Power BI and External Tools: This is the way

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SQL Saturday Baton Rouge 2024



































Microsoft







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Senior BI Engineer **Builder of Models**







Lives in Nashville, Tennessee, United States



Started as SQL Server DBA



Transitioned to the Microsoft BI Stack



Work on everything from SQL Server Integration Services, SQL Server Database, Analysis Services, and Power BI

The Dax Shepherd



Simple Talk Author

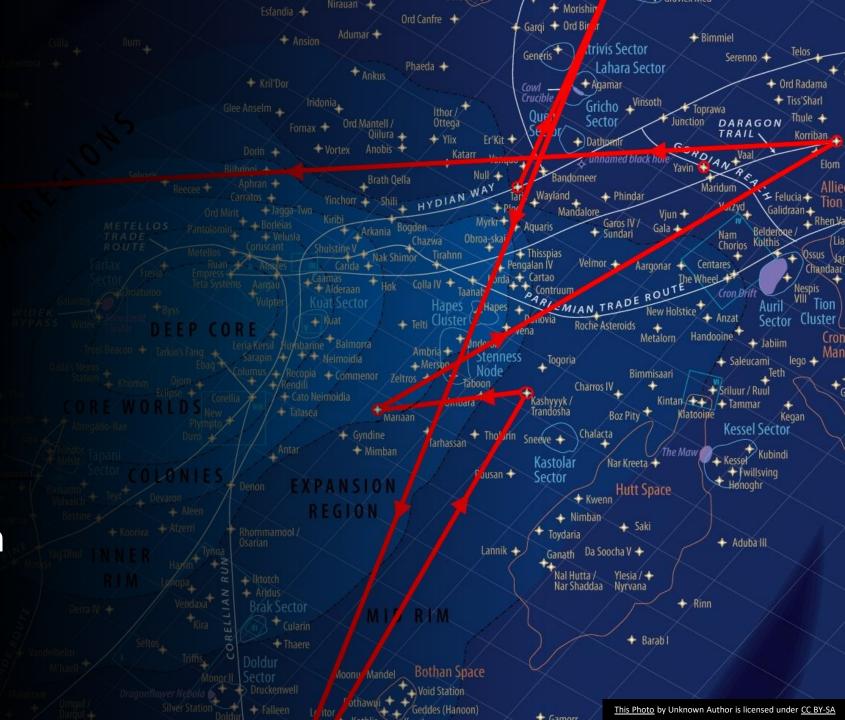


Favorite Data Model



Objectives

What is our mission



Our Journey











- 1. Power Bl Data Model
- 2. History
- 3. External Tools
- 4. More Tools
- 5. Conclusion

Our Journey











1. Power BI Data Model

- 2. History
- 3. External Tools
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Power BI Data Model

Our Journey











1. Power Bl Data Model

2. History

- 3. External Tools
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History of Tools

