*Self-Service Power BI &*
*Fabric Newsletter*
*by David K. Hanna*

# Getting Started Series:

## Power BI Projects .PBIP and VS Code as a Power BI Developer

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## Power BI Projects .PBIP and VS Code as a Power BI Developer

### Setup

- Install Git, VS Code & enable Power BI Projects .PBIP
- TMDL and PBIR in .PBIP
- Extensions for VS Code when using .PBIP
- AI Extensions for VS Code when using .PBIP
- Open folder & Initialize Repo for Source Control
- Terminology of Git (that frightens Power BI developers)
- Clone Repository from GitHub to your PC

### Develop in VS Code and Validate in Power BI Desktop

- Find the visual object in the .PBIP
- Detect Changes and See Changes
- Working with Report JSON Theme
- Style Presets in Report JSON Theme
- Renaming GUID's to Display Names
- Annotations in PBIR
- Bookmarks in .PBIR
- Find and change the active report page
- Live-connected Reports
- Find Report Level Measures
- Add generic model docs TMDL and report page file

### GitHub Copilot

- GitHub Copilot Agent Mode & Power BI Modeling MCP Server
- Diagram Layout View
- Documentation on table, column and measures
- Power Query Folders
- Power Query Applied Steps
- SVG for wireframe of report objects

### Semantic Link Labs with .PBIP

- Semantic Link Labs in Fabric with Power BI Projects .PBIP
- Discover Bookmarks and Visual Level Filters
- Set Active Page
- Report Best Practice Analyzer

### Multiple Developers on a Single Project

- OneDrive & ALM Toolkit
- Deployment Pipelines
- Azure DevOps, GitHub & Fabric Git Integration
- Collaboration with Merge Conflicts, Feature Branches and Pull Requests

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# Install Git, VS Code & enable Power BI Projects .PBIP

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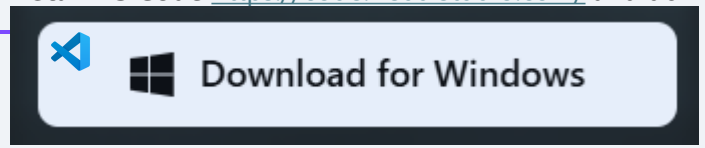
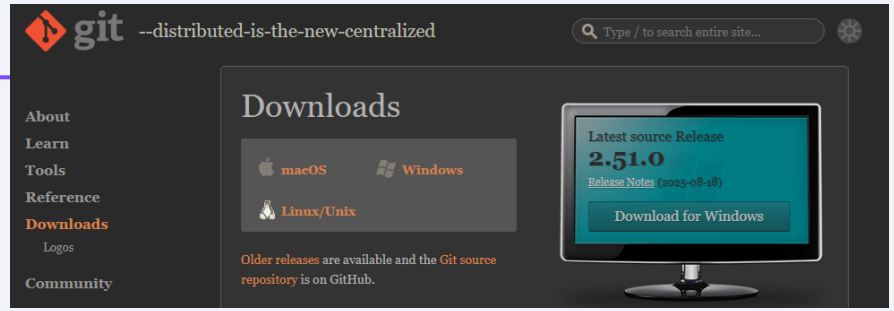
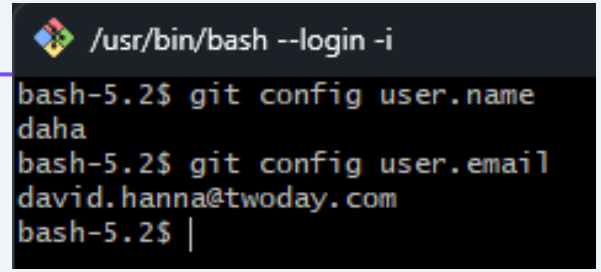
**Install VS Code** https://code.visualstudio.com/ and download for Windows



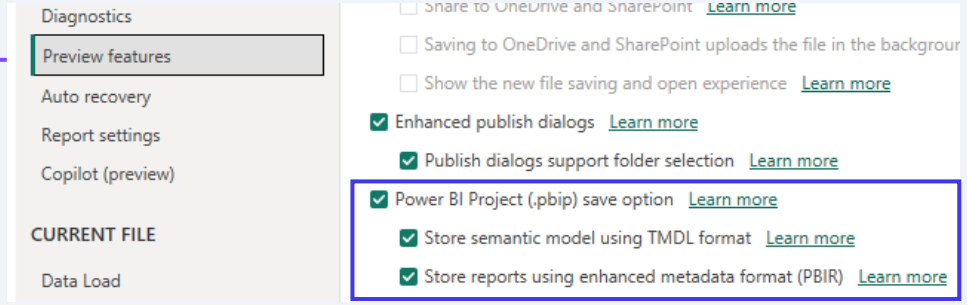

**Install Git** https://git-scm.com/downloads



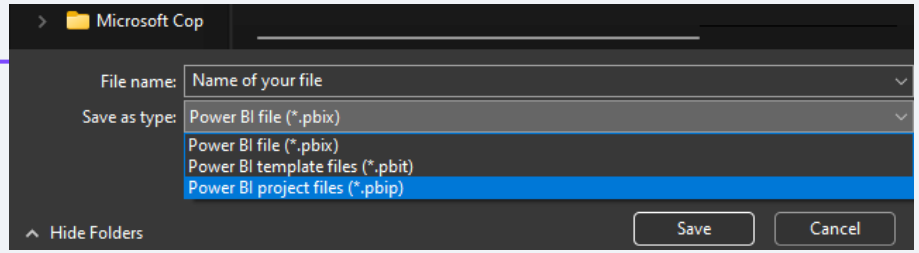

**Configure user and email on Git** C:\Program Files\Git\git-bash.exe First time setup




**In Power BI Desktop settings enable Power BI Project (pbip) save option**




**Take a Copy of your existing PBIX file and select Save as .PBIP**



# Before PBIR – One big Report.json, now -PBIR splits into more files

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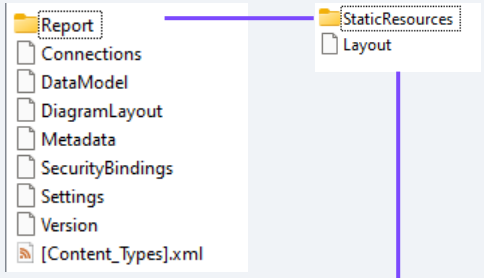
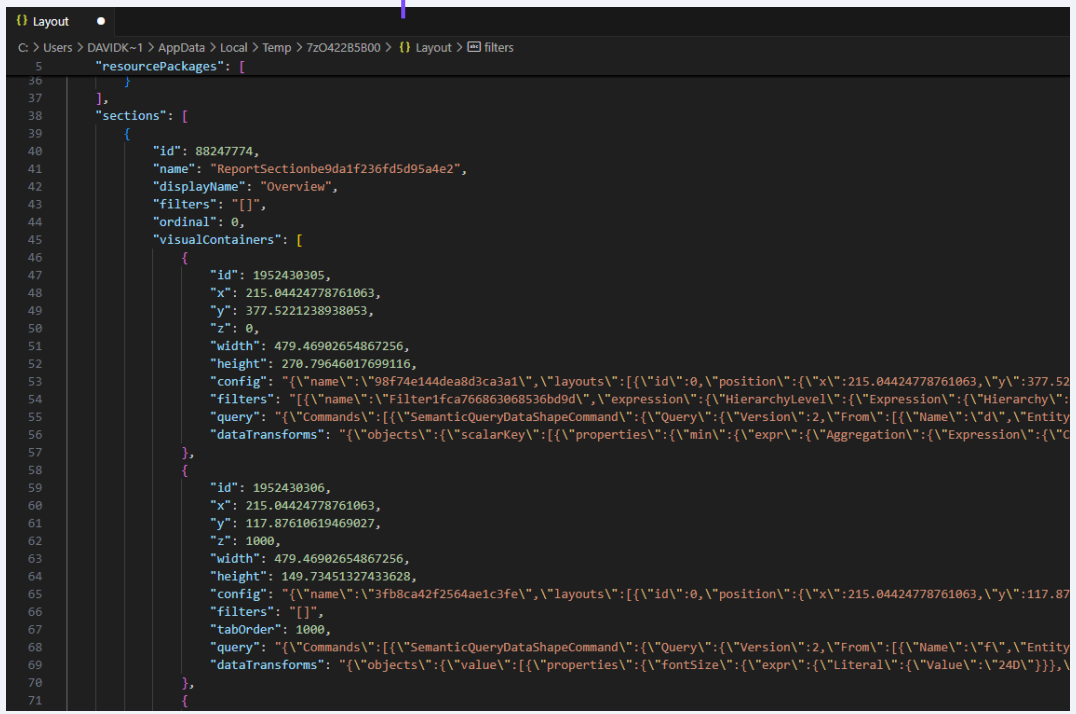
**Report.Json**
Standard in Power BI (Un-zip Power BI Desktop to see below)

