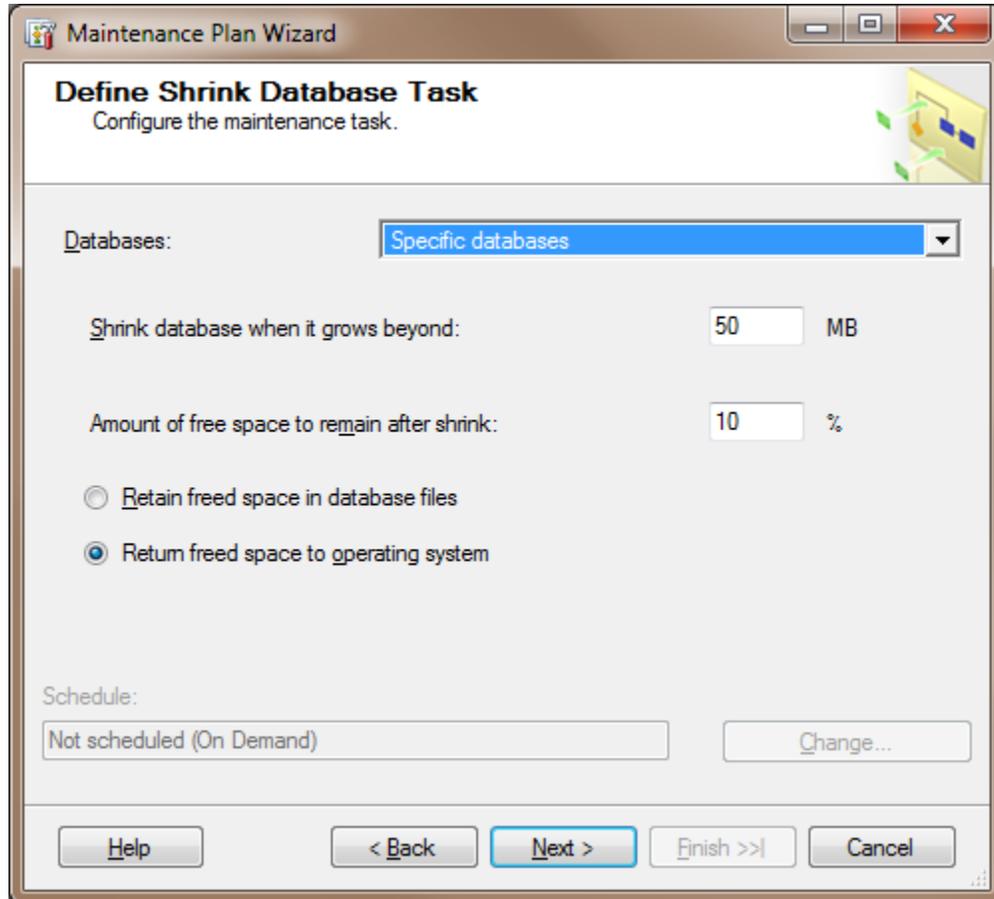
Select **These databases**.

Select the MES SQL databases.

**NOTE:** The names of your MES SQL databases may be different than shown above.

**NOTE:** If you have multiple environments, select all MES SQL databases.

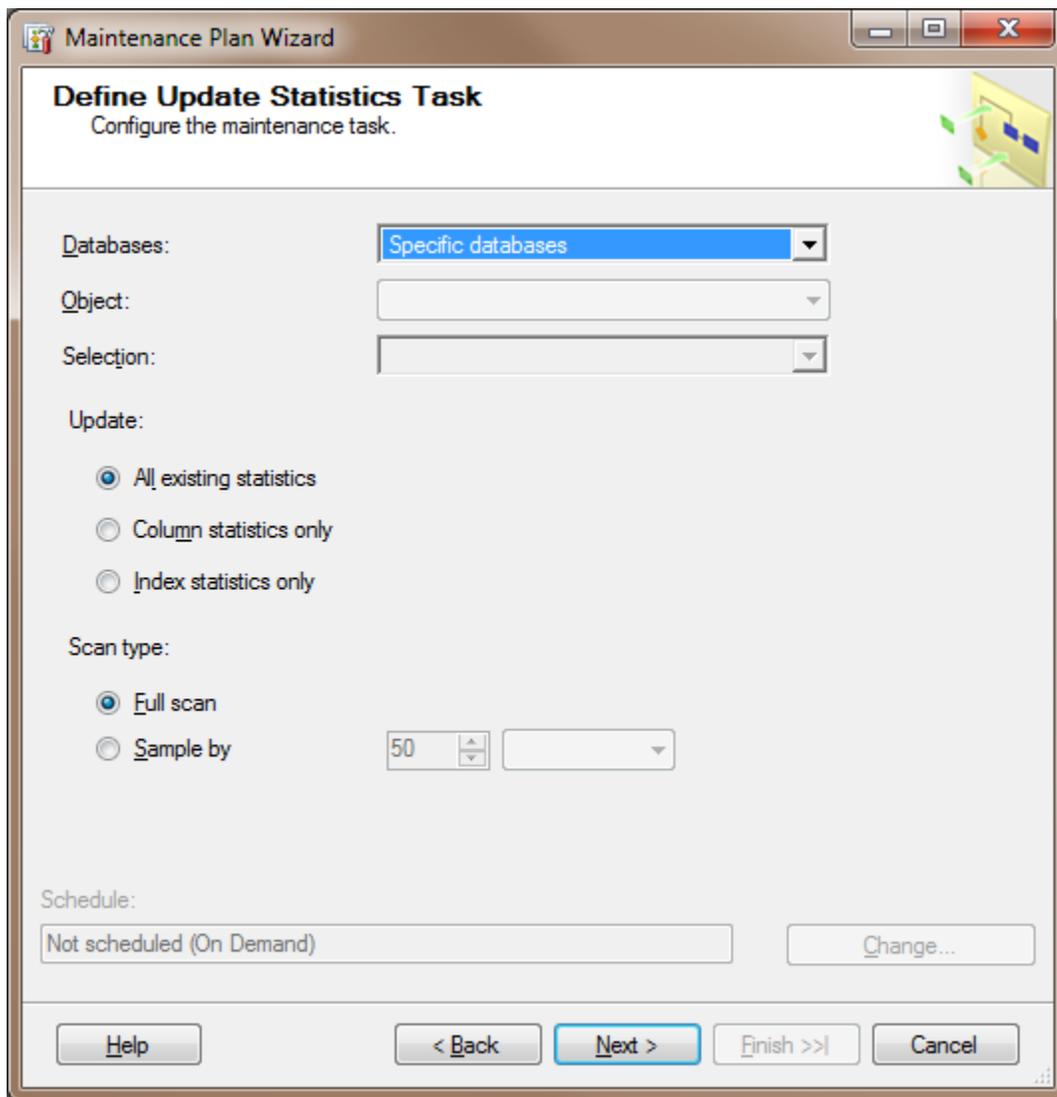
Click **OK**.



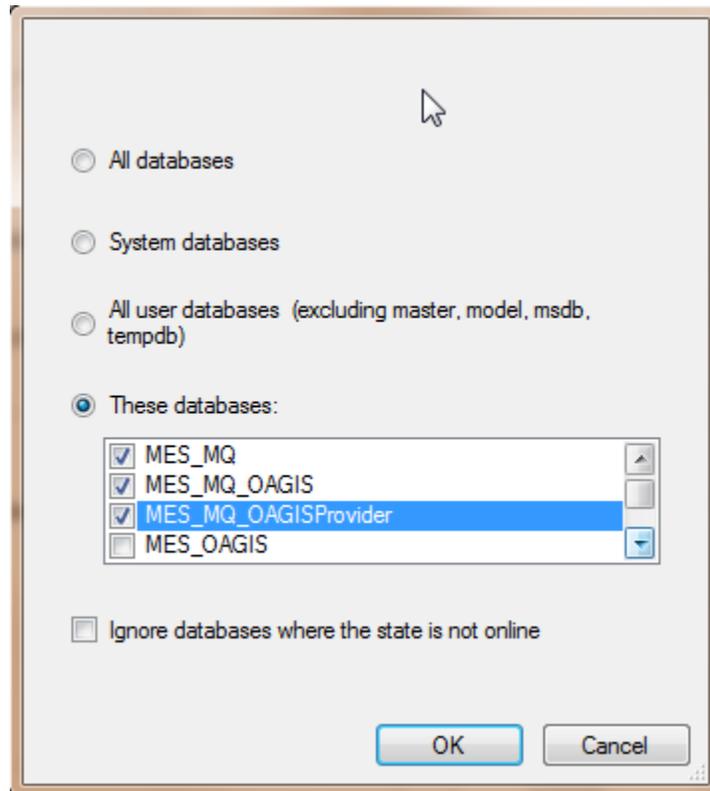
If desired, change the amount of free space to remain after shrink.

