Diagnosing Operating System Configuration Issues

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Module Overview

- Operating system configuration queries

- Interpreting query results

- Best-practice configuration settings

Version Information

SQL Server version and edition information

Operating system version and edition

Hypervisor presence

Version Information

Shows SQL Server version, edition information, and exact build number

Shows operating system version and edition information

Helps you understand features and capabilities of your instance

Helps know if your SQL Server instance has been properly patched

Knowing if a hypervisor is present is useful but doesn't mean SQL Server is running in the hypervisor

Demo

Version information

Host Information

Host platform and distribution

Host release and SKU

Handles Windows and Linux

New DMV in SQL Server 2017

Host Information

Identifies the operating system platform (Windows or Linux)

Returns the version and edition of Windows, or distribution of Linux

Helps you understand the age and capabilities of the OS

Helps you know which OS configuration settings you should check/modify

Demo

Host information

Windows Information

Windows release

Windows service pack

Windows SKU

Operating system language

Windows Information

Identifies the exact Windows operating system version

Returns Windows Service Pack level, if any

Returns Windows SKU information in a somewhat cryptic format

Helps you know which OS configuration settings you should check/modify

Demo

Windows information

Core Counts

Socket count

Physical core counts

Logical core counts

SQL Server core usage

Core Counts

This is extremely important information!

Shows how many cores and NUMA nodes are actually visible to SQL Server

Shows cores being used by SQL Server, based on license constraints

Helps you identify issues with your configuration and SQL Server licensing

Demo

Core counts

Instant File Initialization

Is instant file initialization enabled?

Eliminates zeroing out process on data files

Should be enabled in most cases

Instant File Initialization

Lets you see whether instant file initialization (IFI) is enabled

IFI lets SQL Server skip initializing the data file when it is created or grown

With poor sequential write performance, this can take a long time

Instant file initialization does not work on SQL Server log files

Demo

Instant file initialization

SQL Server Services Information

process_id and current status	**Last startup time**
Windows clustering status	**Service account**

SQL Server Services Information

✓ **Shows process ID, startup type, and current status for SQL Server services**

⚠ **Knowing the last startup time for the database engine is extremely important for interpreting other query results**

🖥 **Knowing the service account and clustering status is very useful**

👓 **Also returns IFI status (in case the error log has been recycled since startup)**

Demo

SQL Server services information

Process Memory

Physical memory usage by SQL Server process

Is LPIM enabled?

Process memory flags

Process Memory

✓ **Shows actual SQL Server memory usage - don't believe Task Manager!**

Shows whether locked pages in memory (LPIM) is enabled

Shows whether the SQL Server process is low on physical memory

Shows whether the SQL Server process is low on virtual memory

Demo

Process memory

Loaded Modules

Modules loaded into SQL Server process

Shows version and location

Beware of third-party modules

Loaded Modules

- Returns the description and file path of each loaded module in the SQL Server process

- Shows company, file version, and product version of each loaded module

- Helps identify third-party modules loaded in the SQL Server process

- Third-party modules can affect the performance and stability of SQL Server

Demo

Loaded modules

What We Covered

Operating system configuration queries

Interpreting query results

Best-practice configuration settings