



UP CLOSE AND PERSONAL WITH THE TABULAR SSAS DMVS

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MARCH 2017





WHAT IS A DMV?



NOT THIS DMV



THIS DMV

```
12  
13 select * from sys.dm_os_windows_info  
14
```

Results			
windows_release	windows_service_pack_level	windows_sku	os_language_version
6.3		101	1033

DYNAMIC MANAGEMENT VIEWS

- DMV queries return server and database state information used to monitor the health of a server instance, diagnose problems, and tune performance.
- **Some of this data is not available through other means.**





DEMO

QUERY SSAS DMVS FROM MANAGEMENT STUDIO



SSAS TABULAR COMPATIBILITY LEVELS

Compatibility Level	Server Version
1100	SQL Server 2016 SQL Server 2014 SQL Server 2012 SPI SQL Server 2012
1103	SQL Server 2016 SQL Server 2014 SQL Server 2012 SPI
1200	SQL Server 2016
1400	SQL Server vNext

QUERYING DMVS – OLD SCHOOL

Relational DB

- Use T-SQL
- Views located in the sys schema
- Permissions: required
 - SELECT on the object
 - VIEW SERVER STATE
 - VIEW DATABASE STATE

```
SELECT wait_type, wait_time_ms FROM  
sys.dm_os_wait_stats;
```

Use any tool that supports T-SQL queries (SSMS, SSRS, etc.)

Pre-2016 SSAS DB

- Use DMX
- Views located in the \$System schema
- Permissions: required
 - Administrator

```
SELECT * FROM  
$System.DISCOVER_CALC_DEPENDENCY WHERE  
OBJECT_TYPE = 'ACTIVE_RELATIONSHIP'
```

Or

```
Select * from SYSTEMRESTRICTSCHEMA  
($System.Discover_csd1_metadata,  
[CATALOG_NAME] = 'Adventure Works DW')
```

JOIN, GROUP BY,
LIKE, CAST, and
CONVERT are not
supported.

Use any tool that supports MDX or DMX queries (SSMS, SSRS, etc.)

DBSCHEMA AND DISCOVER DMVS (STILL WORK)

DBSCHEMA_CATALOGS	list of databases
DBSCHEMA_COLUMNS	list of columns in the current database
DBSCHEMA_TABLES	list of tables in the current database
DISCOVER_CALC_DEPENDENCIES	list of the columns and tables used in a model that have dependencies on other columns and tables
DISCOVER_COMMANDS	provides resource usage and activity information about currently executing command
DISCOVER_SESSIONS	reports on active sessions, including session user and duration
DISCOVER_INSTANCES	describes instances on the server

****This is not the full list. Please see:**

<https://msdn.microsoft.com/en-us/library/hh230820.aspx>

MDSHEMA DMVS (ORIGINALLY FOR SSAS MD)

