SQL SERVER – Disk Space Monitoring – Detecting Low Disk Space on Server

August 2, 2013 Pinal Dave SQL Tips and Tricks 35 Comments

A very common question I often receive is how to detect if the disk space is running low on SQL Server.

There are two different ways to do the same. I personally prefer method 2 as that is very easy to use and I can use it creatively along with database name.

Method 1:

```
EXEC MASTER..xp_fixeddrives
GO
```

	drive	MB free
1	C	6650
2	E	5012
3	F	8220
4	G	464186
5	I	721

Above query will return us two columns, drive name and MB free. If we want to use this data in our query, we will have to create a temporary table and insert the data from this stored procedure into the temporary table and use it.

Method 2:

```
SELECT DISTINCT dovs.logical_volume_name AS LogicalName,
dovs.volume_mount_point AS Drive,
CONVERT(INT,dovs.available_bytes/1048576.0) AS FreeSpaceInMB
FROM sys.master_files mf
CROSS APPLY sys.dm_os_volume_stats(mf.database_id, mf.FILE_ID) dovs
ORDER BY FreeSpaceInMB ASC
GO
```

The above query will give us three columns: drive logical name, drive letter and free space in MB.

	LogicalName	Drive	FreeSpaceInMB
1	NewHope	E:\	5012
2	OS	C:\	6650

We can further modify above query to also include database name in the query as well.

```sql
SELECT DISTINCT DB_NAME(dovs.database_id) DBName,
dovs.logical_volume_name AS LogicalName,
dovs.volume_mount_point AS Drive,
CONVERT(INT,dovs.available_bytes/1048576.0) AS FreeSpaceInMB
FROM sys.master_files mf
CROSS APPLY sys.dm_os_volume_stats(mf.database_id, mf.FILE_ID) dovs
ORDER BY FreeSpaceInMB ASC
GO
```

This will give us additional data about which database is placed on which drive.

	DBName	LogicalNa...	Drive	FreeSpaceInMB
1	AdventureWorks2012	NewHope	E:\	5012
2	master	OS	C:\	6650
3	model	OS	C:\	6650
4	msdb	OS	C:\	6650
5	ProductCatalogue	OS	C:\	6650
6	ReportServer	OS	C:\	6650
7	ReportServerTemp...	OS	C:\	6650
8	SQLAuthority	OS	C:\	6650

If you see a database name, multiple times, it is because your database has multiple files and they are on different drives. You can modify above query one more time to even include the details of actual file location.

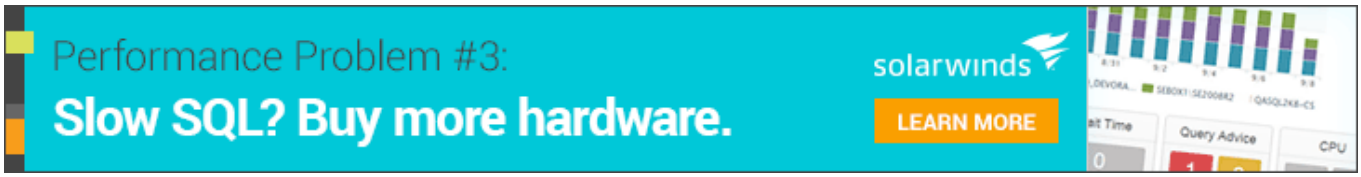
```sql
SELECT DISTINCT DB_NAME(dovs.database_id) DBName,
mf.physical_name PhysicalFileLocation,
dovs.logical_volume_name AS LogicalName,
dovs.volume_mount_point AS Drive,
CONVERT(INT,dovs.available_bytes/1048576.0) AS FreeSpaceInMB
FROM sys.master_files mf
CROSS APPLY sys.dm_os_volume_stats(mf.database_id, mf.FILE_ID) dovs
ORDER BY FreeSpaceInMB ASC
GO
```

The above query will now additionally include the physical file location as well.

