

Rui Romano

Power BI Hacks



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Also XBOX One & Raffle prizes at 17:45



Rui Romano

*#DataGeek #DataPro #MSFTBI
#DataPlatform #MVP*

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Agenda

This session is not

- Intro to Power BI
- Advanced DAX/M Tips
- Deep-Dive on anything

This session is

- **Fast-paced**, full of demos
- Learn useful techniques on Power BI
- Learn some productivity Hacks



DevScope's Suite of Power BI tools



PowerBI Tiles

Embed Power BI Reports in PowerPoint presentations, Word documents or Outlook messages.

[Try Now](#)



PowerBI Robots

Schedule and automatically send Power BI data to anyone, anywhere.

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PowerBI SmartPivot

Connect data from Power BI or OLAP cubes to Excel, search for any values in the data model and apply filters in bulk.

[Try Now](#)

Tip – Keyboard Shortcuts on DAX Editor

See Link: xxlbi.com or biinsight.com

My Favorites:

CTRL + SHIFT + L	Find and Replace ALL highlighted text
CTRL + D	Find and replace highlighted text
SHIFT + ENTER	New Line with Indent
CTRL + ALT + UP/Down	Enter multiple lines at once
CTRL + SPACE	Activate Intellisense
CTRL + K + C/U	Comment/Uncomment multiple lines
ALT + UP/Down	Move lines up/down
CTRL + G	Go to line number



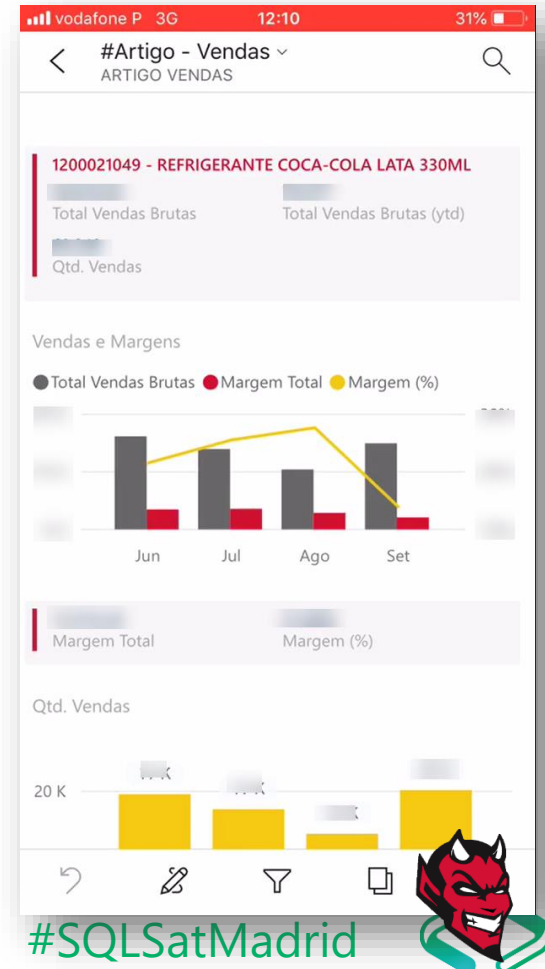
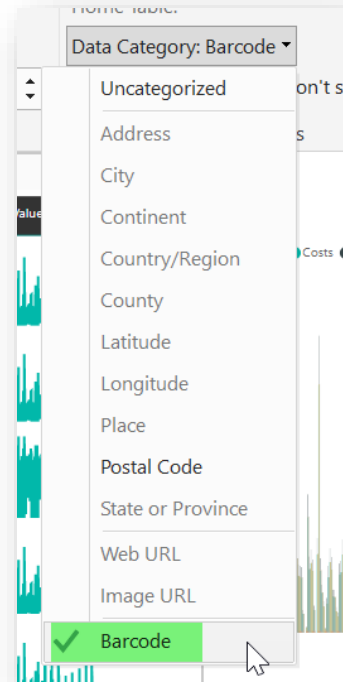
Tip – Use the Barcode Scanner

Little effort, **big impact**

IOS only ☹️

PowerApps as alternative

[Vote!](#)



Tip – Parameters

PBIX Templates

Change the values after Publish

Change the Database without Re-Publish

Change the Query without Re-Publish

Set the Type (don't use "Any")

Use REST API to change values

Set-PBIDatasetParameters => DevOps

☒ Required

Type

Suggested Values

Parameters

Database

FromDate

Server

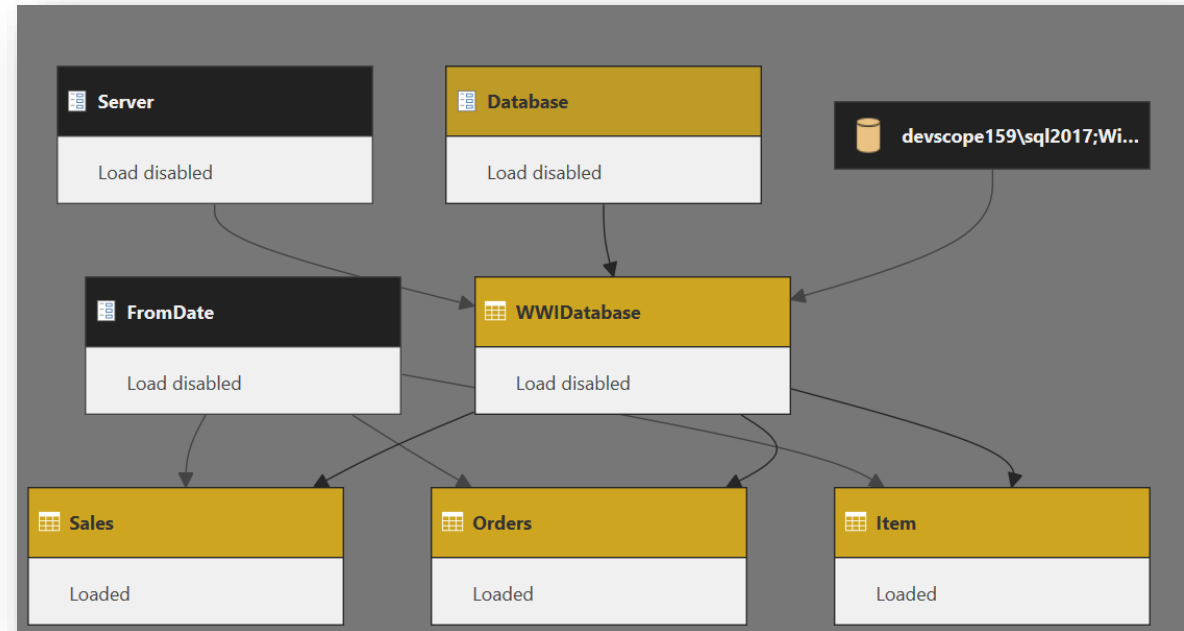


Tip – Value.NativeQuery

Centralize Connection settings
timeouts, maxdop,...


