



Power BI Development on Steroids

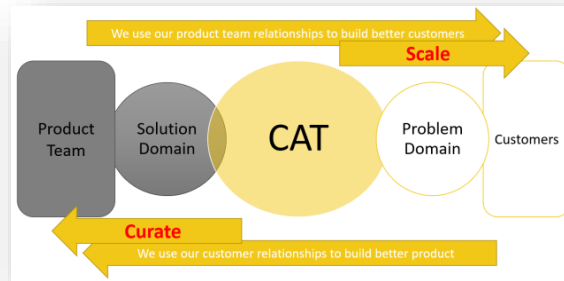
2022-03



Rui Romano

Power BI Customer Advisory Team (CAT)

Microsoft



 @RuiRomano

 <https://www.linkedin.com/in/ruiromano/>

 <https://ruiromanoblog.wordpress.com>



Porto, Portugal

 Power BI & Data

+15 years working on Microsoft Data Stack



Slides here:

<https://github.com/RuiRomano/sessionslides>

Power BI Dev on Steroids

- Tools
- {Dev} Techniques
- Fast Paced 😊

Focus on the possibilities not details...

Tools

My personal take on:

- DAX Studio
- Tabular Editor




DAX Studio

<https://daxstudio.org/> by Darren Gosbell

Main Use Cases:

- DAX Query Editor / Builder / Formatter
- **Quick Inspect Model w/ “View Metrics”**
- [DAX Tuning & Debugging](#) (old fashion)
- Export Data: Folder / SQL Server 💖


Learn more: [Tool Intro](#)





DAX Studio

The ultimate tool for working with DAX queries

Download the latest release of DAX Studio here:

 **DAX Studio v2.16.2**
(installer)

 Size: 8.16Mb |  12 Jul 2021 | downloads: **3,212**



The details of the new features and fixes included in this release are available in the [changelog](#)

Tabular Editor

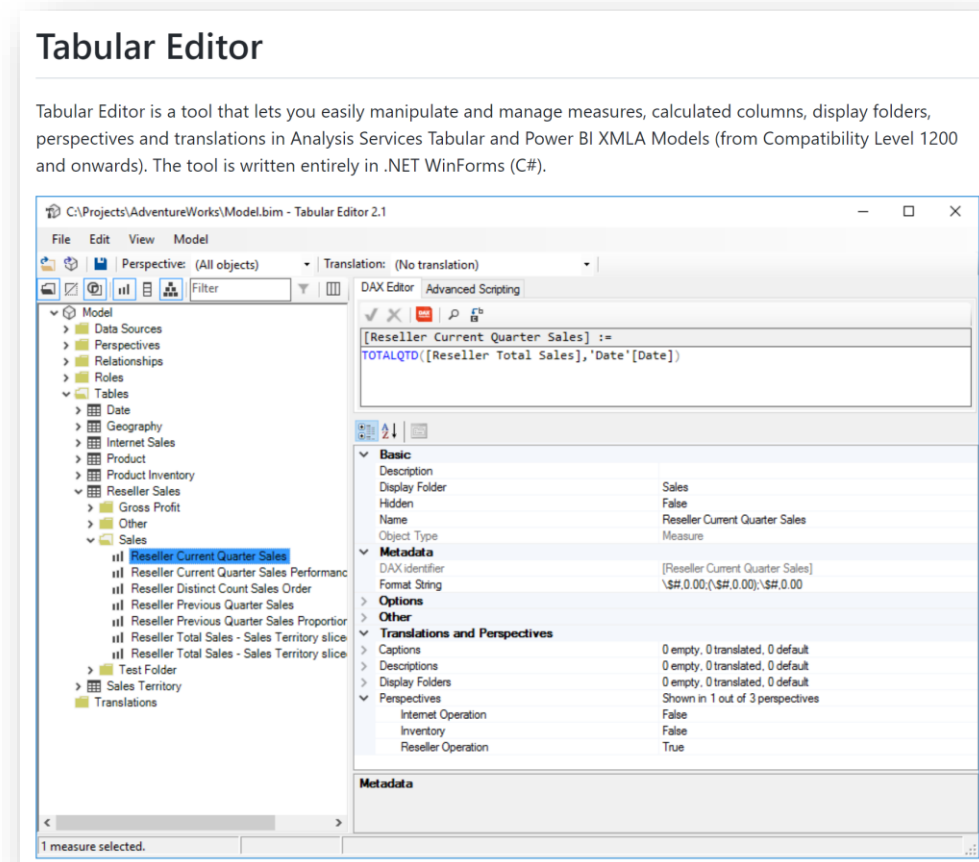
<https://tabulareditor.com/> by Daniel Otykier

Massive productivity boost!