Choose whether to retain the freed space or return the freed space to the operating system.

Click **Next**.



Click **<Select one or more>** databases.



Select **These databases**.

Select the MES SQL databases.

**NOTE:** The names of your MES SQL databases may be different than shown above.

**NOTE:** If you have multiple environments, select all MES SQL databases.

Click **OK**.

Click **Next**.

Click **<Select one or more>** databases.

**Maintenance Plan Wizard**

### Define Back Up Database (Full) Task

Configure the maintenance task.

Backup type:

Database(s):

Backup component

Database

Files and filegroups:  ...

Backup set will expire:

After  days

On

Back up to:  Disk  Tape

Back up databases across one or more files:

If backup files exist:

Create a backup file for every database

Create a sub-directory for each database

Folder:  ...

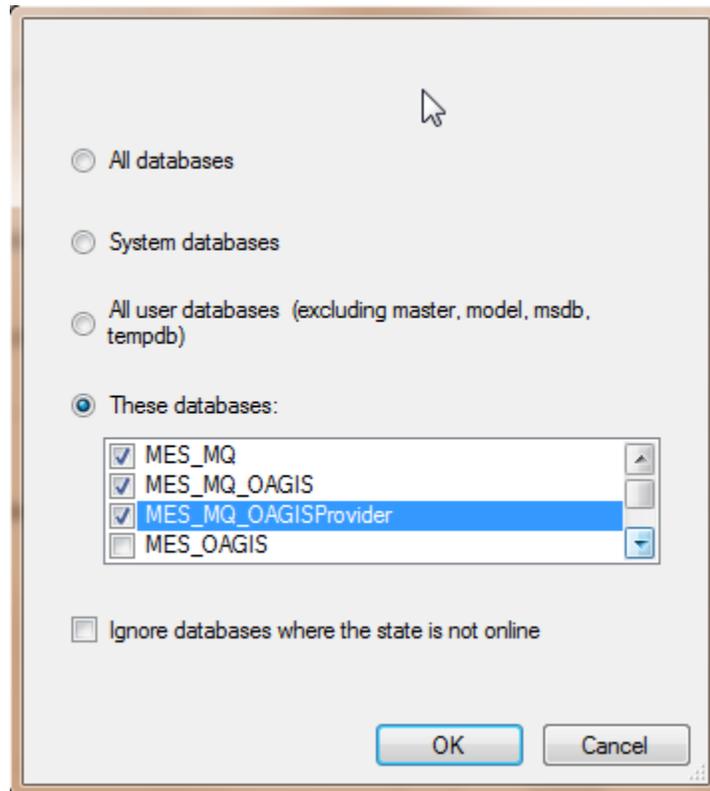
Backup file extension:

Verify backup integrity

Back up the tail of the log, and leave the database in the restoring state

Set backup compression:

Schedule:



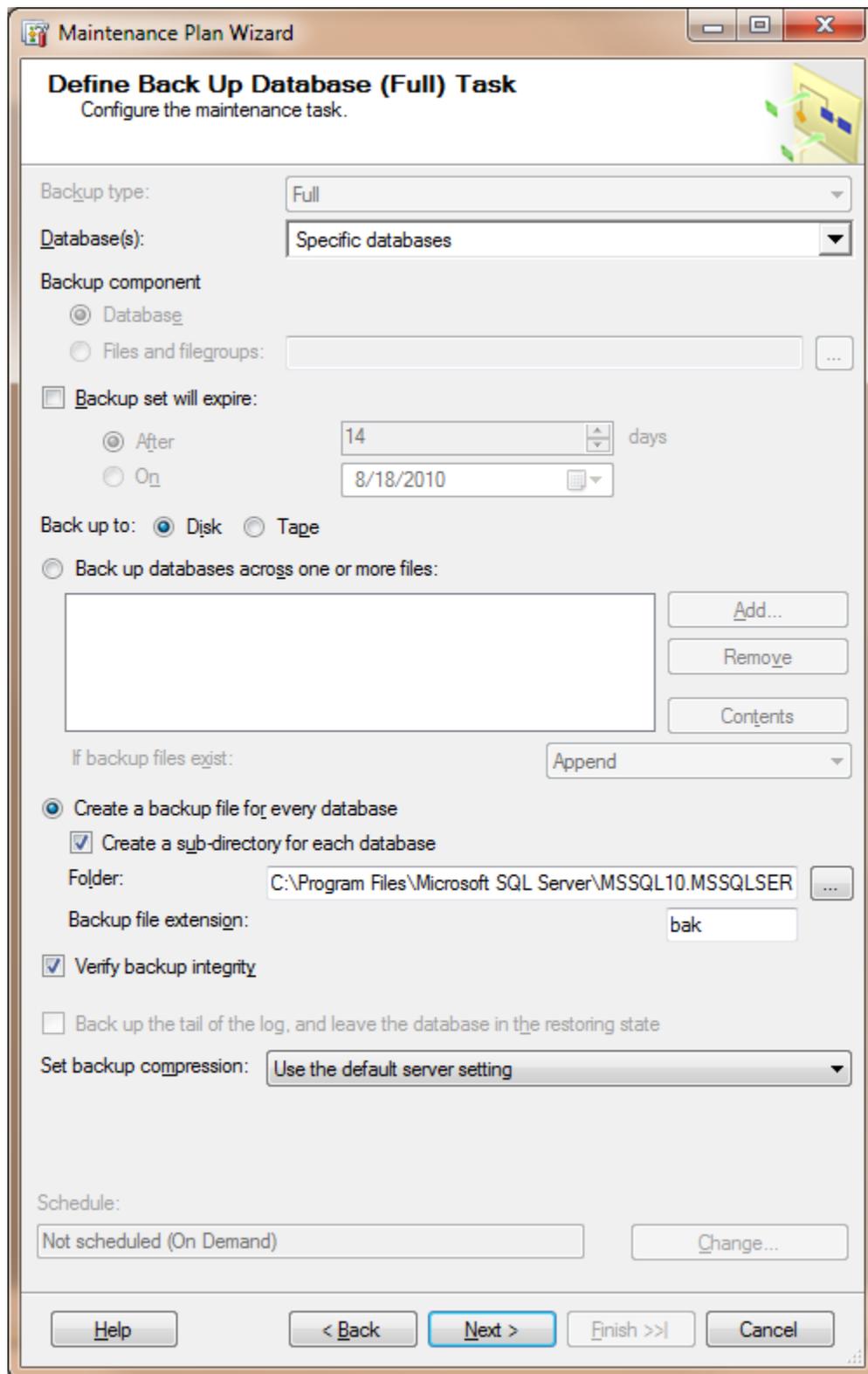
Select **These databases**.

Select the MES SQL databases.

**NOTE:** The names of your MES SQL databases may be different than shown above.

**NOTE:** If you have multiple environments, select all MES SQL databases.

Click **OK**.



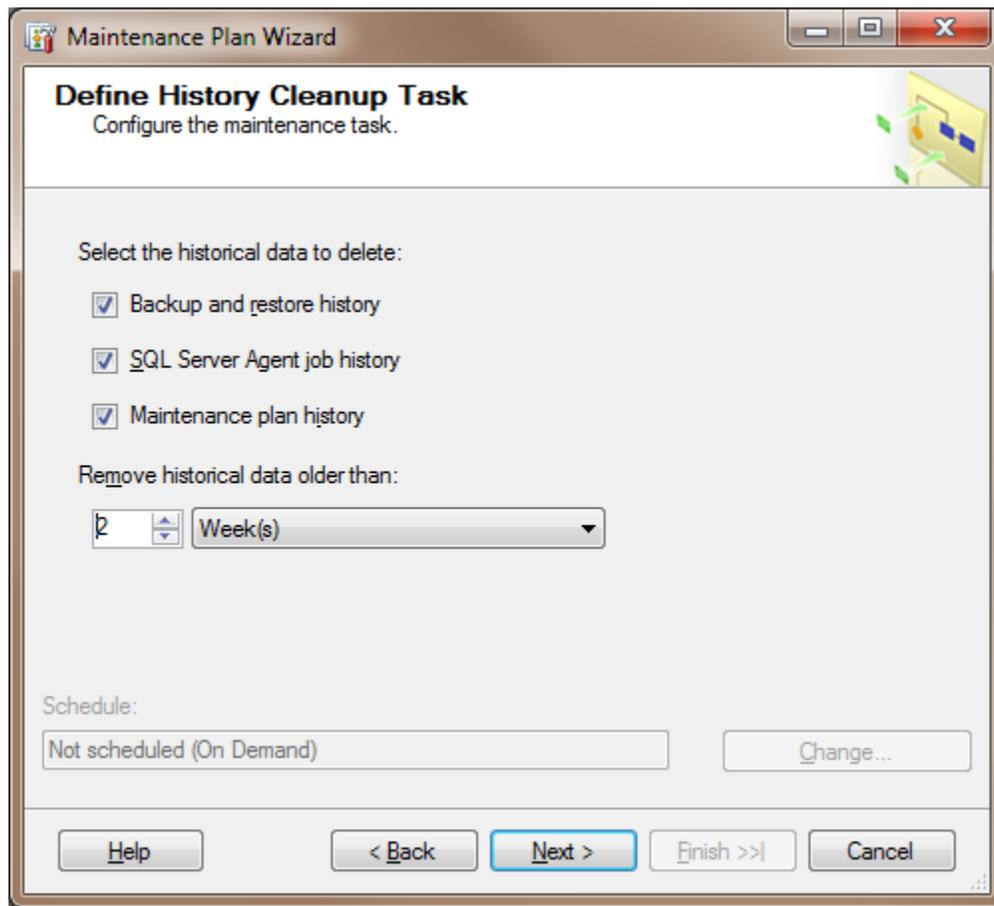
Select the backup destination—**Disk** or **Tape**.