Query Parameters

Query as a separate step
No UI on Value.NativeQuery



```
let
    Source = Sql.Database(Server, Database,
        [CommandTimeout=#duration(0, 0, 30, 0),
        ConnectionTimeout=#duration(0, 0, 0, 15),
        MaxDegreeOfParallelism=1])
in
    Source
```

```
let
    Query = "select [Sale Key], [Invoice Date Key], [Description],
        [Quantity] #(\n)from [Fact].[Sale]#(\n)where [Invoice Date Key] >=
        @fromDate",
    Source = Value.NativeQuery(WWIDatabase, Query, [fromDate =
        FromDate])
in
    Source
```



Tip – Folder Proxy

FolderProxy (M Query)

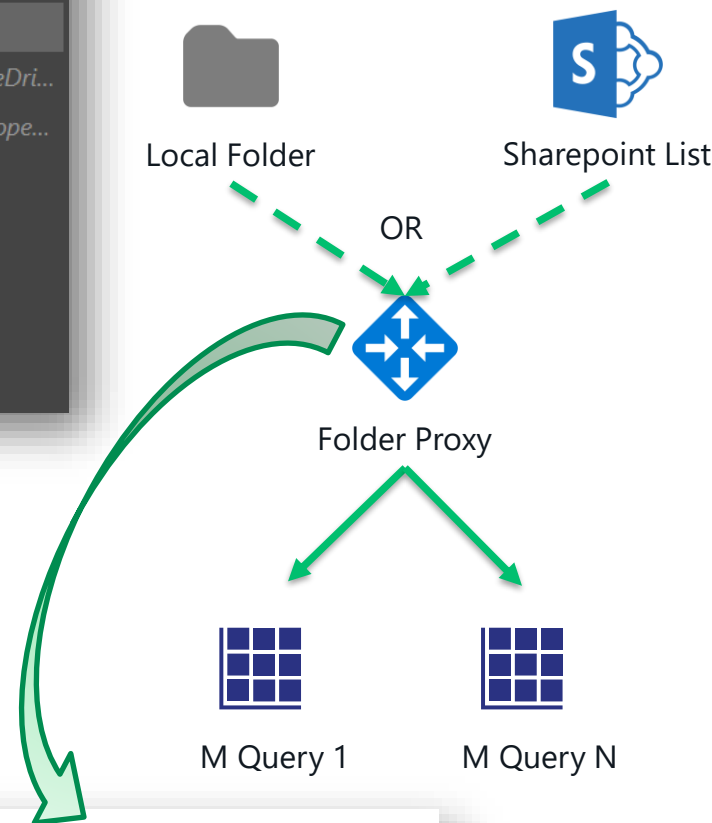
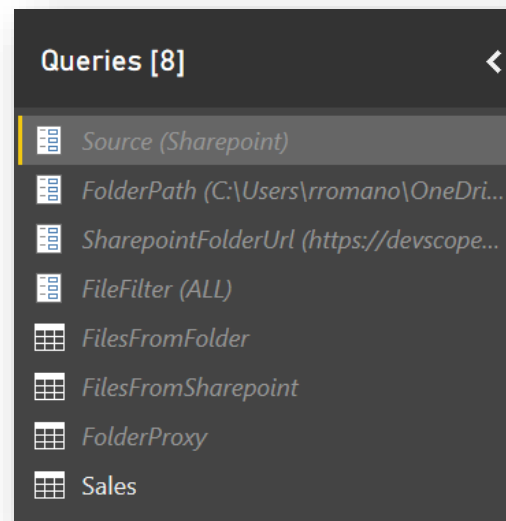
Redirects to:






FileSystem

or

Online Source(ex: Sharepoint)

More productivity w/ online data sources (ex: Sharepoint or DataLake)



ABC 123	Content		A ^B C Name		A ^B C Extension		 Date accessed	
	Binary		2018-08-01.csv		.csv		26/09/2018 20:25:02	
	Binary		2018-08-02.csv		.csv		26/09/2018 20:25:02	
	Binary		2018-08-03.csv		.csv		26/09/2018 20:25:02	
	Binary		2018-08-04.csv		.csv		26/09/2018 20:25:02	
	Binary		2018-08-05.csv		.csv		26/09/2018 20:25:02	
	Binary		2018-08-06.csv		.csv		26/09/2018 20:25:02	
	Binary		2018-08-07.csv		.csv		26/09/2018 20:25:02	

FolderProxy

```
let
    Source = FilesFromSharepoint // or FilesFromFolder,
    #"Removed Other Columns" = Table.SelectColumns(Source,
    Filter = Table.SelectRows(#"Removed Other Columns", e
in
    Filter
```



Tip – “Incremental Loading” w/ “Report Refresh”

Only loads on first refresh

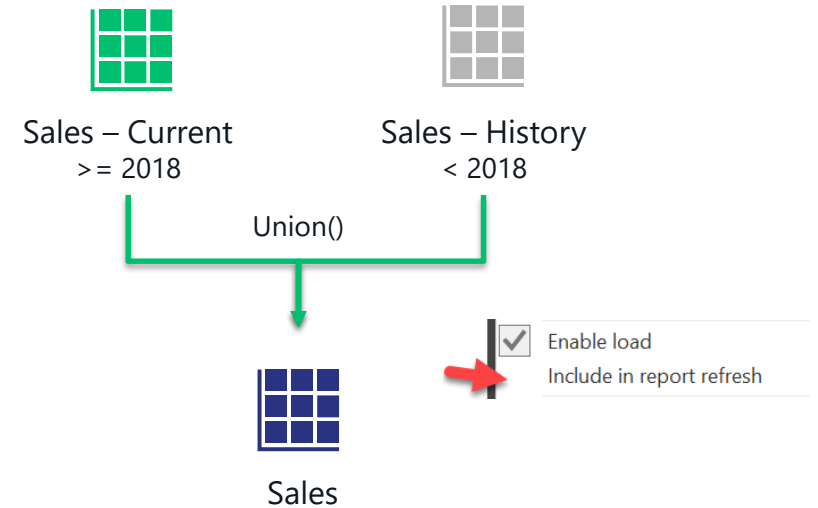
Useful for Static Data (history)

*Alternative to “Incremental Loading”

