**MS SQL SERVER**

**Standard Operating Procedures**

**(SOP)**

**Moving Database files**

Submitted to

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**By**



CIS, Wipro Limited

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**1. Purpose**

Every SQL Server database has two operating system files: a data file and a log file.

You can move a data or log file of a Database.

**2. Scope**

This document describes how to move database files.

**3. Move Database Files**

In SQL Server, you can move system and user databases by specifying the new file location in the FILENAME clause of the [ALTER DATABASE](http://msdn.microsoft.com/en-us/library/ms174269.aspx) statement. Data, log, and full-text catalog files can be moved in this way. This may be useful in the following situations:

Failure recovery. For example, the database is in suspect mode or has shut down, because of a hardware failure.

Planned relocation.

Relocation for scheduled disk maintenance.

**4. Move User Databases**

In SQL Server, you can move the data, log, and full-text catalog files of a user database to a new location by specifying the new file location in the FILENAME clause of the [ALTER DATABASE](http://msdn.microsoft.com/en-us/library/ms174269.aspx) statement. This method applies to moving database files within the same instance SQL Server. To move a database to another instance of SQL Server or to another server, use [backup and restore](http://msdn.microsoft.com/en-us/library/ms187048.aspx) or [detach and attach operations](http://msdn.microsoft.com/en-us/library/ms187858.aspx).

**To move a data or log file as part of a planned relocation, follow these steps:**

1. Run the following statement.

ALTER DATABASE database\_name SET OFFLINE;

1. Move the file or files to the new location.
2. For each file moved, run the following statement.

ALTER DATABASE database\_name MODIFY FILE ( NAME = logical\_name, FILENAME = 'new\_path\os\_file\_name' );

1. Run the following statement.

ALTER DATABASE database\_name SET ONLINE;

1. Verify the file change by running the following query.

SELECT name, physical\_name AS CurrentLocation, state\_desc

FROM sys.master\_files

WHERE database\_id = DB\_ID(N'<database\_name>');

**To relocate a file as part of a scheduled disk maintenance process, follow these steps:**

1. For each file to be moved, run the following statement.

ALTER DATABASE database\_name MODIFY FILE ( NAME = logical\_name , FILENAME = 'new\_path\os\_file\_name' );

1. Stop the instance of SQL Server or shut down the system to perform maintenance. Move the file or files to the new location.
2. Restart the instance of SQL Server or the server. Verify the file change by running the following query.

SELECT name, physical\_name AS CurrentLocation, state\_desc

FROM sys.master\_files

WHERE database\_id = DB\_ID(N'<database\_name>');

**If a file must be moved because of a hardware failure, use the following steps to relocate the file to a new location.**

1. Stop the instance of SQL Server if it is started.
2. Start the instance of SQL Server in master-only recovery mode by entering one of the following commands at the command prompt.
   * For the default (MSSQLSERVER) instance, run the following command.

NET START MSSQLSERVER /f /T3608

* + For a named instance, run the following command.

NET START MSSQL$instancename /f /T3608

1. For each file to be moved, use **sqlcmd** commands or SQL Server Management Studio to run the following statement.

ALTER DATABASE database\_name MODIFY FILE( NAME = logical\_name , FILENAME = 'new\_path\os\_file\_name' );

1. Exit the **sqlcmd** utility or SQL Server Management Studio.
2. Stop the instance of SQL Server.
3. Move the file or files to the new location.
4. Start the instance of SQL Server. For example, run: NET START MSSQLSERVER.
5. Verify the file change by running the following query.

SELECT name, physical\_name AS CurrentLocation, state\_desc

FROM sys.master\_files

WHERE database\_id = DB\_ID(N'<database\_name>');

**Example**

The following example moves the AdventureWorks2012 log file to a new location as part of a planned relocation.

USE master;

GO

-- Return the logical file name.

SELECT name, physical\_name AS CurrentLocation, state\_desc

FROM sys.master\_files

WHERE database\_id = DB\_ID(N'AdventureWorks2012')

AND type\_desc = N'LOG';

GO

ALTER DATABASE AdventureWorks2012 SET OFFLINE;

GO

-- Physically move the file to a new location.