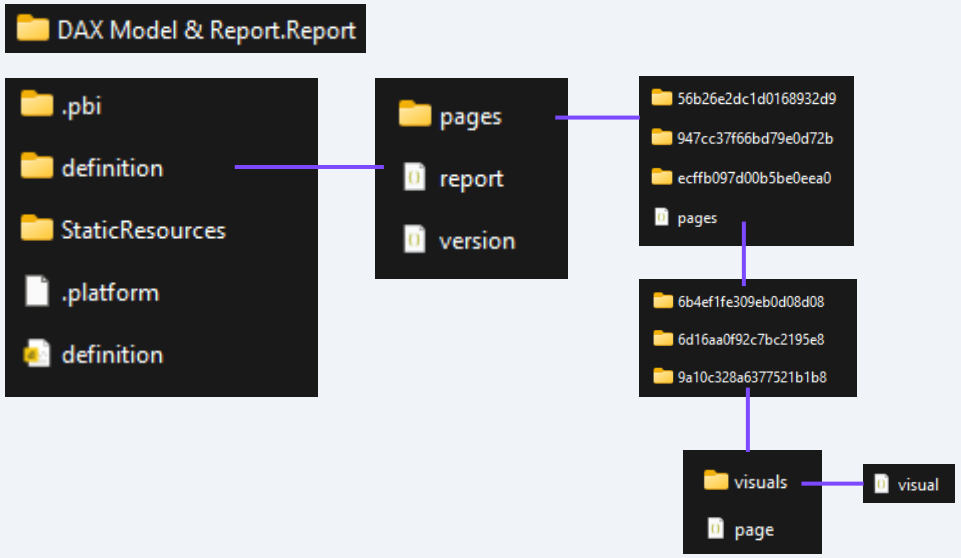




```
5        "resourcePackages": [
36           }
37       ],
38       "sections": [
39           {
40               "id": 88247774,
41               "name": "ReportSectionbe9da1f236fd5d95a4e2",
42               "displayName": "Overview",
43               "filters": "[]",
44               "ordinal": 0,
45               "visualContainers": [
46                   {
47                       "id": 1952430305,
48                       "x": 215.04424778761063,
49                       "y": 377.522123893805 3,
50                       "z": 0,
51                       "width": 479.46902654867256,
52                       "height": 270.79646017699116,
53                       "config": "{\"name\":\"98f74e144dea8d3ca3a1\",\"layouts\":[{\"id\":0,\"position\":{\"x\":215.04424778761063,\"y\":377.52
54                       "filters": "[{\"name\":\"Filter1fca766863068536bd9d\",\"expression\":{\"HierarchyLevel\":{\"Expression\":{\"Hierarchy\":
55                       "query": "{\"Commands\":[{\"SemanticQueryDataShapeCommand\":{\"Query\":{\"Version\":2,\"From\":[{\"Name\":\"d\",\"Entity
56                       "dataTransforms": "{\"objects\":{\"scalarKey\":[{\"properties\":{\"min\":{\"expr\":{\"Aggregation\":{\"Expression\":{\"C
57                   },
58                   {
59                       "id": 1952430306,
60                       "x": 215.04424778761063,
61                       "y": 117.87610619469027,
62                       "z": 1000,
63                       "width": 479.46902654867256,
64                       "height": 149.73451327433628,
65                       "config": "{\"name\":\"3fb8ca42f2564ae1c3fe\",\"layouts\":[{\"id\":0,\"position\":{\"x\":215.04424778761063,\"y\":117.87
66                       "filters": "[]",
67                       "tabOrder": 1000,
68                       "query": "{\"Commands\":[{\"SemanticQueryDataShapeCommand\":{\"Query\":{\"Version\":2,\"From\":[{\"Name\":\"f\",\"Entity
69                       "dataTransforms": "{\"objects\":{\"value\":[{\"properties\":{\"fontSize\":{\"expr\":{\"Literal\":{\"Value\":\"24D\"}}},\
70                   },
71                   {
```


**PBIR** (Power BI enhanced report format)
Preview June 2024
Upgrade of report.json with split into individual files page, bookmarks, visuals



# Before TMDL – Tabular Editor ‘Save to folder’

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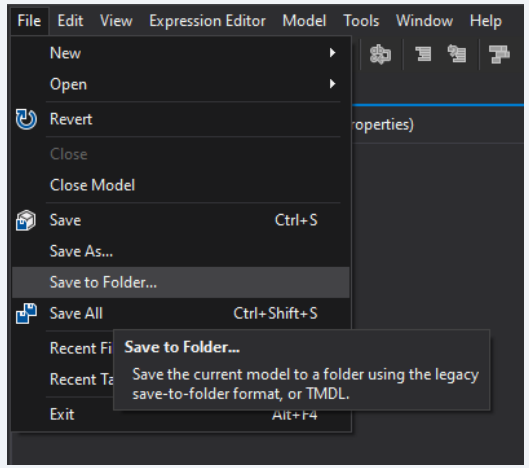
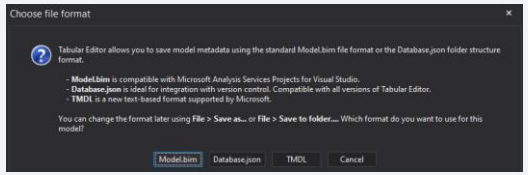
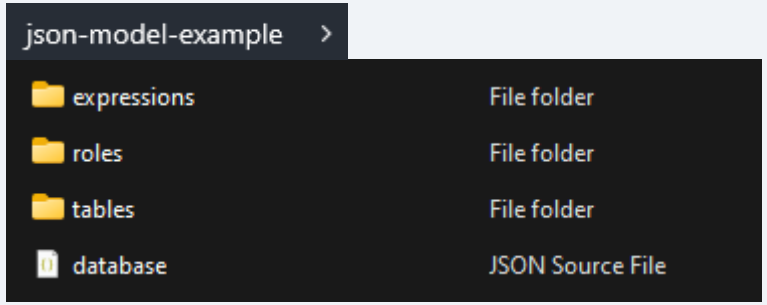
**Tabular Editor** “Save to Folder” feature for Tabular Editor only in database.json
Available since 2017, but unsupported by Microsoft

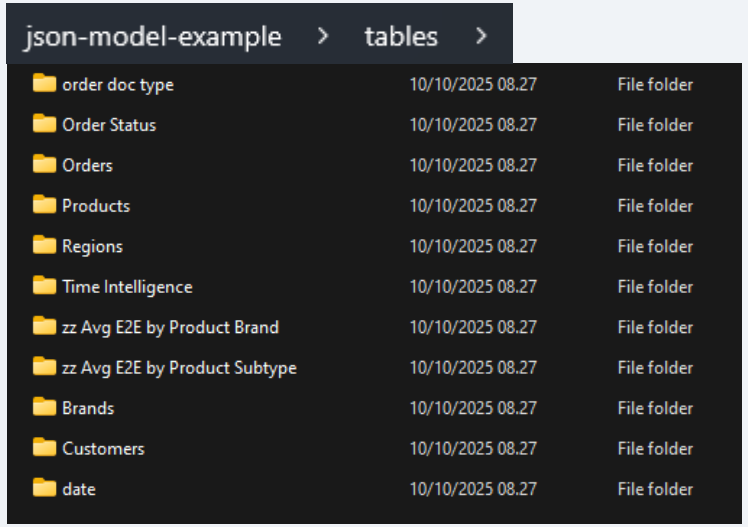


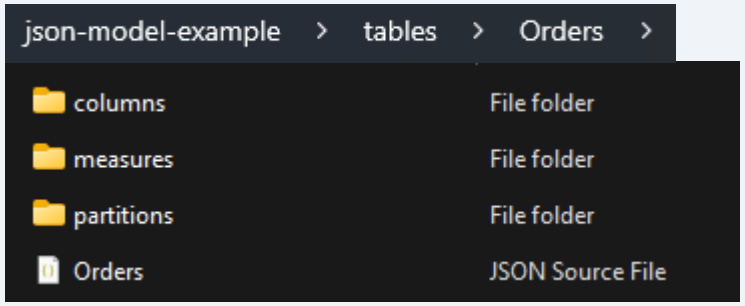

The overall **model** has a database json and each TOM headline has its own folder