Not Perfect

Use DAX to avoid duplicating tables

If there's attributes to slice on the fact, then use UNION



```
Quantity (DAX) = SUM('Sales - History'[Quantity]) + SUM('Sales - Current'[Quantity])
```

```
Sales = UNION('Sales - Current', 'Sales - History')
```

Learn more: [link1](#)

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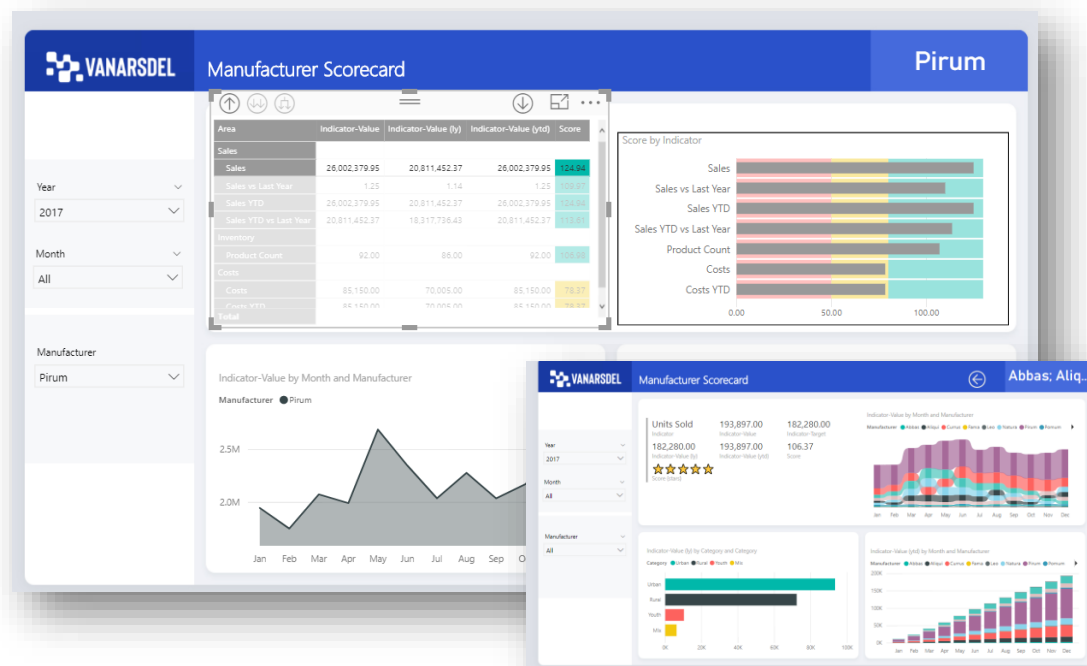
Tip – Measures as Dimension

Scorecards & KPIs

Reusability: YTD, LY,... for all the measures

One report for multiple analysis

***Performance hit**



Measure	
<input type="checkbox"/>	Area
<input type="checkbox"/>	Code
<input type="checkbox"/>	Measure
<input type="checkbox"/>	Score
<input type="checkbox"/>	Score (stars)
<input type="checkbox"/>	Target
<input type="checkbox"/>	Value
<input type="checkbox"/>	Value (ly)
<input type="checkbox"/>	Value (ytd)

```
Value =  
if (HASONEVALUE('Measure'[Code]) && ISFILTERED('Measure'[Measure]),  
var currentIndicator = SELECTEDVALUE('Measure'[Code],BLANK())  
return |  
SWITCH(currentIndicator  
, BLANK(), BLANK()  
, 1, [Sales]  
, 2, DIVIDE([Sales], [Sales (py)])  
, 3, [Units]  
, 4, CALCULATE([Sales YTD], SAMEPERIODLASTYEAR('Date'[Date]))  
, 10, DISTINCTCOUNT('Sales'[ProductID])
```



Tip – Measure as Image

A lot of flexibility on KPI's

Use base64 to embed images in PBIX

Use SVG for more flexibility











Can do sparklines ([David Eldersveld](#))

Only works on tables/matrix

This month 😊

Learn more: [link1](#), [link2](#), [link3](#), [link4](#)

Home Table: Measure ▾
Data Category: Image URL ▾

Measure	Value	Value (ly)	Value (Sparkline)	Score (img)
Costs	25.900.199,95	20.727.446,37		
Loss	31.080.239,94	24.872.935,64		
Product Count	92,00	86,00		
Profit	26.002.379,95	20.811.452,37		
Sales	26.002.379,95	20.811.452,37		

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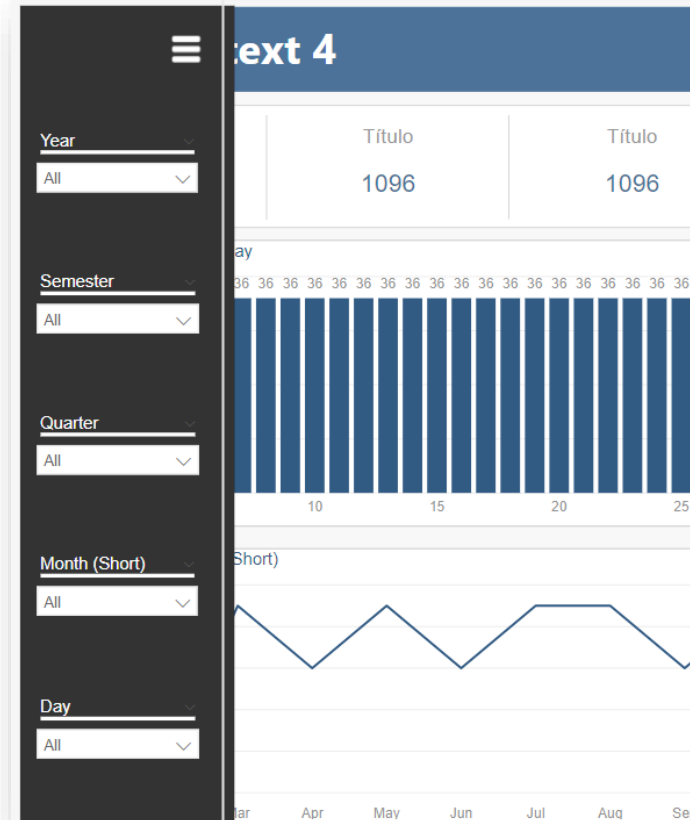


Tip – Burguer Filter => Save Report Space

Bookmarks + Shapes + Visibility + Slicers



Context 4		
Título	Título	Título
1096	1096	1096



Tip – Import Data from Online DataSets (powerbi.com)