Main use cases:

- Model Development – **Efficiently & Faster**
- **Deployment with options** (ex: only schema) 
- **Best Practices Analyzer**
- **Automation** with Scripting
- Copy items between PBIX files
- Restore a PBIX from powerbi.com 

Learn more: [Tool Intro](#)



Development Techniques & Tips

```
mirror_mod = modifier_ob.  
Set mirror object to mirror.  
mirror_mod.mirror_object =  
operation == "MIRROR_X":  
mirror_mod.use_x = True  
mirror_mod.use_y = False  
mirror_mod.use_z = False  
operation == "MIRROR_Y":  
mirror_mod.use_x = False  
mirror_mod.use_y = True  
mirror_mod.use_z = False  
operation == "MIRROR_Z":  
mirror_mod.use_x = False  
mirror_mod.use_y = False  
mirror_mod.use_z = True  
  
selection at the end -add  
mirror_ob.select= 1  
modifier_ob.select=1  
context.scene.objects.active  
("Selected" + str(modifier_ob.  
mirror_ob.select = 0  
= bpy.context.selected_object  
data.objects[one.name].select  
print("please select exactly  
  
-- OPERATOR CLASSES --  
  
types.Operator):  
X mirror to the selected  
object.mirror_mirror_x"  
mirror X"  
  
context):  
context.active_object is not
```


Create your own Power BI Playground

Very useful to try admin features 😊

Set up a [365 Developer subscription](#)

- 90 days (renew automatically, if used for DEV)
- 25 Licenses of O365 E5 🧑 (PowerBI, PowerApps, PowerAutomate)
- Full Tenant Admin Control

Microsoft 365 Developer Program



Welcome, Romano Rocha

Your Microsoft 365 developer program membership entitles you to a special free Microsoft 365 E5 subscription with all the latest Microsoft 365 apps, Enterprise Mobility + Security, Azure AD, and more. You can use this subscription to build a developer sandbox.

Set up your free Microsoft 365 E5 developer subscription now!

[SET UP E5 SUBSCRIPTION >](#)



Set up a Microsoft 365 developer sandbox subscription

Article • 11/10/2021 • 6 minutes to read • 4 contributors



Set up a Microsoft 365 developer sandbox to build your solutions independent of your production environment. Your developer program membership, which you join as a regular member or through Visual Studio enterprise, includes a Microsoft 365 E5 developer sandbox subscription with 25 user licenses. It lasts for 90 days and is free to use for development purposes (coding solutions) only.

Note

To set up a subscription, you must first [join the Microsoft 365 Developer Program](#) directly or through Visual Studio Professional or Enterprise (if you're a subscriber). After joining, you'll see the option to set up a subscription.

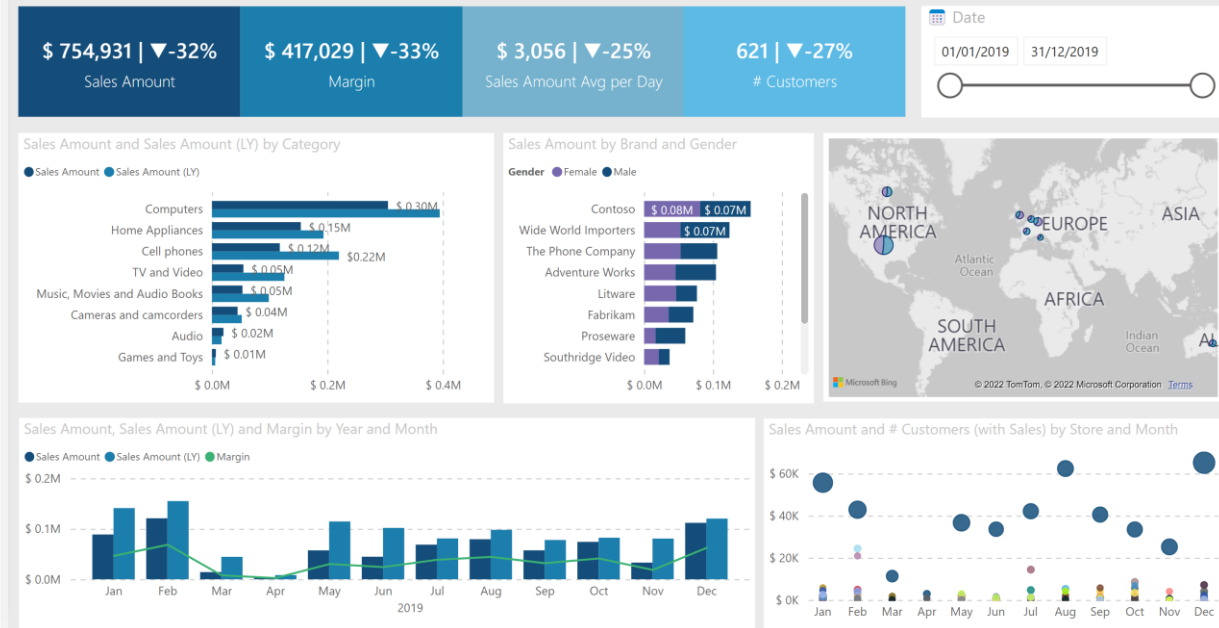
You can choose to set up either an instant sandbox or a configurable sandbox.

