Validate Tempdb Configuration-- SQL Server

Introduction

This T-SQL sample script illustrates how to check tempdb configuration per best practices. Tempdb is a system database is highly used by Sql Server and an optimal tempdb configuration is generally important for smooth running of the Sql instance.
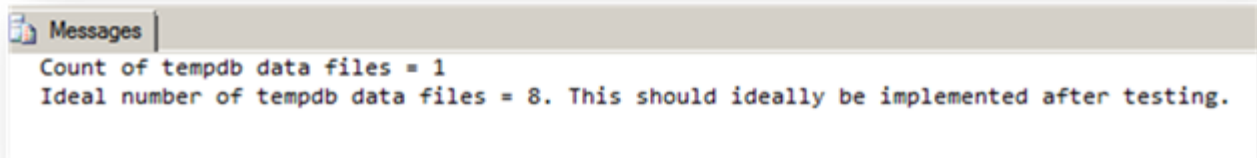
Scenarios

Ideal tempdb configuration is a frequently asked question by IT administrators in the TechNet forums. IT professionals want to check tempdb best practices by script, for example,

- Checking current number of tempdb data files
- Suggesting ideal number of tempdb data files (subject to testing).
- Checking if tempdb files are created of equal size.
- Checking if tempdb files are created of equal growth (increment and type).
- Checking if tempdb trace flag (for uniform extent allocation) is enabled and required depending on Sql version
- Suggesting if tempdb configuration is healthy if no suggestions were made
- Ability to run script in Sql 2005/2008/2008R2/2012.

Script

Please open a new query window in Sql Server Management Studio. Please paste the entire script in the query window and then please Execute the script.

A sample output is indicated below for reference.


```
Messages
  Count of tempdb data files = 1
  Ideal number of tempdb data files = 8. This should ideally be implemented after testing.
```

TSQL

Script:

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```sql
SET NOCOUNT ON;

DECLARE @tempdbDataFileCount int;
DECLARE @suggestedDataFilecount int;
DECLARE @bSuggestions bit;        -- Check if suggestions.

SET @bSuggestions = 0;

-- checks current number of tempdb data files

SELECT @tempdbDataFileCount = COUNT(*) FROM sys.master_files
WHERE database_id = DB_ID('tempdb') AND type_desc = 'ROWS';
PRINT N'Count of tempdb data files = ' + CONVERT(nvarchar(10), @tempdbDataFileCount);

-- suggests ideal number of tempdb data files (subject to testing)

SELECT @suggestedDataFilecount = CASE WHEN cpu_count <= 8 THEN cpu_count ELSE 8 END
FROM sys.dm_os_sys_info;

IF @tempdbDataFileCount <> @suggestedDataFilecount
BEGIN
    SET @bSuggestions = 1;
    PRINT N'Ideal number of tempdb data files = '
        + CONVERT(nvarchar(10), @suggestedDataFilecount)
        + '. This should ideally be implemented after testing.';
END

IF @tempdbDataFileCount > 1
BEGIN

    -- checks if tempdb files are created of equal size

    IF (EXISTS(    SELECT    name,
                        size,
                        physical_name
                FROM    tempdb.sys.database_files
                WHERE    type_desc = 'ROWS'
                AND        size <> (SELECT MAX(size) FROM tempdb.sys.database_files WHERE
type_desc = 'ROWS')))
    BEGIN
        SET @bSuggestions = 1;
        PRINT N'File sizes of tempdb data files do not appear to be equal. '
                + N'Please verify initial size is same for all tempdb data files.';
    END

    -- checks if tempdb files are created of equal growth (increment and type)

    IF (EXISTS(    SELECT    name,
                        growth,
                        physical_name
                FROM    tempdb.sys.database_files
                WHERE    type_desc = 'ROWS'
                AND        growth <> (SELECT MAX(growth) FROM tempdb.sys.database_files WHERE
type_desc = 'ROWS'))