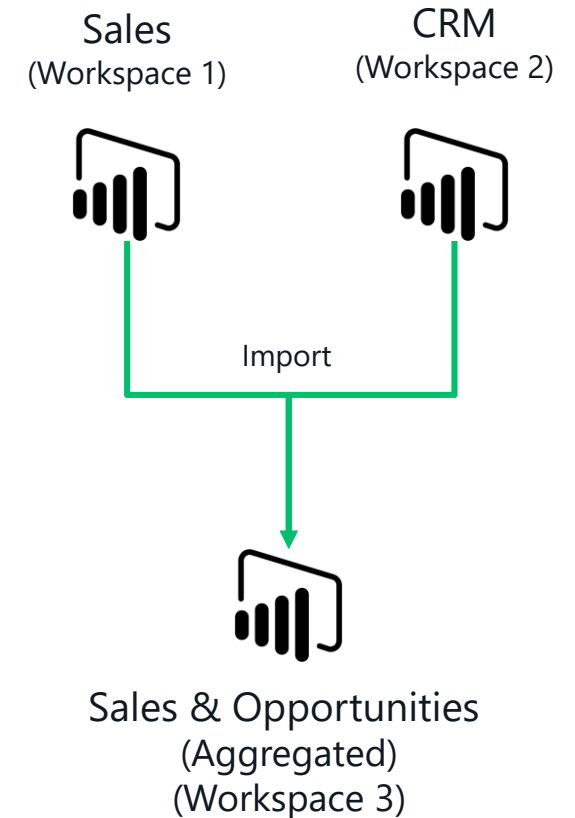
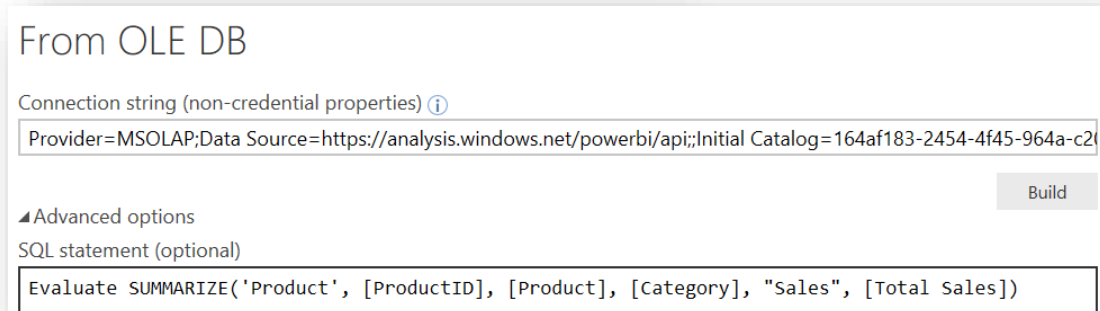
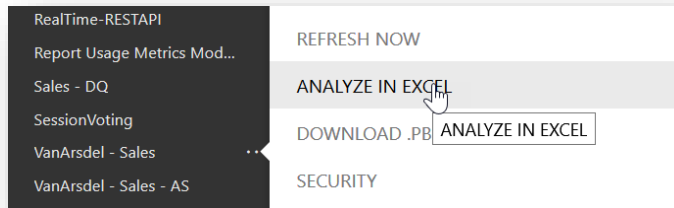
Get the connection string from “Analyse in Excel”

Use “Get-Data” from OLEDB w/ DAX query

Personal Gateway only ☹️

***Not Supported!** But it works 😊

XMLA endpoint coming...



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Tip – Excel Tables w/ DAX Queries

DAX query as a regular Excel Table

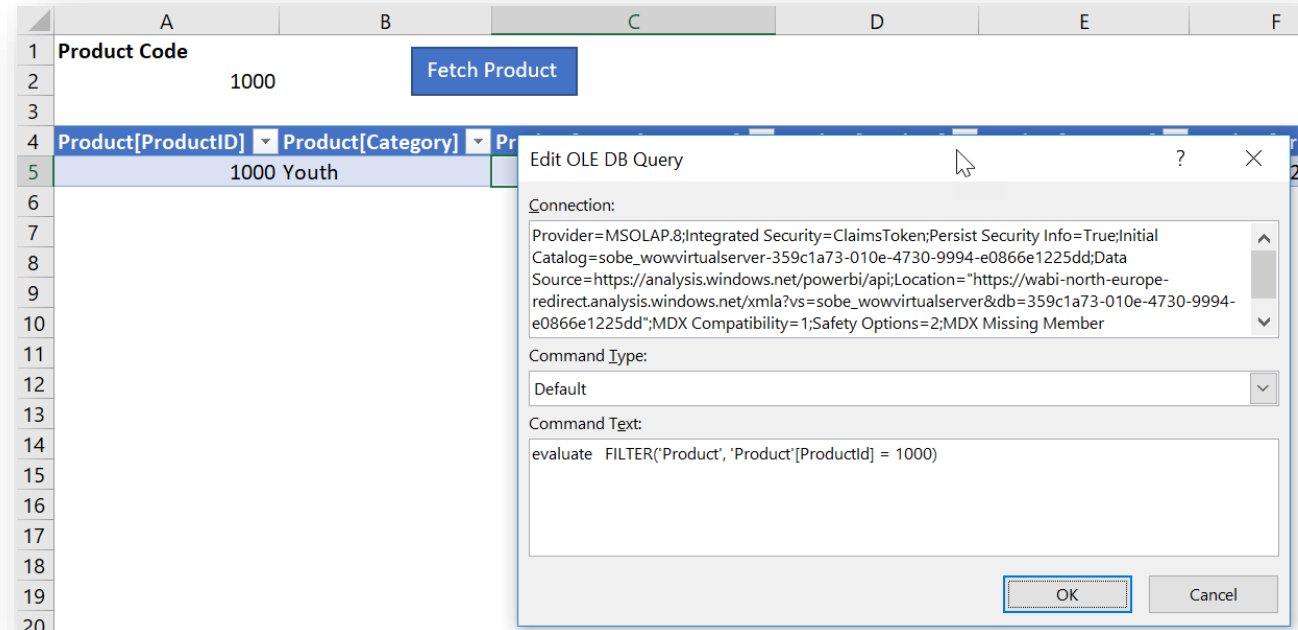
PowerQuery or Drillthrough*

Very useful for complex Excel Analysis

*Drillthrough Steps:

1. Analyse in Excel
2. Drillthrough
3. Edit Query
4. Write Dax

*Supported 😊

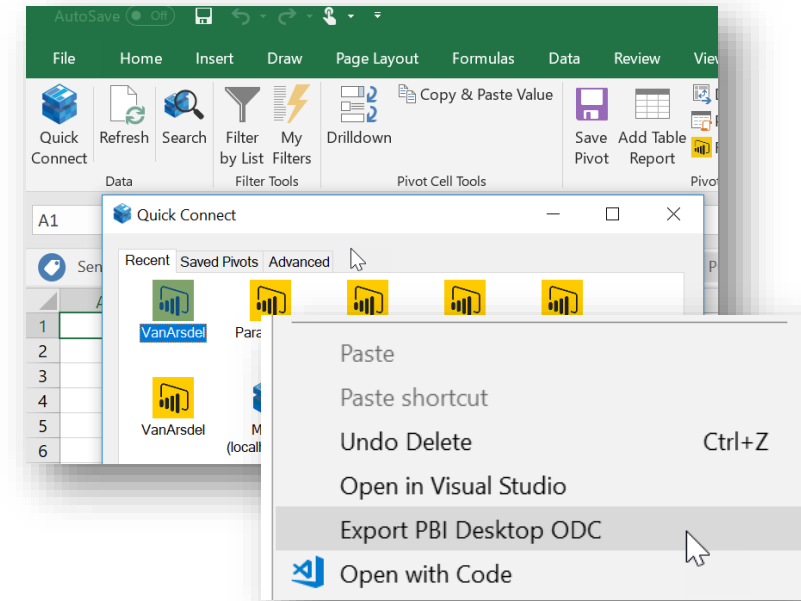


Tip – Excel + Power BI Desktop

PBIDesktop has an Analysis Services Instance

Great for data validation at development time

Discover the TCP Port using netstat,
[PowerBIPS.Tools](#), [DAXStudio](#), [SmartPivot](#)



	A	B	C	D	E	F	G	H	I	J
1	Total Amount	Column Labels								
2	Row Labels	Abbottsburg	Absecon	Accomac	Acetunas	Airport Drive	Akhok	Alcester	Alden Bridge	Alstead
3	2013	\$99,152.05	\$67,449.05	\$88,586.10	\$70,659.85	\$109,401.70	\$151,347.60	\$89,684.40	\$97,504.20	\$60,329.30
4	Jan	\$10,331.35	\$1,218.60	\$4,906.75	\$10,448.00	\$15,290.85	\$19,786.65	\$13,846.00	\$2,851.50	
5	Feb	\$2,879.40	\$6,503.00			\$1,863.00	\$5,925.40	\$2,560.00	\$21,891.00	\$130.00
6	Mar	\$545.00	\$12,105.00				\$26,008.10	\$15,849.50	\$2,631.00	\$6,756.20
7	Apr	\$9,372.00	\$6,992.20	\$4,730.95	\$1,065.20	\$6,429.00	\$14,140.20	\$7,649.00	\$13,101.00	\$9,405.50
8	May	\$6,507.00	\$15,949.75	\$2,145.00	\$4,109.00	\$18,506.20	\$7,099.00	\$12,247.85	\$12,136.60	\$14,911.70
9	Jun			\$15,996.80	\$4,541.00	\$9,025.60	\$8,653.10	\$2,406.60	\$4,403.00	
10	Jul	\$3,648.00	\$5,390.00			\$11,578.20	\$6,847.10	\$13,798.00	\$11,845.75	\$6,080.25
11	Aug	\$24,456.50		\$8,341.20	\$13,497.60	\$2,367.00	\$14,208.60	\$6,787.05	\$7,415.80	\$4,102.00
12	Sep	\$9,619.00	\$1,087.00	\$1,958.00	\$11,241.45	\$22,945.50	\$17,764.00	\$6,908.00	\$944.00	\$5,204.80
13	Oct	\$5,937.60	\$1,541.00	\$3,682.40	\$8,092.50	\$13,219.40	\$21,104.20	\$11,913.00	\$5,577.05	\$4,267.20
14	Nov	\$13,135.00	\$8,994.00	\$2,785.60	\$1,443.50	\$3,653.00	\$4,469.25	\$7,686.40	\$1,337.00	\$4,126.75
15	Dec	\$12,721.20	\$7,668.50	\$20,997.20		\$4,523.95	\$5,342.00	\$1,879.00	\$2,376.00	\$2,493.40
16	2014	\$81,948.40	\$102,259.15	\$111,873.75	\$84,609.70	\$98,249.40	\$173,929.35	\$98,734.15	\$112,587.75	\$51,725.15
17	Jan	\$3,525.00	\$5,010.10	\$2,649.00	\$2,689.00	\$2,938.00	\$6,929.00	\$13,767.40	\$24,699.00	\$7,746.80
18	Feb	\$7,392.00	\$5,880.40	\$5,947.00	\$4,145.00	\$5,340.00	\$7,153.60	\$33,098.70		\$4,593.60
19	Mar	\$12,068.60	\$3,922.00	\$6,423.00	\$2,087.60	\$12,810.80	\$34,811.25	\$4,119.35	\$6,922.00	\$5,159.00
20	Apr	\$6,556.60	\$13,195.40	\$1,732.00	\$11,816.50	\$19,102.50	\$3,149.40	\$27,939.40	\$7,369.70	
21	May	\$4,119.70	\$3,480.80	\$21,351.00	\$17,506.10	\$4,227.50	\$11,238.00	\$2,864.75	\$1,815.25	
22	Jun	\$13,612.50	\$5,483.00	\$17,155.10	\$14,147.50	\$10,351.90	\$2,098.25	\$11,361.40	\$22,501.60	\$5,645.50



Tip – Export Data from Power BI Desktop

Export all data from PBIDesktop to CSV / SQL Server ***Not Supported!**

Very useful for:

Data Science data wrangling

Moving Data

PowerBIPS.Tools

```
Install-Module PowerBIPS.Tools
```

```
Export-PBIDesktopToSQL -pbIDesktopWindowName "*VanArsdel - Sales*"`  
-sqlConnStr "Data Source=.\sql2017; Initial Catalog=DummyDB; Integrated Security=true"  
-sqlSchema "stg" -tables @("table1", "table2")
```