Our Journey









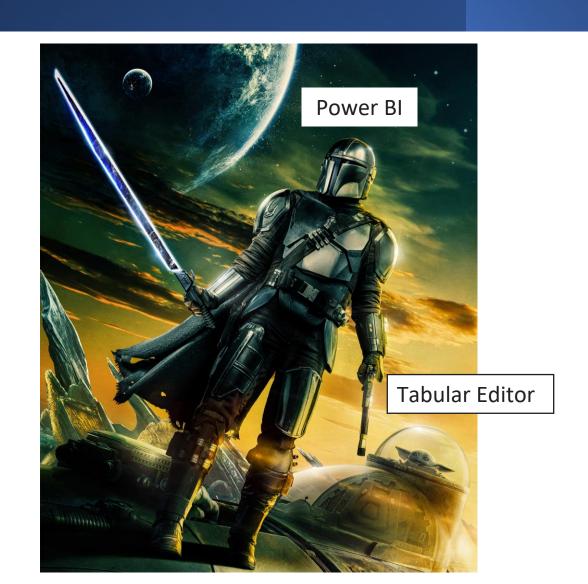


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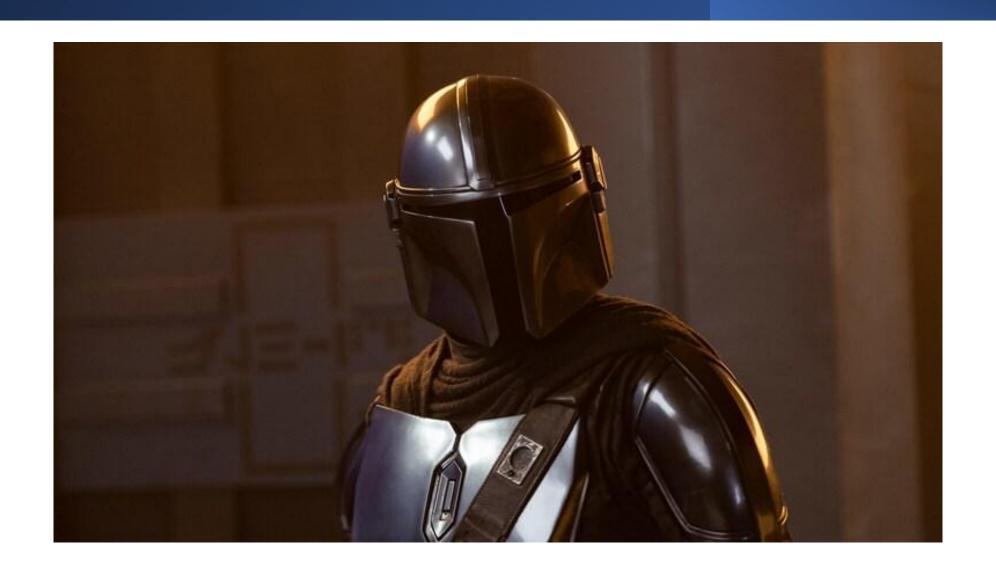
External Tools

- SSMS and Azure Data Studio
- DAX Studio
- Tabular Editor
- PBI Explorer
- Bravo

Disclaimer



Power BI



- Each has a purpose
- A role to fill
- What is your mission
- Most of the tools are free

Installing External Tools

- Full install
- Added to the External Tools tab in Power BI
- Portable version

External Tools Tab



SQL Server Management Studio

Role

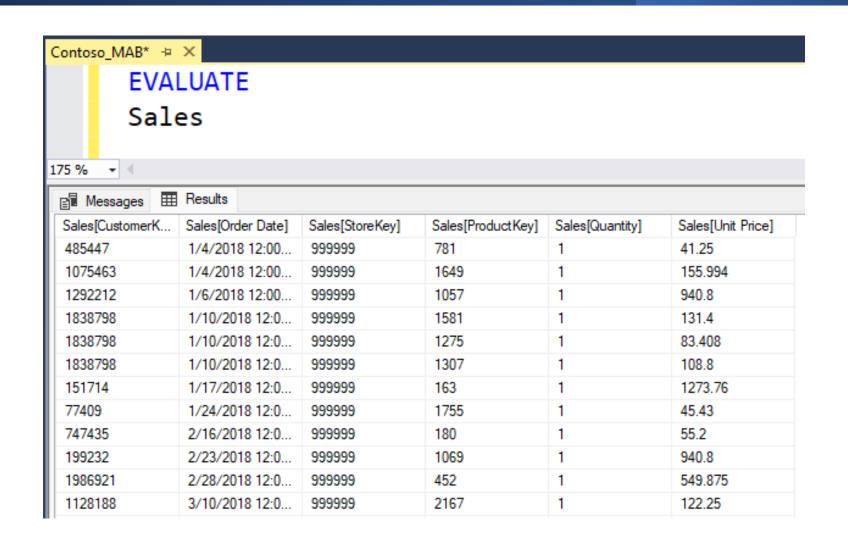
Dependable Astromech Droid

Does not have all the bells and whistles but works

SSMS

- You may already have it installed
- May be on enterprise-approved list
- Some IntelliSense
- Power BI Premium Semantic Models

List everything in a table



COUNTROWS

```
Contoso_MAB* → ×
       EVALUATE
            "Number of Rows",
              COUNTROWS(Sales)
175 %

    Messages

          [Value]
 Number of Rows
 1227
```