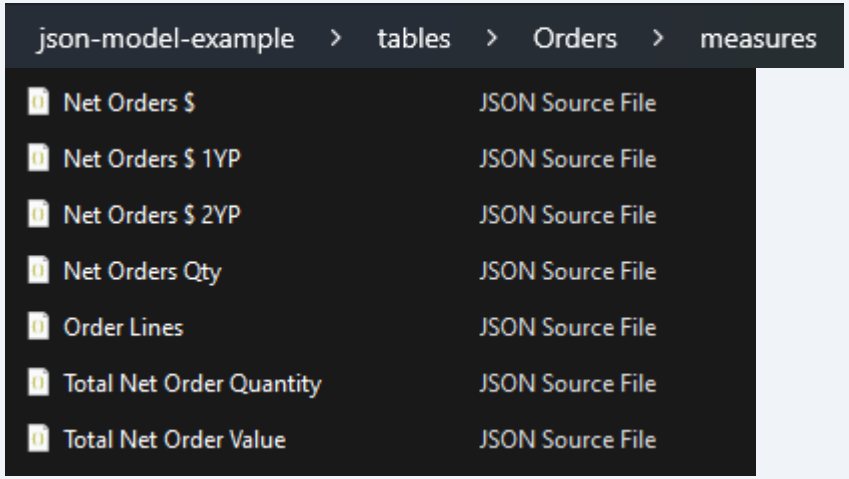

In **tables**, each table exist in its own folder




An **individual table as** a TableName json file with folders for measures, columns and partitions




The **measures** on the table each have their own json file.




https://docs.tabulareditor.com/te3/features/supported-files.html?tabs=JSON

# TMDL and PBIR in Power BI Projects .PBIP

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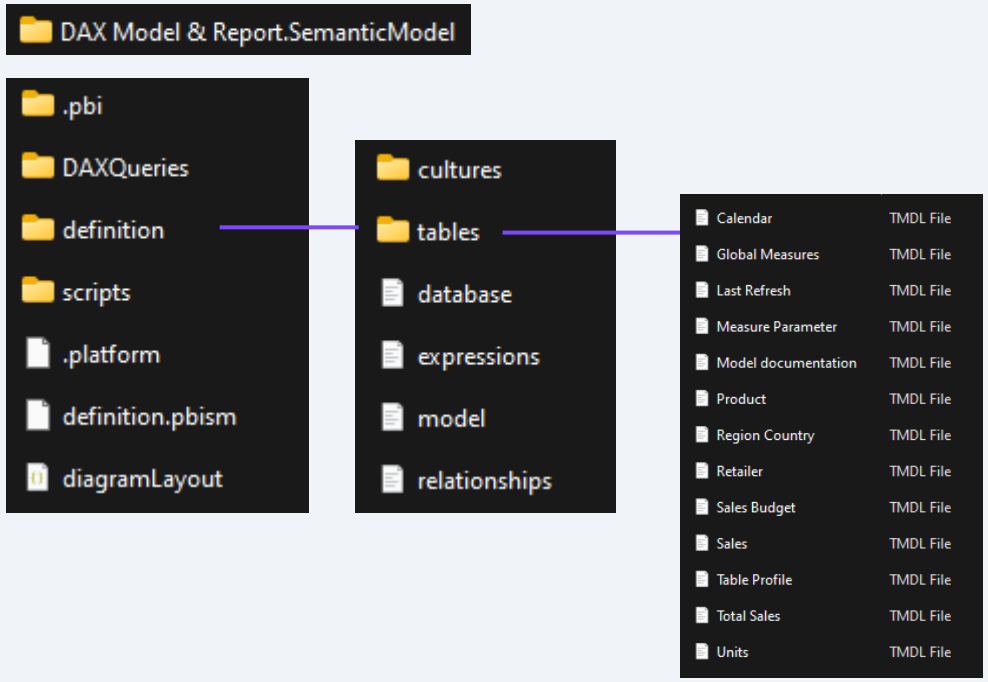
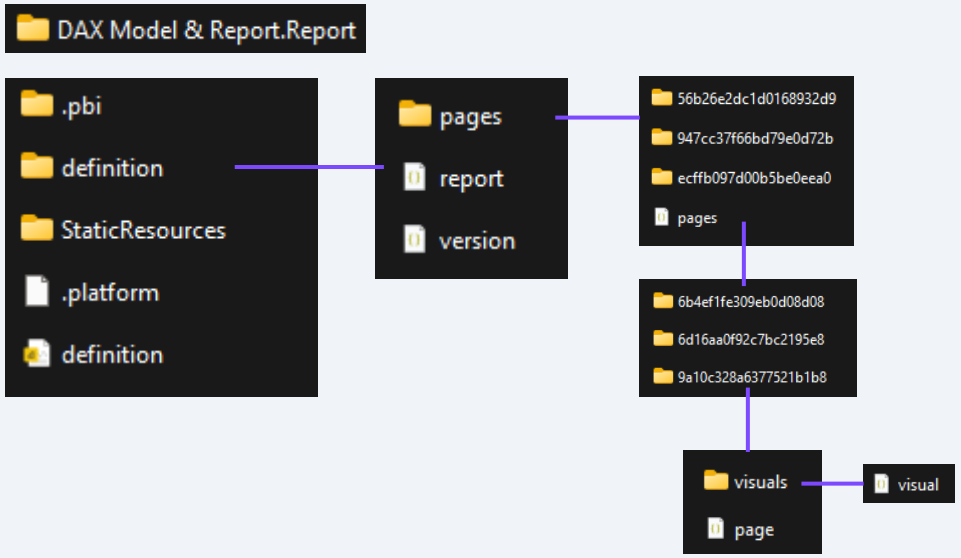
**TMDL** (Tabular Model Definition Language)
Preview Apr 2023 and General Available Aug 2024
Upgrade of Model.bim




**PBIR** (Power BI enhanced report format)
Preview June 2024
Upgrade of report.json



# TMDL and PBIR in Power BI Projects .PBIP

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**.PBIP (Power BI Projects)**
Preview since 2023

**TMDL** (Tabular Model Definition Language)
Preview Apr 2023 and General Available Aug 2024
Upgrade of Model.bim

DAX Model & Report.SemanticModel

- .pbi
- DAXQueries
- definition
  - cultures
  - tables
    - Calendar TMDL File
    - Global Measures TMDL File
    - Last Refresh TMDL File
    - Measure Parameter TMDL File
    - Model documentation TMDL File
    - Product TMDL File
    - Region Country TMDL File
    - Retailer TMDL File
    - Sales Budget TMDL File
    - Sales TMDL File
    - Table Profile TMDL File
    - Total Sales TMDL File
    - Units TMDL File
  - database
  - expressions
  - model
  - relationships
- scripts
- .platform
- definition.pbism
- diagramLayout

**PBIR** (Power BI enhanced report format)
Preview June 2024
Upgrade of report.json

DAX Model & Report.Report

- .pbi
- definition
  - pages
    - 56b26e2dc1d0168932d9
    - 947cc37f66bd79e0d72b
    - ecffb097d00b5be0eea0
    - pages
      - 6b4ef1fe309eb0d08d08
      - 6d16aa0f92c7bc2195e8
      - 9a10c328a6377521b1b8
        - visuals
          - visual
        - page
  - report
  - version
- StaticResources
- .platform
- definition

