

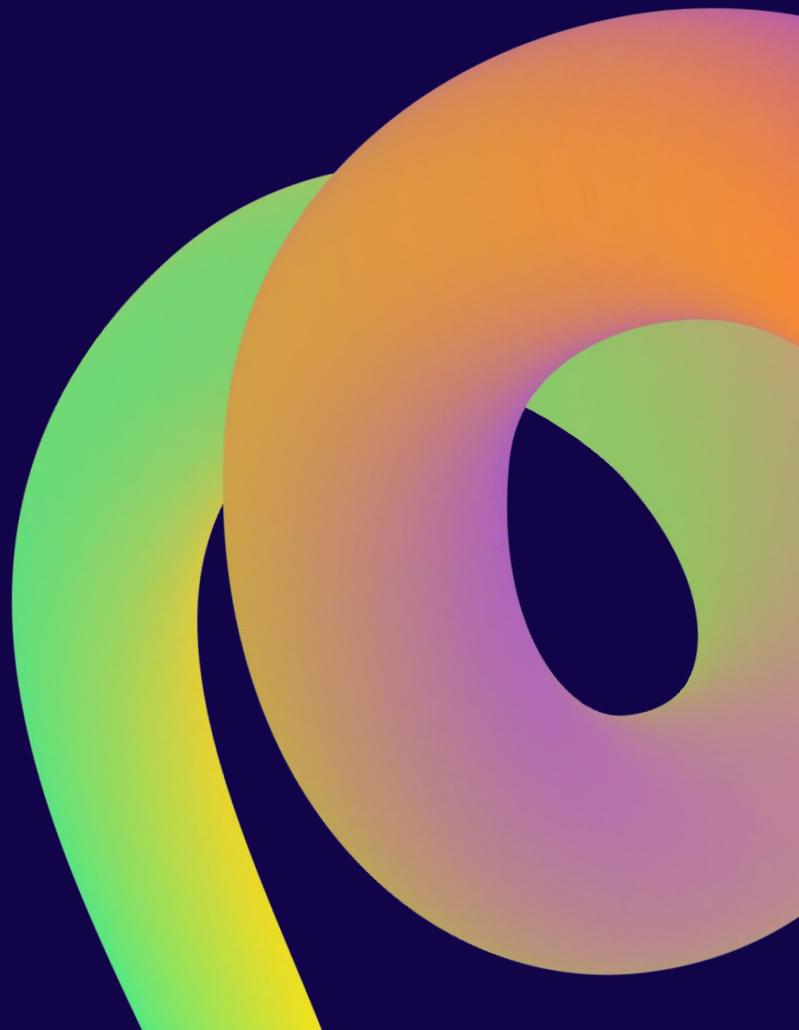


Automate, Optimize, Validate PowerShell for Power BI & SSAS Success

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- North Texas SQL Server UG Board
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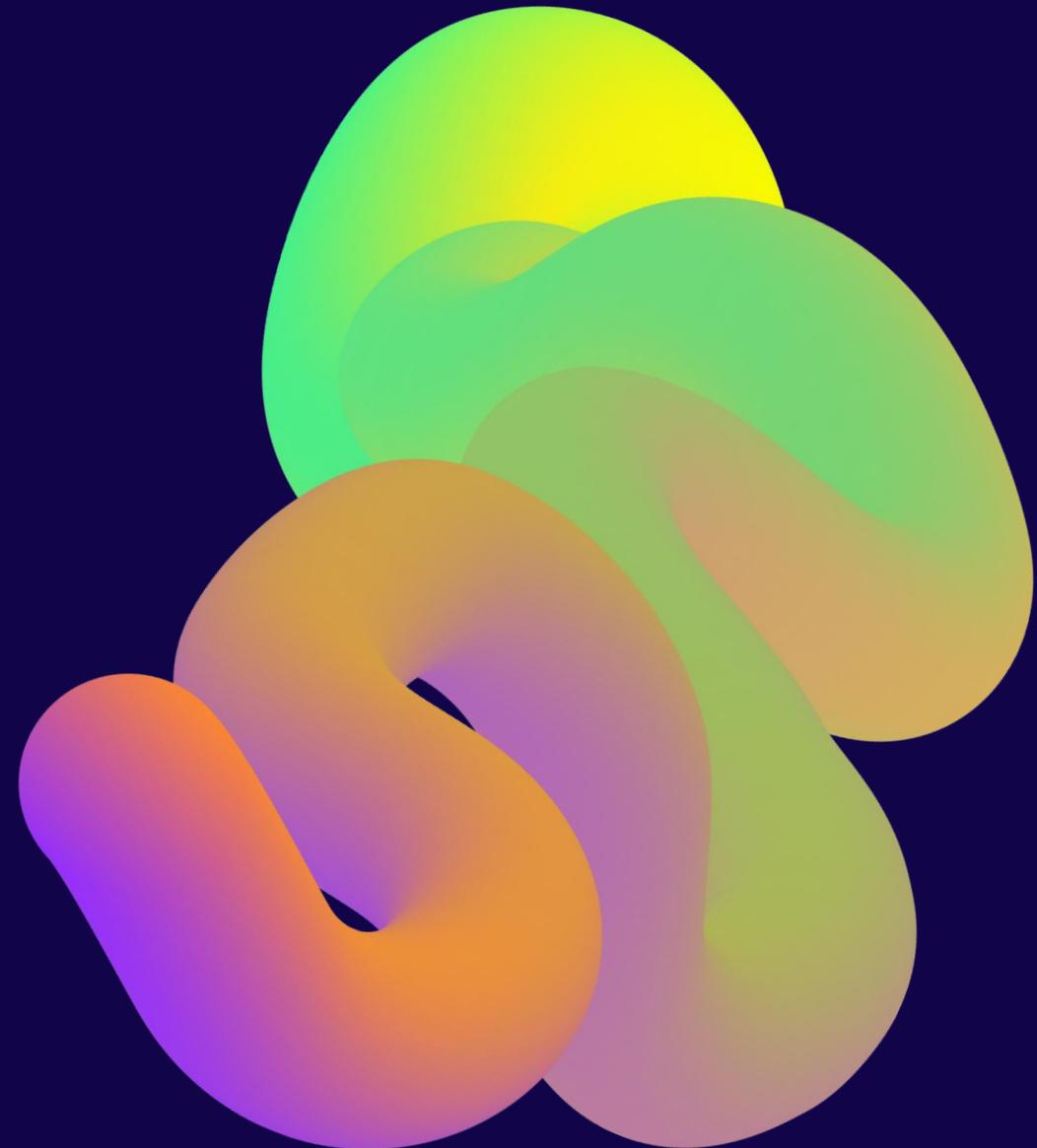
<https://www.sqlmovers.com>

