

# WELCOME TO CAMP GEEKALOT

Camp for SQL DBAs  
To Share Tips and Practices

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# **AGENDA**

**This boot camp will cover 5 key areas for SQL DBAs**

**We'll discuss tips and technique you can use as you seek out new life and new adventures as a SQL DBA**

**Campee participation is essential to get most out of this boot camp.**

**Sorry, no sing-alongs, until after graduation**

Small Databases can be just as important as Big ones.

Don't forget about system databases

Nice to have copy of those SQL Agent Jobs and SQL Logins

Find time/disk space to test the backups

How long does it take to

- 1) Backup
- 2) Restore
- 3) CheckDB

Don't store all backups on the same disk or tape

Backup directly to tape?

-- Secure the tapes offsite

-- Local copy needed

Full, differential, transaction log backups  
Different techniques for different needs

# PLAN FOR DISASTERS

You have a plan, great, okay now test it, right now!

Large batch jobs don't always work  
Do you have a restart plan?

What about Batch UNDO plan?

If something goes wrong,  
large database can be  
offline for hours or even  
days during recovery.

Web Site up, but SQL  
Databases are offline

SQL running, but Web Site down

What if data center is gone?

Complex passwords  
Everyone knows  
P@ssword  
P@asword1!

If SQL logins, enable  
Password Enforcement

Critical or Security Update Applied?  
Try running Microsoft Security  
Baseline Analyzer (MSBA)

Keep Developers  
Away from production  
Know who are your Windows  
and SQL administrators

SQL Server/Agent Service Accounts  
-- domain users  
-- min rights  
-- not Local System  
-- not Network Service

# WORRY ABOUT SECURITY

Check SQL Server Errorlog for Login Failed. Are these expected?

When move data from Production  
to Development, it is still secured?

Are you using Security/Authentication  
tools like, Bitlocker, SecurityCards,  
KeyFOBS, or Certificates

Those USB 3TB drives can be quick  
solution in emergency, but easy to  
misplace

Laptops too can store entire DBs

Encrypted wireless  
communications

Don't run Profiler GUI tool

limited number of server-side traces  
-- impact on executing threads  
-- impact on IO bandwidth

PageFileSize (2x physical ram)

Min settings

2gb = 32bit

8gb = 64bit

# COMMON SERVER TIPS

Are you moving to x64bit?

Free Disk Space > 100mb

Is that SQL Trace Flag still needed?

tempdb data file = number of logical processors  
tempdb data files equal in size.

Got 8 processors? Is -T1118 enabled?

What are your **sp\_configure** settings?

- max server memory (MB) (bpool, data cache)
- max degree of parallelism MAXDOP=8 (1/2 physical CPUs)
- watch mix of "Affinity mask" and "affinity I/O mask"
- Use "blocked process threshold" for short term t-shooting

My Favorite Performance Monitor Counters

Memory Pressure

--Page Life Expectancy (<=300 seconds)

CPU

-- Privileged or Kernel mode (<=25%)

Disk Counter

-- Disk % Idle

-- Avg disk sec/Read (<15ms)

-- Disk Read Bytes/Sec

SQL Server Errorlog <10mb  
sp\_cycle\_errorlog

Why the large errorlog?

AutoCreateStats = True  
AutoUpdateStats = True  
AUTO\_SHRINK = False

Weekly DBCC CHECKDB

Can be run on a database backup

It doesn't catch everything

PHYSICAL\_ONLY on production systems

Don't ignore warning

How big is the  
Transaction log?  
Keep an eye on DB growth

Index maintenance? Test using:  
ALTER DATABASE <database\_name>  
SET RECOVERY BULK\_LOGGED

# COMMON DATABASE TIPS

Did I mention CheckDB?

Small TSQL Statements

Get to know Query Hints

Keep tuning high IO queries

Don't get just set MaxDop=1 or WITH(nolock)

Enough data to make test run as realistic as possible  
Can be difficult with multiple system involved

Just add new Index without testing  
What can it hurt?

Do you have Dev, QA, Preproduction  
To test those new queries, new index, schema changes?

Much harder to schedule maintenance

with today's 24x7 99.999% system uptime requirements.

**sys.dm\_exec\_sessions**

Currently authenticated connections

**sys.dm\_exec\_requests**

Requests that are currently executing

**sys.dm\_exec\_connections**

SQL Server connections

**sys.dm\_os\_tasks**

Currently active task

**sys.dm\_exec\_query\_stats** (x-join Query Plan)

Performance statistics for the query plans.

**sys.dm\_db\_index\_physical\_stats**

Used to detect fragmentation at the index

**sys.dm\_os\_wait\_stats**

DBCC SQLPERF(sys.dm\_os\_wait\_stats, CLEAR)

Used to identify where SQL Server threads are waiting for resources

# GET TO KNOW TSQL/DMVS

Don't just KILL the SPID, it may be your boss.

**sys.dm\_os\_memory\_clerks**  
Displays memory allocations

High number of similar AdHoc queries,  
Alter Database Parameterization = FORCED

Explore Missing Indexes  
**sys.dm\_db\_missing\_index\_details**

Don't FreeProcCache("plan handle")  
Just FreeProcCache("all") instead

UPDATE STATISTICS  
--or--

sp\_updatestats

Sometimes all you need is  
sp\_who, sp\_who2, or  
Select \* from **sys.sysprocesses**

## SQL Web Sites like:

SQLPASS.com

SQLSaturday.com

SQLCAT.com

SQLTIPS.com

sql-server-performance.com

SQLSkills.com

SQLSHARE.com

SQLLunch.com

SQLSERVERCENTRAL.com

sqlserverpedia.com

SQLChicken.com

YouTube.com

InformIT.com

Bing.com

Amazon list 737 SQL books

See what products Vendors have to offer. You may find something that one tool to help in your role as DBA.

Explore other technologies/products like Analysis Services, SSIS, PowerPivot, SAP, Azure, C#, IIS, BPOS, PowerShell, XEvents, encryption, SAN technologies, virtualization, load balancing tools, Microsoft Atlanta, Cloud computing

Technet Newsgroups/Forums  
Great source of both current  
and past problems  
Monitored by SQL MVPs and MS

MSDN Blogs like RepITalk, PSSSQL, SQLPERF,  
SQLSecurity, SQLFAQ, SQLBlog

# CONTINUE TO LEARN

Crack open SQL BOL, its free!



# CAMP GEEKALOT

1. **PLAN FOR DISASTERS**
2. **WORRY ABOUT SECURITY**
3. **COMMON SYSTEM TIPS**
4. **COMMON DBA TIPS**
5. **GET TO KNOW TSQL AND DMVS**
6. **CONTINUE TO LEARN**

We hope this camp has provided you the tools and skill you need while seeking new life and new adventures in the world of SQL DBA



**Live Long  
and Prosper**

Chris Skorlinski  
Camp Leader