Tip – Know Tabular Editor

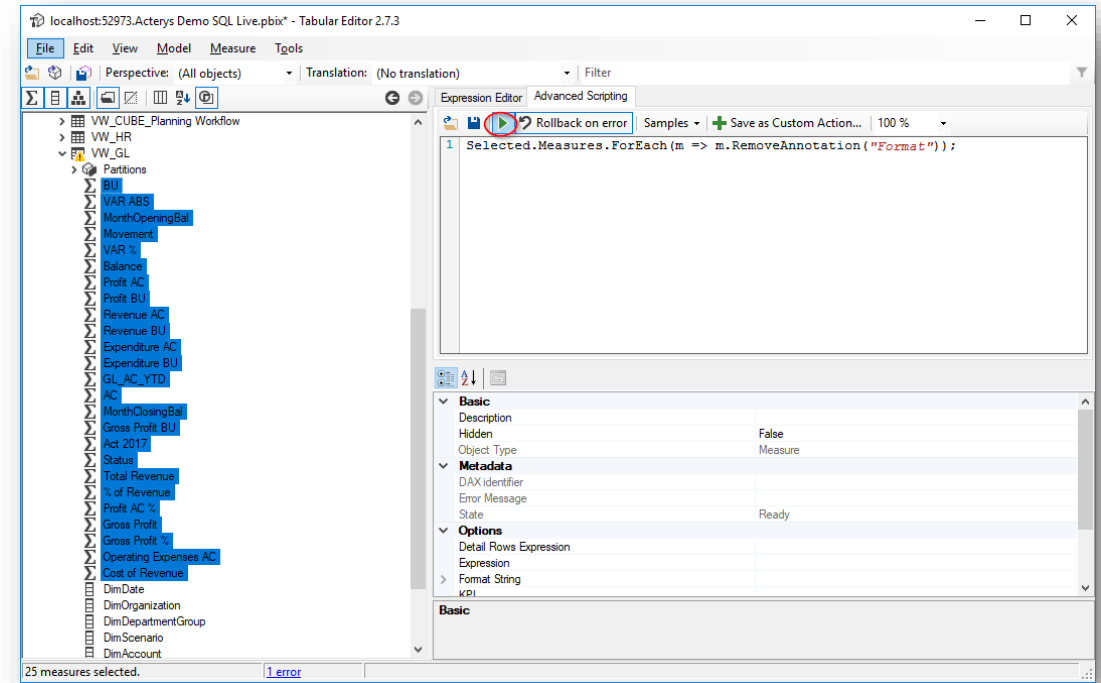
<https://github.com/otykier/TabularEditor>

*by Daniel Otykier

Can save you a **LOT** of time...

Ex:

- Copy measures between pbix
- Generate measures (ytd, ly)
- c#



Learn more: [link1](#)

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Tip – “Grow up” your PBIX

Why?

More space (+1GB/file)

More control => partitioning, perspectives, translations, scripting,...

Better DevOps => Source Control

Merge multiple Power BI models into singular AS Model

How?

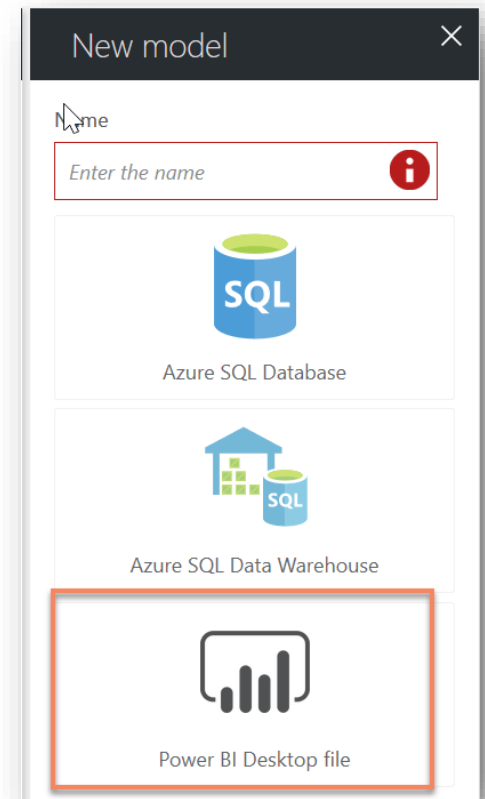
- Using WebDesigner in Azure Portal (less control)

OR

- Using [PowerBIPS.Tools](#) - **Convert-PowerBIToASTabular**
*More Control, but **Not Supported!***

```
Convert-PowerBIDesktopToASTabular -pbidesktopwindowname "*VanArsdel - Sales*" -outputPath "$currentPath\SSAS"
```

Learn more: [link1](#), [sqlbits session](#)



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Tip – Power BI Report Rebind

Hundred of existing Power BI reports?

How to convert from Import to Live connection to AS?

1. Power BI Desktop => one by one

Remove all queries => Get-Data => Tabular (live)

2. REST API + PowerBIPS => automate

```
# Change the dataset for all the reports that reference the SourceDataSetId into the TargetDataSetId  
Get-PBIReport |? datasetId -eq "SourceDataSetId" | Set-PBIReportsDataset -targetDataSetId "TargetDataSetId" -Verbose
```

Learn more: [link1](#), [link2](#)

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Tip – Power BI Data (Governance)

Use data available through:

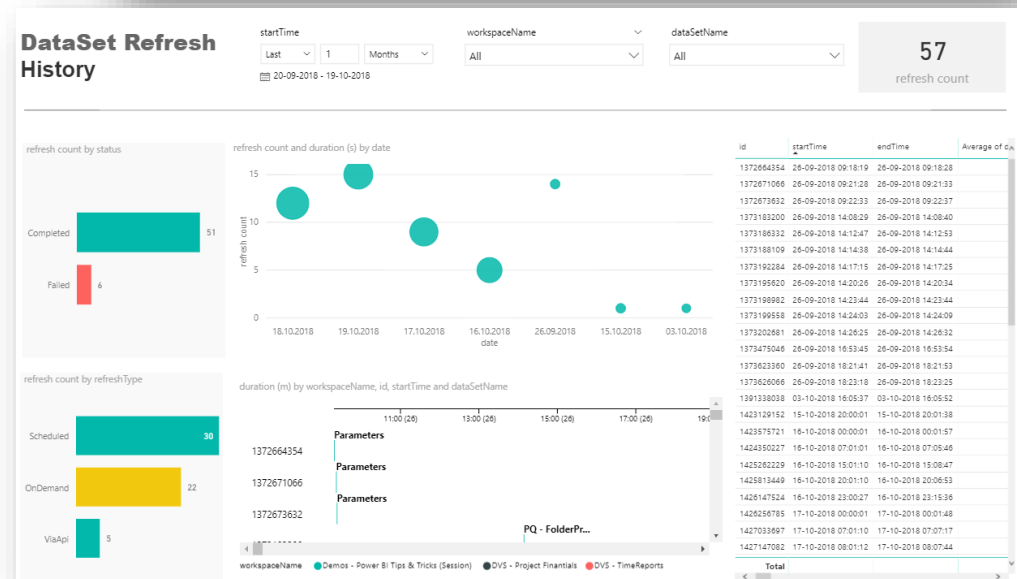
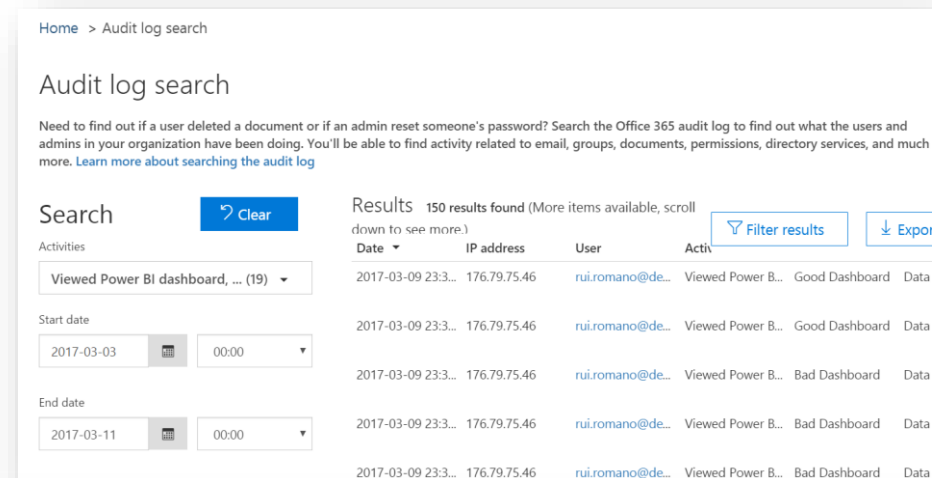
- O365 Audit Logs
- REST API's