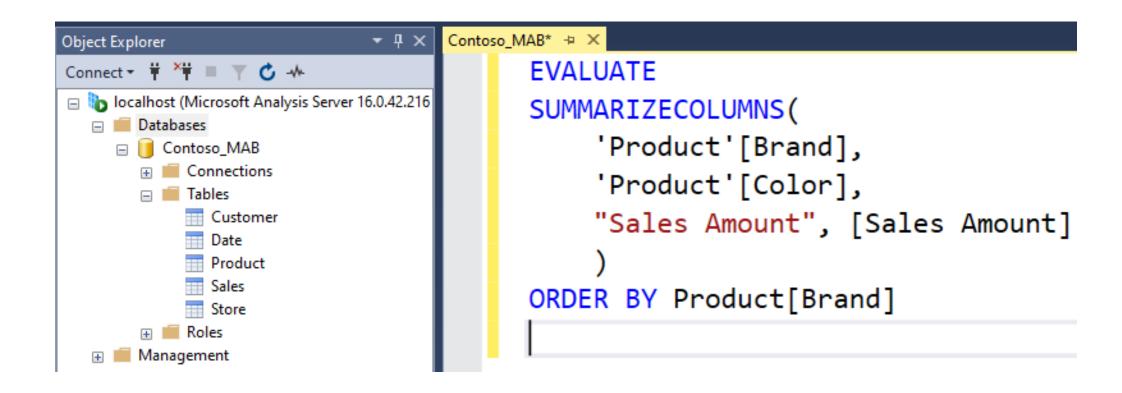
DAX Formatting

```
Contoso_MAB* → ×
       EVALUATE
       ROW
             "Contoso Sales Amount"
             ,
                                   CALCULATE(
       [Sales Amount],
             'Product'[Brand]
             = "Contoso"
175 % 🕶 🖪

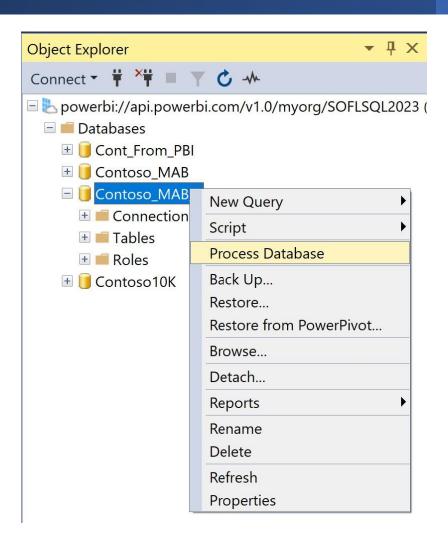
    Messages 
    ■ Results

 [Contoso Sales A...
 63741182.2014
```

Column Names - What Column Names?



<u>Admin Tasks - Process Database (Model)</u>



SSMS

- Can't connect to Power BI Desktop
- Missing functions in IntelliSense
- No DAX Formatting
- Great for a DBA

