



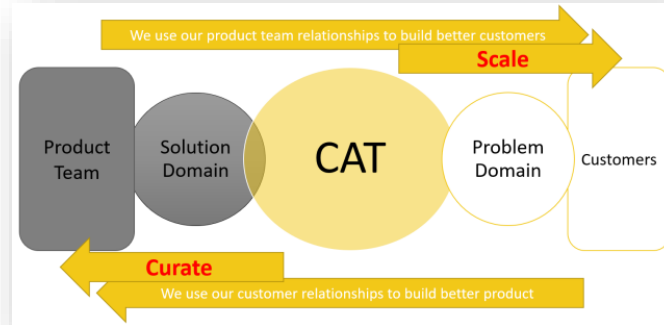
# Power BI Development on Steroids

2022-01



# Rui Romano

Power BI CAT  
Microsoft



 @RuiRomano

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 <https://ruiromanoblog.wordpress.com>



Lives in Porto, Portugal

+15 years working on Microsoft  
Data Stack

 Power BI & Data



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
- ALM Toolkit




# DAX Studio

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

## Main Use Cases:

- DAX Query Editor / Builder / Formatter
- [DAX Performance Tuning & Debugging](#)
- **Quick Inspect Model w/ “View Metrics”**
- 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!

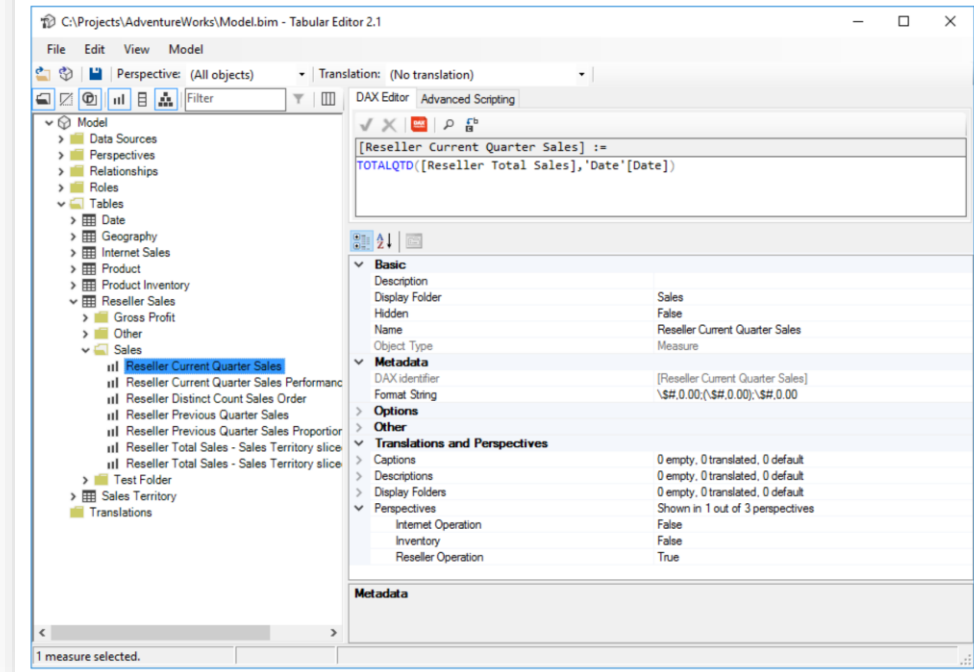
Main use cases:

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

Learn more: [Tool Intro](#)

## Tabular Editor

Tabular Editor is a tool that lets you easily manipulate and manage measures, calculated columns, display folders, perspectives and translations in Analysis Services Tabular and Power BI XMLA Models (from Compatibility Level 1200 and onwards). The tool is written entirely in .NET WinForms (C#).