Specify the appropriate information for either a disk or tape backup.

For easier organization, select **Create a sub-directory for each database**.

Select **Verify backup integrity** to ensure the database can be restored from the media.

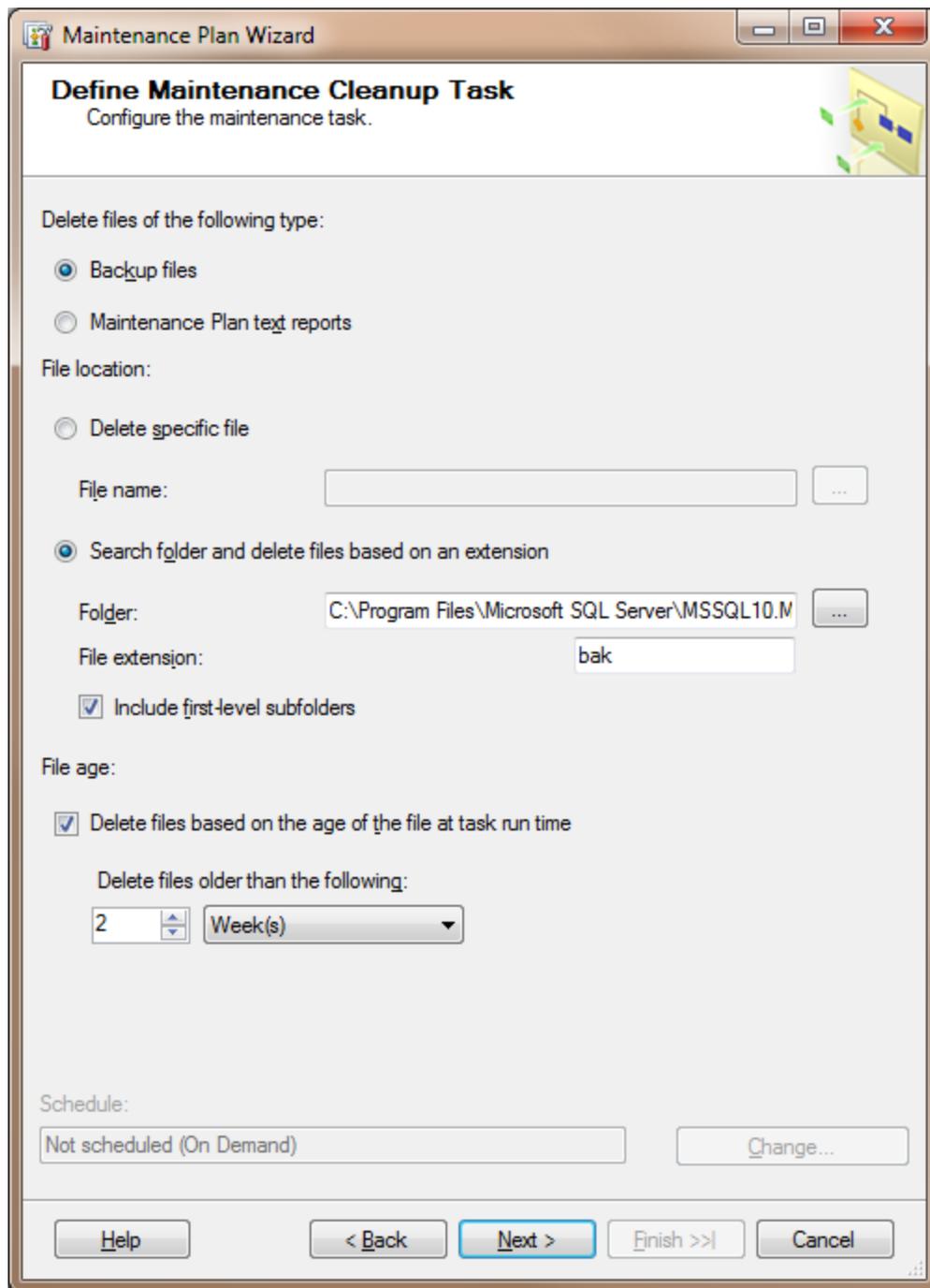
Click **Next**.



Select the desired historical data to delete.

Select the desired retention period.

Click **Next**.

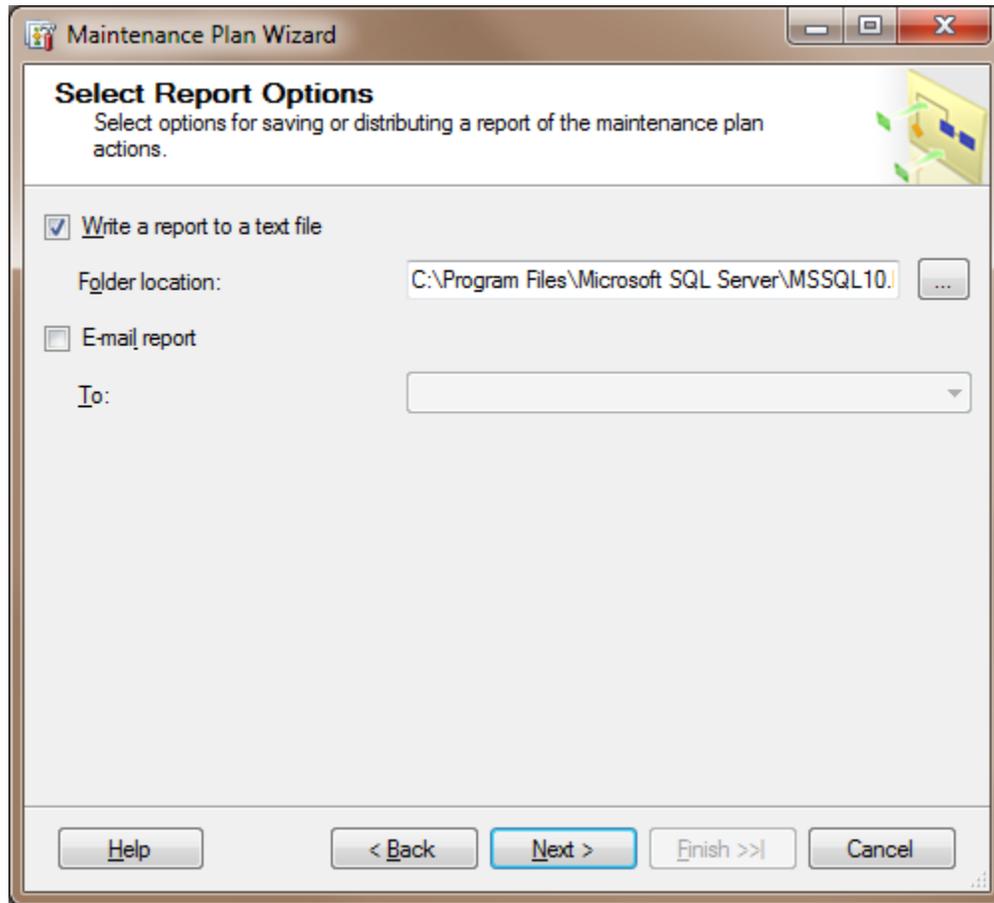


Define the SQL Server Backup folder location.

Check **Include first-level subfolders**.