        OR EXISTS(
                SELECT    name,
                        is_percent_growth,
                        physical_name
                FROM    tempdb.sys.database_files
                WHERE    type_desc = 'ROWS'
                AND        is_percent_growth <> (SELECT TOP 1 is_percent_growth FROM
tempdb.sys.database_files WHERE type_desc = 'ROWS')
                ))
    BEGIN
        SET @bSuggestions = 1;
        PRINT N'File growth of tempdb data files do not appear to be same. '
                + N'Please verify growth is same for all tempdb data files.';
    END
```

```
        -- checks if tempdb trace flag (for uniform extent allocation) is enabled and required
depending on Sql version

    DECLARE @dbccstatus table
    (
            TraceFlag       int,
            Status          int,
            Global          int,
            Session              int
    )
    INSERT INTO @dbccstatus EXEC(N'dbcc tracestatus(1118) with no_infomsgs')
    IF NOT EXISTS(SELECT * FROM @dbccstatus WHERE TraceFlag = 1118 AND Global = 1)
    BEGIN
        SET @bSuggestions = 1;
        PRINT N'Trace flag 1118 is suggested however is not operational.';
    END

END

-- suggests tempdb configuration is healthy if no suggestions were made

IF @bSuggestions = 0
BEGIN
    PRINT N'Tempdb configuration appears healthy.';
END
```