# Extensions for VS Code when using .PBIP

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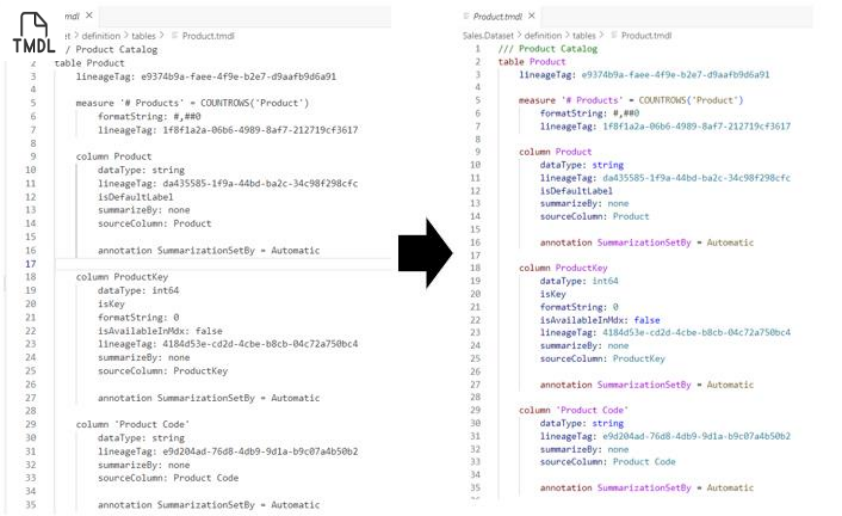
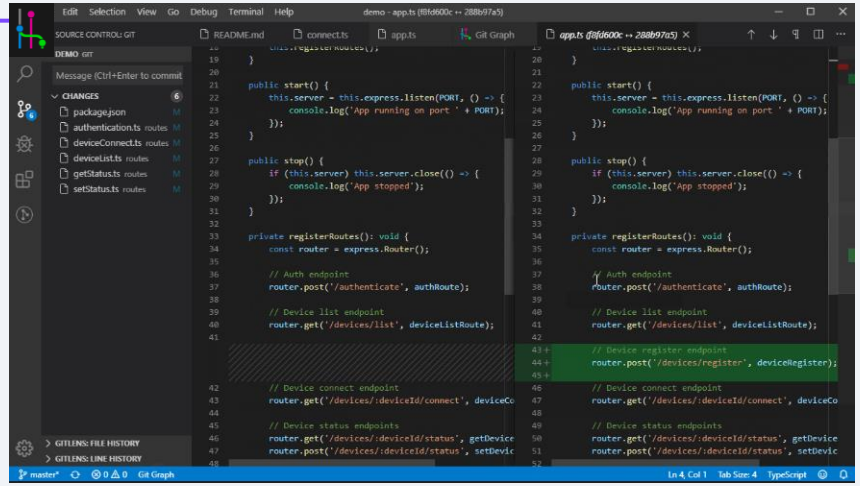
**Color Highlight** to bring the HEX colors alive in code

```
"foregroundNeutralTertiary": "#B3B0AD",
"background": "#FFFFFF",
"backgroundLight": "#F3F2F1",
"backgroundNeutral": "#C8C6C4",
"tableAccent": "#118DFF",
"good": "#1AAB40",
"neutral": "#D9B300",
"bad": "#D64554",
"maximum": "#118DFF",
"center": "#D9B300",
"minimum": "#DEEFFF",
"null": "#FF7F48",
"hyperlink": "#0078d4",
"visitedHyperlink": "#0078d4",
"textClasses": {
  "callout": {
    "fontSize": 45,
    "fontFace": "DIN",
    "color": "#252423"
```

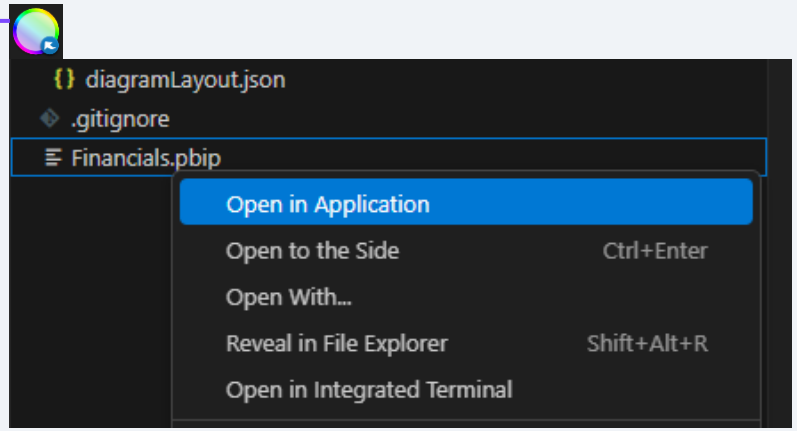
**TMDL** Language support for the Tabular Model Definition Language (TMDL) enabling developers to work directly with the code behind semantic model and syntax highlighting and autocomplete, error diagnostics and code formatting



**Git Graph** View a Git Graph of your repository, and perform Git actions from the graph



**Open in Application** Right-click and open an arbitrary file in its default app



# AI Extensions for VS Code when using .PBIP

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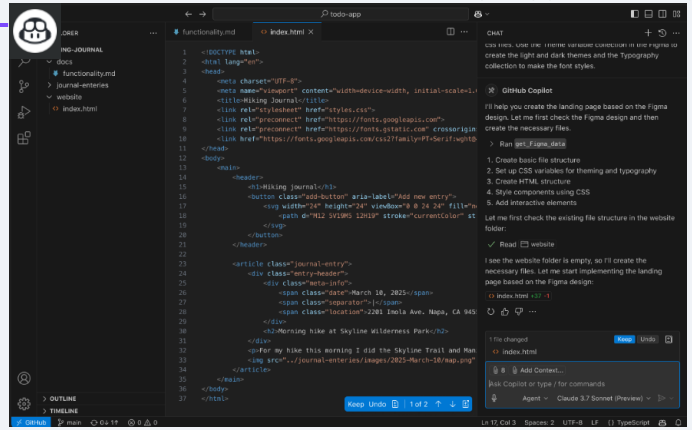
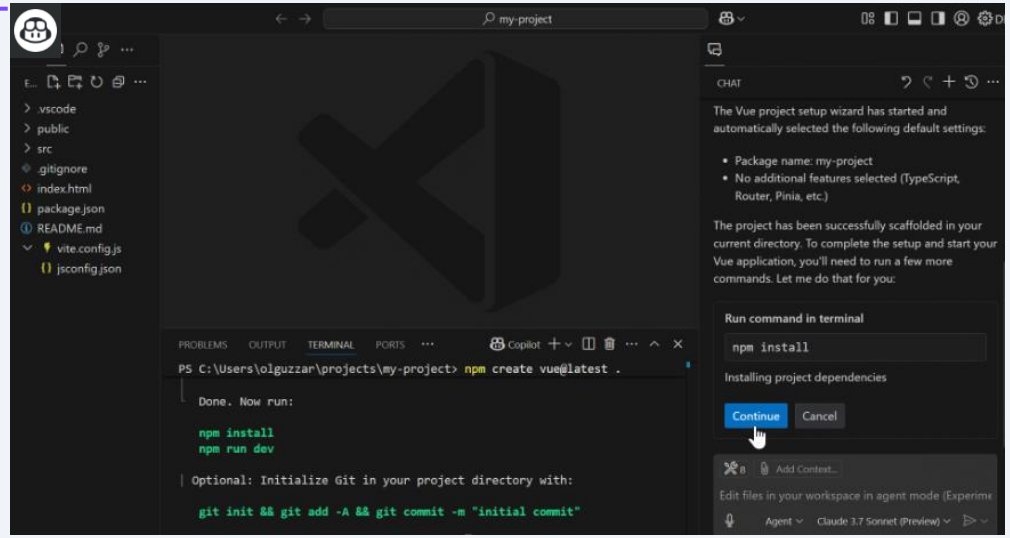
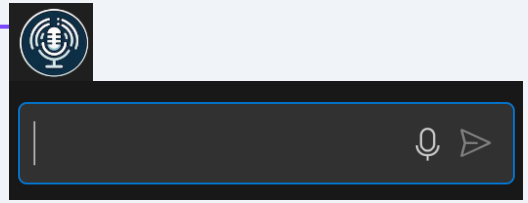
**GitHub Copilot** Provides inline coding suggestions as you type.



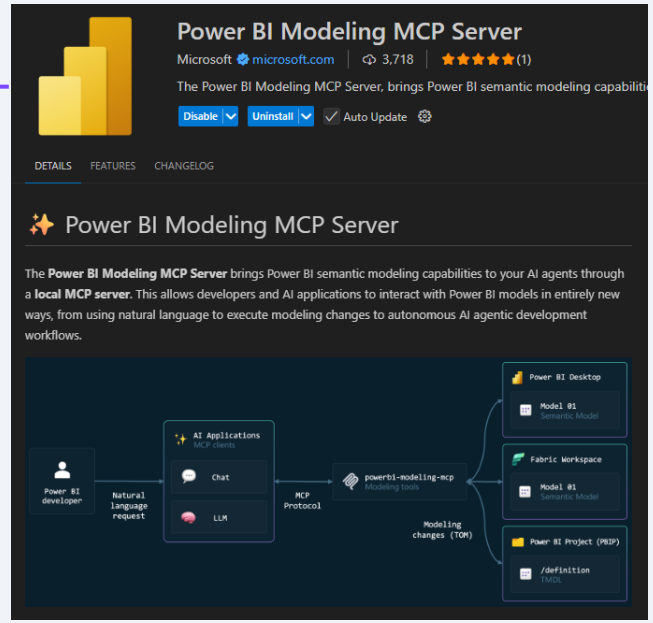
**GitHub Copilot Chat** A companion extension that provides conversational AI assistance.




