

BEST PRACTICES FOR BACKUP OF MICROSOFT SQL 2005 DATABASES WITH UNITRENDS BACKUP PROFESSIONAL

INTRODUCTION

The information presented in this document is a supplement to the SQL Server Agent chapter in the Unitrends Appliance and Agents User Manual. The best practices detailed in the following sections will help ensure successful operations when using the Unitrends Backup Professional Microsoft SQL Server Agent to backup and restore SQL 2005 databases.

HOW TO BACKUP

Backup options for Microsoft SQL 2005 databases are dictated by the level of expertise available to the end customer with Microsoft SQL 2005 Server and business requirements.

If a high level of Microsoft SQL Server 2005 expertise is present, SQL Server Enterprise Manager offers great functionality and flexibility using the Microsoft Management Console. For ease of use, the Unitrends Microsoft SQL Server Agent offers a large set of functionality that is quickly implemented. It is important that the SQL 2005 database files are protected in just one manner. SQL Server Enterprise Manager and Unitrends SQL Server Agent should not be configured to backup database files concurrently.

Point in time recovery with transaction log backups, performed at short intervals between backups (i.e. transaction log backup every hour), are available using the Unitrends Backup Professional SQL Server Agent. To allow for point in time recovery, the database needs to be using the Full Recovery Model which is recommended for most production databases.

If a database is using the Simple Recovery Model, only full and differential backups of the database can be taken.

WHAT TO BACKUP

When backing up a Microsoft SQL Server it is important to distinguish what must be backed up with the operating system and what requires backup via a SQL Maintenance Plan or Unitrends SQL Server Agent application specific backup.

Microsoft SQL Server 2005 has three pieces that must be protected; registry entries, program files and database files. The standard file based backup will capture registry and program files. An application specific backup will protect the database files.

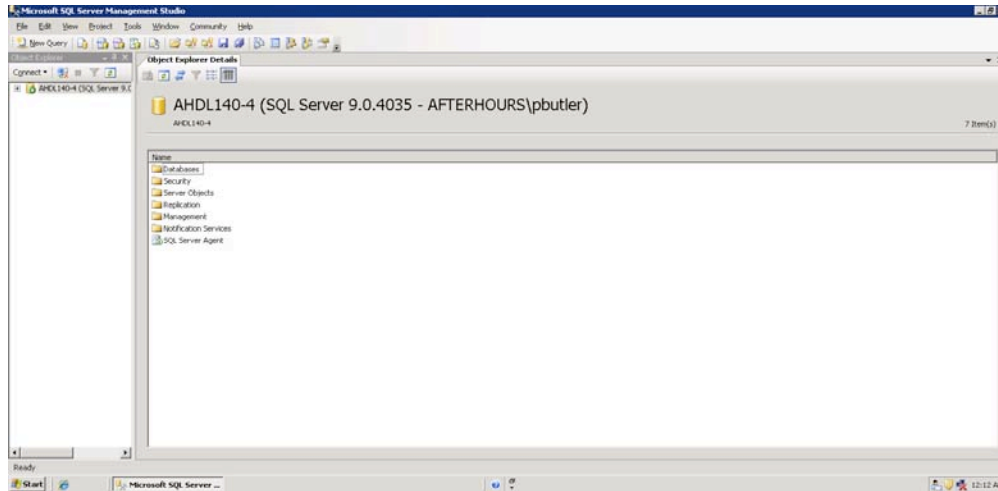
The program files for Microsoft SQL Server 2005 are installed by default in C:\Program Files\Microsoft SQL Server\MSSQL.1\MSSQL\. The Database files by default are installed in C:\Program Files\Microsoft SQL Server\MSSQL.1\MSSQL\Data. Reporting and Data Warehousing instances are installed, by default, under MSSQL.2 and MSSQL.3. Customer databases may be

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created in any location, but will be placed in the default location unless changed by an application or the customer.

The Enterprise Manager can be used to determine the location of the database files (log and data files for the databases). Open the Microsoft SQL Enterprise Manager and go to the database instance you desire to protect.

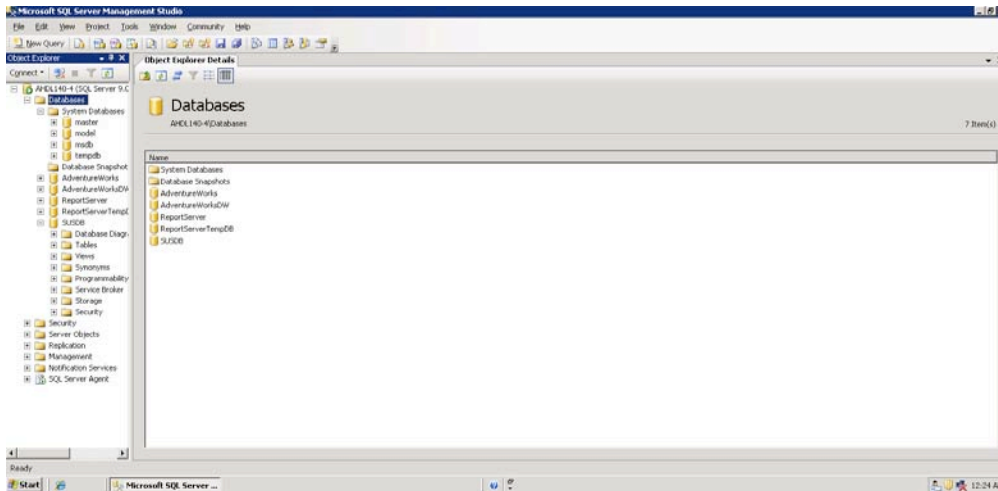
In the following example the instance to protect is AHDL140-4.