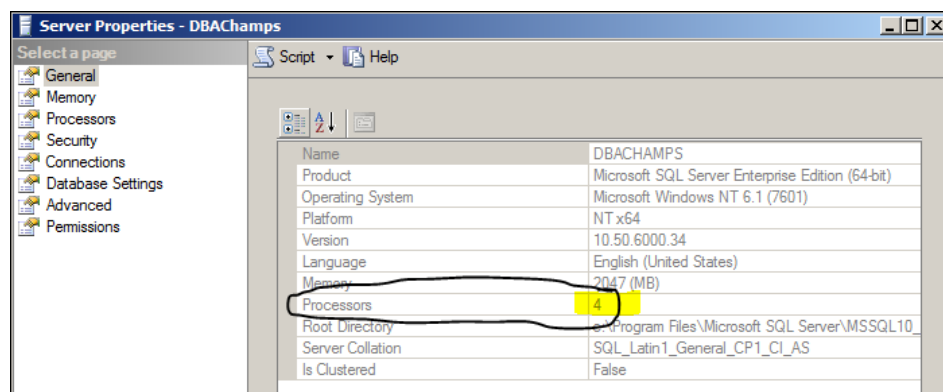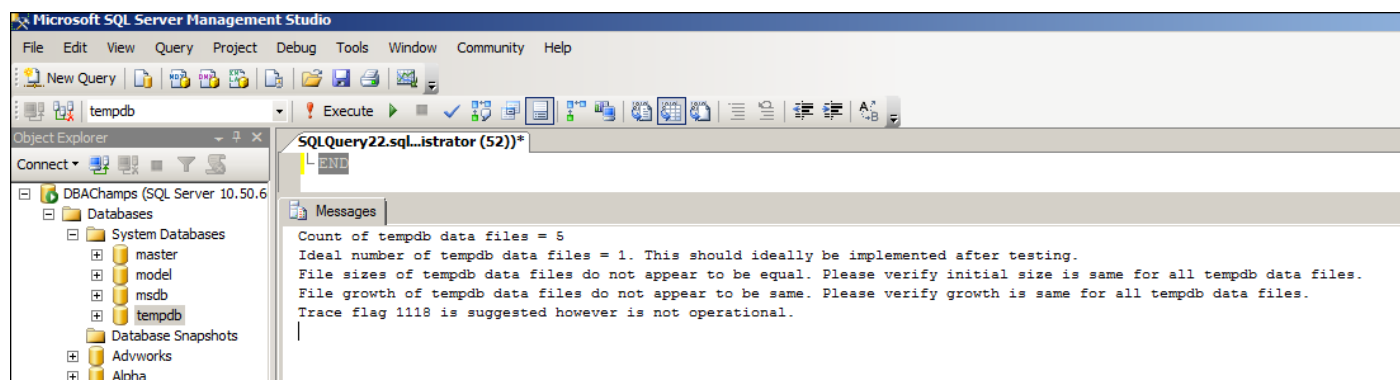
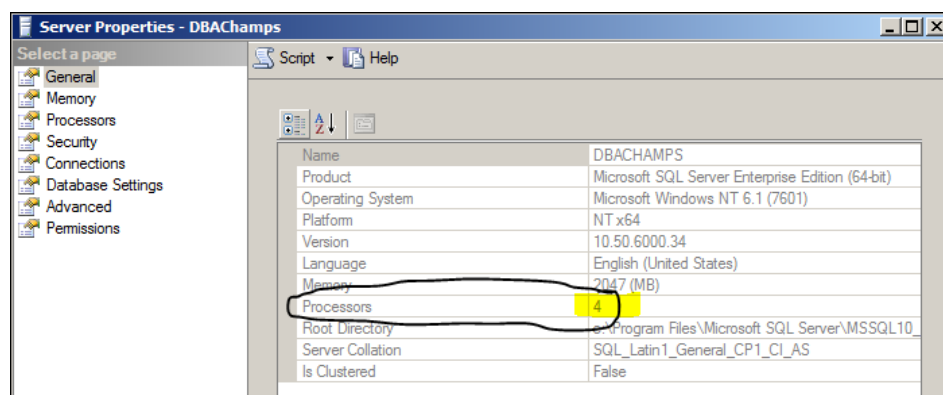**Case-1: SQL Server has 4 Processors and No. of TempDB SQL DATA Files are 5. (excluding TempDB Log File).**

TempDB Files Details.

Case-1: Sample Output:

Count of tempdb data files = 5
Ideal number of tempdb data files = 1. This should ideally be implemented after testing.
File sizes of tempdb data files do not appear to be equal. Please verify initial size is same for all tempdb data files.
File growth of tempdb data files do not appear to be same. Please verify growth is same for all tempdb data files.
Trace flag 1118 is suggested however is not operational.
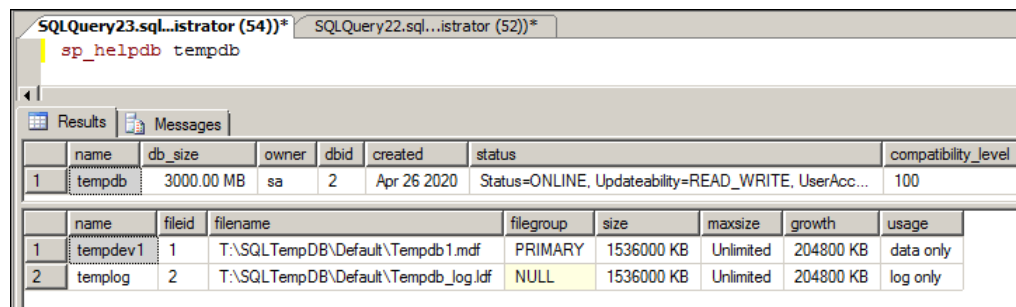
Case-2: SQL Server has 4 Processors and No. of TempDB SQL DATA Files are 1. (excluding TempDB Log File).

TempDB Files Details.


```
sp_helpdb tempdb
```

	name	db_size	owner	dbid	created	status	compatibility_level
1	tempdb	3000.00 MB	sa	2	Apr 26 2020	Status=ONLINE, Updateability=READ_WRITE, UserAcc...	100

	name	fileid	filename	filegroup	size	maxsize	growth	usage
1	tempdev1	1	T:\SQLTempDB\Default\Tempdb1.mdf	PRIMARY	1536000 KB	Unlimited	204800 KB	data only
2	templog	2	T:\SQLTempDB\Default\Tempdb_log.ldf	NULL	1536000 KB	Unlimited	204800 KB	log only

Case-2: Sample Output:

Count of tempdb data files = 1
Tempdb configuration appears healthy.