

Configure SQL Server


for efficient troubleshooting

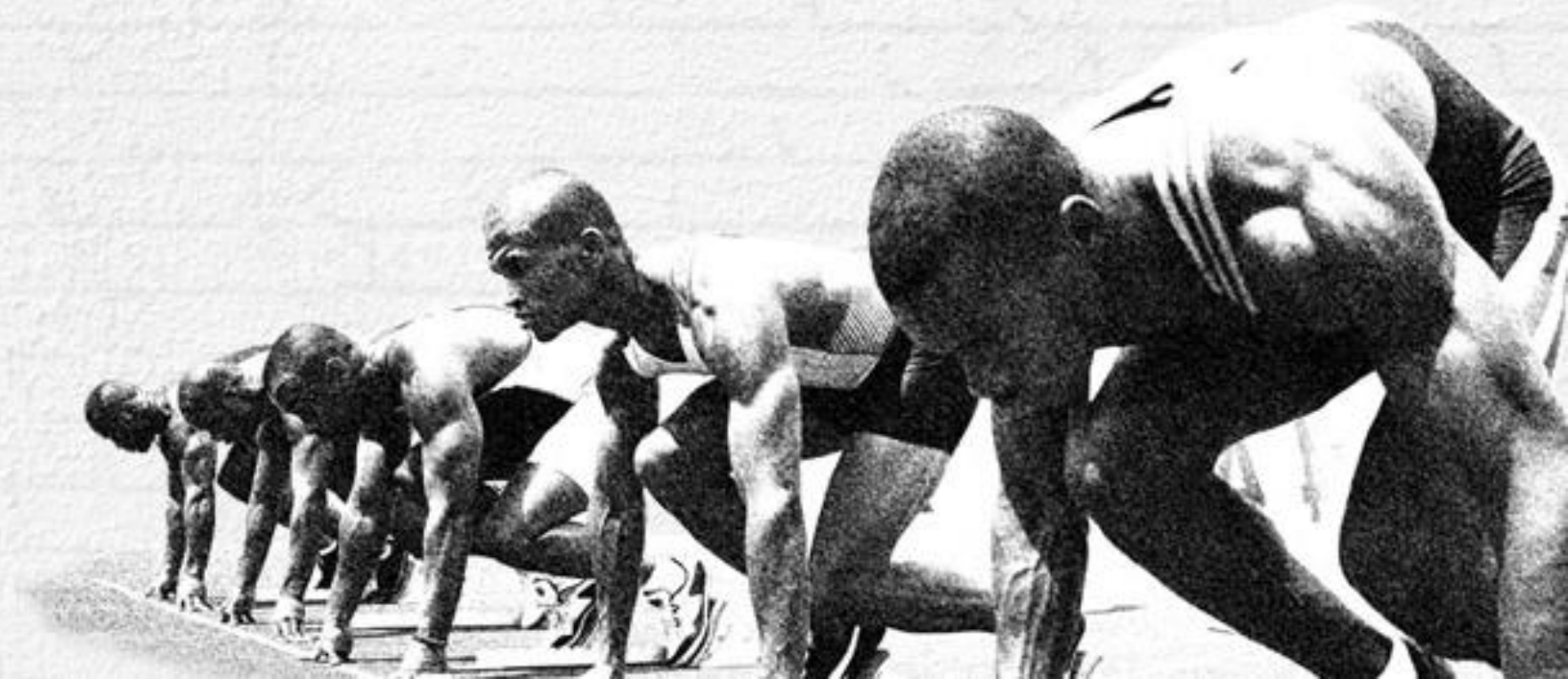
Christophe Laporte

Consultant

Conseil IT

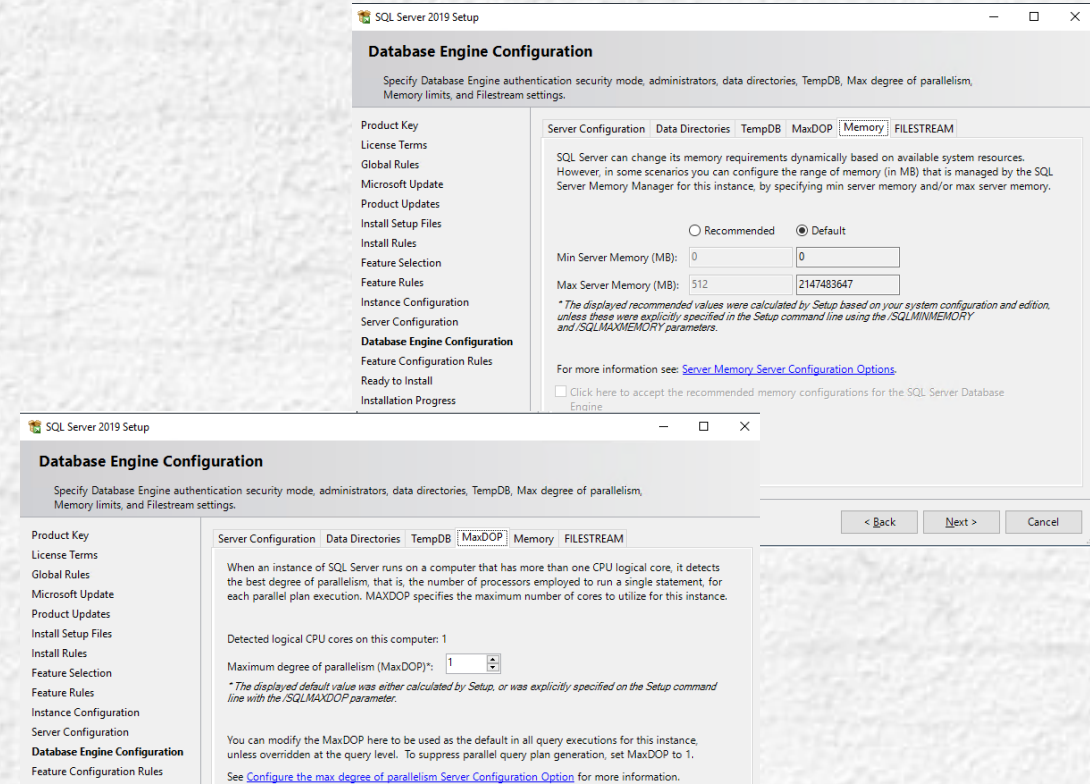


Diamond Knowledge Partner  Microsoft



SQL Server setup

- Better than previous versions
 - TempDB Configuration
 - Instant file initialization
 - Max Server Memory
 - MaxDOP
- But no efficient enough
 - In case of issue





Christophe LAPORTE

in /in/christophelaporte



conseilit.wordpress.com



conseilit@outlook.com



@conseilit



/conseilit





Demo

Disclaimer

- Demos files will be available
