

About database backups

What is a backup?

A backup refers to making copies of data so that these additional copies may be used to restore the original after a data loss event. Backups are useful primarily for two purposes. The first is to restore a state following a disaster (called disaster recovery). The second is to restore small numbers of files or records after they have been accidentally deleted or corrupted.

There are also many different ways in which the data storage devices can be arranged to provide geographic redundancy, data security, and portability.

Any backup strategy starts with a concept of a data repository. The backup data needs to be stored somehow and probably should be organized to a degree. Different repository models have different advantages. This is closely related to choosing a backup rotation scheme.

Unstructured: An unstructured repository may simply be a stack of floppy disks or CD-R/DVD-R media with minimal information about what was backed up and when. This is the easiest to implement, but probably the least likely to achieve a high level of recoverability.

Full + Incrementals: A Full + Incremental repository aims to make storing several copies of the source data more feasible. At first, a full backup (of all files) is taken. After that, any number of incremental backups can be taken. There are many different types of incremental backups, but they all attempt to only backup a small amount of data relative to the full backup. Restoring a whole system to a certain point in time would require locating the full backup taken previous to that time and the incremental backups that cover the period of time between the full backup and the particular point in time to which the system is supposed to be restored. The scope of an incremental backup is typically defined as a range of time relative to other full or incremental backups. Different implementations of backup systems frequently use specialized or conflicting definitions of these terms.

Differential: A differential backup copies files that have been created or changed since the last normal or incremental backup. It does not mark files as having been backed up (in other words, the archive attribute is not cleared). If you are performing a combination of normal and differential backups, restoring files and folders requires that you have the last normal as well as the last differential backup.

Continuous data protection: Instead of scheduling periodic backups, the system immediately logs every change on the host system. This is generally done by saving byte or block-level differences rather than file-level differences. It differs from simple disk mirroring in that it enables a roll-back of the log and thus restoration of old image of data.

Dual Server Configuration

In the Dual Server Configuration there are two separate servers used, the application server and the database server. The MizuTech VoIP Service is running on the application server and usually a Microsoft SQL Server 2008 Express database is installed on the database server. The direction of the backup is from the database server to the application server, into a shared folder, so that if the database server experiences problems the other server can provide the latest backup.

In an ideal case, backup is of three kinds: an hourly differential backup and a daily full backup about the voipserver database, and a monthly full backup about all databases.

MSSQL Server and MSSQL Studio

Microsoft SQL Server is a relational model database server produced by Microsoft. Its primary query languages are T-SQL and ANSI SQL. You can work directly with the database using the client IDE tools, and several complementary systems that are packaged with SQL Server. These include: an ETL tool (SQL Server Integration Services or SSIS), a Reporting Server, an OLAP and data mining server (Analysis Services), and several messaging technologies, specifically Service Broker and Notification Services.

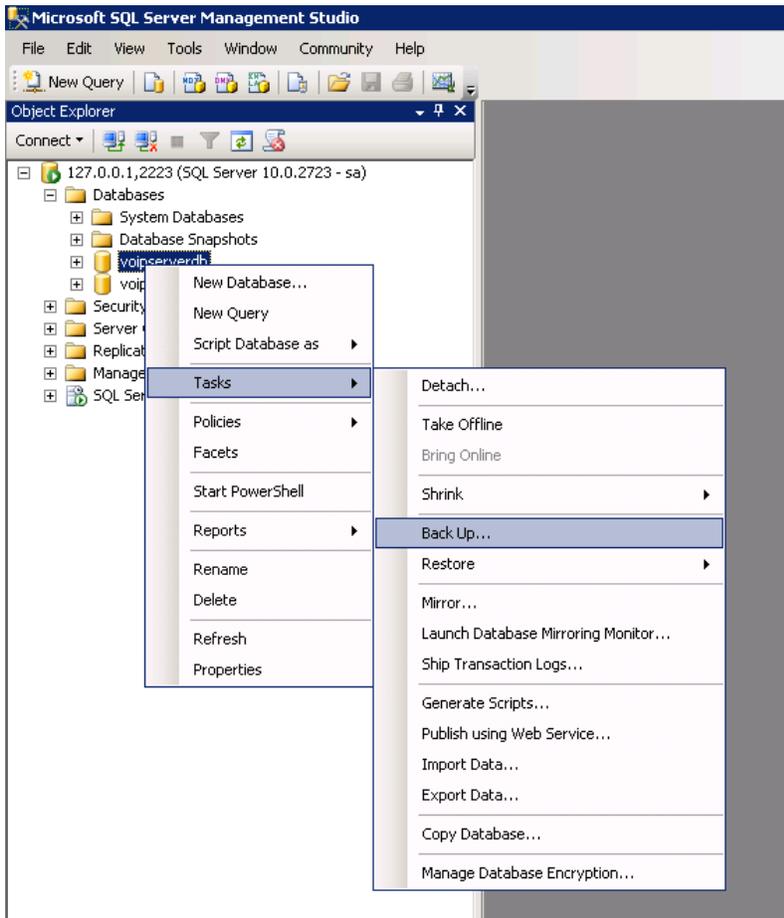
SQL Server Management Studio is a GUI tool included with SQL Server for configuring, managing, and administering all components within Microsoft SQL Server. The tool includes both script editors and graphical tools that work with objects and features of the server.