Define the desired retention period.

Click **Next**.



If you wish to Write a report to a text file, define the folder location.

Select the report options as desired.

TIP: To send an e-mail report, configure SQL Server 2005's Database Mail and a SQL Server Agent Operator first. Refer to SQL Server 2008 Books Online.

Click **Next**.

On the **Complete the Wizard** screen, review the Maintenance Plan.

Click **Finish**.

Maintenance Plan Wizard

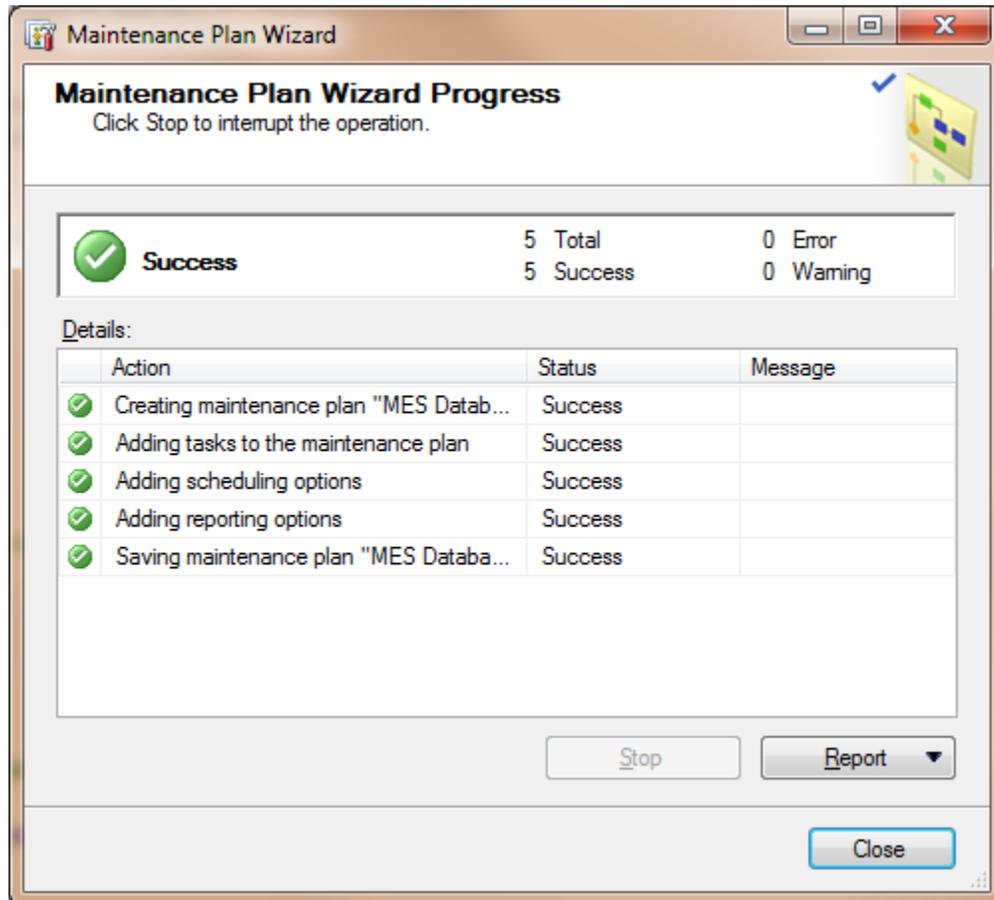
### Maintenance Plan Wizard Progress

Click Stop to interrupt the operation.

 **1 Remaining**      5 Total      0 Error  
4 Success      0 Warning

Details:

| Action                                                                                                                    | Status  | Message |
|---------------------------------------------------------------------------------------------------------------------------|---------|---------|
|  Creating maintenance plan "MES Datab... | Success |         |
|  Adding tasks to the maintenance plan    | Success |         |
|  Adding scheduling options               | Success |         |
|  Adding reporting options                | Success |         |
| Saving maintenance plan "MES Databa...                                                                                    |         |         |



Click **Close**.

This maintenance plan will create one SQL Server Agent Job.

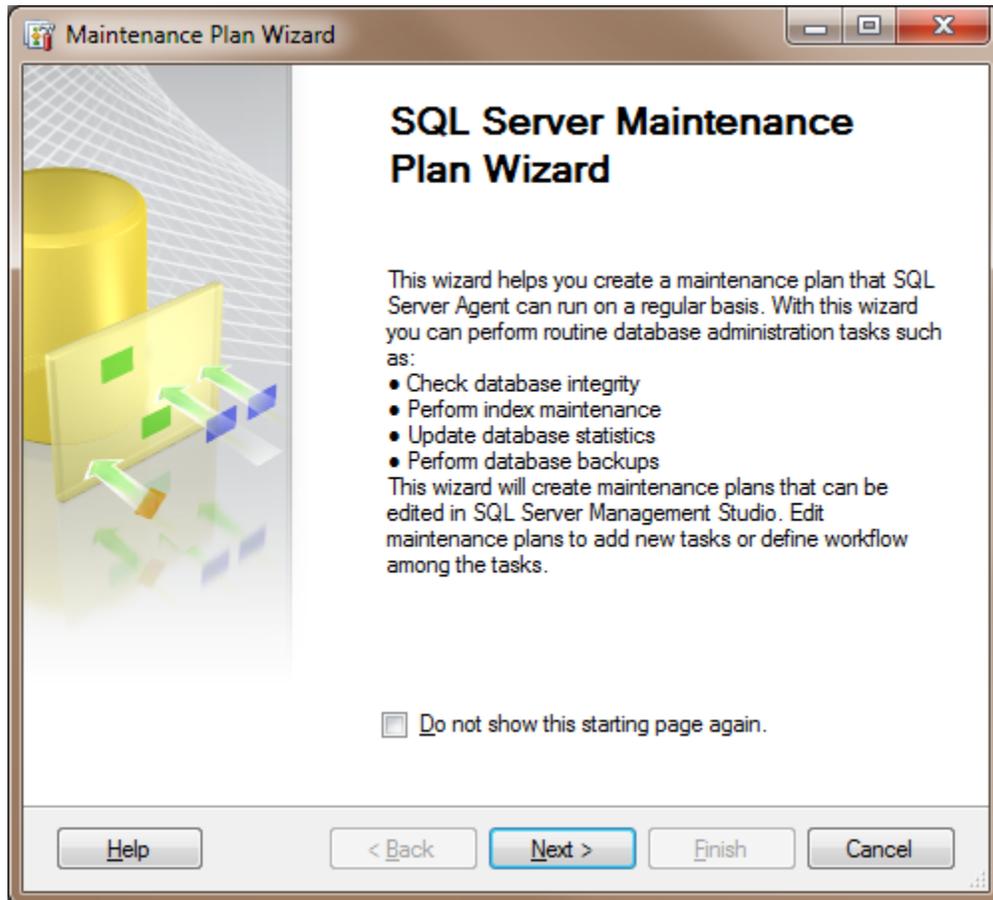
To view the SQL Server Agent Jobs:

4. Expand **SQL Server Agent**.
5. Click **Jobs**.
6. If the jobs do not appear, right-click in the right pane and select **Refresh**.