-- In the following statement, modify the path specified in FILENAME to

-- the new location of the file on your server.

ALTER DATABASE AdventureWorks2012

MODIFY FILE ( NAME = AdventureWorks2012\_Log,

FILENAME = 'C:\NewLoc\AdventureWorks2012\_Log.ldf');

GO

ALTER DATABASE AdventureWorks2012 SET ONLINE;

GO

--Verify the new location.

SELECT name, physical\_name AS CurrentLocation, state\_desc

FROM sys.master\_files

WHERE database\_id = DB\_ID(N'AdventureWorks2012')

AND type\_desc = N'LOG';

**5. Move System Databases**

This topic describes how to move system databases in SQL Server. Moving system databases may be useful in the following situations:

* Failure recovery. For example, the database is in suspect mode or has shut down because of a hardware failure.
* Planned relocation.
* Relocation for scheduled disk maintenance.

The following procedures apply to moving database files within the same instance of SQL Server. To move a database to another instance of SQL Server or to another server, use the [backup and restore](http://msdn.microsoft.com/en-us/library/ms187048.aspx) or [detach and attach](http://msdn.microsoft.com/en-us/library/ms187858.aspx) operations.

**To move a system database data or log file as part of a planned relocation or scheduled maintenance operation, follow these steps.**

(This procedure applies to all system databases except the master and Resource databases.)

1. For each file to be moved, run the following statement.

ALTER DATABASE database\_name MODIFY FILE ( NAME = logical\_name , FILENAME = 'new\_path\os\_file\_name' )

1. Stop the instance of SQL Server or shut down the system to perform maintenance.
2. Move the file or files to the new location.
3. Restart the instance of SQL Server or the server.
4. Verify the file change by running the following query.

SELECT name, physical\_name AS CurrentLocation, state\_desc

FROM sys.master\_files

WHERE database\_id = DB\_ID(N'<database\_name>');

If the msdb database is moved and the instance of SQL Server is configured for [Database Mail](http://msdn.microsoft.com/en-us/library/ms189635.aspx), complete these additional steps.

1. Verify that Service Broker is enabled for the msdb database by running the following query.

SELECT is\_broker\_enabled

FROM sys.databases

WHERE name = N'msdb';

1. Verify that Database Mail is working by sending a test mail.

**If a file must be moved because of a hardware failure, follow these steps to relocate the file to a new location.**

(This procedure applies to all system databases except the master and Resource databases.)

1. Stop the instance of SQL Server if it is started.
2. Start the instance of SQL Server in master-only recovery mode by entering one of the following commands at the command prompt. The parameters specified in these commands are case sensitive. The commands fail when the parameters are not specified as shown.
   * For the default (MSSQLSERVER) instance, run the following command:

NET START MSSQLSERVER /f /T3608

* + For a named instance, run the following command:

NET START MSSQL$instancename /f /T3608

1. For each file to be moved, use **sqlcmd** commands or SQL Server Management Studio to run the following statement.

ALTER DATABASE database\_name MODIFY FILE( NAME = logical\_name , FILENAME = 'new\_path\os\_file\_name' )

1. Exit the **sqlcmd** utility or SQL Server Management Studio.
2. Stop the instance of SQL Server. For example, run NET STOP MSSQLSERVER.
3. Move the file or files to the new location.
4. Restart the instance of SQL Server. For example, run NET START MSSQLSERVER.
5. Verify the file change by running the following query.

SELECT name, physical\_name AS CurrentLocation, state\_desc

FROM sys.master\_files

WHERE database\_id = DB\_ID(N'<database\_name>');

[**Moving the master Database**](javascript:void(0))

To move the master database, follow these steps.