A central feature of SQL Server Management Studio is the Object Explorer, which allows the user to browse, select, and act upon any of the objects within the server. It can be used to visually observe and analyze query plans and optimize the database performance, among others. SQL Server Management Studio can also be used to create a new database, alter any existing database schema by adding or modifying tables and indexes, or analyze performance. It includes the query windows which provide a GUI based interface to write and execute queries.

SQL Server Management Studio can be downloaded for free from the Microsoft Website:

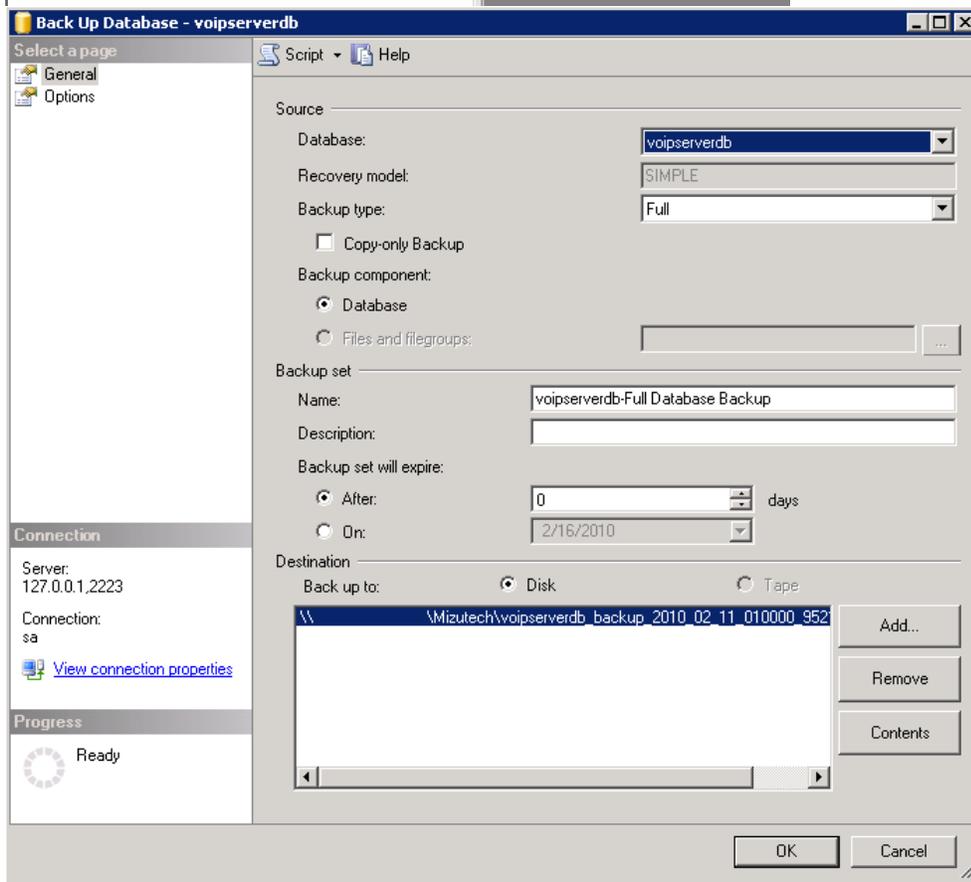
<http://www.microsoft.com/downloads/details.aspx?FamilyID=08E52AC2-1D62-45F6-9A4A-4B76A8564A2B&displaylang=en>

How to make a manual backup



First open Microsoft SQL Server Management Studio, open Object Explorer, open Databases, right-click with your mouse on the database you want to back up, select tasks and select Back Up from the menu.

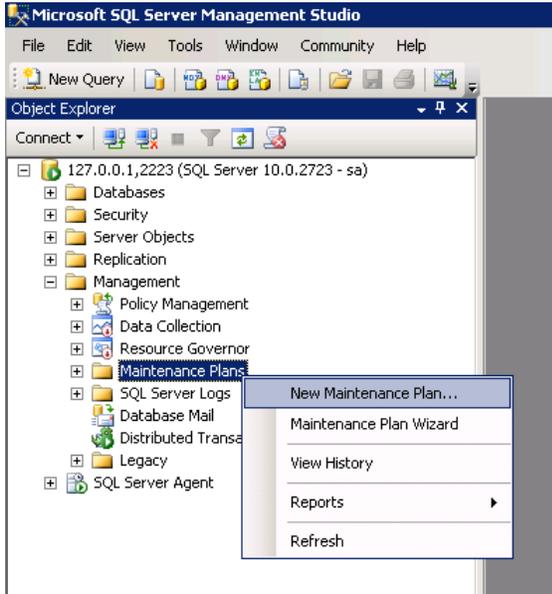
The next window will appear.



At Source/ Database select the database that you want to back up. At Backup type select either full for full type of backup or

differential, for differential backup.