- Scripts built on top of dbaTools
 - <http://dbatools.io>
 - PS > Install-Module dbatools



Backups !!!

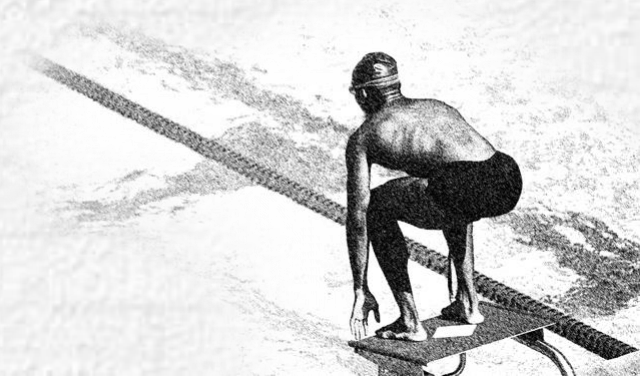


- **Mandatory**

- Always be prepared to disaster recovery situations
 - Datacenter loss
 - Crypto lockers
- Must be compliant with RPO and RTO
- Pay attention to backup location
 - Never collocate data / backup
 - 3-2-1 strategy

- **Maintenance plans**

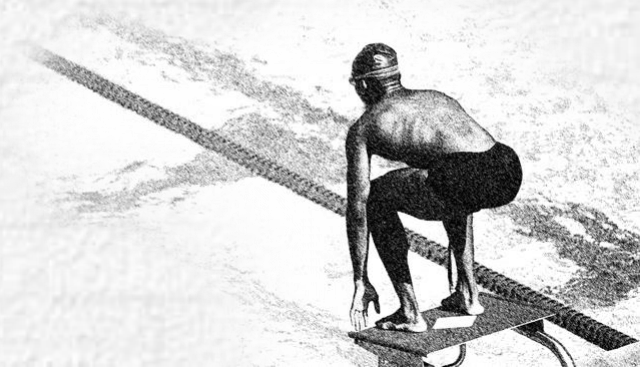
- Microsoft : hum ... seriously ???
- Ola Hallengren maintenance solution
 - Backup
 - Integrity checks
 - Index & statistics management
 - MSDB management