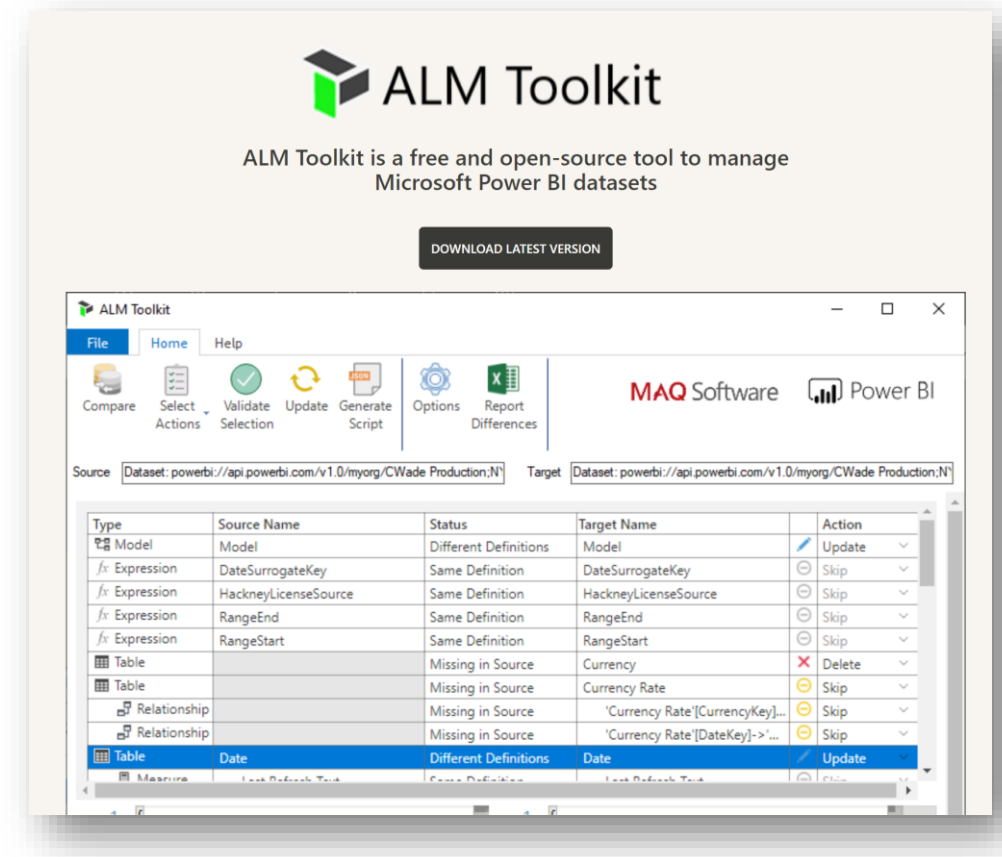
# ALM Toolkit

<http://alm-toolkit.com/> by Christian Wade

Schema diff tool for Tabular Datasets

Main Use Cases:

- Compare between PBIX Files
- Compare local to published 💎
- Merge models => Multiple Developers!



Learn more: [Tool Intro](#)

# Development Techniques

```
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
```

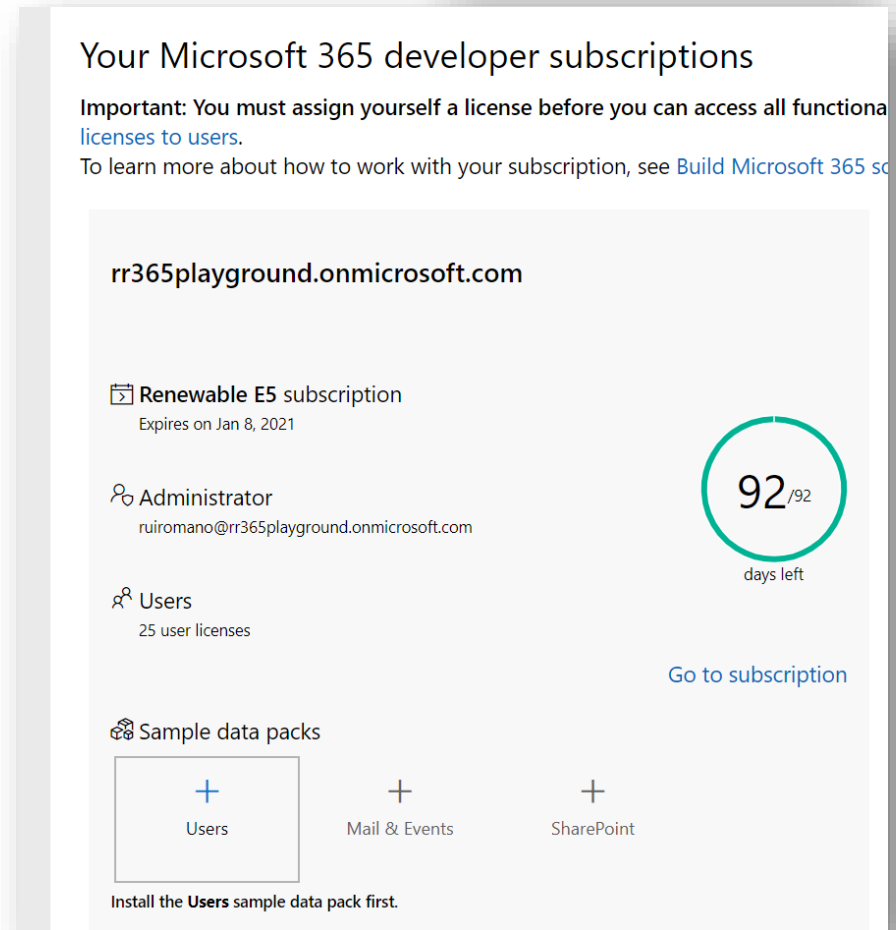
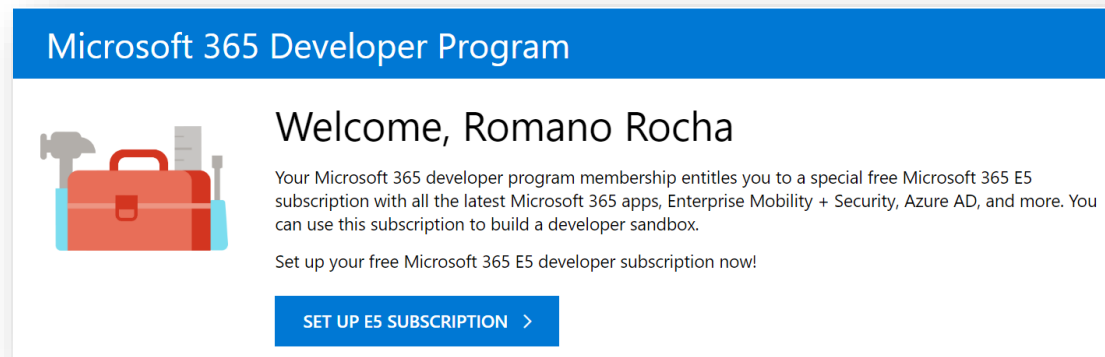