Contact Info

- <https://github.com/rloski-public/SSASCompare>
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Agenda

- The Problem
- Approach
- Setup
- Comparing files
- Exporting data



Quick survey

- Competent in Power BI
- Power BI beginner
- Competent in PowerShell
- PowerShell beginner
- DAX Query

The problem

Change causes unexpected changes

- How do you prove that a change doesn't cause something to break?
- Changes
 - Change to the data being loaded
 - Change to the measures
 - Change to the Relationships

How to find changes?

- Clicking through reports

Approach

Approach

- Use PowerShell to compare two models
- Get DataTables from each model
 - Run same DAX Query against each model
- Compare the DataTables
 - Rows
 - Columns
 - Values
- Join on key columns

Getting Set Up

Prepare environment

- Install Data Component
 - <https://learn.microsoft.com/en-us/analysis-services/client-libraries>
 - Install the MSOLAP provider
- Note the SQLBI recommendation
 - <https://www.sqlbi.com/articles/execute-dax-queries-through-ole-db-and-adomd-net/>

Copy PowerShell Scripts

- Download scripts
 - <https://github.com/rloski-public/SSASCompare>
- Main folder:
 - Scripts for testing
- DAXComparison
 - The module scripts

Prepare DAX queries: DAX query view

The screenshot shows the 'Performance analyzer' view in Power BI. At the top, there are buttons for 'Start recording', 'Refresh visuals', and 'Stop'. Below this is a table listing recorded queries:

| Name | Duration (ms) |
|---|---------------|
| Recording started (10/19/2025 3:19:24 PM) | - |
| Recording started (10/19/2025 3:19:47 PM) | - |
| Refreshed visual | - |
| Slicer | 102 |
| Table | 120 |
| DAX query | 18 |
| Visual display | 59 |
| Other | 43 |

At the bottom, there are buttons for 'Copy query' and 'Run in DAX query view'.

The screenshot shows the 'DAX query view' in Power BI. It displays a DAX script:

```
1 DEFINE
2     VAR __DS0Core =
3         SUMMARIZECOLUMNS(
4             SUMEXCEPTCOLUMNS(
5                 'DimProduct'[ProductAlternateKey],
6                 'DimProduct'[EnglishProductName]
7             ),
8             'DimProduct'[ProductCategoryName]
9         )
10
11     VAR __DS0PrimaryWindowed =
12         TOPN(
13             502,
14             __DS0Core,
15             [IsGrandTotalRowTotal],
16             0,
17             'DimProduct'[ProductAlternateKey],
18             1,
19             'DimProduct'[EnglishProductName],
20             1
21
22     EVALUATE
23         __DS0PrimaryWindowed
24
25     ORDER BY
26         [IsGrandTotalRowTotal] DESC,
27         'DimProduct'[ProductAlternateKey],
28         'DimProduct'[EnglishProductName]
```

The screenshot shows the Power BI ribbon with the 'Home' tab selected. A large green arrow points from the 'Clipboard' section of the ribbon towards a list of items on the right side of the screen, which includes 'ProductA', 'BC-M005', 'BC-R205', 'BK-M18E', and 'PK-M19P'.