Azure Data Studio

This is not the tool you are looking for

Who are you going to take on your Journey



DAX Studio

Role

Inquisitor – Analyst

Seeks ways to extract data from sources around them

Certification DP-600

Exam DP-600: Implementing Analytics Solutions Using Microsoft Fabric

Design and build semantic models

Identify use cases for DAX Studio and Tabular Editor 2

Optimize enterprise-scale semantic models

Improve DAX performance by using DAX Studio

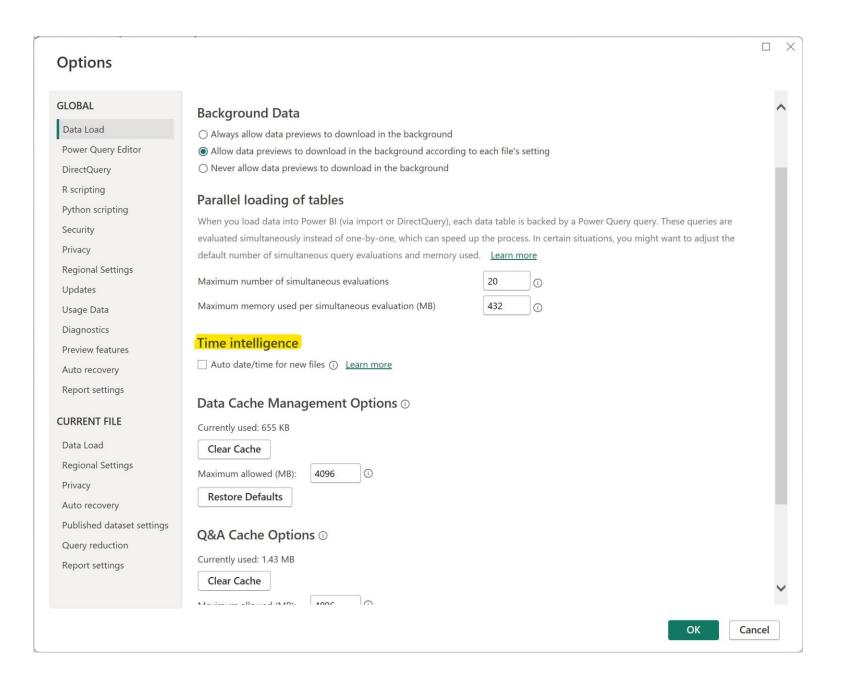
DAX Studio

- IntelliSense
- Links to DAX Guide
- DAX Formatter
- Performance Tuning

Hidden Date Tables

- > TTT Customer
- > 🎹 Date
- - Date
 - > 🔓 Date Hierarchy
 - 12_3 Day
 - A^B_C Month
 - 1²₃ MonthNo
 - **A**^B**c** Quarter
 - 1²₃ QuarterNo
 - 1²₃ Year
- > ____ LocalDateTable_329979ec-f948-448d-8d40-da32309c689b
- LocalDateTable_6082b466-aa3a-416d-92f5-dee233105c41
- > ____ LocalDateTable_729c8b24-1385-4545-897f-e90fb9602a1d
- > ____ LocalDateTable_86220e95-4654-4888-819a-8afd2ddbe1da
- > ____ LocalDateTable_8ce283be-c847-412c-907b-87781a0d19e1
- > Product
- > The Store