Manage retention

DEMO

- **ERRORLOG files : Not very handy by default**
 - 1 current and 6 archive by default
 - Increase the number of archive files
 - Recycle your errorlog (one a day ?)
- **System_health xEvent**
 - Increase file size and count
 - Stop collecting noise events
- **AlwaysOn_Health xEvent**
 - Increase file size and count
- **LOG folder**
 - Please backup this folder
 - At least *.TRC files



Security

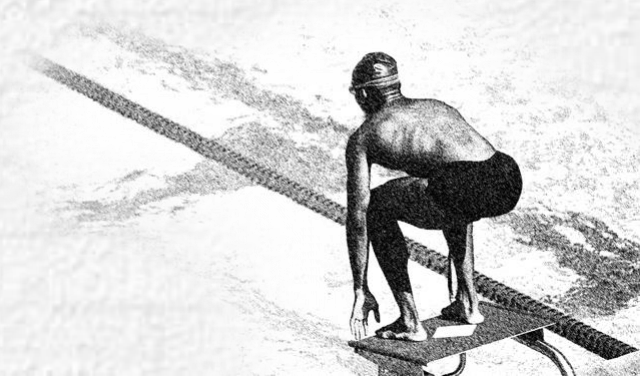


- Authentication

- Login failed
 - Errorlog ?
 - Might be too verbose
- Password change
- Server Audit (specification)
 - Purpose-built
- xEvents can be used
 - If more comfortable with

- Authorization

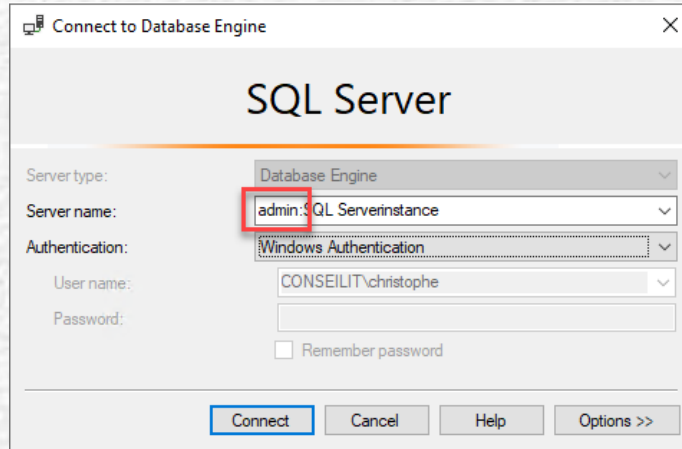
- Server Audit (specification)
 - Role change
- Database Audit (specification)
 - Track Read / Write operations
 - On all / specific objects
- Permissions change



DAC / Remote DAC

DEMO

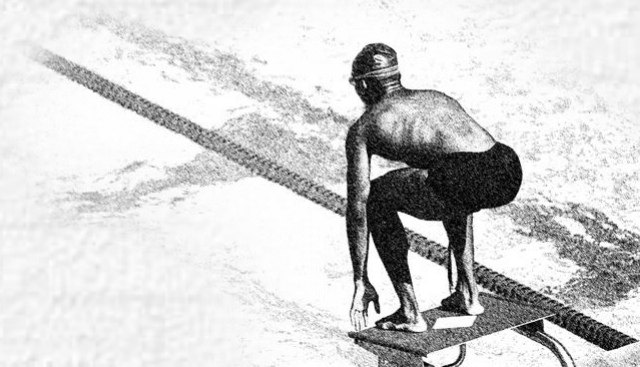
- Why ?
 - 100% CPU : Login timeout
 - Logon trigger
- Dedicated scheduler
 - To connect / run queries
- Local connection
 - Open by default
 - TCP Port 1434
- Open it for remote access
 - To avoid RDP connection on the host



TempDB Autogrowth



- xEvent autogrowth tracking for
 - DataFile
 - LogFile
- Returns useful information
 - The guilty query
- Might also be used to user databases ...