**VS Code Speech** to bring speech-to-text and other voice capabilities to VS Code.



**The Power BI Modeling MCP Server** brings Power BI semantic modeling capabilities to your AI agents through a local MCP server. This allows developers and AI applications to interact with Power BI models in entirely new ways, from using natural language to execute modeling changes to autonomous AI agentic development workflows.



# Open folder & Initialize Repo for Source Control

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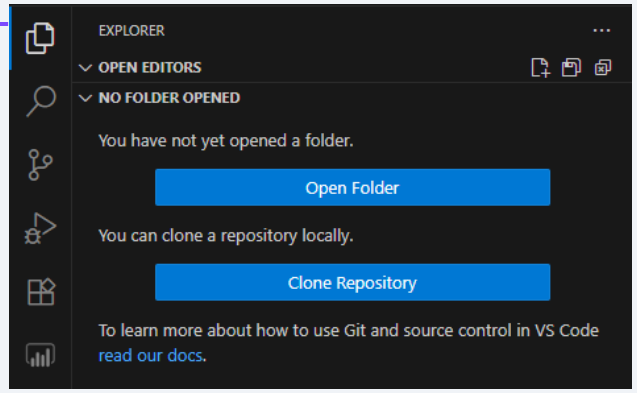
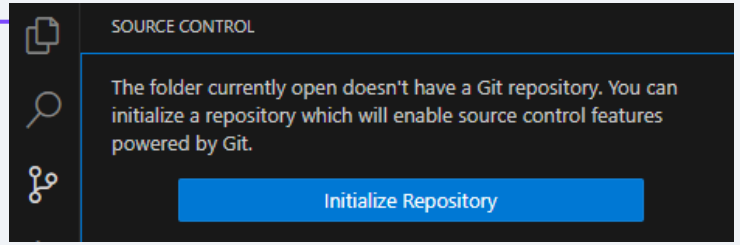
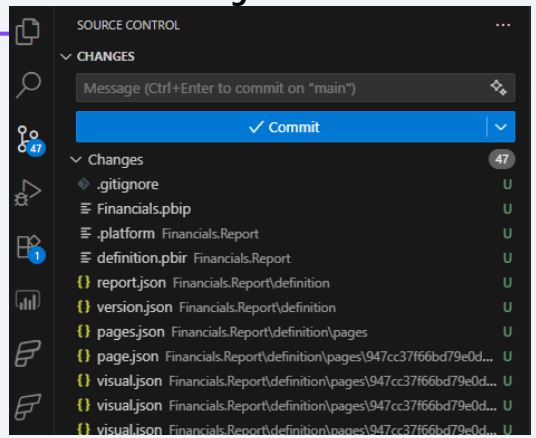
**Open VS Code and click Open Folder** and select the .PBIP folder



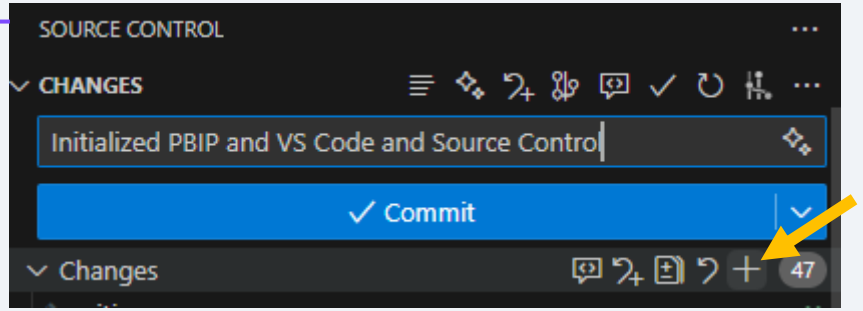

**Initialize Repository for source control**



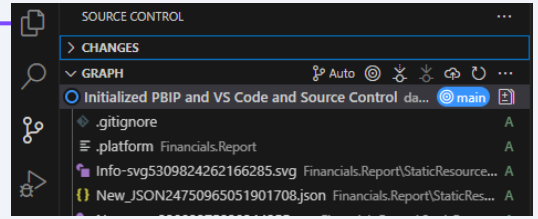

**We have 47 changes – or in this case 47 new files**




**Click on + "Stage All changes" and write a "Commit message" and click " ✔ Commit"**




**Extra:** Via Git Graph extension we can see the Commit message and file changes



# Terminology of Git (that frightens Power BI developers)

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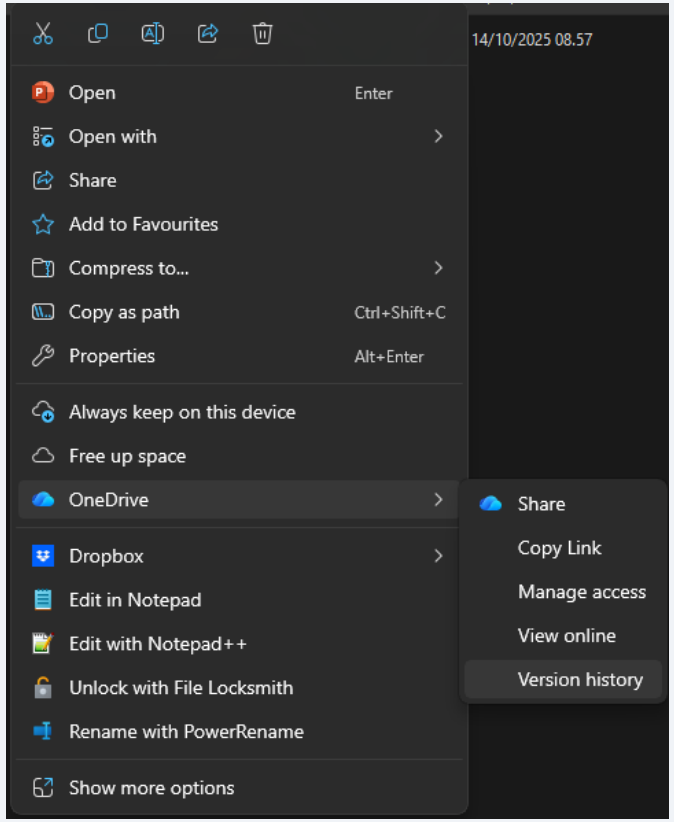
**Relax.**
**You already work with version history - in OneDrive,**
Google Drive or Dropbox

OneDrive




**However, it's difficult to remember what changed**
and what's the difference between the versions.
You have now comments or comparisons, either than Restore file, Open file and check it.

**Versions saved for Power BI Advanced Visualization Course [Oct 2025 - DAHA].pptx**

| Version | Modified Date | Modified By | Size |
|---|---|---|---|
| 40.0 | 10/15/2025 08:24 PM | David Kofod Har | 63.3 MB |
| 39.0 | 10/15/2025 08:18 PM | David Kofod Har | 63.3 MB |
| 38.0 | 10/15/2025 01:26 PM | David Kofod Har | 63.3 MB |
| 37.0 | 10/15/2025 01:25 PM | David Kofod Har | 63.3 MB |
| 36.0 | 10/15/2025 01:15 PM | David Kofod Har | 63.0 MB |

Restore
Open File
Delete Version

# Terminology of Git (that frightens Power BI developers)

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**Imagine you with OneDrive** had the option to see differences or you own comments of the work you had added/deleted/adjusted