Auto Date Time



XMLA Endpoint -Permissions

Admin portal

Tenant settings

Usage metrics

Users

Premium Per User

Audit logs

Capacity settings

Refresh summary

Embed Codes

Organizational visuals

Azure connections

Workspaces

Custom branding

Protection metrics

Featured content

Premium Per User

△ Auto Refresh

Automatic page refresh



Minimum refresh interval



Change detection measure

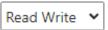


Minimum execution interval

30	Seconds 🕶
----	-----------

△ Dataset workload settings

XMLA Endpoint

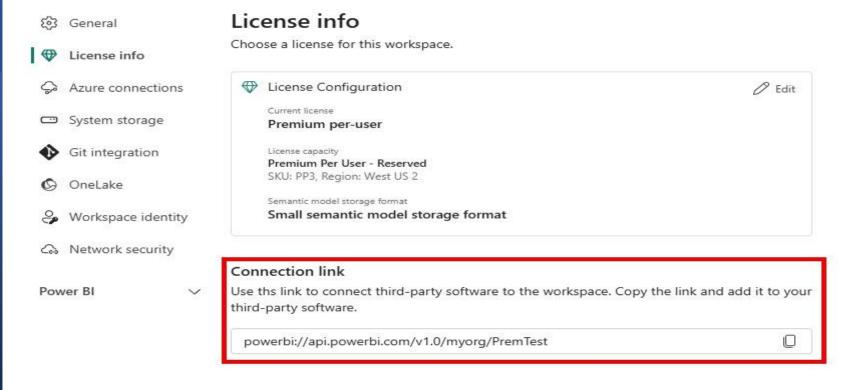




Discard

XMLA Endpoint

Workspace settings

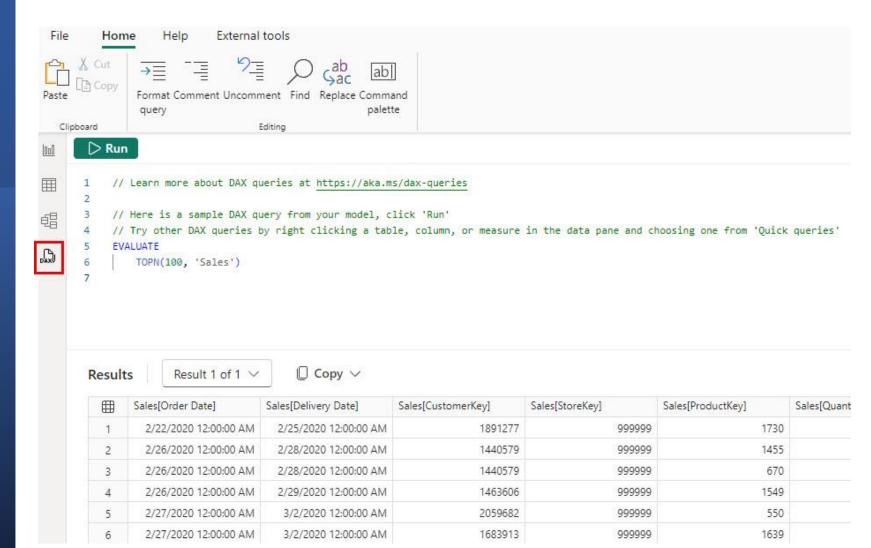


Warning: There may be multiple ways to get the endpoint/link

DAX Studio Demo

DAX Query View

DAX Query View



DAX Query View

- No need for IT to install
- Copy from Performance Analyzer
- Queries saved with Power BI file
- Validate data

DAX Query View Demo

Tabular Editor

Role

The engineer The builder or tinkerer

Certification DP-600

Exam DP-600: Implementing Analytics Solutions Using Microsoft Fabric

Design and build semantic models

• Identify use cases for DAX Studio and Tabular Editor 2

Optimize enterprise-scale semantic models

Optimize a semantic model by using Tabular Editor 2

Tabular Editor

- Version 2.x is the free version
- Create and edit measures
- Create Calculation Groups (This was the Only way!)

Tabular Editor

- C# scripting and automation
- Command line integration
- Source Control
 - Save to Folder
- Best Practice Analyzer

Tabular Editor Demo

PBI Explorer

Role

Navigator Able to explore the galaxy and see changes in geography

PBIP Format

- Power BI Desktop projects (PBIP) (Preview):
 - https://learn.microsoft.com/enus/powerbi/developer/projects/projectsoverview
- Compare projects using git in VS Code

PBIP Folder

Name	Status	Date modified	Туре	Size
.vscode	⊘	10/17/2023 2:40 PM	File folder	_
Contoso10K_PBIP	⊘	10/17/2023 11:39 PM	File folder]
gitignore .gitignore	∅	10/17/2023 2:42 PM	Git Ignore Source File	1 KB
▼ README	⊘	10/17/2023 2:39 PM	Markdown Source File	1 KB



Dataset, Report, and Desktop File

Name	Status	Date modified	Туре	Size
Contoso10K_PBIP.Dataset	⊘	10/17/2023 11:39 PM	File folder	
Contoso10K_PBIP.Report	⊘	10/17/2023 11:39 PM	File folder	
Contoso10K_PBIP	⊘	10/17/2023 11:39 PM	Microsoft Power BI Des	1 KB



PBIP Dataset

Name	Status	Date modified	Туре	Size
== .pbi	⊘	10/17/2023 11:39 PM	File folder	
definition.pbidataset	⊘	10/17/2023 11:39 PM	PBIDATASET File	1 KB
(i) diagramLayout	⊘	10/17/2023 11:39 PM	JSON Source File	3 KB
i item.config	⊘	10/17/2023 11:39 PM	JSON Source File	1 KB
item.metadata	0	10/17/202 3 1:39 PM	JSON Source File	1 KB
model.bim	⊘	10/17/2023 11:39 PM	BIM File	85 KB