Email alerting

DEMO

- Configure the Database Mail feature
 - Email account
 - Email profile
- Configure SQL Server Agent
 - Enable Mail Profile
 - Create Operators
 - Create Alerts
 - 19-25
 - 823,824,825,829,832,855,856
 - Failing jobs



Performance troubleshooting

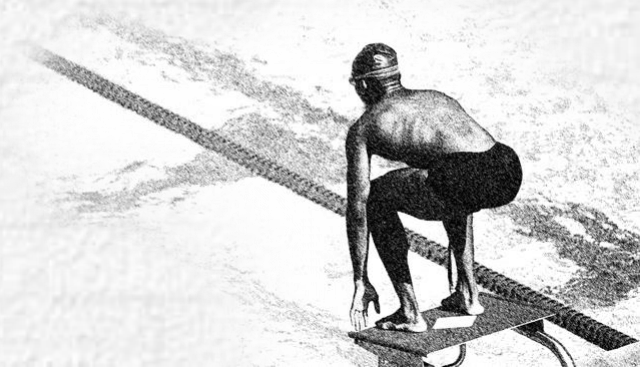
DEMO

- **Specific xEvent session**

- Performance
 - Long running queries
 - RPC Completed
 - Batch Completed
- Locking
 - Blocked Process Report
 - Queries and resources involved
 - Locks
 - Lock Timeout
 - Lock waits
 - DeadLocks
 - Already in System_health
 - Maybe better to centralize

- **Query Store**

- SQL Server 2016+
- Database specific
- Store execution plans
 - And execution statistics
- Quickly fix performance issues
 - Force plan
- Useful for migrations



Performance troubleshooting

DEMO

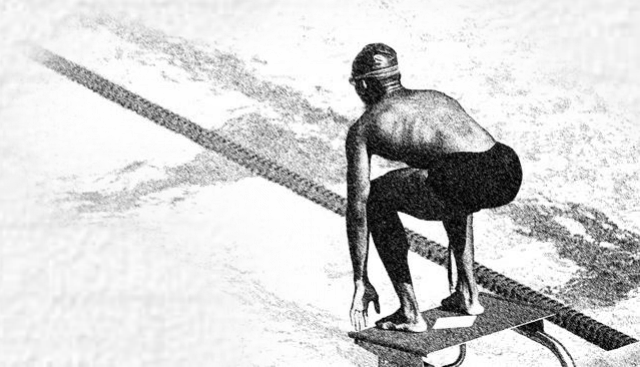
- Adam Machanic `sp_WhoIsActive` procedure
 - Nice combination of traditional DMVs/DMFs
 - Session
 - Query text / execution plan
 - Waits
 - Resources consumption
 - Locks
 - ...

| Results | | Messages | | | | | | | | |
|---------|-----------------|------------|--------------------------------------|---------------------|------------------------------------|-------------|--------------------|----------------|---------------------|---------------|
| | dd hh:mm:ss.mss | session_id | sql_text | login_name | wait_info | CPU | tempdb_allocations | tempdb_current | blocking_session_id | reads |
| 1 | 04 20:47:19.827 | 54 | <?query-- sp_server_diagnostics --?> | NT AUTHORITY\SYSTEM | (805ms)SP_SERVER_DIAGNOSTICS_SLEEP | 239,181 | 0 | 0 | NULL | 20 |
| 2 | 01 19:51:16.904 | 262 | | | NULL | 138,835,930 | 5,056 | 5,056 | NULL | 2,798,091,876 |
| 3 | 00 00:00:00.033 | 214 | | | NULL | 107,650 | 0 | 0 | NULL | 31,553,287 |
| 4 | 00 00:00:00.020 | 183 | | | NULL | 2,883,619 | 0 | 0 | NULL | 397,328,034 |
| 5 | 00 00:00:00.016 | 224 | | | NULL | 1,534,881 | 131,136 | 67,536 | NULL | 104,417,013 |
| 6 | 00 00:00:00.016 | 246 | | | NULL | 1,652,866 | 122,408 | 62,824 | NULL | 90,575,926 |
| 7 | 00 00:00:00.016 | 249 | | | NULL | 110,812 | 0 | 0 | NULL | 44,203,610 |

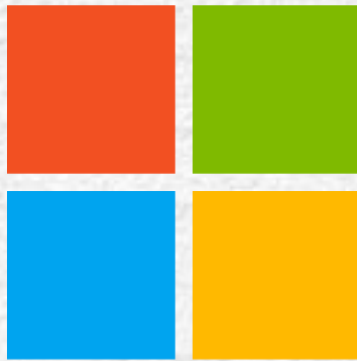


Conclusion

- This is not perfect
 - For sure
 - But it will cover most of situations
- Download the scripts
 - Adapt to your own environment
 - Run them
 - And start troubleshooting issue



Special Thanks To



Microsoft

**for supporting
DataPlatformGeeks & SQLServerGeeks
Community Initiatives**



Thank You

Three Ways to Win Prizes


Post your selfie with hash tag **#DPS2022**

Give Session & Conference Feedback

Visit our Sponsors & Exhibitors

Follow us on Twitter **@TheDataGeeks @DataAISummit**



Diamond Knowledge Partner  Microsoft