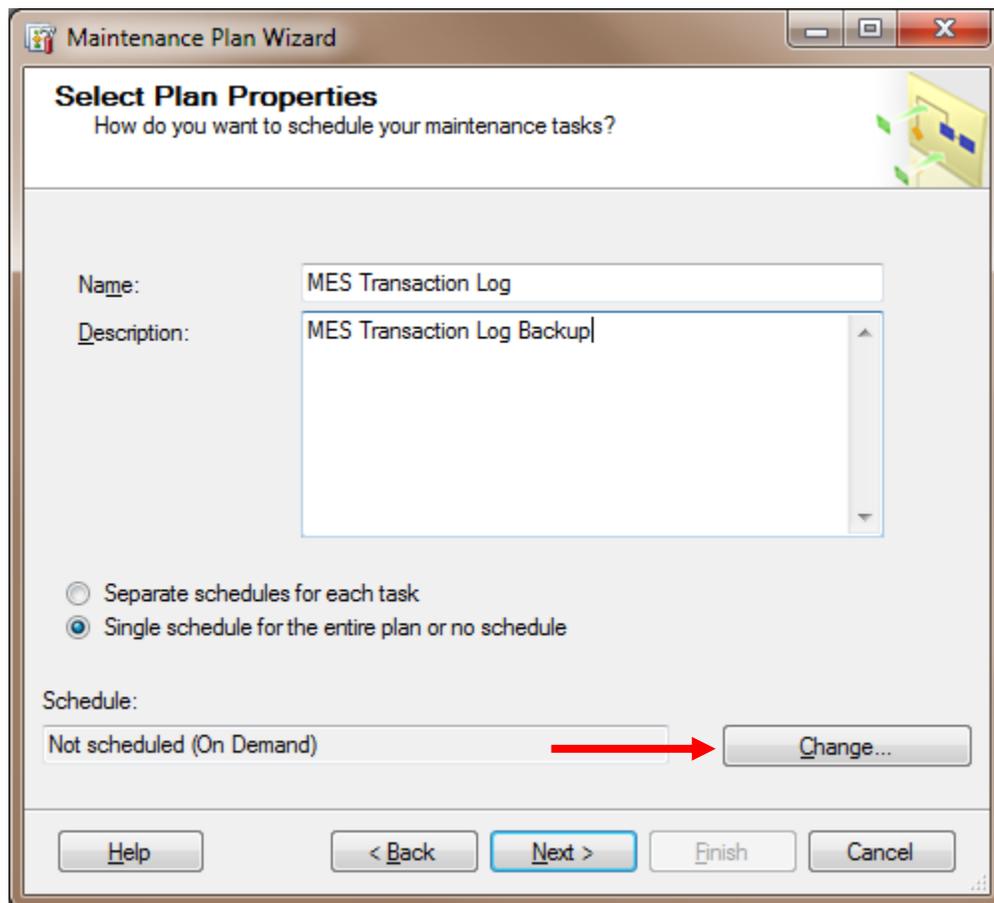
**NOTE:** SQL Server Agent must be running for the scheduled jobs to execute.

**TIP:** Refer to **Backing Up and Restoring Databases** in SQL Server 2005 Books Online for additional information.





Click **Next**.



Enter a **Name**. For example: MES Transaction Logs.

Enter a **Description**.

Select **Authentication** method.

Click on the **Change** button to open the Job Schedule Properties and make changes.

**Job Schedule Properties - MES Transaction Logs**

Name:

Schedule type:   Enabled

One-time occurrence

Date:  Time:

Frequency

Occurs:

Rekurs every:  week(s) on

Monday  Wednesday  Friday  Saturday

Tuesday  Thursday  Sunday

Daily frequency

Occurs once at:

Occurs every:  hour(s) Starting at:  Ending at:

Duration

Start date:   End date:   No end date:

Summary

Description:

Enter a job schedule **Name**.

Change the **Frequency** as desired.

**NOTE:** The schedule shown here will backup the transaction logs on Tuesday, Thursday & Saturday at 2:00 AM.

**NOTE:** Based on the server's overall job schedule, adjust the time accordingly.

**NOTE:** Frequency of the Transaction Log Backup is dependent on backup strategy and disaster recovery planning.

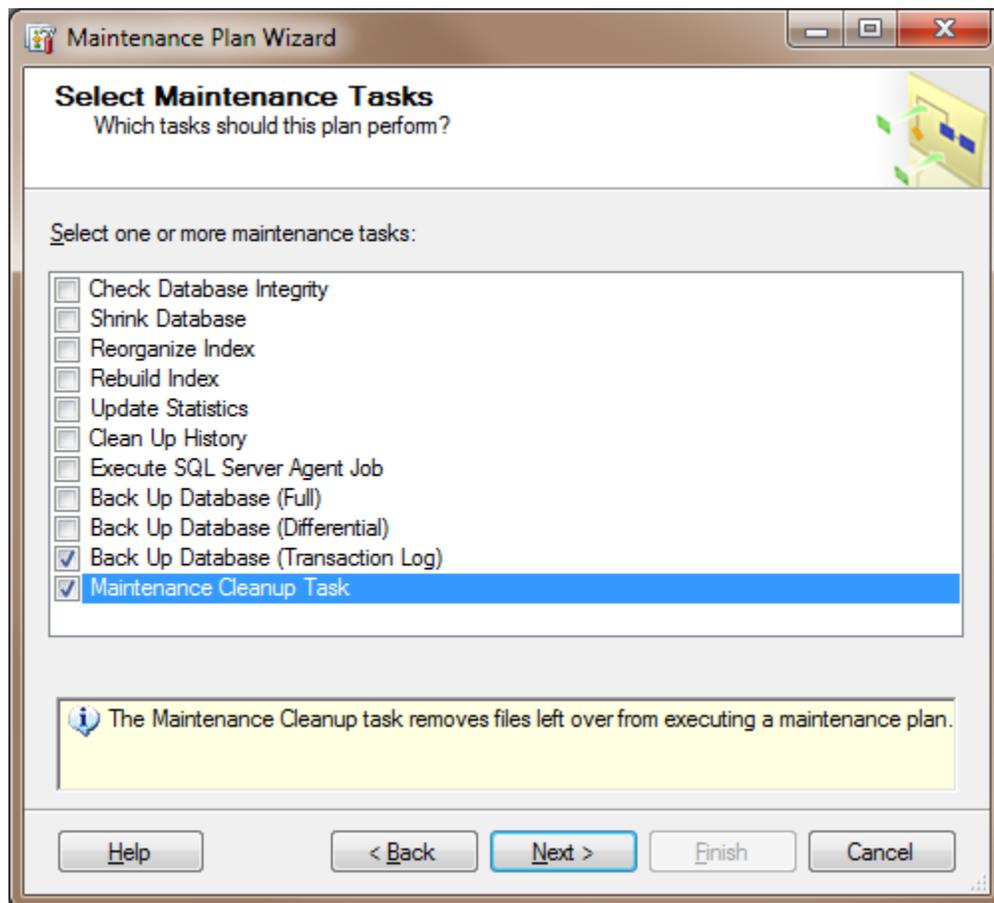
3. If you have established a daily backup of the MES SQL databases, this schedule may be changed to once per week or month because its primary purpose is to truncate the database transaction logs and prevent them from growing uncontrollably. The preceding statement is superseded if you wish to execute multiple transaction log backups throughout the day.
4. If you have established a weekly backup of the MES SQL databases, this schedule should be changed to daily. At a minimum, you should backup the transaction logs once per day. For added protection, the daily frequency can be changed as deemed necessary.

**NOTE:** If you intend to rely on transaction log backups, you must relocate the transaction log backup files to another computer or media as soon as possible. Failure to do so expose the MES SQL databases to loss of data in the event the MES SQL databases need to be restored to a point in time.

Click **OK** to close the **New Job Schedule** window.

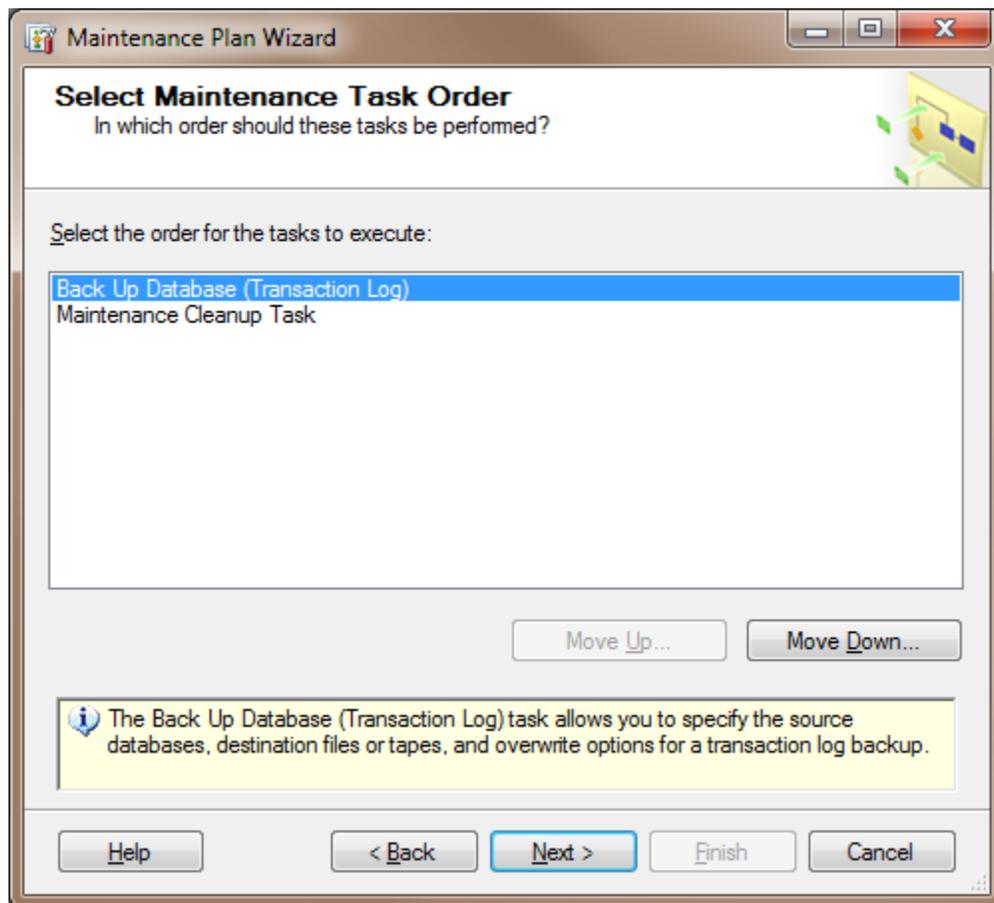
Click **OK**.