# Create your own Power BI Playground

Very useful to try admin features 😊

Create a [365 Developer subscription](#)

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

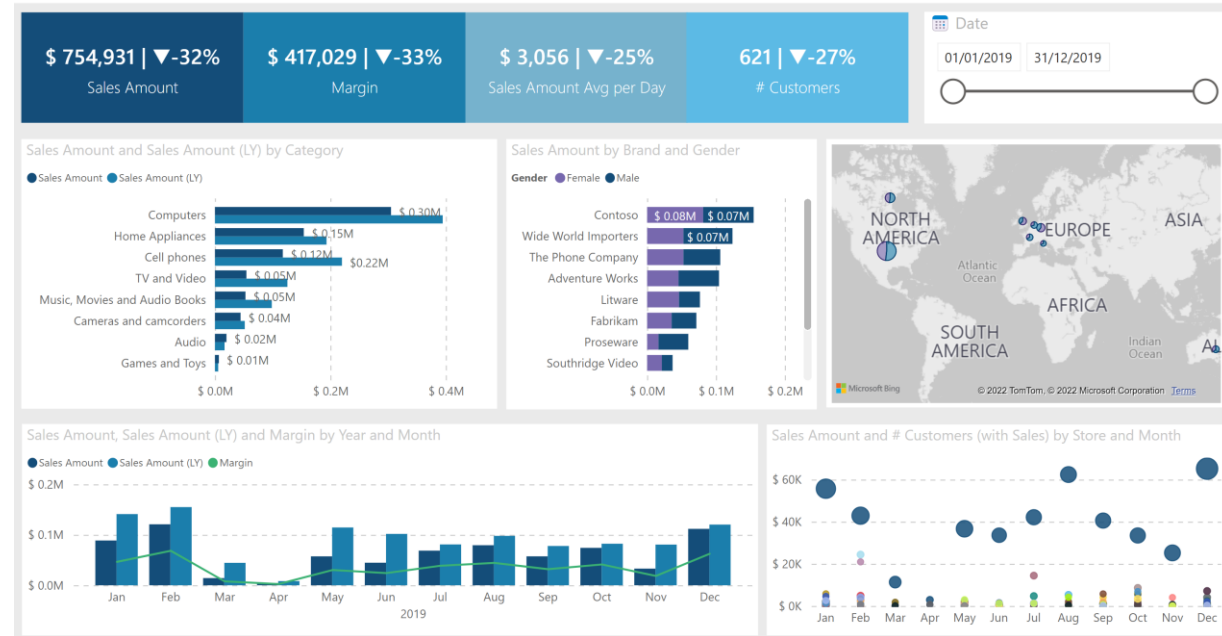


# Use Templates!

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

[Sample PBIT Download](#)