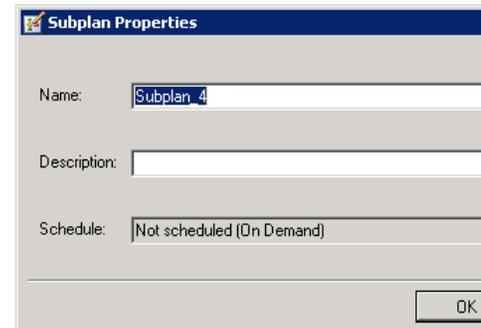
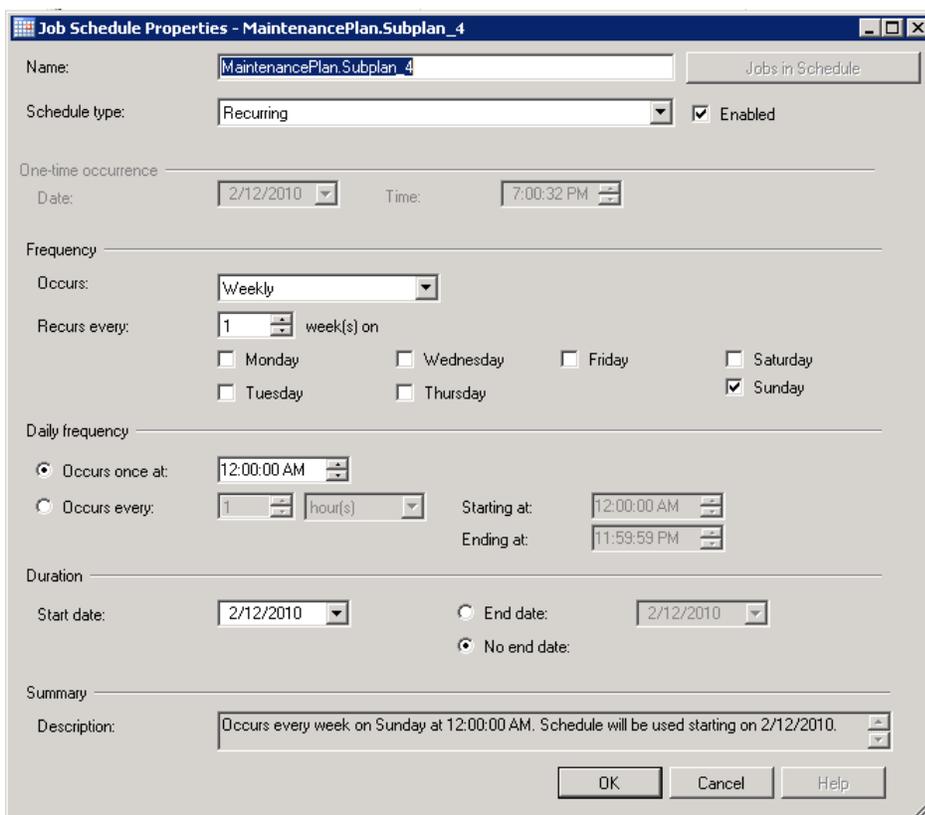
At Destination click on the Add button, select the disk, and path to the file where you want to save the backup file. If this is on another server type \\ double-slash, followed by the IP address and path on the another machine.



How to set up automated backup

In the Object Explorer open Management, under Management right-click with your mouse on Maintenance Plans and select New Maintenance Plan. In the small window that appears give it a name.

Click Add Subplan, Introduce names, description, and set the schedule for the given Subplan, by clicking on the small calendar icon



The Schedule settings window looks like this:

Once the time and frequency of a given schedule is set the tasks from the left side of the window can be dragged and dropped in the field under the subplans list. For every subplan a 'Backup database task' and a 'Maintenance cleanup task' can be dragged/dropped and defined on this field.

For example you can create 3 folders in the shared folder on the application server, one for hourly differential backup which is backed up once every hour, and the backup is deleted once every day. You can create another for a full daily backup, and one for full monthly backup.

Once you drag/drop and define the backup tasks from the lower left pane to the right, the subplans will look like this:

The screenshot shows the 'MaintenancePlan - sa [Design]' window. The 'Name' field is 'MaintenancePlan'. The 'Description' field is empty. Below is a table with three subplans:

Subplan	Description	Schedule		
Subplan_1	Daily database backup	Occurs every day at 5:22:00 AM. Schedule will be used starting on 2/8/2...		
Subplan_2	Hourly differential backup	Occurs every day every 1 hour(s) between 1:00:00 AM and 11:59:59 PM...		
Subplan_3	Monthly database backup	Occurs every first Wednesday of every 1 month(s) at 3:12:00 AM. Sche...		

Below the table are two task boxes:

- Hourly differential backup**
Backup Database on Local server co...
Databases: voipserverdb
Type: Differential
Append existing
Destination: Disk
Backup Compression (On)
- Hourly Maintenance Cleanup**
Maintenance Cleanup on Local se...
Cleanup Database Backup files
Age: Older than 1 Days

More details: <http://support.microsoft.com/kb/930615>