The screenshot shows the 'Maintenance Plan Wizard' dialog box, specifically the 'Select Plan Properties' step. The window title is 'Maintenance Plan Wizard'. The main heading is 'Select Plan Properties' with the question 'How do you want to schedule your maintenance tasks?'. The 'Name' field contains 'MES Trasaction Logs' and the 'Description' field also contains 'MES Trasaction Logs'. There are two radio button options: 'Separate schedules for each task' (unselected) and 'Single schedule for the entire plan or no schedule' (selected). The 'Schedule' field shows 'Occurs every week on Tuesday, Thursday, Friday at 2:00:00 AM.' with a 'Change...' button next to it. At the bottom, there are five buttons: 'Help', '< Back', 'Next >', 'Finish', and 'Cancel'. The 'Next >' button is highlighted with a blue border.

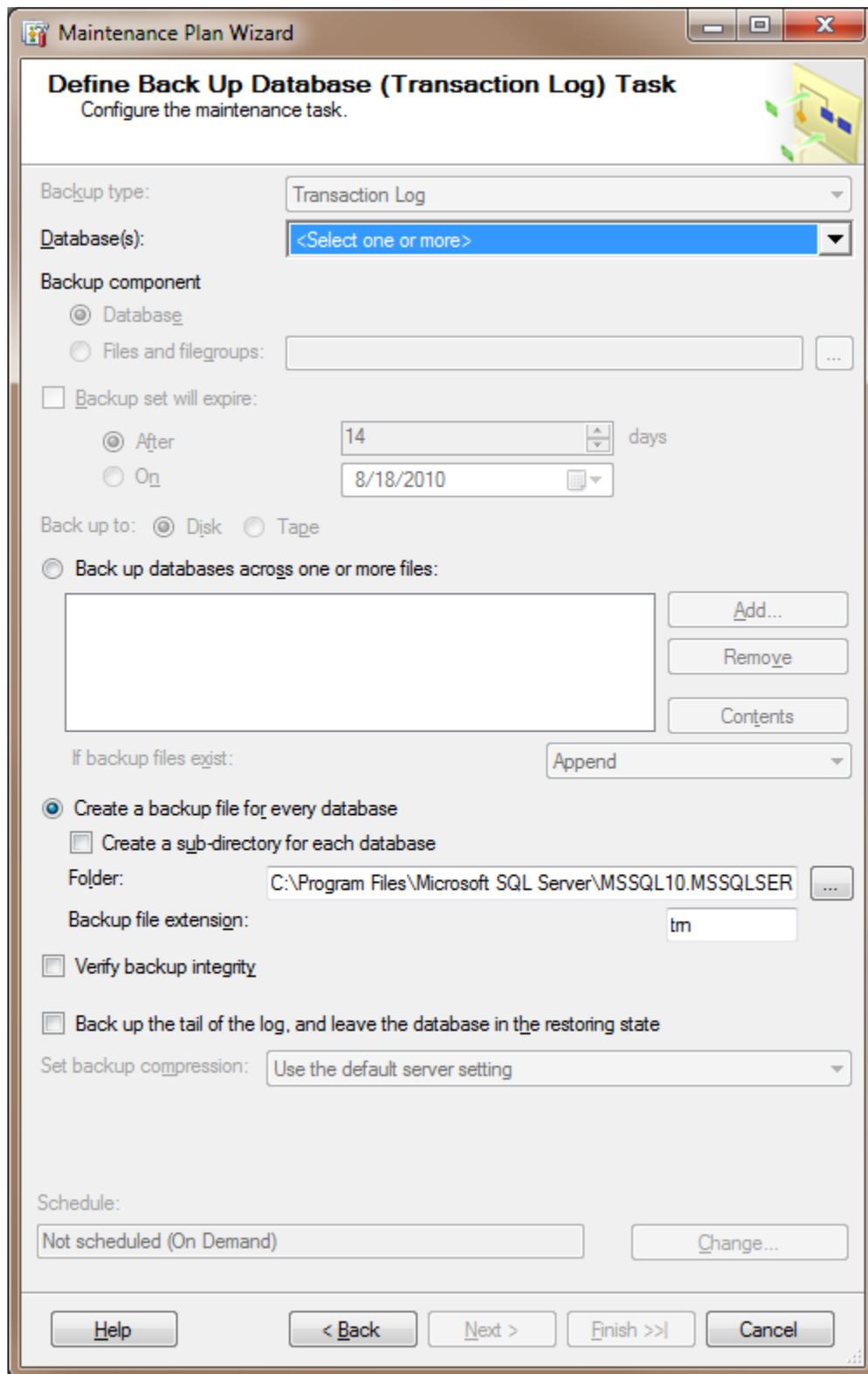


Select **Back Up Database (Transaction Log)** maintenance task & **Maintenance Cleanup Task**.

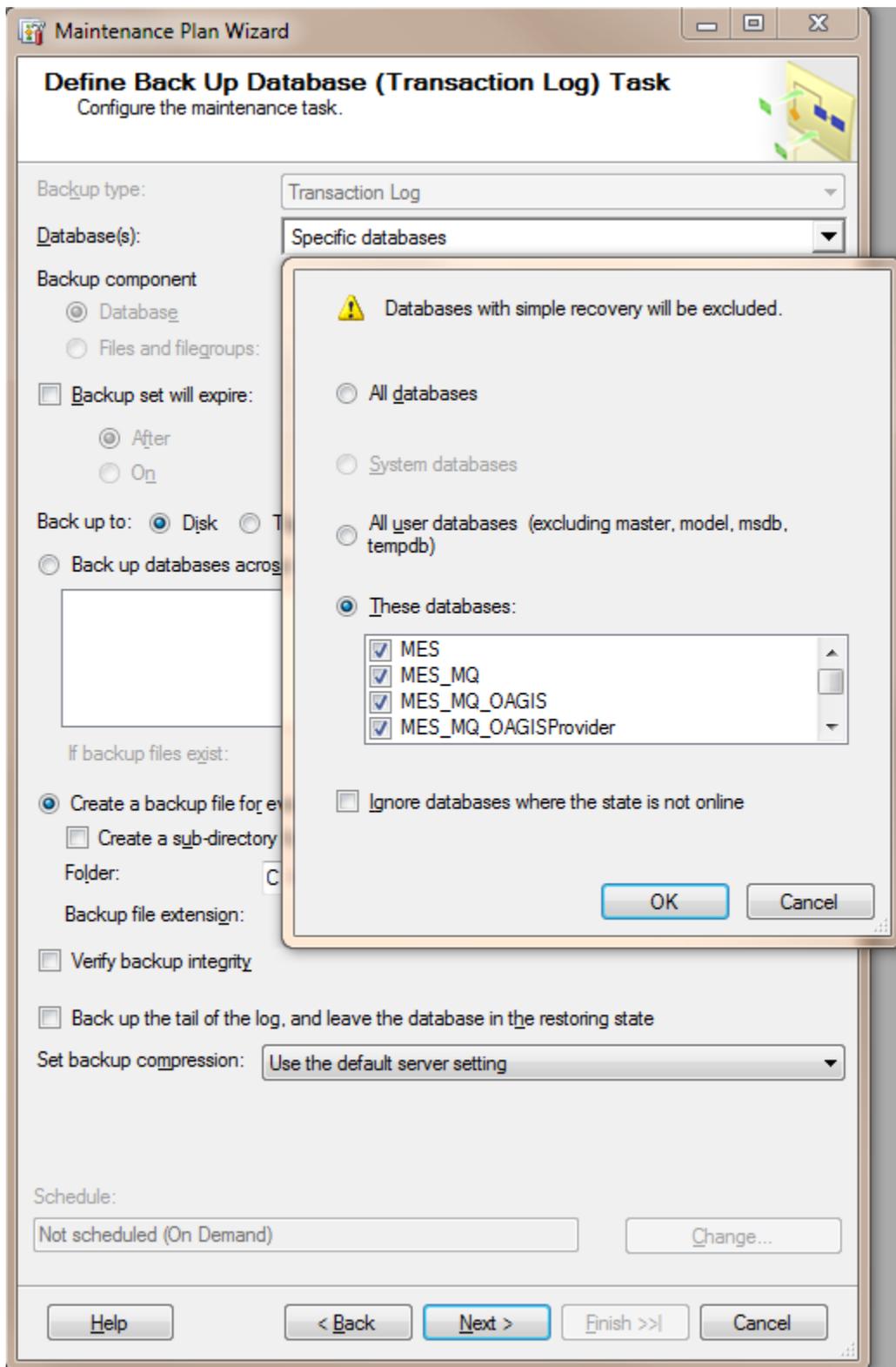
Click **Next**.