Ex: Data Set Refresh History

Use RESTAPI to collect the refresh history

Build a Power BI Report over that data

Learn more: [link1](#)



Tip – REST API + Automation / DevOps

Use the REST API to:

Automation, Productivity, DevOps, Realtime...

Examples:

Export all pbix from PowerBI.com to Folder

Bulk Create Multiple Workspaces using Folders and Files

Sync between Workspaces: (ex: Dev to Prod)

Learn more: [link1](#)

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Tip – Power BI + Real Time!

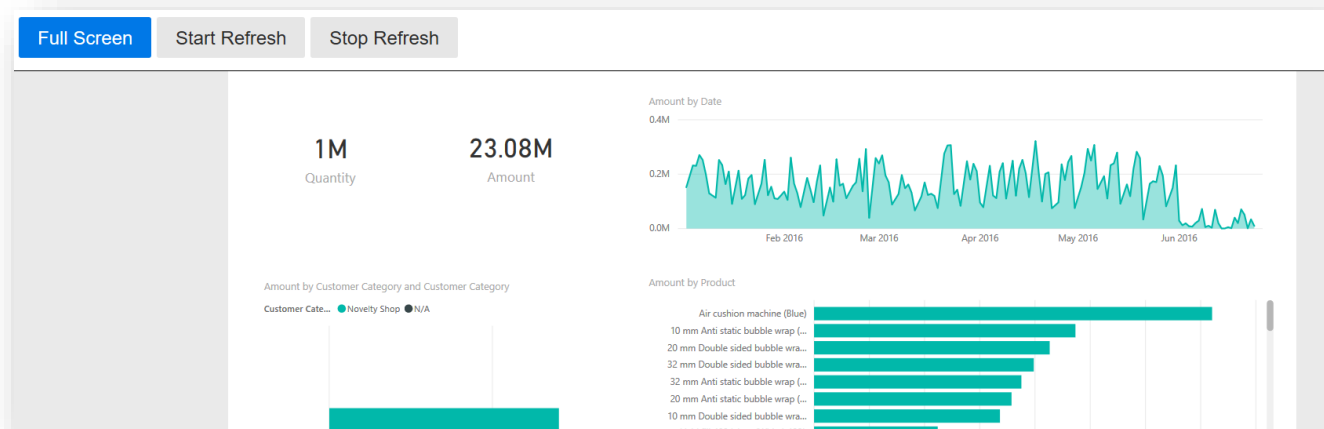
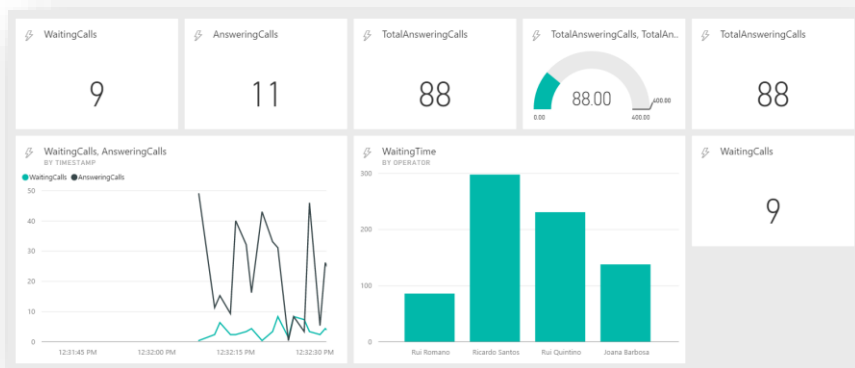
Multiple ways => Choose the best for you!

Streaming DataSets => Quick w/ Low Effort (very fast...)

REST API => More Control (not so fast...)

DirectQuery/Live

Power BI Embedded ([Ted Pattinson GitHub as sample](#))

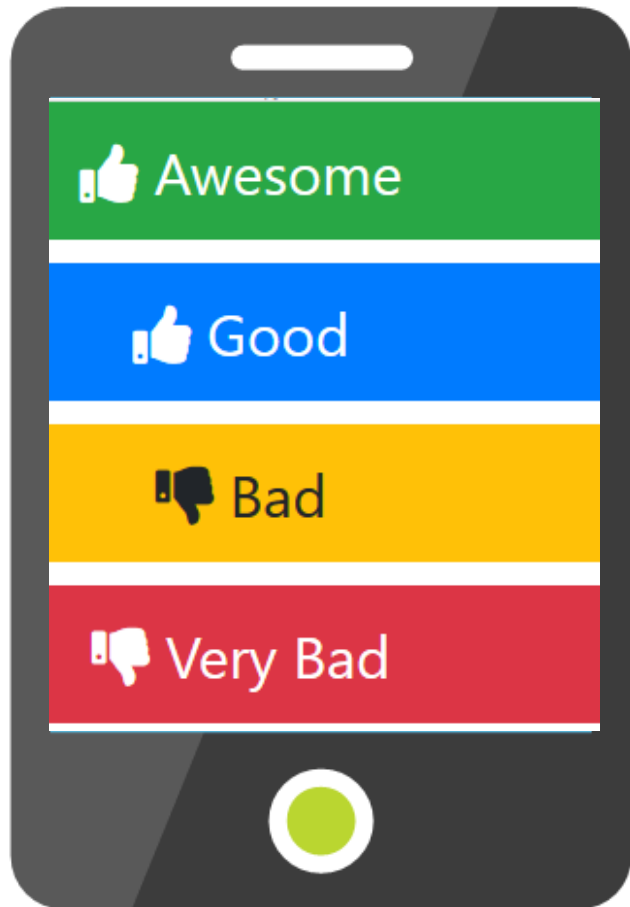


Learn more: [link1](#), [link2](#)