OneDrive

**Versions saved for Power BI Advanced Visualization Course [Oct 2025 - DAHA].pptx**

| Version | Modified Date | Modified By | Size |
|---|---|---|---|
| 40.0 | 10/15/2025 08:24 PM | David Kofod Har | 63.3 MB |
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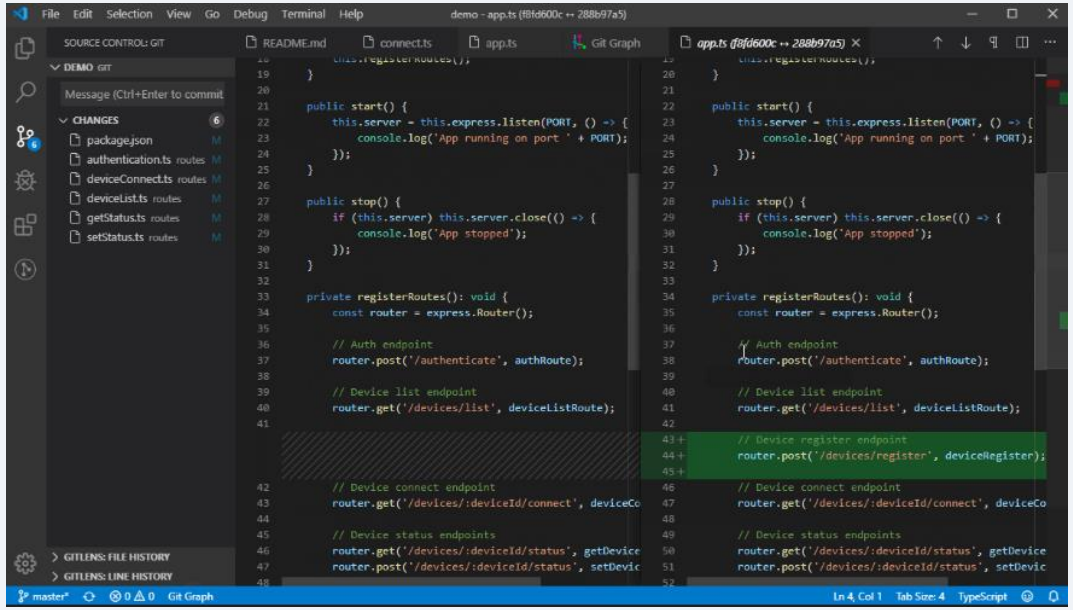
| 38.0 | 10/15/2025 01:26 PM | David Kofod Har | 63.3 MB |
| 37.0 | 10/15/2025 01:25 PM | David Kofod Har | 63.3 MB |
| 36.0 | 10/15/2025 01:15 PM | | |

Restore
Open File
Delete Version

**With Git,** I have version control but also source control. I can compare the files side by side and see what has changed/added/deleted.

git



# Terminology of Git (that frightens Power BI developers)

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**Imagine you with OneDrive** could control when the version was saved instead of my 40 versions.

OneDrive

**Versions saved for Power BI Advanced Visualization Course [Oct 2025 - DAHA].pptx**

| Version | Modified Date | Modified By | Size |
|---|---|---|---|
| 40.0 | 10/15/2025 08:24 PM | David Kofod Har | 63.3 MB |
| 39.0 | 10/15/2025 08:18 PM | David Kofod Har | 63.3 MB |
| 38.0 | 10/15/2025 01:26 PM | David Kofod Har | 63.3 MB |
| 37.0 | 10/15/2025 01:25 PM | David Kofod Har | 63.3 MB |
| 36.0 | 10/15/2025 01:15 PM | | |

Restore
Open File
Delete Version

**With Git,** I can decide when I want to save a version together with a comment of my work. You can call it a snapshot of the file together with a comment, also called a Commit with a Commit message.

git

GRAPH Auto

Initialized PBIP and VS Code and Source Control daha main

- .gitignore A
- .platform Financials.Report A
- Info-svg5309824262166285.svg Financials.Report\StaticResources\RegisteredResources A
- New_JSON24750965051901708.json Financials.Report\StaticResources\RegisteredResources A
- News-svg22002375820344255.svg Financials.Report\StaticResources\RegisteredResources A
- Settings-svg387767183561013 03.svg Financials.Report\StaticResources\RegisteredResour... A
- User_logged_in9161470044588769.png Financials.Report\StaticResources\RegisteredReso... A
- CY24SU06.json Financials.Report\StaticResources\SharedResources\BaseThemes A
- definition.pbir Financials.Report A
- page.json Financials.Report\definition\pages\947cc37f66bd79e0d72b A
- visual.json Financials.Report\definition\pages\947cc37f66bd79e0d72b\visuals\18d15cc44525... A
- visual.json Financials.Report\definition\pages\947cc37f66bd79e0d72b\visuals\275084804d4... A
- visual.json Financials.Report\definition\pages\947cc37f66bd79e0d72b\visuals\3468b6aabbb... A
- visual.json Financials.Report\definition\pages\947cc37f66bd79e0d72b\visuals\46c1e8938c86... A
- visual.json Financials.Report\definition\pages\947cc37f66bd79e0d72b\visuals\80777ddc039... A
- visual.json Financials.Report\definition\pages\947cc37f66bd79e0d72b\visuals\bdafb1499173... A
- visual.json Financials.Report\definition\pages\947cc37f66bd79e0d72b\visuals\c49f0e7c416d... A
- visual.json Financials.Report\definition\pages\947cc37f66bd79e0d72b\visuals\da6978df0d3e... A
- pages.json Financials.Report\definition\pages A

C: > Users > DavidKofodHanna > OneDrive - twoday > Desktop > Getting Started Series PBIP x VS Code >

You, last week | 1 author (You)

```
/// Calendar table        You, last week • Initialized PBIP and VS Code a
table Calendar
    lineageTag: de26fdea-0bb0-4681-935d-dc7dd390d23a

    column Day
        dataType: int64
        formatString: 0
        lineageTag: d01cb994-9fdb-42fe-89ee-a6990d2cfe14
        summarizeBy: sum
        sourceColumn: Day

        annotation SummarizationSetBy = Automatic

    column Month
        dataType: int64
        formatString: 0
        lineageTag: 6514d390-eda5-4334-888c-f1a78e8d75ab
        summarizeBy: sum
        sourceColumn: Month

        annotation SummarizationSetBy = Automatic
```

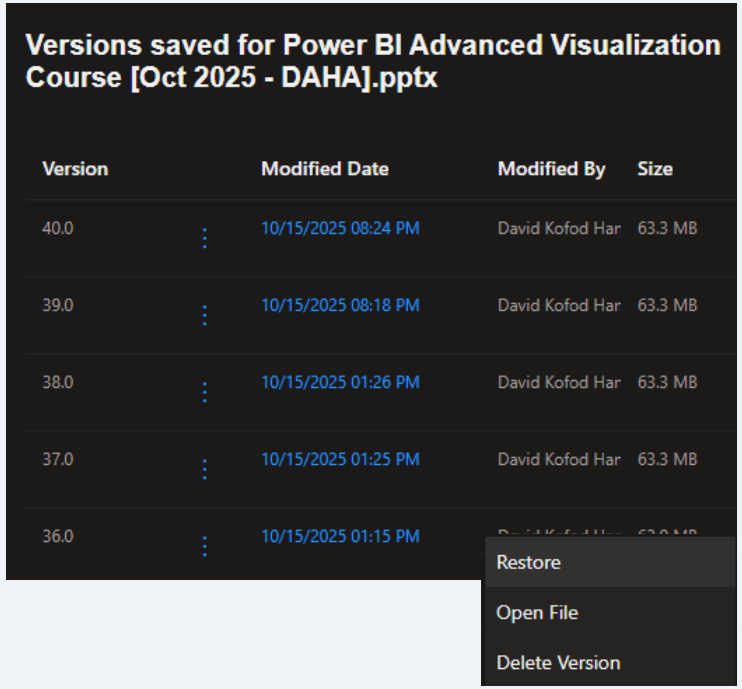
# Terminology of Git (that frightens Power BI developers)

*Self-Service Power BI & Fabric Newsletter*
*by David K. Hanna*

## Don’t think about branches!

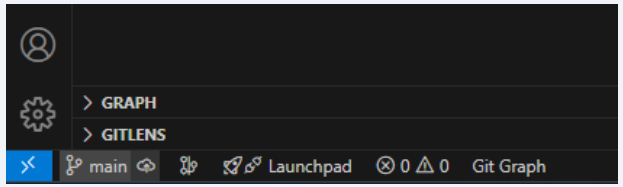
I recommend a single Power BI developer that are just starting out with Git to only have the main branch. Like with OneDrive. You have one codebase of your files but can go back via the Commits as Restore option if needed.

