



Tune, Monitor and Analyze the Health of Your Centricity SQL Server

Presented by Steve Stedman and
Derrick Bovenkamp

About Us

- Steve Stedman

- Derrick Bovenkamp

Introduction

- Performance tuning can save money.
 - Doctors time, Clinical, Front and Back Office Staff time, Patients time.
 - Get more out of your hardware without having to upgrade.
- A stable and reliable database can save time and money.
- System checks and best practices can prevent outages and data loss.

Baseline Monitoring

- Monitoring Tools - Database Health Monitor
- Wait Statistics
- CPU Load and VM Implications
- Memory
 - Page Life Expectancy, Plan Cache Hit Ratio
 - Not rebooting unless absolutely needed, Install updates less often (monthly or less)

TempDB Performance

- What is TempDB, What uses TempDB
- Performance Recommendations

Database files:

Logical Name	File Type	Filegroup	Initial Size (MB)	Autogrowth / Maxsize
tempdev	ROWS...	PRIMARY	72	By 64 MB, Unlimited
temp2	ROWS...	PRIMARY	72	By 64 MB, Unlimited
temp3	ROWS...	PRIMARY	72	By 64 MB, Unlimited
temp4	ROWS...	PRIMARY	72	By 64 MB, Unlimited
temp5	ROWS...	PRIMARY	72	By 64 MB, Unlimited
temp6	ROWS...	PRIMARY	72	By 64 MB, Unlimited
temp7	ROWS...	PRIMARY	72	By 64 MB, Unlimited
temp8	ROWS...	PRIMARY	72	By 64 MB, Unlimited
templog	LOG	Not Applicable	136	By 64 MB, Unlimited

What is in TempDB?

- Temporary user objects that are explicitly created, such as:
 - Global or local temporary tables
 - Temporary stored procedures
 - Table Variables
- Sorts (including DISTINCT)
- Hash (aggregates and joins)
- Spools (table and index)
- Row versions that are generated by data modification transactions in a database that uses read-committed using row versioning isolation or snapshot isolation transactions.
- Row versions that are generated by data modification transactions for features, such as: online index operations and AFTER triggers.

TempDB is Special

- No backups
- No restores
- Simple recovery only
- Cannot change owner
- Cannot drop database
- Cannot Enable CDC / Mirroring / Snapshots / Availability Groups
- If the database files are missing when SQL Server starts, the files are recreated

TempDB Performance

- Performance Recommendations
 - Multiple Files
 - Drive of its own
 - Fast Storage
 - 64K block size
 - VLF Count (Virtual Log Files)

Backup and Restore

- Compressed Backups
- Full, Incremental, Logs
- GE Job and log backups

Backup and Restore

- VLF Impact on restore
 - Less VLF's = Faster Restore
- VM Snapshots
 - Timing with other backups

Backup and Restore

- Automatic Restore Script
 - Save time and mistakes when you need to do a database restore

[http:// databasehealth.com/about/shared-scripts/](http://databasehealth.com/about/shared-scripts/)

Maintenance Plan Problems

- Default maintenance plan order
- Sp_maint what it does
- Document management – Export images
- Detecting Database Corruption

Best Practices

- IFI
- Virtualization
- Autogrowth Percentage and size
- Avoid autoshrink on database.
- Multiple drives (data, log, tempdb)
- Email configuration
 - Email on jobs failing
 - Email on alerts.
- Changing database owners – don't do this for centrality.

Daily Checklist

- Check Backups
- Check the SQL Error Logs
- Quick Scan Report – Database Health Monitor
- Check scheduled jobs

Next Steps

- Take a look at the white paper.
- Evaluate your system.
- Take a look at Database Health Monitor.
- Follow up if you have any questions.

Any Questions