Use Templates!

- FastTrack to new Developments
- Theme files
Much more than just colors
- Built in common tables
Calendar & Time
Calculation Groups
About
...

[Sample PBIT Download](https://docs.microsoft.com/en-us/power-bi/desktop-report-themes)

Sales Analysis



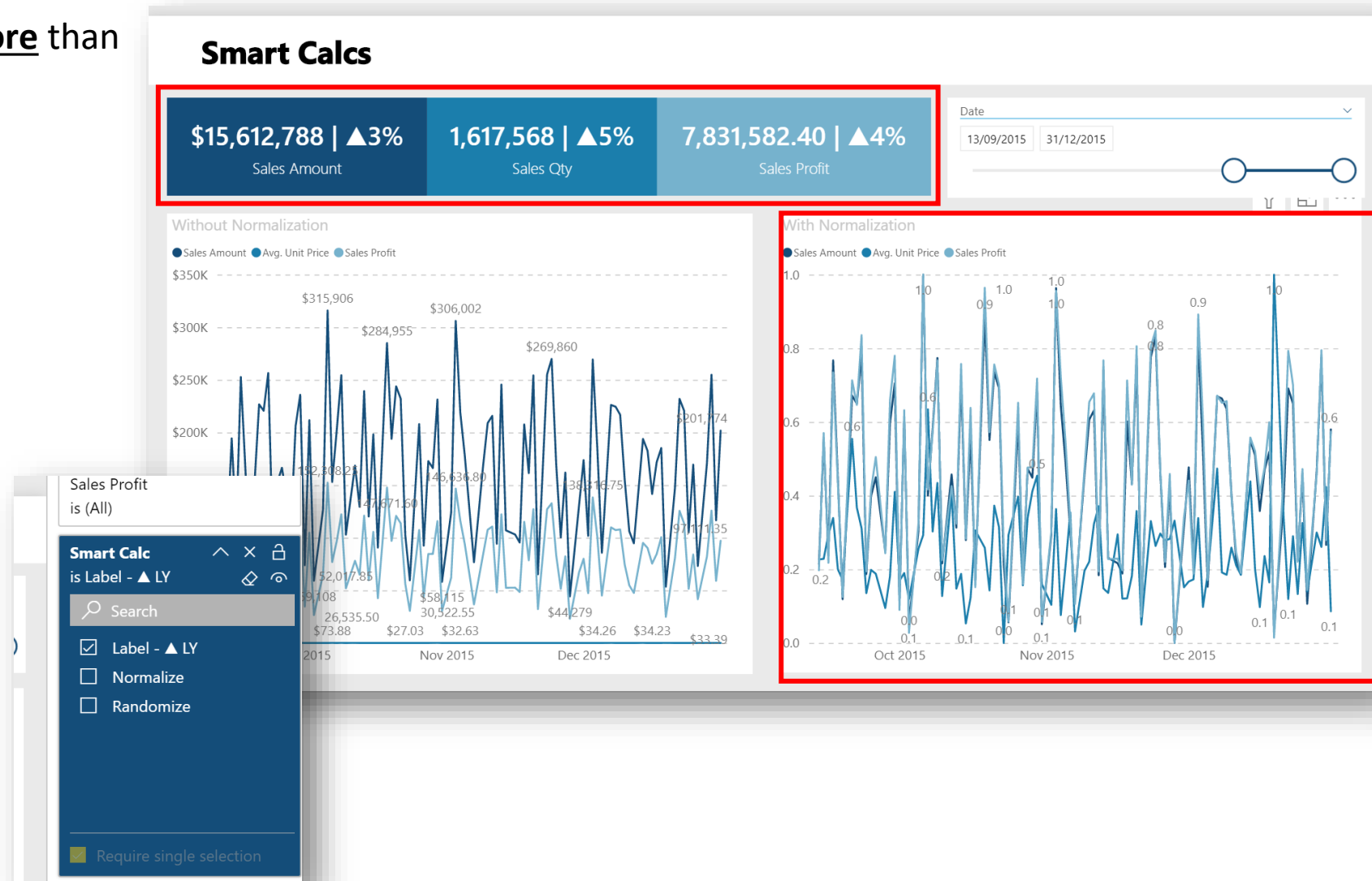
```
C: > @Repos > Github > pbihacksworkshop > Demos > Report - Template > {} CompanyTemplate.json > ...
1  {
2    "name": "Theme",
3    "dataColors": ["#144D79", "#5cbae5", "#fac364", "#e15554", "#3bb273", "#7768ae", "#1b7eac"],
4    "foreground": "#144D79",
5    "foregroundNeutralSecondary": "#144D79",
6    "foregroundNeutralTertiary": "#144D79",
7    "background": "#FAFAFA",
8    "backgroundLight": "#5cbae5",
9    "backgroundNeutral": "#5cbae5",
10   "tableAccent": "#252525",
11   "visualStyles":
12   {
13     "": { "textClasses": {
```