Set up the PowerShell functions

- Import-Module ` .\ DAXComparison\DAXComparison.psm1

Find the connection information

- Start both reports (each is different model)
- Power BI Desktop model is in a Windows Service
- Cmdlet Find-PBIPorts gets the port number
- Variables
 - Set the path where you put the scripts
 - Set the Server (localhost:<portnumber>)
 - Try to determine which port goes to which server
 - I added a table with version information

Identify the keys and filters

- Results have different keys based on filters
 - IsGrandTotalRowTotal is true: no keys
 - IsDM1Total: one column key, etc.
- Edit to identify different combinations

Comparing files

Reading Results

- Number of rows/columns in each set
- Columns with mismatches
- Missing rows

Exporting data

Exporting to CSV

- Get a table using Invoke-DAXQuery
- Pipe results to Export-CSV

Closing

References

- Client Libraries for .Net
 - <https://learn.microsoft.com/en-us/analysis-services/client-libraries>
- SQLBI Discussion about Client libraries
 - <https://www.sqlbi.com/articles/execute-dax-queries-through-ole-db-and-adomd-net/>
- Public Github Site:
 - <https://github.com/rloski-public/SSASCompare>

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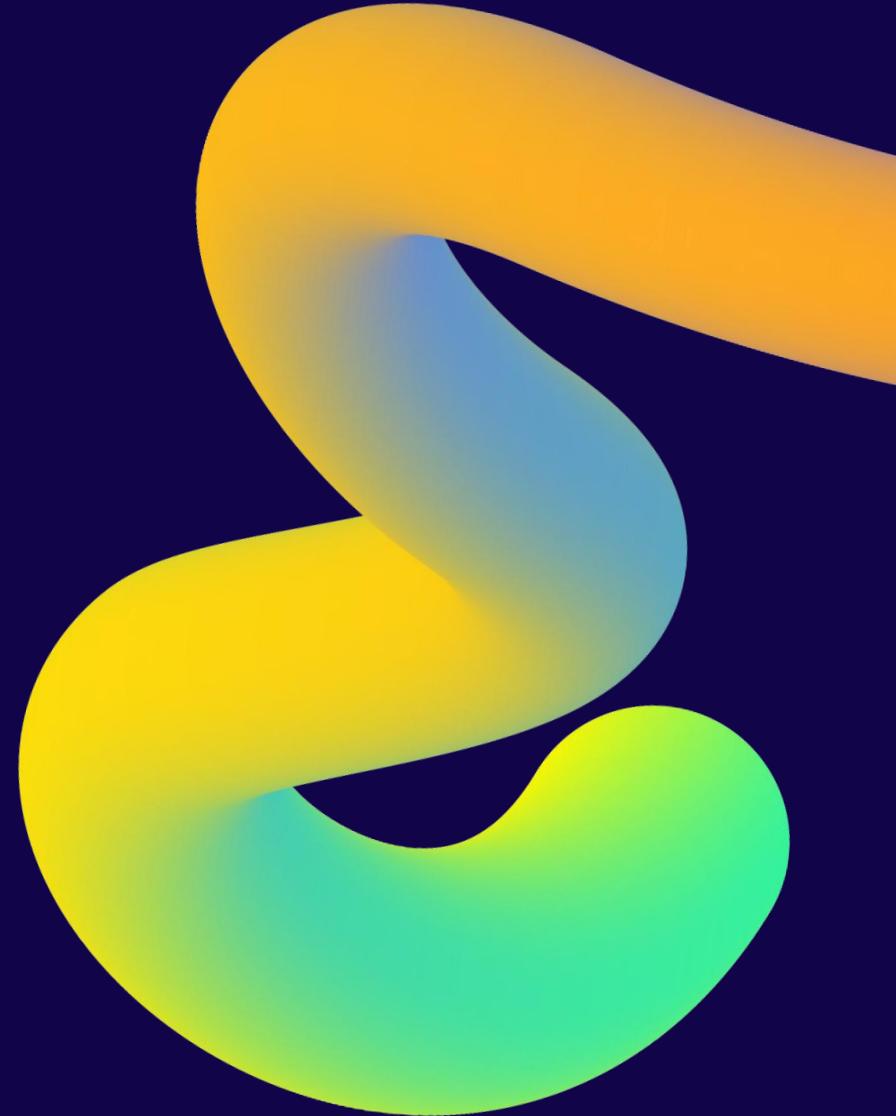
Thank you

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Your feedback is important to us



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www.PASSDataCommunitySummit.com/evaluation