Click **Next**.



Click **<Select one or more>** databases.



Select **These databases**.

Select the MES SQL databases.

**NOTE:** The names of your MES SQL databases may be different than shown above.

**NOTE:** If you have multiple environments, select all MES SQL databases.

**IMPORTANT:** Do NOT select the MES\_InforXA (or <database root name>\_InforXA) databases. Only databases that are set to use SQL Server's FULL recovery model can have their transaction log backed up. MES\_InforXA database is usually set to SIMPLE recovery model and therefore, its transaction log cannot be backed up.

Click **OK**.

The screenshot shows the 'Maintenance Plan Wizard' dialog box, specifically the 'Define Back Up Database (Transaction Log) Task' step. The window title is 'Maintenance Plan Wizard'. The main heading is 'Define Back Up Database (Transaction Log) Task' with the subtitle 'Configure the maintenance task.' Below this, there are several configuration options:

- Backup type:** Transaction Log
- Database(s):** Specific databases
- Backup component:** Database (selected), Files and filegroups: (empty)
- Backup set will expire:** After 14 days (selected), On 8/18/2010
- Back up to:** Disk (selected), Tape
- Back up databases across one or more files:** (empty list with Add..., Remove, and Contents buttons)
- If backup files exist:** Append
- Create a backup file for every database:** (selected), Create a sub-directory for each database (checked)
- Folder:** C:\Program Files\Microsoft SQL Server\MSSQL10.MSSQLSER
- Backup file extension:** tm
- Verify backup integrity:** (checked)
- Back up the tail of the log, and leave the database in the restoring state:** (unchecked)
- Set backup compression:** Use the default server setting
- Schedule:** Not scheduled (On Demand) with a Change... button

At the bottom, there are navigation buttons: Help, < Back, Next > (highlighted), Finish >>, and Cancel.

Select the backup destination—**Disk** or **Tape**.

Specify the appropriate information for either a disk or tape backup.

If the transaction log backups are being kept for disaster recovery purposes:

For easier organization, select **Create a sub-directory for each database**.

Select **Verify backup integrity** to ensure the database can be restored from the media.

If the transaction log backups are being immediately discarded:

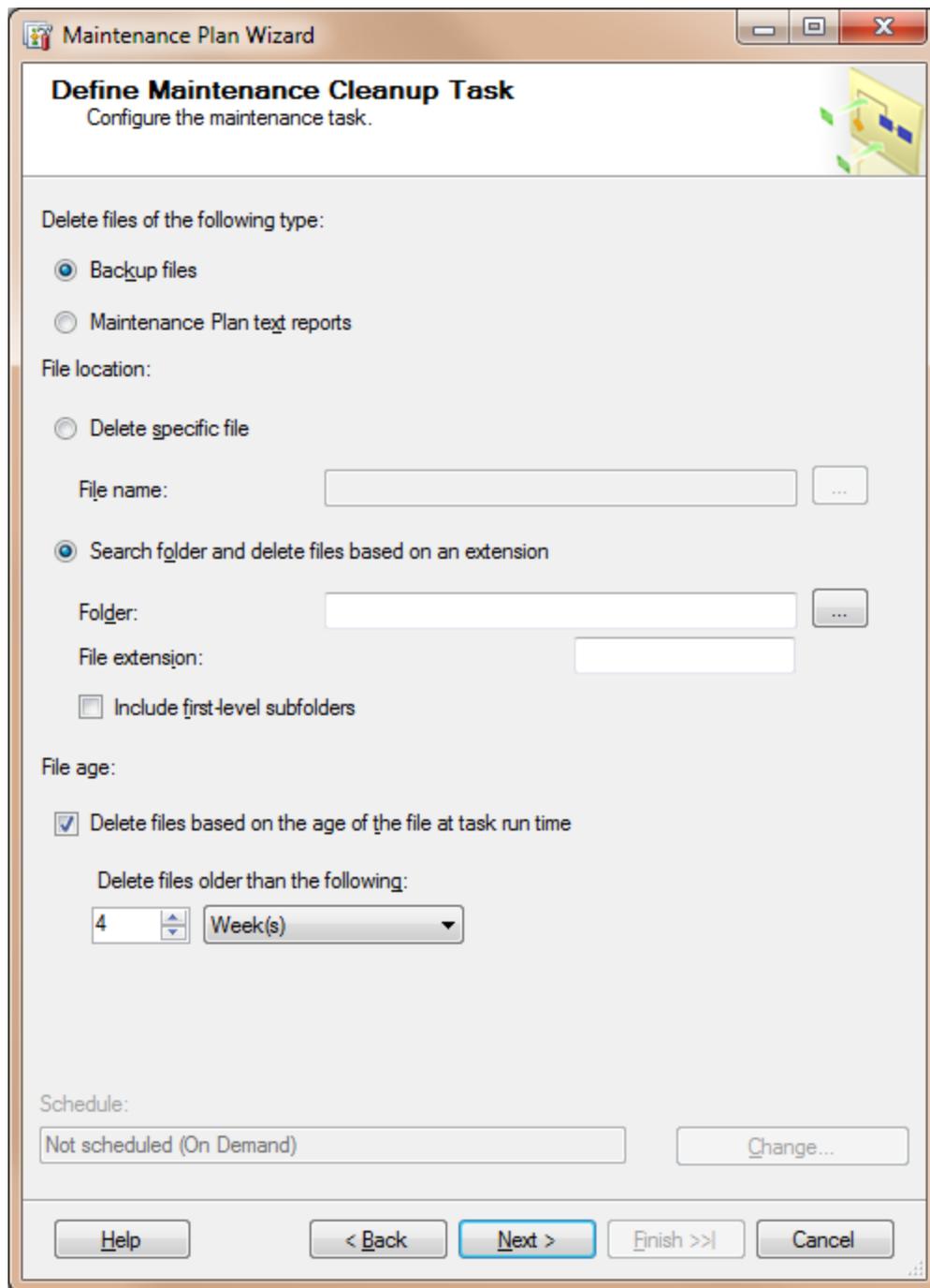
Select **Back up databases across one or more files**.

Click **Add** to add a backup file location.

Select to **Overwrite** the backup file if it exists.

Unselect **Verify backup integrity**.