“Smart” Calculation Groups

Calculation Groups can do **much more** than just Time Aggregations / Variations

Other useful use cases:

- Auto Time Variation on Cards
- Normalization
- Randomize



The “File Proxy” Technique

Create a “Files” proxy query to be referenced by other queries

Abstract your Power BI development from the file source

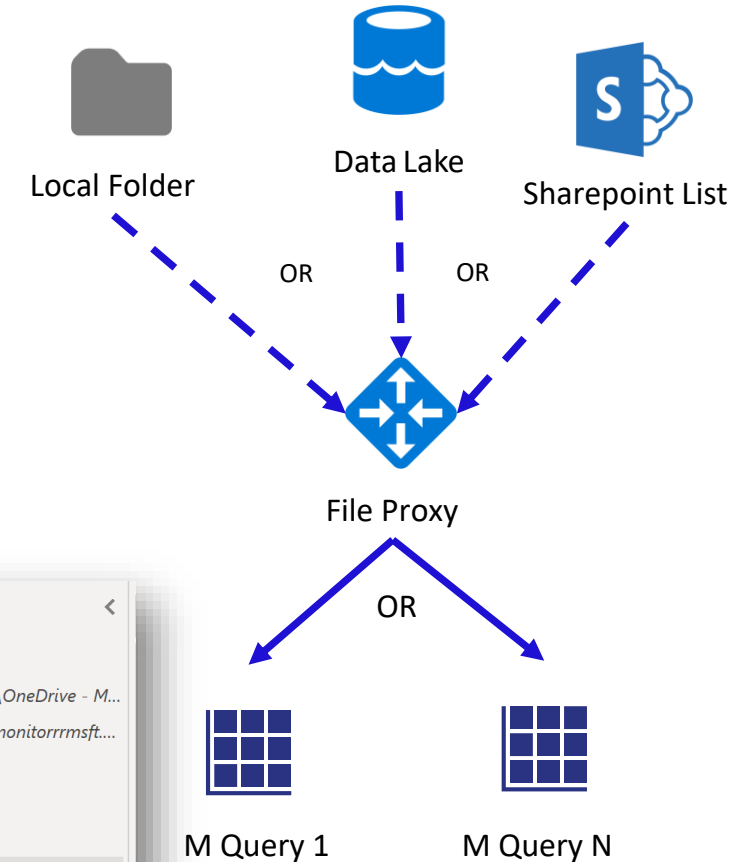
Productivity boost, ex: stage data locally for DEV, **incremental refresh**

Files


```
let
    //Source = #"Files from BlobStorage",
    Source = #"Files from Disk",
    IncrementalFileFilter = Table.SelectRows(Source, each [Date] = null or DateTime.From([Date]
in
    #"Lowercased Text" = Table.TransformColumns(IncrementalFileFilter, {"Name", Text.Lower, type
```

