Tempdb database

Overview

Temp dB is a system database in sql server. mainly it is used to store lots of temporary objects, they include global or local temporary tables and indexes, temporary stored procedures, table variables, tables returned in table-valued functions, and cursors.

Temp dB also works as an internal worktable, there are many queries run by user like sort, hash operation, when sometime there are not memory available in memory to complete this operation, in case care data can be to “spill” or dump to Temp DB to do its work

Operations within tempdb are minimally logged so that transactions can be rolled back. tempdb is re-created every time SQL Server is started so that the system always starts with a clean copy of the database. Temporary tables and stored procedures are dropped automatically on disconnect, and no connections are active when the system is shut down.

tempdb never has anything to be saved from one session of SQL Server to another. Backup and restore operations are not allowed on tempdb.

Key Point

- Temp dB stores temporary objects.
- If there is not enough memory, then operation can be spill” or dump to Temp DB to do its work.
- Temp dB recreates when sql server restart,
- In Temp db data is not saved permanently, data flush out when user restart sql server service

Physical properties of tempdb in SQL Server

The following table lists the initial configuration values of the tempdb data and log files in SQL Server. The values are based on the defaults for the model database. The sizes of these files might vary slightly for different editions of SQL Server.

File	Logical name	Physical name	Initial size	File growth

Primary data	tempdev	tempdb.mdf	8 megabytes	Autogrow by 64 MB until the disk is full
Secondary data files	temp#	tempdb_mssql_#.ndf	8 megabytes	Autogrow by 64 MB until the disk is full
Log	templog	templog.ldf	8 megabytes	Autogrow by 64 megabytes to a maximum of 2 terabytes

The number of secondary data files depends on the number of (logical) processors on the machine. As a rule, if the number of logical processors is less than or equal to eight, use the same number of data files as logical processors. If the number of logical processors is greater than eight, use eight data files. Then if contention continues, increase the number of data files by multiples of four until the contention decreases to acceptable levels, or make changes to the workload/code.

Restrictions

The following operations can't be performed on the tempdb database:

- Adding filegroups.
- Backing up or restoring the database.
- Changing collation. The default collation is the server collation.
- Changing the database owner. tempdb is owned by *sa*.
- Creating a database snapshot.
- Dropping the database.
- Dropping the *guest* user from the database.
- Enabling Change Data Capture.
- Participating in database mirroring.
- Removing the primary filegroup, primary data file, or log file.
- Renaming the database or primary filegroup.
- Running DBCC CHECKALLOC.
- Running DBCC CHECKCATALOG.
- Setting the database to OFFLINE.
- Setting the database or primary filegroup to READ_ONLY.