Diagnosing Database-level Configuration Issues

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Module Overview

Configuration queries

Interpreting query results

Best-practice configuration settings

Database Properties

Returns many useful database properties

Recovery model

Log reuse wait description

Statistics properties

Delayed durability

Query Store status

Database Properties

Database owner should be SA, not an individual login

Log reuse wait description and log used % are very important to regularly monitor

Compatibility level is very important due to new cardinality estimator

Statistics properties can be critical for query performance

Isolation level properties have a role in concurrency/locking/blocking issues

Demo

Database properties

File Sizes and Space

Database filenames and locations

Total size and available space in each file

Filegroup and auto growth information

File Sizes and Space

Returns location, size and available space for all files in current database

Lets you see if all data files in the filegroup are the same size

Lets you see how much free space is in all of your database files

Helps you spot runaway transaction logs

Demo

File sizes and space

Database-scoped Configurations

Useful new feature was added in SQL Server 2016

Lets you control some properties that used to be instance-level

MAXDOP

Legacy CE

Parameter sniffing, QE hotfixes, identity cache

Database-scoped Configurations

Returns multiple important property values for the current database

Before SQL Server 2016, these were controlled only at the instance-level

You can set separate values for AG primary and AG replica databases

Gives more flexibility in making more granular configuration changes

Demo

Database-scoped configurations

Table Properties

Useful properties for each table and index

Compression status

Helps identify row store data compression candidates

Table Properties

Returns useful information for each table and index in current database

Helps identify possible row-store data compression candidates

Shows creation date of the table

Shows if it is a memory-optimized table or a temporal table

Demo

Table properties

Query Store Options

Query Store state for current database

Maximum storage size and storage usage

Capture mode and cleanup mode

Query Store Options

Shows all Query Store options for the current database

Query Store is a very useful feature, enabled per user database

Sometimes you might want to change default Query Store options

Erin Stellato blog post goes into more detail: http://bit.ly/2HzOPZe

Demo

Query Store options

Automatic Tuning Options

Tuning option name	Desired and actual state of the option	Description why desired and actual state are different

Automatic Tuning Options

Another very useful new feature in Azure SQL Database

This feature relies upon Query Store being enabled

Help eliminate performance regressions from query plan instability

Automates plan forcing with Query Store

Demo

Automatic tuning options

What We Covered

- Configuration queries
- Interpreting query results
- Best-practice configuration settings