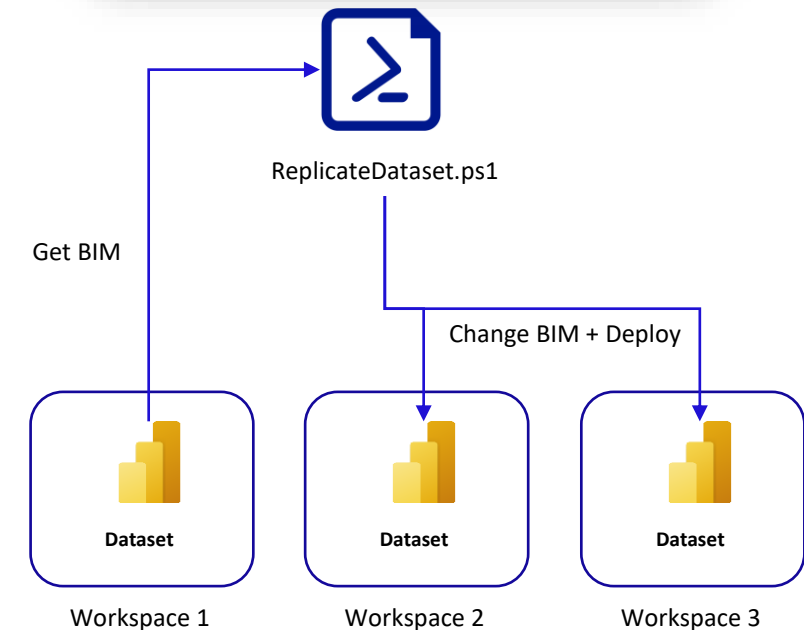
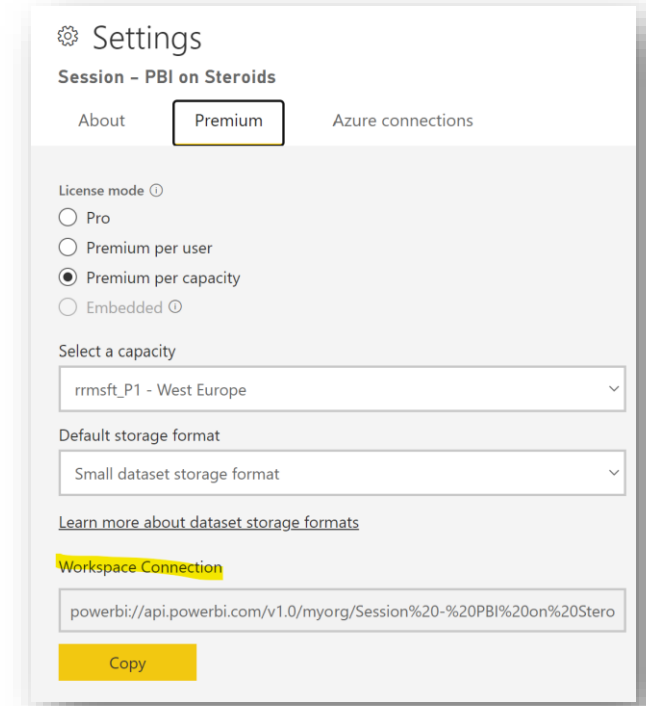
Queries [12]

- Global Parameters [4]
 - DataLocation - Disk (C:\Users\ruiromano\OneDrive - M...
 - DataLocation - Lake (https://pbgatewaymonitrrrmsft....
 - RangeStart (31/12/2000 00:00:00)
 - RangeEnd (31/12/2100 00:00:00)
- Files - FileSystem [1]
 - Files from Disk
- Files - BlobStorage [1]
 - Files from BlobStorage
- Other Queries [6]
 - Files
 - System
 - Calendar
 - Gateway Logs
 - QueryExecutionReport
 - Gateways



XMLA Endpoint & TOM SDK

- Requires Premium 
- Complete control of the Power BI Dataset
- Advanced Deployment & Partitioning
- Automate deployment => CI/CD
- Learn about [TOM Library](#)