## 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": {
```

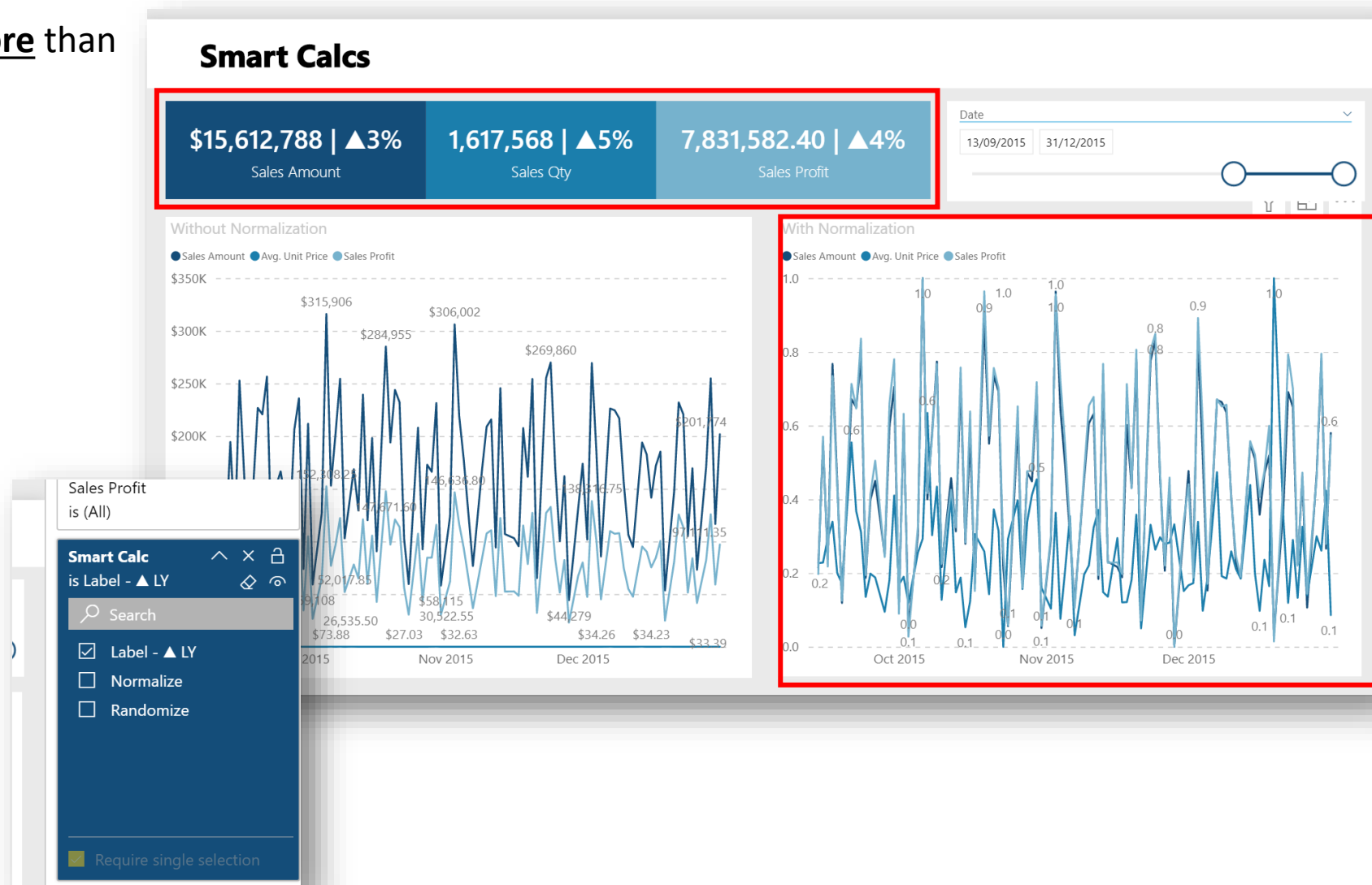
Learn more: <https://docs.microsoft.com/en-us/power-bi/desktop-report-themes>

# “Smart” Calculation Groups

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

Other very useful use cases:

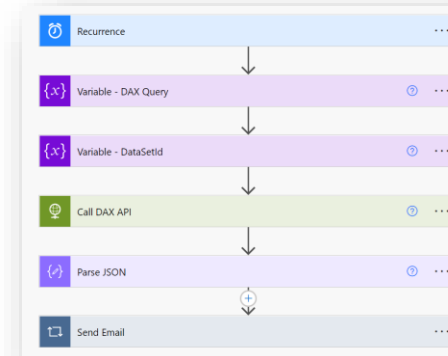
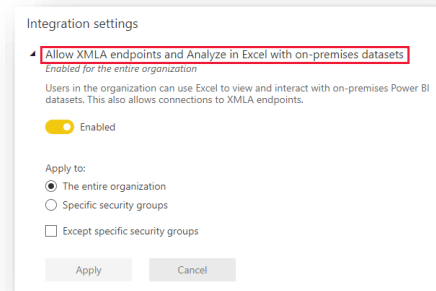
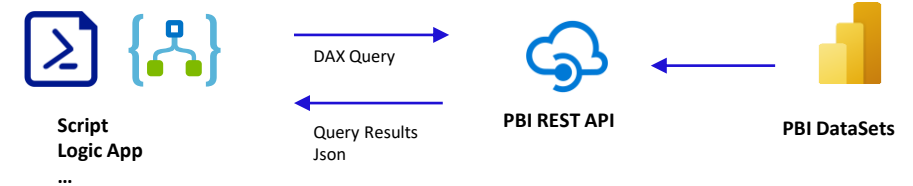
- Auto Time Variation on Cards
- Normalization
- Randomize



# 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	-0.244139428928031	
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 ly]
26         ),
27         [Sales Amount vs LY] < 0
28     )
29
30 Connect-PowerBIServiceAccount
31
32 $body = @{
33     "queries" = @(
34         @(
35             "query" = $query
36             ; "includeNulls" = $false
37         )
38     )
39 }
40
41 $bodyStr = $body | ConvertTo-Json
42
43 $result = Invoke-PowerBIRestMethod -url "datasets/$datasetId/executeQueryes" -body $bodyStr
44
45 PROBLEMS OUTPUT TERMINAL DEBUG CONSOLE
46
47 Username : rromano@rmsft.onmicrosoft.com
48
49 Employee[Employee] [Sales Amount] [Sales Qty] [Sales Profit] [Sales Amount vs LY]
50 Amy Trefl 13452 504 6438.5 -0.40562167368842
51 Anthony Grosse 9257.1 625 4794.6 -0.244139428928031
52 Hudson Hollinworth 8183.5 608 3677 -0.756427866664087
53 Sophia Hinton 13960.5 525 7087.25 -0.254320486490384
54 Archer Lambie 9893.4 523 4950.4 -0.5799034407205
```