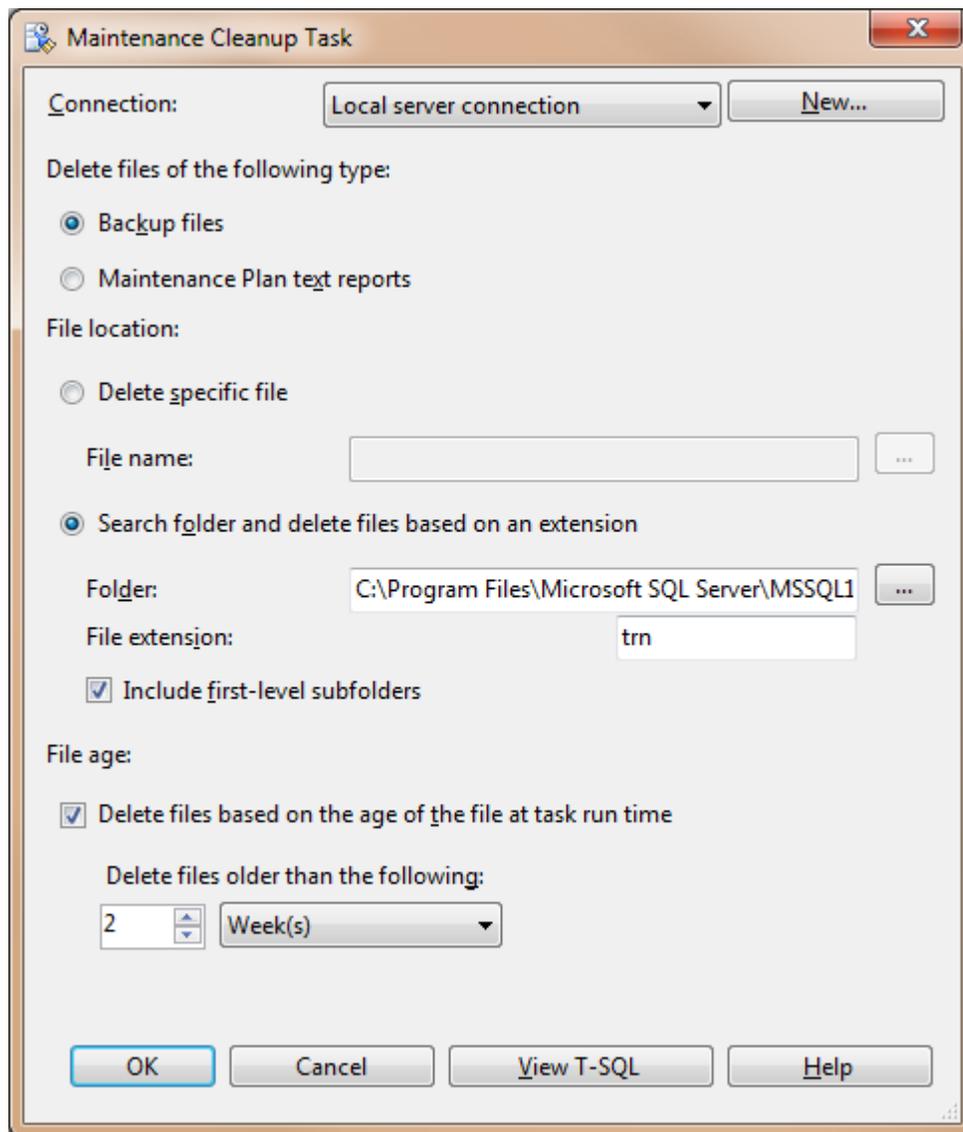
Click **Next**.



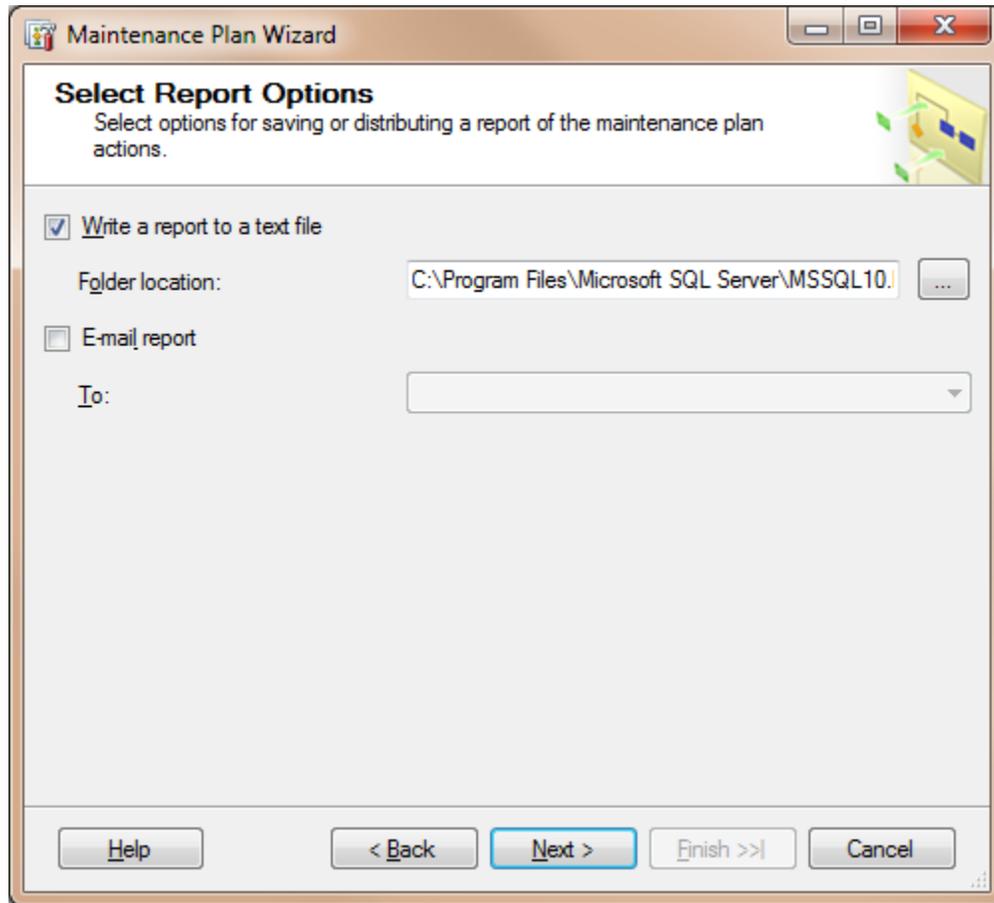
Define the SQL Server Backup folder location.

Check **Include first-level subfolders**.

Define the desired retention period.



Click **Next**.

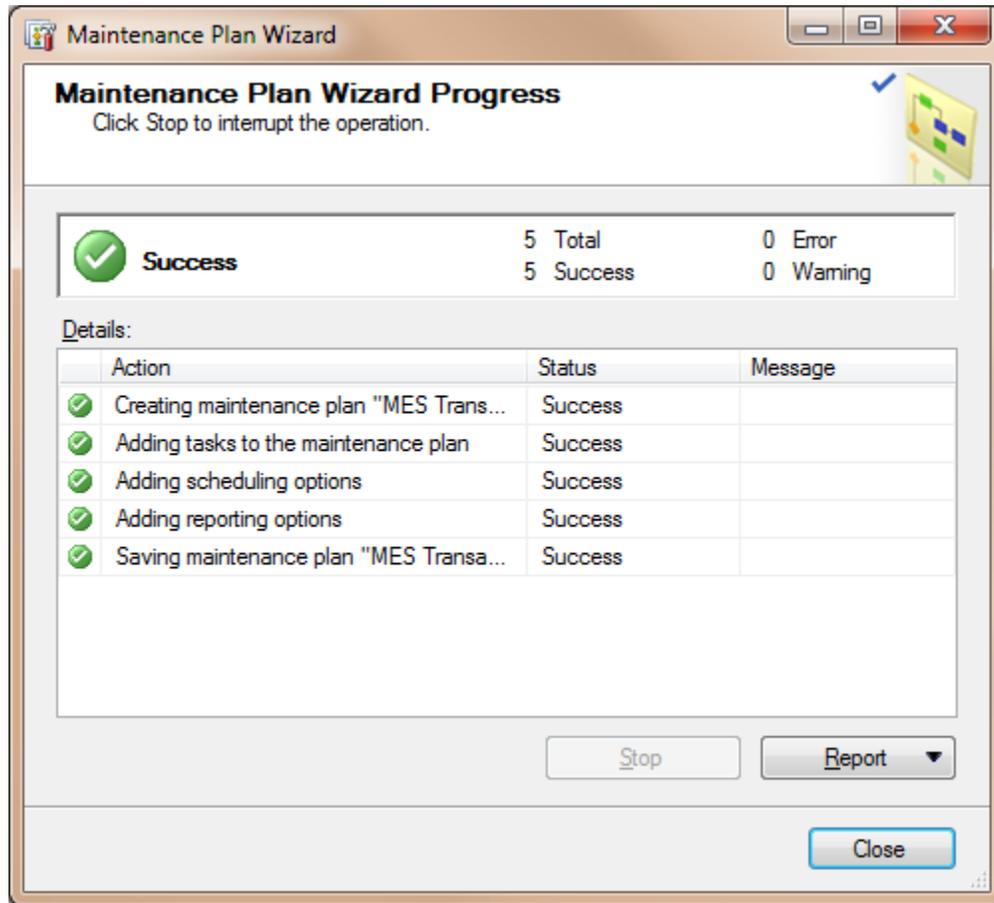


If you wish to Write a report to a text file, define the folder location.

Select the report options as desired.

TIP: To send an e-mail report, configure SQL Server 2005's Database Mail and a SQL Server Agent Operator first. Refer to SQL Server 2008 Books Online.

Click **Next**.



Click **Close**.

This maintenance plan will create one SQL Server Agent Job.

To view the SQL Server Agent Jobs:

4. Expand **SQL Server Agent**.
5. Click **Jobs**.
6. If the jobs do not appear, right-click in the right pane and select **Refresh**.

**NOTE:** SQL Server Agent must be running for the scheduled jobs to execute.

**TIP:** Refer to **Backing Up and Restoring Databases** in SQL Server 2005 Books Online for additional information.