1. From the Start menu, point to All Programs, point to Microsoft SQL Server, point to Configuration Tools, and then click SQL Server Configuration Manager.
2. In the SQL Server Services node, right-click the instance of SQL Server (for example, SQL Server (MSSQLSERVER)) and choose Properties.
3. In the SQL Server (instance\_name) Properties dialog box, click the Startup Parameters tab.
4. In the Existing parameters box, select the –d parameter to move the master data file. Click Update to save the change.

In the Specify a startup parameter box, change the parameter to the new path of the master database.

1. In the Existing parameters box, select the –l parameter to move the master log file. Click Update to save the change.

In the Specify a startup parameter box, change the parameter to the new path of the master database.

The parameter value for the data file must follow the -d parameter and the value for the log file must follow the -l parameter. The following example shows the parameter values for the default location of the master data file.

-dC:\Program Files\Microsoft SQL Server\MSSQL12.MSSQLSERVER\MSSQL\DATA\master.mdf

-lC:\Program Files\Microsoft SQL Server\MSSQL12.MSSQLSERVER\MSSQL\DATA\mastlog.ldf

If the planned relocation for the master data file is E:\SQLData, the parameter values would be changed as follows:

-dE:\SQLData\master.mdf

-lE:\SQLData\mastlog.ldf

1. Stop the instance of SQL Server by right-clicking the instance name and choosing Stop.
2. Move the master.mdf and mastlog.ldf files to the new location.
3. Restart the instance of SQL Server.
4. Verify the file change for the master database by running the following query.

SELECT name, physical\_name AS CurrentLocation, state\_desc

FROM sys.master\_files

WHERE database\_id = DB\_ID('master');

GO

**Moving the Resource Database**

The location of the Resource database is <drive>:\Program Files\Microsoft SQL Server\MSSQL12.<instance\_name>\MSSQL\Binn\. The database cannot be moved.

[**Follow-up: After Moving All System Databases**](javascript:void(0))

If you have moved all of the system databases to a new drive or volume or to another server with a different drive letter, make the following updates.

* Change the SQL Server Agent log path. If you do not update this path, SQL Server Agent will fail to start.
* Change the database default location. Creating a new database may fail if the drive letter and path specified as the default location do not exist.

### Change the SQL Server Agent Log Path

1. From SQL Server Management Studio, in Object Explorer, expand SQL Server Agent.
2. Right-click Error Logs and click Configure.
3. In the Configure SQL Server Agent Error Logs dialog box, specify the new location of the SQLAGENT.OUT file. The default location is C:\Program Files\Microsoft SQL Server\MSSQL12.<instance\_name>\MSSQL\Log\.

### Change the database default location

1. From SQL Server Management Studio, in Object Explorer, right-click the SQL Server server and click Properties.
2. In the Server Properties dialog box, select Database Settings.
3. Under Database Default Locations, browse to the new location for both the data and log files.
4. Stop and start the SQL Server service to complete the change.

**Example**

The following example moves the tempdb data and log files to a new location as part of a planned relocation.

1. Determine the logical file names of the tempdb database and their current location on the disk.

SELECT name, physical\_name AS CurrentLocation

FROM sys.master\_files

WHERE database\_id = DB\_ID(N'tempdb');

GO

1. Change the location of each file by using ALTER DATABASE.

USE master;

GO

ALTER DATABASE tempdb

MODIFY FILE (NAME = tempdev, FILENAME = 'E:\SQLData\tempdb.mdf');

GO

ALTER DATABASE tempdb

MODIFY FILE (NAME = templog, FILENAME = 'F:\SQLLog\templog.ldf');

GO

1. Stop and restart the instance of SQL Server.
2. Verify the file change.

SELECT name, physical\_name AS CurrentLocation, state\_desc

FROM sys.master\_files

WHERE database\_id = DB\_ID(N'tempdb');

1. Delete the tempdb.mdf and templog.ldf files from the original location.

**6. References**

1. <http://msdn.microsoft.com/en-us/library/ms189133.aspx> (Move Database Files)
2. <http://msdn.microsoft.com/en-us/library/ms345483.aspx> (Move User Databases)
3. <http://msdn.microsoft.com/en-us/library/ms345408.aspx> (Move System Databases)