	DBName	PhysicalFileLocation	LogicalNa...	Drive	FreeSpaceInMB
1	AdventureWorks2012	E:\AdventureWorks2012_Database\AdventureWorks201...	NewHope	E:\	5012
2	AdventureWorks2012	E:\AdventureWorks2012_Database\AdventureWorks201...	NewHope	E:\	5012
3	master	C:\Program Files\Microsoft SQL Server\MSSQL11.MSSQ...	OS	C:\	6650
4	master	C:\Program Files\Microsoft SQL Server\MSSQL11.MSSQ...	OS	C:\	6650
5	model	C:\Program Files\Microsoft SQL Server\MSSQL11.MSSQ...	OS	C:\	6650
6	model	C:\Program Files\Microsoft SQL Server\MSSQL11.MSSQ...	OS	C:\	6650
7	msdb	C:\Program Files\Microsoft SQL Server\MSSQL11.MSSQ...	OS	C:\	6650
8	msdb	C:\Program Files\Microsoft SQL Server\MSSQL11.MSSQ...	OS	C:\	6650
9	ProductCatalogue	C:\Program Files\Microsoft SQL Server\MSSQL11.MSSQ...	OS	C:\	6650
10	ProductCatalogue	C:\Program Files\Microsoft SQL Server\MSSQL11.MSSQ...	OS	C:\	6650
11	ReportServer	C:\Program Files\Microsoft SQL Server\MSSQL11.MSSQ...	OS	C:\	6650
12	ReportServer	C:\Program Files\Microsoft SQL Server\MSSQL11.MSSQ...	OS	C:\	6650
13	ReportServerTemp...	C:\Program Files\Microsoft SQL Server\MSSQL11.MSSQ...	OS	C:\	6650

As I mentioned earlier, I prefer method 2 as I can creatively use it as per the business need. Let me know which method are you using in your production server.

Reference: **Pinal Dave (https://blog.sqlauthority.com)**



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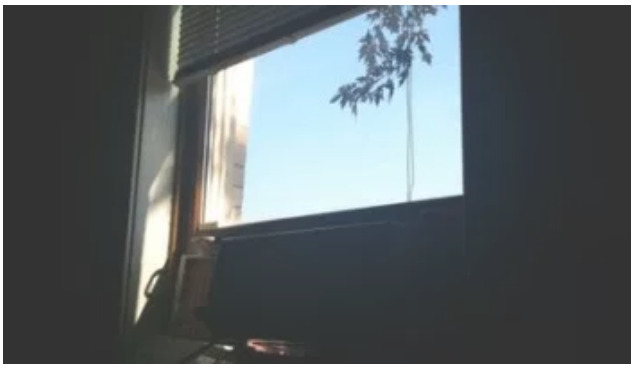

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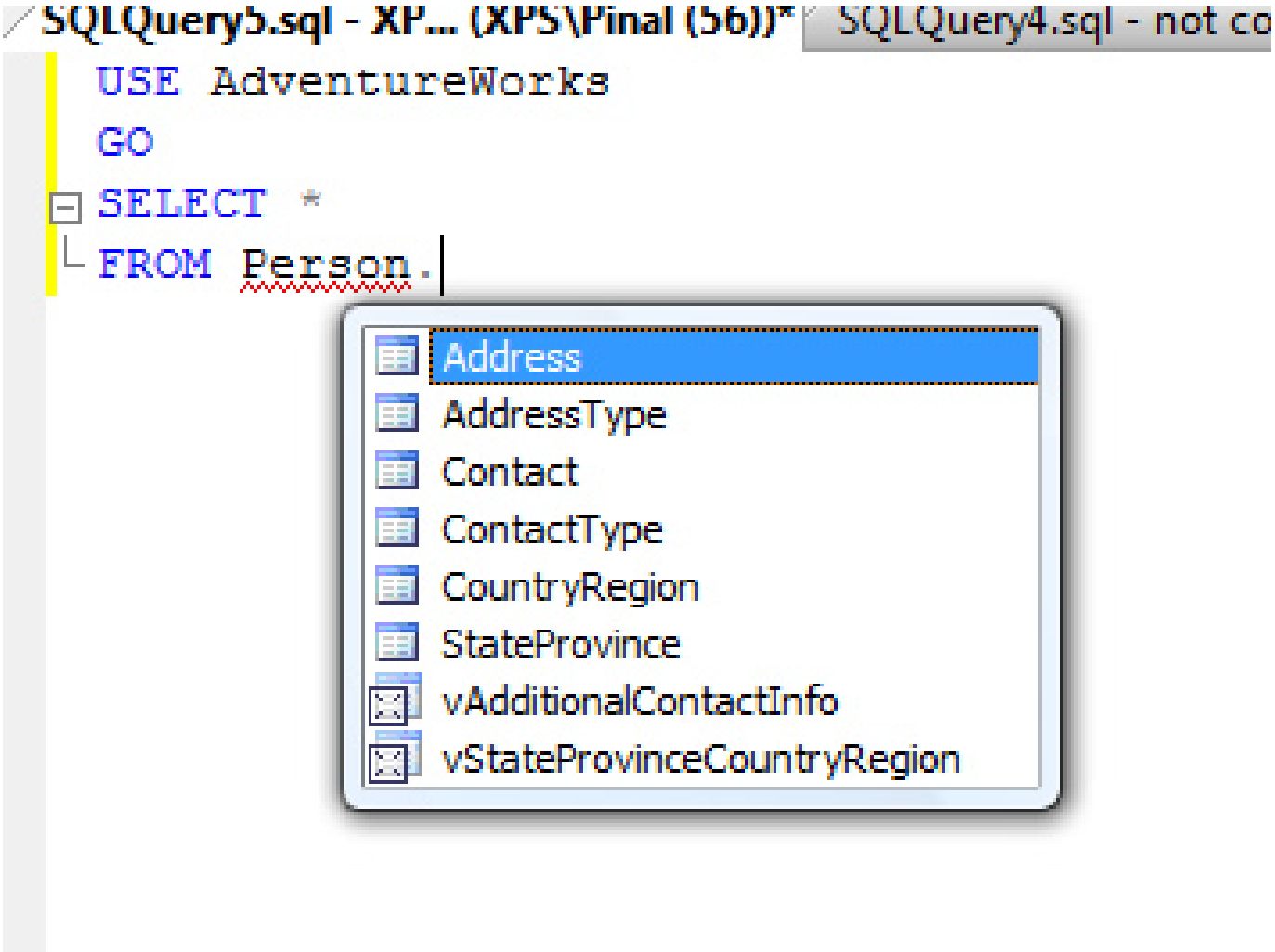