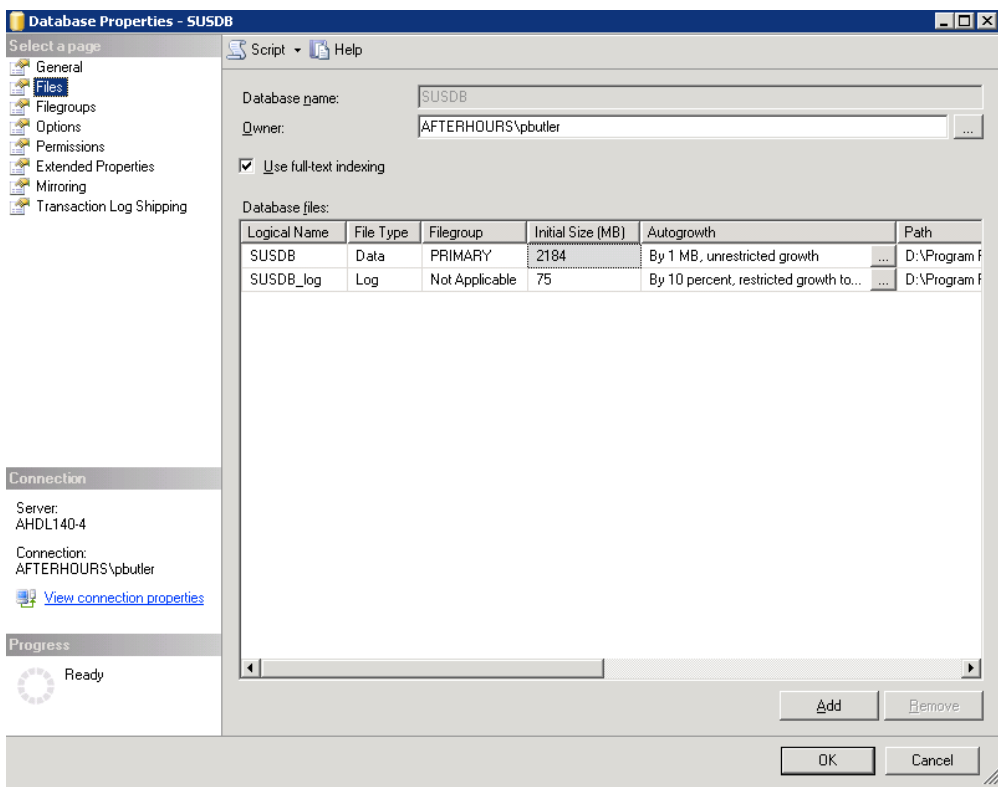
If you expand the Databases section you will see the databases associated with the instance of Microsoft SQL Server 2005. In this example they are:

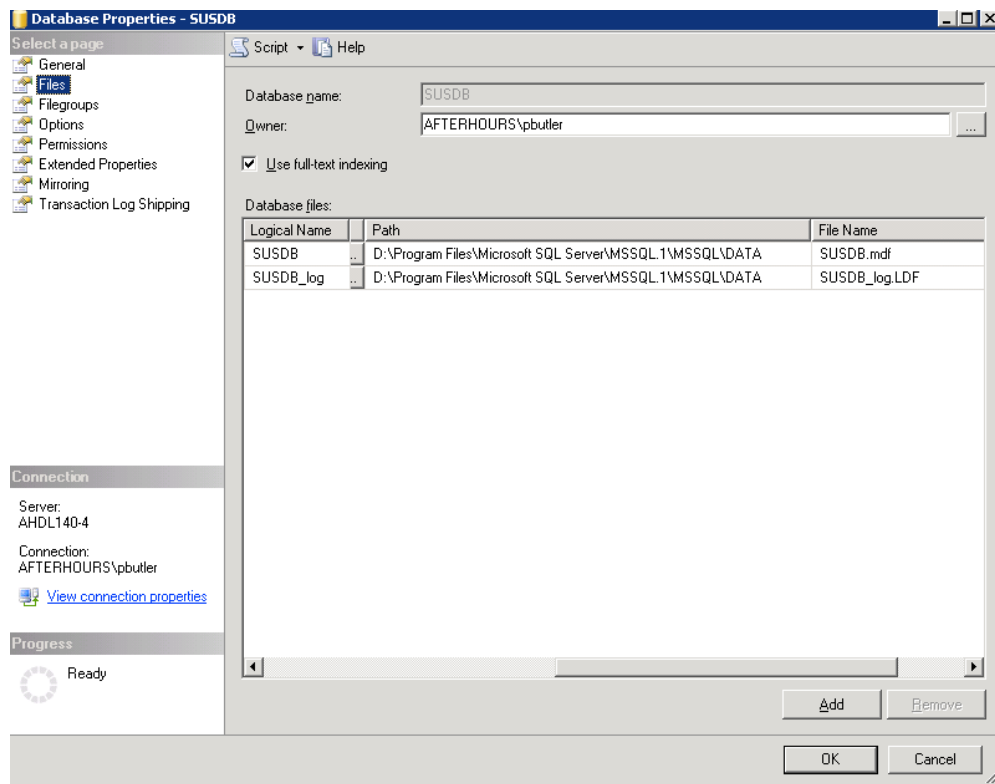
- Master (System Database)
- Model (System Database)
- Msdb (System Database)
- Tempdb (System Database)
- AdventureWorks
- AdventureWorksDW
- ReportServer
- ReportSeverTempDB
- SUSDB

