Diagnosing SQL Server Instance-level Configuration Issues

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Module Overview

Instance-level configuration queries

Interpreting query results

Best-practice configuration settings

Server Properties

Machine and server name

Clustering status

Detailed build information

Process ID and collation

Default data and log paths

Polybase and R services status

Server Properties

Returns lots of useful machine and instance-level information

Helps you understand the basic environment that you are running on

Returns discrete version, edition, and build information

Returns default data and log file paths

Useful configuration information about security, FILESTREAM, Polybase, and R services

Demo

Server properties

Configuration Properties

Instance-level configuration values

Values can be changed with the sp_configure stored procedure

Some properties should definitely be changed from their default value

Demo script identifies key configuration values that are often incorrect

Configuration Properties

Returns all instance-level settings that are available from sp_configure

Some settings may be incorrect for your workload

Some settings may need to be changed from their default values

Lets you confirm the current value for all of these configuration settings

Demo

Configuration properties

Global Trace Flags

SQL Server 2016 and newer have fewer TFs that should be enabled

Many older trace flags have their behavior enabled by default

TF 3226 is an exception

Global Trace Flags

Shows what global trace flags are currently enabled

SQL Server 2017 requires fewer "best practice" trace flags than legacy versions

Some workloads/situations may still require some global trace flags

Demo

Global trace flags

SQL Server Agent Jobs

Job name, description, and owner

Job category

Job schedule

Is job enabled?

SQL Server Agent Jobs

Provides lots of useful information about your
SQL Server Agent jobs

Agent jobs should be owned by the sa account, not an individual login

Shows if a job is enabled and if a notification operator is enabled

Lets you see whether a schedule is enabled for the job

You can also see the next run date and time for the job

Demo

SQL Server Agent jobs

SQL Server Agent Alerts

Different than Agent jobs

Generate an alert for errors or performance conditions

Can automatically run an Agent job

Can notify a SQL operator

SQL Server Agent Alerts

SQL Server Agent Alerts are a good early warning system for impending problems

Conditions that might go unnoticed in the SQL Server error log can fire an Agent alert

You can run an Agent job in response, or notify a SQL Operator

The SQL Operator can be associated with an email distribution list

This lets you discover many serious errors and problems as soon as possible

Demo

SQL Server Agent alerts

Memory Dump Information

Have you had any SQL Server memory dumps?

You can see the date and path to any memory dump files

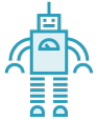**You want this query to return no results!**

Memory Dump Information

Memory dumps are generated when SQL Server has a serious error

You can examine associated text files, or open dump file with a debugger

Most people will prefer having Microsoft look at the dump file

Ideally, you won't find any SQL Server dump files with this query

Demo

Memory dump information

Suspect Pages

Suspect pages are tracked in msdb

Table is limited to 1000 rows, for all databases

Suspect pages are an early warning sign of corruption

Suspect Pages

Shows any suspect pages, including what database, file ID, and page ID

Shows when the suspect page was encountered

Shows what the disposition of the suspect page is

This is an important early warning sign of corruption issues

Demo

Suspect pages

Tempdb Data Files

| Number of tempdb data files from SQL Server error log | This can be configured during installation | It can also be altered after installation |

Tempdb Data Files

Shows how many data files are in the tempdb database

This is configurable during installation or afterwards

Multiple tempdb data files can reduce allocation contention issues

Make sure all tempdb data files are same size with same auto growth

Demo

Tempdb data files

What We Covered

Instance-level configuration queries

Interpreting query results

Best-practice configuration settings