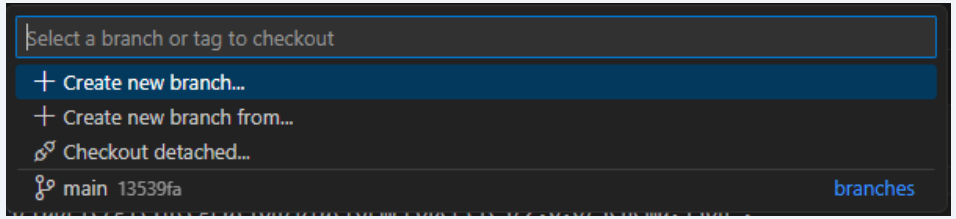
OneDrive

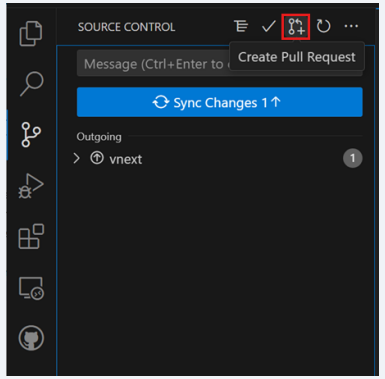



**Git** allow you to work with **multiple versions of your codebase simultaneously.** This is useful for experimenting with new features or making large code changes without affecting the main codebase. This is called branching. Main branch, feature branch, development branch. Especially great for team development on a project

git



# Clone Repository from GitHub to your PC (Copy a folder)

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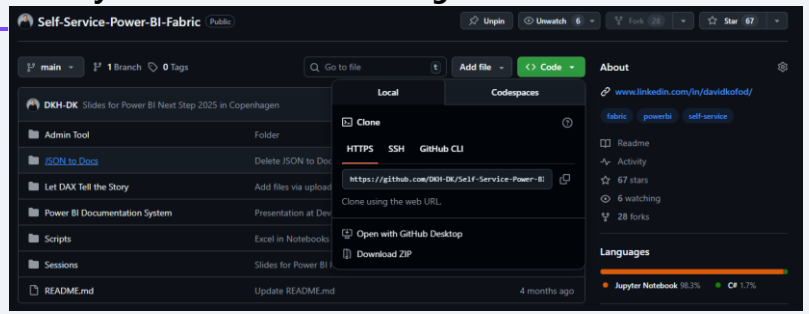
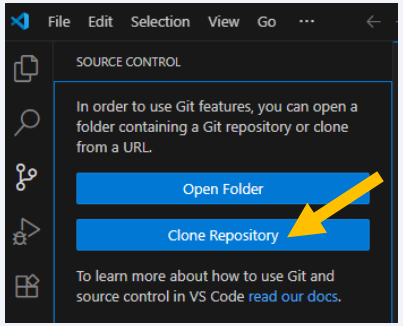
*by David K. Hanna*

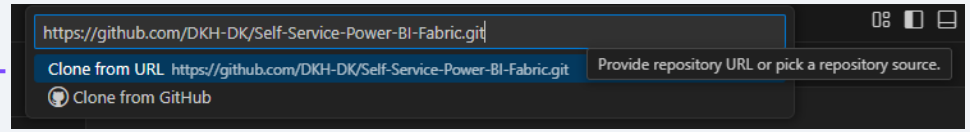
## Go to your favorite GitHub and get the HTTPS web URL within Code and copy




## Open VS Code and Source Control and select "Clone Repository"

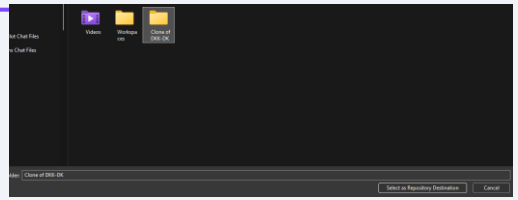



## Insert URL and click enter

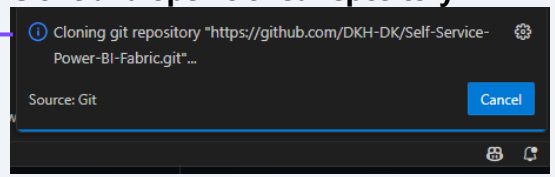


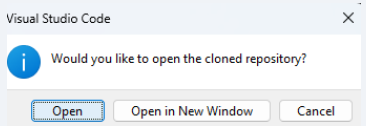

## Select/create folder Git on Local pc for Repository Destination

⚠️ Don't save on OneDrive

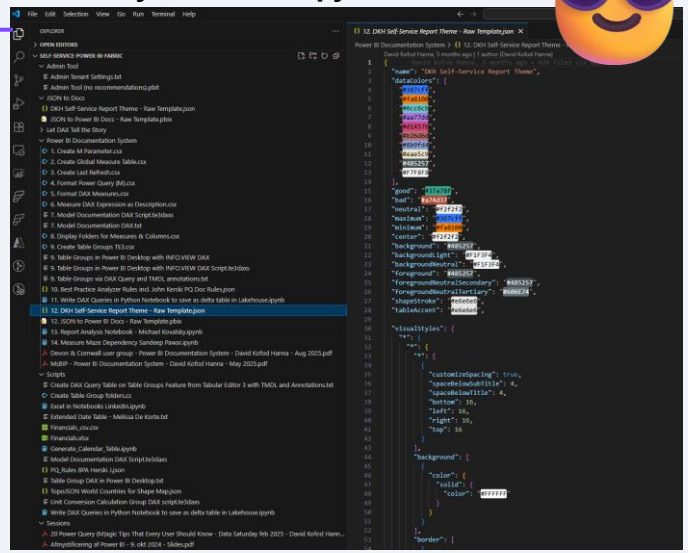


## Clone and open cloned repository




## And now you have a copy to work with



# Let me just download a .zip

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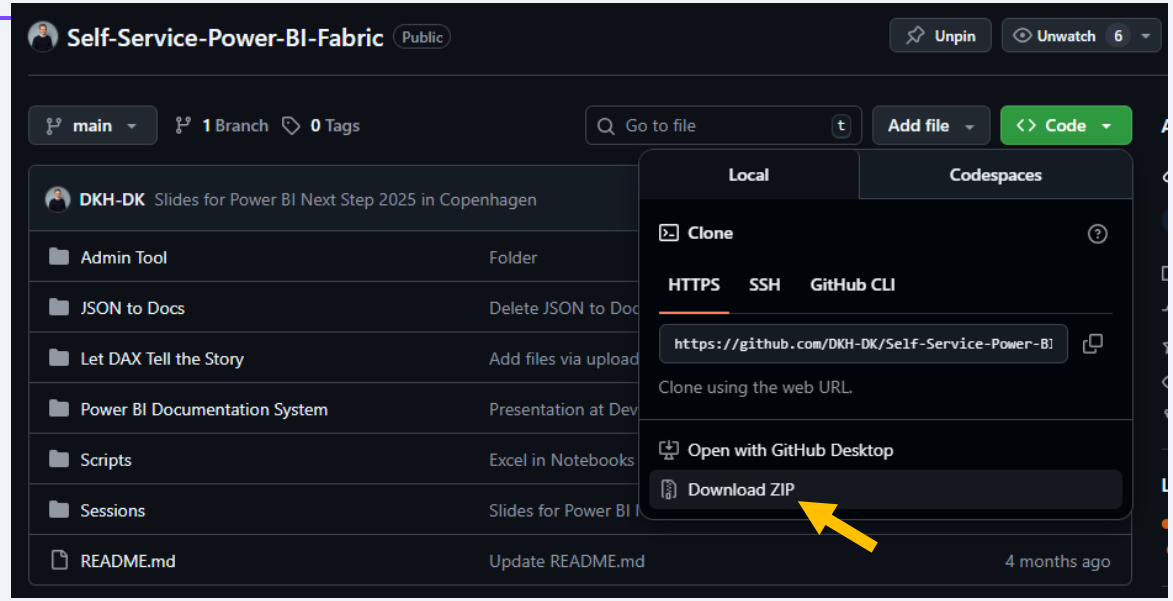
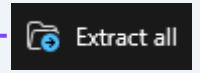
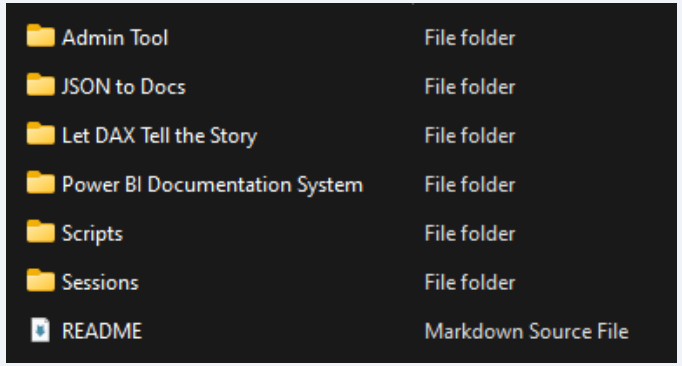
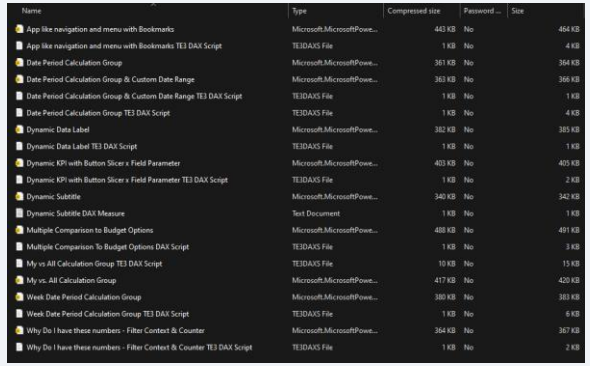
**Or just click on "Download ZIP" to have all downloaded**