System databases will be present on every installation of Microsoft SQL Server 2005. AdventureWorks is a sample database often installed. SUSDB is the customer database in this example.



Right Clicking on a database and selecting properties will open the properties dialog for the database.





In this example you can observe that the data file location is:

D:\Program Files\Microsoft SQL Server\MSSQL.1\MSSQL\data\master.mdf.

The transaction log file location is:

D:\Program Files\Microsoft SQL Server\MSSQL.1\MSSQL\data\master.ldf.

The data files and log file locations are important because they should be excluded from file level backups of the server if backing up the database using either of the above two methods. True relational databases require that log files and data file be synchronized- meaning that they have to be backed up at the same point and time. A file level backup of these files will always be at different points and times if the Microsoft SQL 2005 Server is running. This requirement is what necessitates the use of an application specific backup for Microsoft SQL Server 2005.

NOTE - *Regardless of the backup method used, all active database files must be excluded from the Unitrends file based backup.*

The only supported method for backing up data and log files via file level backup is to stop the Microsoft SQL Server 2005 service prior conducting the file level backup. If 24/7 operation of the database is not required, file level backup is therefore an option for fully protecting the Microsoft SQL 2005 server provided the service is stopped and started in sequence with the backup. This can be done using pre- and post-backup commands to stop and then start the SQL service. A consequence of using this backup method is if the backup fails the Microsoft SQL Server 2005 service may not be restarted.

Unitrends recommends as a best practice excluding the data and log files from the file level backup, and ensuring that an application specific backup is taken of all the databases at regular intervals as dictated by business requirements. The application specific backup may be taken via the Enterprise Manager or the Unitrends Backup Professional Microsoft SQL Server Agent.

WHAT NOT TO BACKUP

You should not backup tempdb. This database is rebuilt when SQL Server 2005 starts.

Database snapshots rely on a VSS writer that is not supported by Unitrends Backup Professional. Snapshots cannot be restored consistently and used via the enterprise manger. In the event of a server failure where the disk on which the snapshots are stored fails, it s recommended that the snapshots be deleted. New snapshots created are unaffected and will function normally.

RESTORE CONSIDERATIONS

A failure of the machine hosting Microsoft SQL Server 2005 may result in the SQL 2005 Service not starting due to a missing or corrupt master database. In this case it is required that a working master database be built before starting the Microsoft SQL 2005 service. There are two methods of doing this that are supported by Microsoft:

- 1) Restore a file level master backup **IF** the service was stopped when the backup was taken.
- 2) Re-install Microsoft SQL 2005 Server.

After the Microsoft SQL 2005 service starts, restore of database backups may be performed. NOTE: The master database should not be restored.

For specific instructions on backup and restore of Microsoft SQL Server 2005 databases please see the SQL Server Agent chapter in the Unitrends Appliance and Agents User Manual.

For specific instructions on backing up Microsoft SQL 2005 Server using Enterprise Manager, please visit the following link:

[Maintenance Plans](#)

SUMMARY

File based backups are essential to backup/restore of Microsoft SQL 2005 Server. The data and log files associated with the databases should be excluded from the file level backup unless the Microsoft SQL Server 2005 Service is stopped prior to the backup being taken. Application specific backup for Microsoft SQL Server 2005 must be taken if the database cannot be stopped for backup. This can be done with the Microsoft SQL Server 2005 Enterprise Manager or the Unitrends Microsoft SQL Server Agent. Only one of the two methods should be used to avoid checkpoint confusion. When a failure occurs it is possible that the Microsoft SQL Server service will not start to allow application specific restores. If that occurs one of the two methods discussed must be used to obtain a working master database before restores can be performed.