Still Works

MDSHEMA_CUBES
MDSHEMA_DIMENSIONS
MDSHEMA_HIERARCHIES
MDSHEMA_MEMBERS
MDSHEMA_MEASURES

Doesn't Work for Tabular

MDSHEMA_INPUT_DATASOURCES
MDSHEMA_SETS

Not Useful for I200+ Tabular

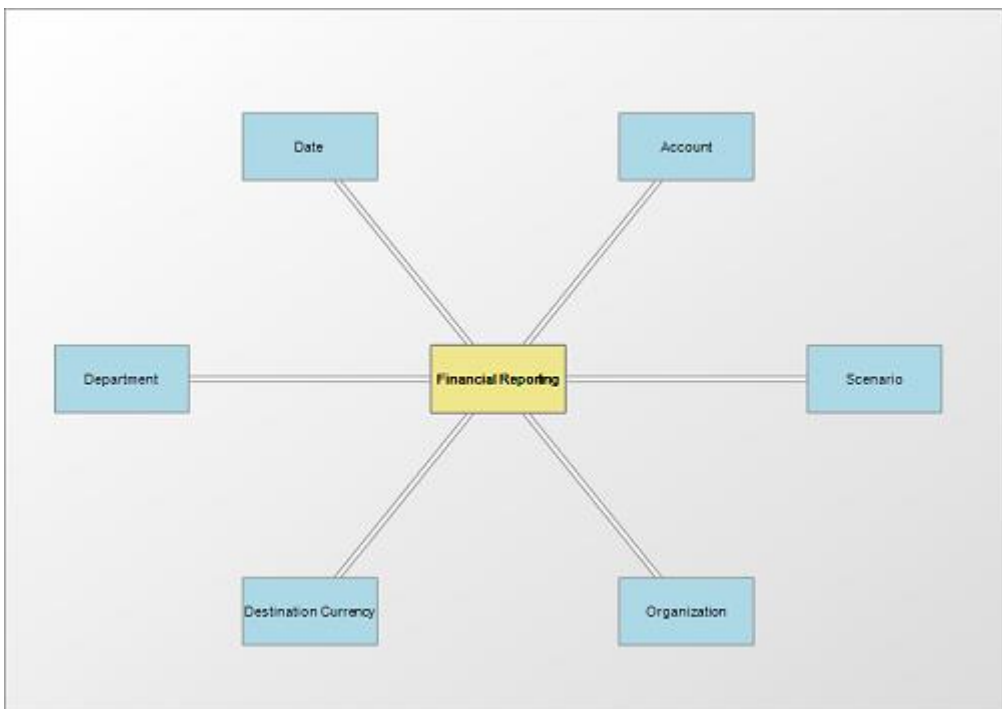
MDSHEMA_KPIS
MDSHEMA_MEASUREGROUP_DIMENSIONS
MDSHEMA_MEASUREGROUPS

Only useful for I200+ Tabular if querying with MDX

MDSHEMA_MEMBERS

DOCUMENTING YOUR SSAS MD MODEL

- You can use the MDSCHEMA DMVs to create a bus matrix and star schema
- Learn how from Alex Whittles: <https://www.purplefrogsystems.com/blog/2010/09/olap-cube-documentation-in-ssrs-part-1/>

[illegible]

CHANGES WITH SSAS 2016

XMLA

TMSL

```
1 <Create xmlns="http://schemas.microsoft.com/analysiservices/2003/engine">
2   <ObjectDefinition>
3     <Database xmlns:xsd="http://www.w3.org/2003"
4       <ID>AdventureWorksTab</ID>
5       <Name>AdventureWorksTab</Name>
6       <Annotations>
7         <Annotation>
8           <Name>ClientCompatibilityLevel</Name>
9           <Value>300</Value>
10        </Annotation>
11      </Annotations>
12      <ddl200:CompatibilityLevel>1103</ddl200:CompatibilityLevel>
13      <ddl200_200:StorageEngineUsed>InMemory</ddl200_200:StorageEngineUsed>
14      <Language>1033</Language>
15      <DataSourceImpersonationInfo>
16        <ImpersonationMode>Default</ImpersonationMode>
17      </DataSourceImpersonationInfo>
18      <Dimensions>
19        <Dimension>
20          <ID>Currency_dd3bc081-2c2c-4980-a725-5c481e0f6354</ID>
21          <Name>Currency</Name>
22          <Annotations>
23            <Annotation>
24              <Name>IsQueryEditorUsed</Name>
25              <Value>False</Value>
26            </Annotation>
27          </Annotations>
28        </Dimension>
29      </Dimensions>
30    </Database>
31  </ObjectDefinition>
32 </Create>
```

http://schemas.microsoft.com/analysiservices/2003/engine
CTRL + click to follow link

```
1 {
2   "create": {
3     "database": {
4       "name": "WWIITabular",
5       "compatibilityLevel": 1200,
6       "model": {
7         "culture": "en-US",
8         "dataSources": [
9           {
10            "name": "SqlServer .SQL2016 WideWorldImportersDW",
11            "connectionString": "Provider=SQLNCLI11;Integrated Security=SSPI;Persist Security Info=false",
12            "impersonationMode": "impersonateAccount",
13            "account": "mlongoria",
14            "annotations": [
15              {
16                "name": "ConnectionEditUISource",
17                "value": "SqlServer"
18              }
19            ]
20          }
21        ],
22        "tables": [
23          {
24            "name": "City",
25            "columns": [
26              {
27                "name": "City Key",
28                "dataType": "int64",
29                "isHidden": true,
30                "sourceColumn": "City Key",
31                "sourceProviderType": "Integer"
32              }
33            ]
34          }
35        ]
36      }
37    }
38  }
39 }
```

TMSHEMA DMVS

- The good news:

- 36 new DMVs
- Find them with this query:

`Select * from $SYSTEM.DBSHEMA_TABLES where table_type = 'Schema'`


- See my gist: <https://gist.github.com/mlongoria/a9a0bff0f51a5e9c200b9c8b378d79da>
 - Or use DAX Studio
 - TMSHEMA DMVs work for Power BI models, too!
- The bad news:
- They aren't documented anywhere on TechNet, MSDN, or Microsoft Docs!