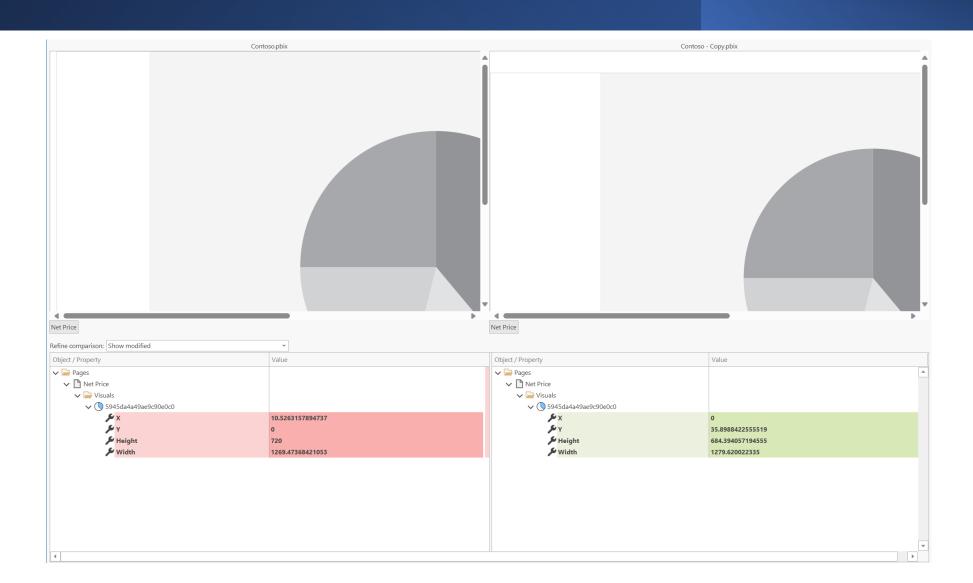
PBIP Report

Name	Status	Date modified	Туре	Size	
== .pbi	②	10/17/2023 11:39 PM	File folder		
StaticResources	⊘	10/17/2023 11:39 PM	File folder		
definition	⊘	10/17/2023 11:39 PM	Microsoft Power BI Des		1 KB
item.config	⊘	10/17/2023 11:39 PM	JSON Source File		1 KB
item.metadata	⊘	10/1\32023 11:39 PM	JSON Source File		1 KB
1 report	⊘	10/17/2023 11:39 PM	JSON Source File		3 KB

Visual Studio Code - Report Differences

```
{} report.json (Working Tree) M ×
                                                                                                                                                                                                                                                                     Contoso10K_PBIP > Contoso10K_PBIP.Report > {} report.json > [ ] sections > {} 0 > [ ] visualContainers > {} 0
       "config": "{\"version\":\"5.47\",\"themeCollection\":{\"baseTheme\":\\"CY23SU08\",\"version\":\"5.48\",\"type\":2}},\"active$e
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       "layoutOptimization": 0.
                                                                                                                                                     "layoutOptimization": 0.
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             "items": [
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 11
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                 "type": 202
                                                                                                                                              12
                                                                                                                                                              "type": 202
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               "height": 405.52.
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               "width": 629.86,
 33
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                                                                                                                                                            "width": 629.86,
 34-
               "x": 0.00,
                                                                                                                                             → 34+
                                                                                                                                                            "x": 111.84,
               "y": 0.00,
                                                                                                                                               35+
                                                                                                                                                            "y": 56.25,
               "z": 0.00
                                                                                                                                              36
                                                                                                                                                             "z": 0.00
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 38
                                                                                                                                              38
           "width": 1280.00
                                                                                                                                                        "width": 1280.00
                                                                                                                                              39
                                                                                                                                              40
 41
                                                                                                                                              41
 42 }
                                                                                                                                              42 }
```

PBI Explorer - Report Differences



PBI Explorer Demo

Bravo

Role

Jack of all trades

Fills in skills other roles may be missing

Bravo

- Optimize Data Model
 - Unused columns
 - Size and Cardinality
- Add custom date tables
- Exporting Data
- Fills in the gap between Power BI functionality

Bravo Demo

Our Journey











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More Tools

- ALM Toolkit
 - Schema Compare
- Metadata Translator
 - Streamline localization
- PowerBl.tips Business Ops
 - Easy deployment tool adding external tools

Our Journey











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Conclusion



Better Together

©Disney

Conclusion

- Power BI does not have to be a solo journey
- You can become more efficient
- Increase your value as a developer
- More tools to fit your use case

Resources

- SQLBI Tools:
 - https://www.sqlbi.com/tools/
- DAX Studio
 - https://daxstudio.org/
- Tabular Editor
 - https://github.com/TabularEditor/TabularEditor

More Resources

- PBI Explorer:
 - https://www.pbiexplorer.com/
- Bravo:
 - https://www.sqlbi.com/tools/bravo-for-power-bi/

Tabular Editor Scripts:

 https://github.com/PowerBI-tips/TabularEditor-Scripts

More Resources

- Elegant BI
 - https://www.elegantbi.com/
- Model Auto Build
 - https://github.com/m-kovalsky/ModelAutoBuild
- Certification DP-600
 - https://learn.microsoft.com/enus/credentials/certifications/resources/study-guides/dp-600

Scan the QR code to submit session evaluations.







Thank you

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