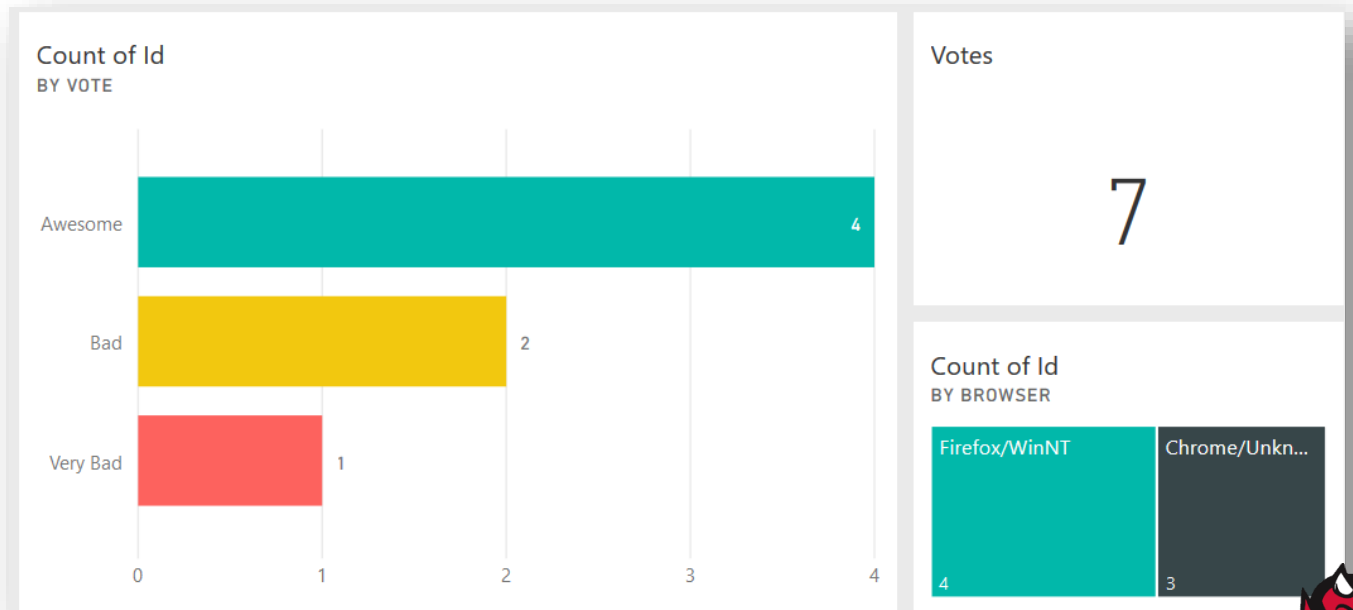
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Tip – Real-Time Session Voting



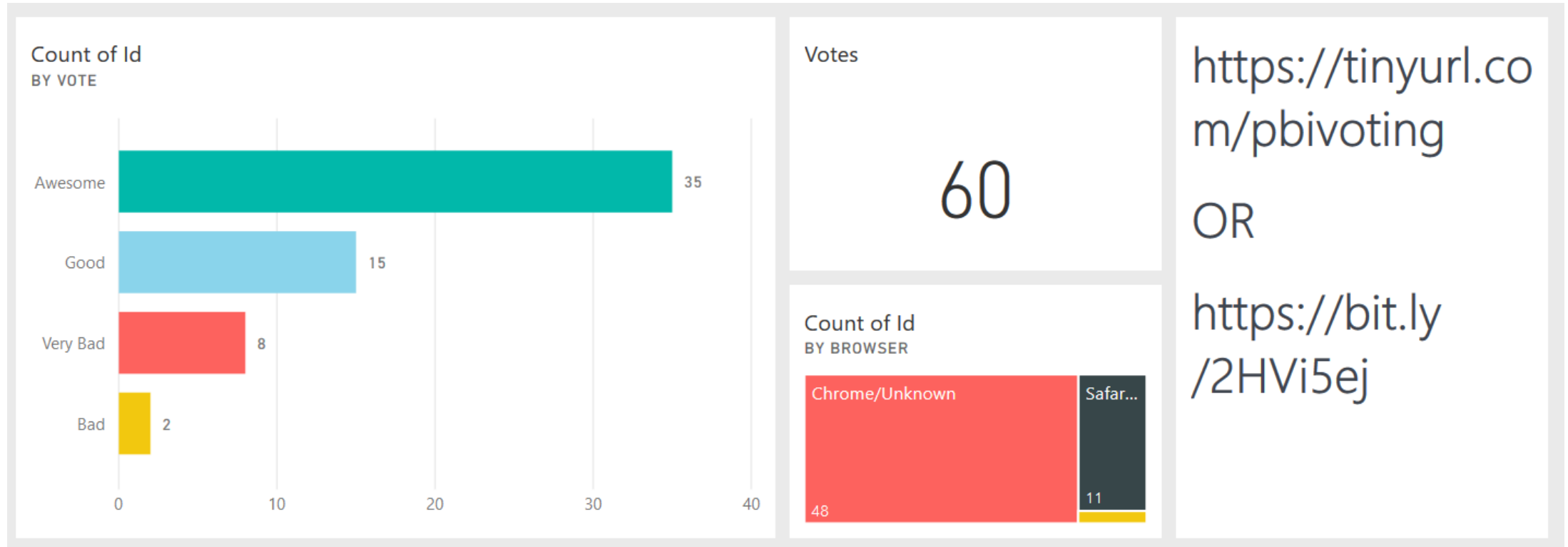
<https://tinyurl.com/pbivoting>
<https://bit.ly/2HVi5ej>



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Session Votes – Thank You!



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PowerBI SmartPivot

Connect data from Power BI or OLAP cubes to Excel, search for any values in the data model and apply filters in bulk.

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Contacts

- Rui.Romano@devscope.net
- <https://ruiromanoblog.wordpress.com/>
- @RuiRomano
- <https://devscope.net>

Links

- DevScope Power BI Products <https://powerbitiles.com/?app=Pro>
- PowerBI Powershell Modules <https://github.com/DevScope/powerbi-powershell-modules>

Thank you!