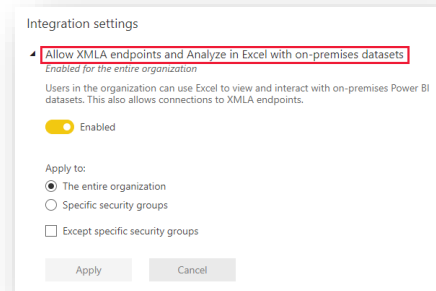
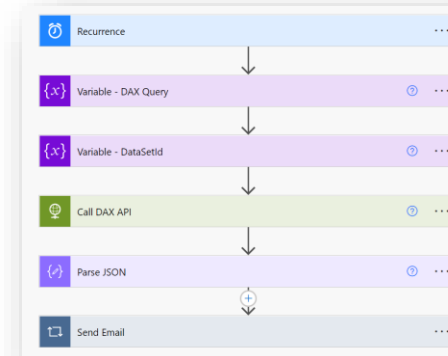
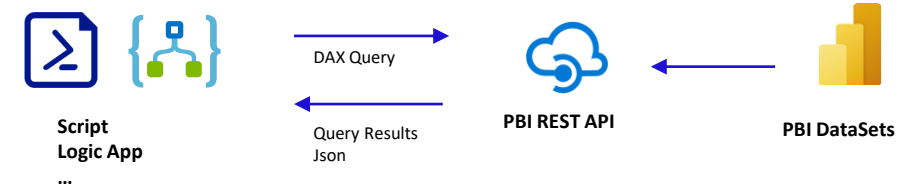


Script: [model replicate.ps1](#)

REST API - Dataset Execute Queries

- The coolest [API](#)! 😊
- Useful Scenarios:
 - Data Integration (*limited)
 - Data Quality - [blog post](#)
 - Alerting System using Power BI Data
 - App/Website integrations
- Works on Premium & **Shared (PRO)**
- Requirements
 - “Build” permission on the dataset
 - “Allow XMLA Endpoints and Analyze in Excel”
- [Main Limitations](#)
 - Result sets capped to 100k rows
 - No parallel queries

Script: [execute dax in PS](#)



Underperforming Employees - 2021-11-08T17:48:29.2908586Z

This message was sent with Low importance

RR

Rui Romano

Mon 08/11/2021 17:48

To: Rui Romano

Employees.csv

555 bytes

Underperforming Employees:

Employee	[Employee]	[Sales Amount]	[Sales Qty]	[Sales Profit]	[Sales Amount vs LY]
Amy Trefl	13452	504	6438.5	-0.40562167368842	
Anthony Grosse	9257.1	625	4794.6	-0.244139428926031	
Hudson Hollinworth	8183.5	608	3677	-0.756427866664087	
Sophia Hinton	13960.5	525	7087.25	-0.254320486490384	
Archer Lambie	9893.4	523	4950.4	-0.5799034407205	

```
Dataset-REST API DAX Query.ps1 > ...
13 $query = "EVALUATE
14
15 VAR p_currentDate = dt"$($date.ToString("yyyy-MM-dd"))"
16
17 return
18     FILTER(
19         SUMMARIZECOLUMNS(
20             'Employee' [Employee],
21             TREATAS([p_currentDate], 'Calendar' [Date]),
22             "Sales Amount", [Sales Amount],
23             "Sales Qty", [Sales Qty],
24             "Sales Profit", [Sales Profit],
25             "Sales Amount vs LY", [% Sales Amount vs 1y]
26         ),
27         [Sales Amount vs LY] < 0
28     )
29
30 Connect-PowerBIServiceAccount
31
32 $body = @{
33     "queries" = @(
34         @(
35             "query" = $query
36         )
37     );
38     "includeNulls" = $false
39 }
40
41 }
42
43 $bodyStr = $body | ConvertTo-Json
44
45 $result = Invoke-PowerBIRestMethod -url "datasets/$datasetId/executeQueries" -
46
```

PROBLEMS OUTPUT TERMINAL DEBUG CONSOLE

UserName : rromano@rmsft.onmicrosoft.com

Employee	[Employee]	[Sales Amount]	[Sales Qty]	[Sales Profit]	[Sales Amount vs LY]
Amy Trefl	13452	504	6438.5	-0.40562167368842	
Anthony Grosse	9257.1	625	4794.6	-0.244139428926031	
Hudson Hollinworth	8183.5	608	3677	-0.756427866664087	
Sophia Hinton	13960.5	525	7087.25	-0.254320486490384	
Archer Lambie	9893.4	523	4950.4	-0.5799034407205	

Thanks!

 @RuiRomano

 <https://www.linkedin.com/in/ruiromano/>

 <https://ruiromanoblog.wordpress.com>