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35 Comments. Leave new

Howard Rothenburg September 1, 2016 2:07 am

SELECT DB_NAME(dbid) AS DatabaseName,
CAST((SUM(CAST(size AS BIGINT)) * 8) / (1024.0 * 1024.0) AS DECIMAL(10, 2)) AS DbSizeGb
FROM sys.sysaltfiles
GROUP BY DB_NAME(dbid);

Reply

Tim September 2, 2016 5:20 am

Thanks Pinal!!

Reply

mtsql October 21, 2016 7:54 am

Is there a way to see if SQL Server is running a sql script out of disk space? because I'm having a trouble with low disk space, and then SQL Server does not respond, then when I restart the instance, the Database becomes in Recovery model.

Reply

Arunkumar Babu March 1, 2017 10:38 am

is it possible to find the same type of storage space on both primary and secondary replica of Alwayson

Reply

Pinal Dave March 3, 2017 11:53 pm

@Arunkumar Babu – Can you please elaborate the question.

Reply

Shakthi shyam March 27, 2017 11:17 pm

how to change SSMS query results cache to another drive.?

Reply

Pinal Dave March 29, 2017 6:48 am

You need to modify TEMP environment variable to point to different drive.

Reply

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anudeep May 16, 2017 6:03 pm

Could you please share a query to find local disk space (drive capacity and free space) along with ip address or machine name or database name in SQL Server 2005/2008 r2.

Reply

Tabassum March 8, 2018 8:15 pm

Check this query I modified it to take only drives where SQL Data and log files reside.
Works on SQL 2005/08 as well

```
/*******************************************************/
/* Enabling Ole Automation Procedures */
sp_configure 'show advanced options', 1;
GO
RECONFIGURE;
GO
sp_configure 'Ole Automation Procedures', 1;
GO
RECONFIGURE;
GO
/*******************************************************/
SET NOCOUNT ON
DECLARE @hr int
DECLARE @fso int
DECLARE @drive char(1)
DECLARE @odrive int
DECLARE @TotalSize varchar(20) DECLARE @MB Numeric ; SET @MB = 1048576
CREATE TABLE #drives (drive char(1) PRIMARY KEY, FreeSpace float(10),
TotalSize float(10) ) INSERT #drives(drive,FreeSpace) EXEC
master.dbo.xp_fixeddrives EXEC @hr=sp_OACreate
'Scripting.FileSystemObject',@fso OUT IF @hr 0 EXEC sp_OAGetErrorInfo
@fso
DECLARE dcur CURSOR LOCAL FAST_FORWARD
FOR SELECT drive from #drives ORDER by drive
OPEN dcur FETCH NEXT FROM dcur INTO @drive
WHILE @@FETCH_STATUS=0
BEGIN
EXEC @hr = sp_OAMethod @fso,'GetDrive', @odrive OUT, @drive
```