# REST API – Power BI DevOps

Avoid multiple development files

Declare your deployment strategy

Automate the deployment using REST API's

You can make mistakes, the computer don't 😊

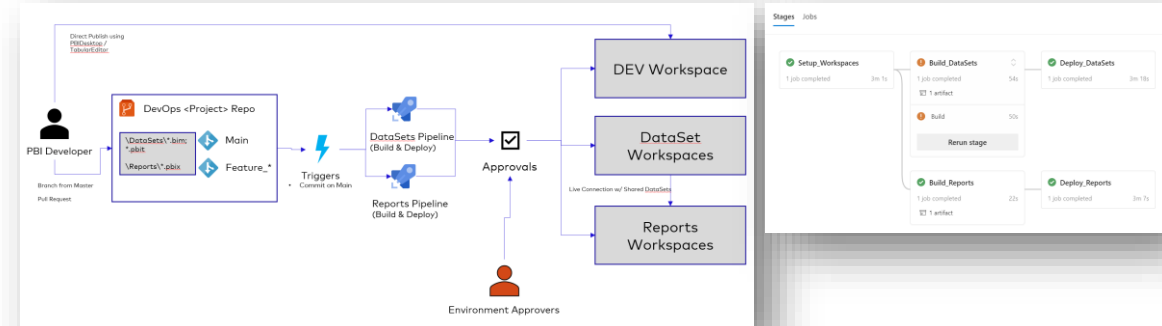
## If you have Premium

Deployment Pipelines

Must Watch: [Daniel Otykier Session](#)

- Azure DevOps
- Tabular Editor / bim file vs pbix
- REST API's

```
26
27 Connect-PowerBIServiceAccount
28
29 if ($workspaces)
30 {
31     Publish-PBIWorkspaces -configPath $configPath
32 }
33
34 if ($datasets)
35 {
36     Publish-PBIDataSets -configPath $configPath -path "$path\DataSets"
37 }
38
39 if ($reports)
40 {
41     # README - The live connected PBIX reports need to be binded to an existent Datas
42     Publish-PBIReports -configPath $configPath -path "$path\Reports"
43 }
44
45 if ($paginatedReports)
46 {
47     Publish-PBIReports -configPath $configPath -path "$path\PaginatedReports"
48 }
49
```





# Thanks!

 @RuiRomano

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