17
votes

Voted!

Document TMSHEMA DMVs

The DMVs for SSAS Tabular (Azure and SQL 2016) are not documented anywhere. While the meaning of many of the fields is obvious, there are a few that are just IDs for which it would be nice to see all possible values and descriptions. It would make sense to add the definitions here:
<https://msdn.microsoft.com/en-us/library/hh230820.aspx>

 **Meagan Longoria** shared this idea · Nov 6, 2016 · [Delete...](#)

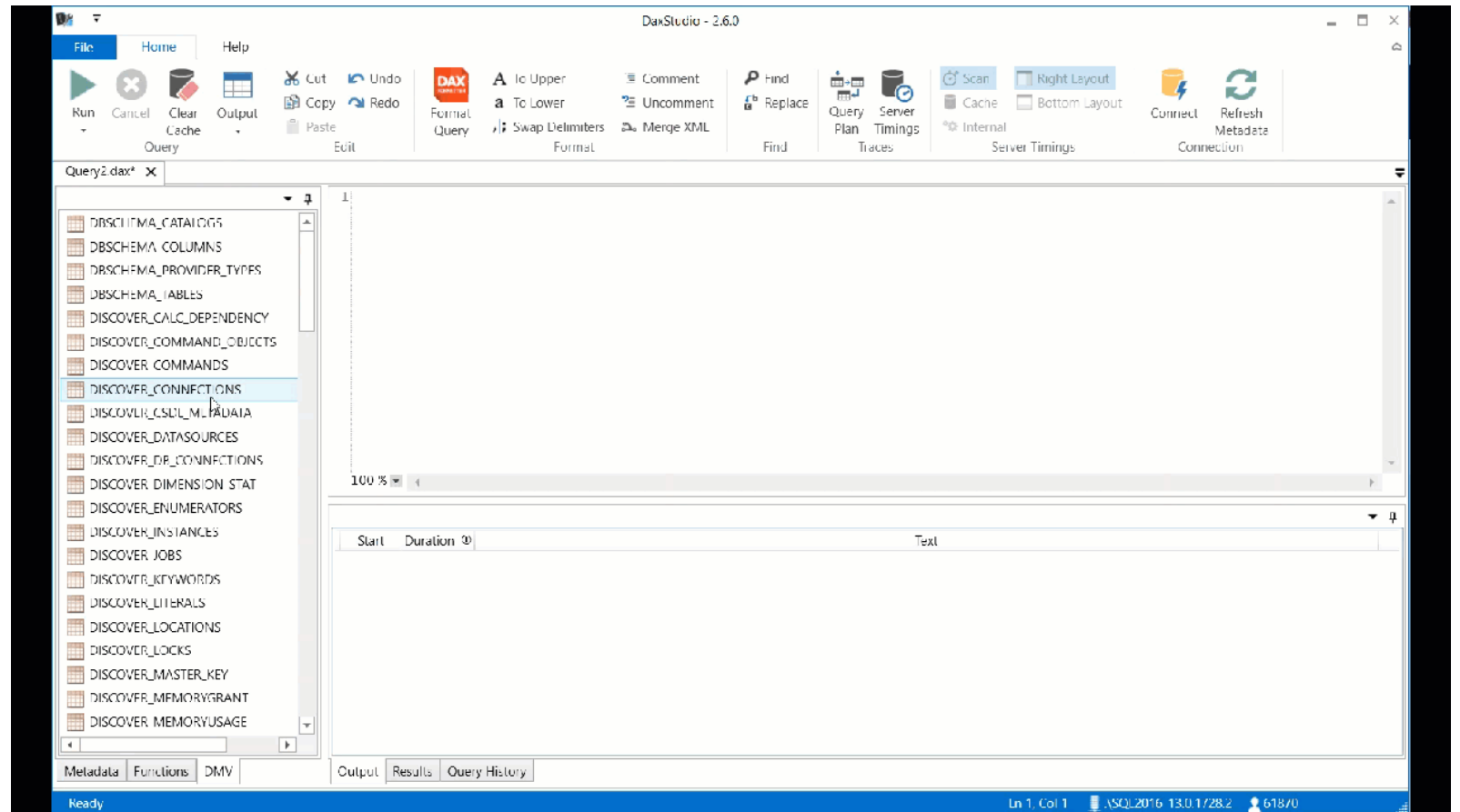

ADMIN

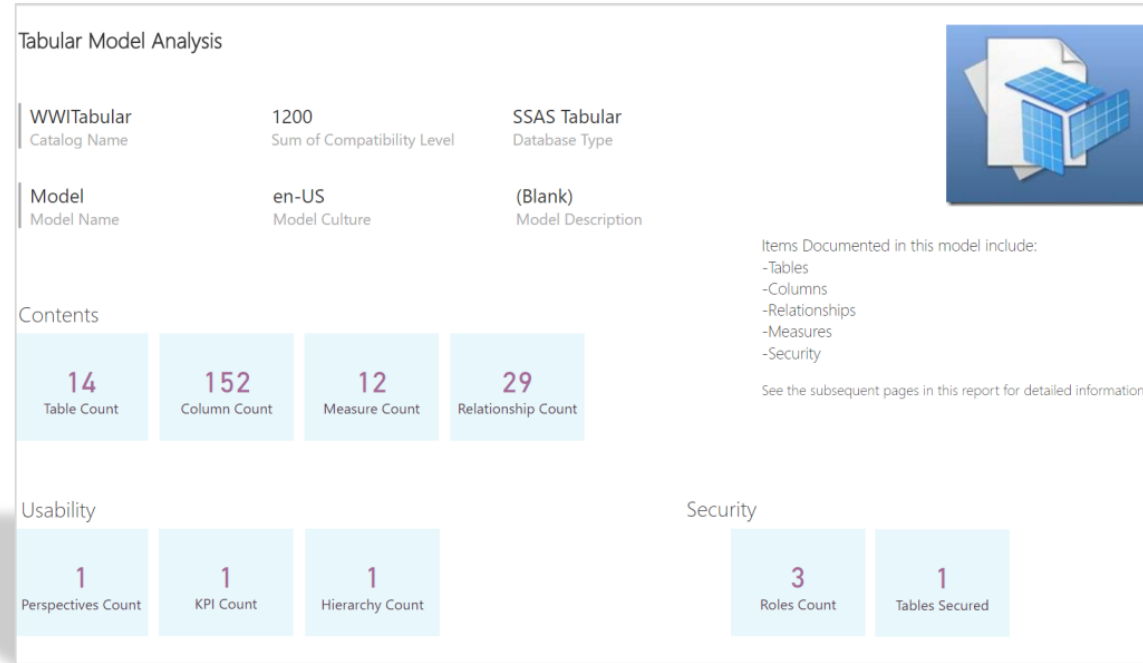
UNDER REVIEW · **Azure AS PM Team** (Admin, Microsoft Azure) responded · Nov 9, 2016

Thanks for the feedback Meagan. I have raised it with the docs team and will get back to you.

DAX STUDIO

- Connect to:
 - SSAS Tabular
 - Power Pivot
 - Power BI
- Features:
 - Query all versions of SSAS Tabular
 - Query plan trace
 - Server timing trace
 - DMV Pane





THE TABULAR MODEL DOCUMENTER

FOR SSAS TABULAR 1200+ AND POWER BI

DOWNLOADS AND MORE INFO

- Blog with file downloads and explanation:
 - <https://datasavvy.me/2016/10/04/documenting-your-tabular-or-power-bi-model/>
- Blog with file downloads and video
 - <https://www.blue-granite.com/blog/demo-day-document-your-tabular-model-with-excel-or-power-bi>



“That’s all Folks!”

Meagan Longoria

@MMarie

<http://datasavvy.me>

<http://blue-granite.com>