*Self-Service Power BI & Fabric Newsletter*
*by David K. Hanna*

# Getting Started Series:

## Power BI Projects .PBIP and VS Code as a Power BI Developer

### Setup

- *Install Git, VS Code & enable Power BI Projects .PBIP*
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- *Extensions for VS Code when using .PBIP*
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- *Open folder & Initialize Repo for Source Control*
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- *Clone Repository from GitHub to your PC*

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- **Find the visual object in the .PBIP**
- Detect Changes and See Changes
- Working with Report JSON Theme
- Style Presets in Report JSON Theme
- Renaming GUID's to Display Names
- Annotations in PBIR
- Bookmarks in .PBIR
- Find and change the active report page
- Live-connected Reports
- Find Report Level Measures
- Add generic model docs TMDL and report page file

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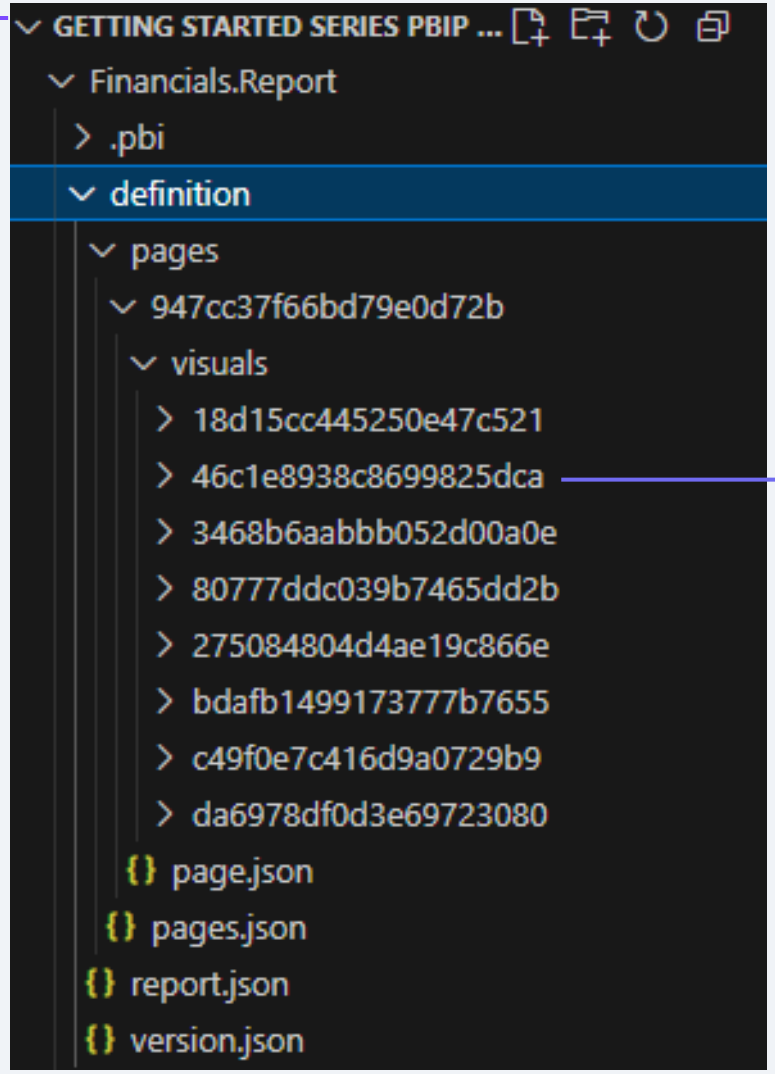
- Collaboration with Merge Conflicts, Feature Branches and Pull Requests

# Find the visual object in the .PBIP – Where is it?

*Self-Service Power BI & Fabric Newsletter*
*by David K. Hanna*

**Where is my visual? I can't find it?**




**20 character what?**

"46c1e8938c8699825dca"

# Find the visual object in the .PBIP – Copy object name

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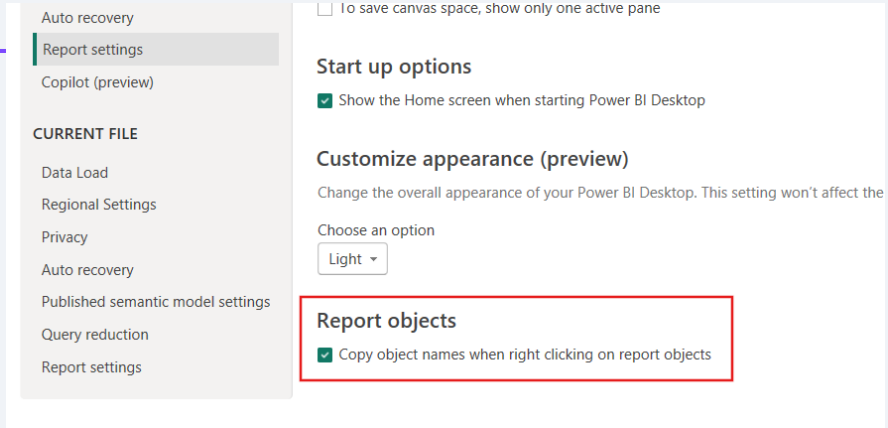
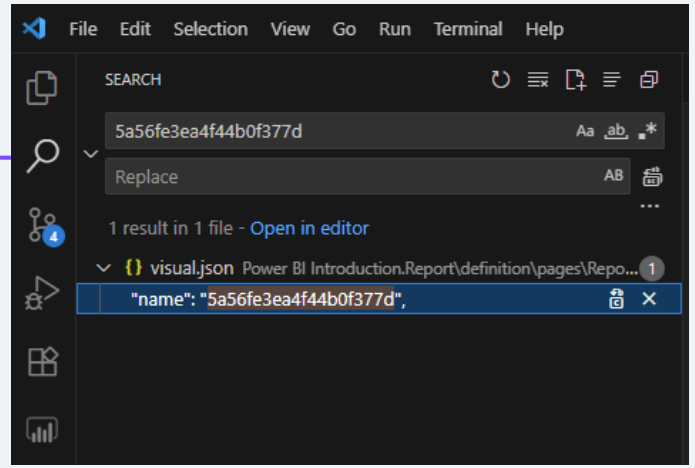
*by David K. Hanna*

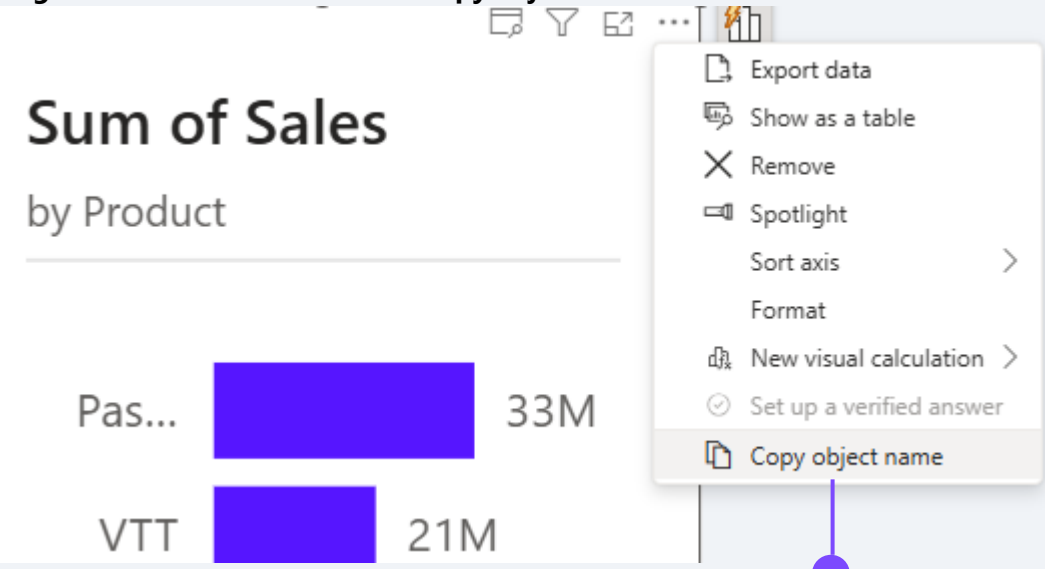
**In PBI Desktop: Enable feature** "Copy object names when right clicking on report objects"



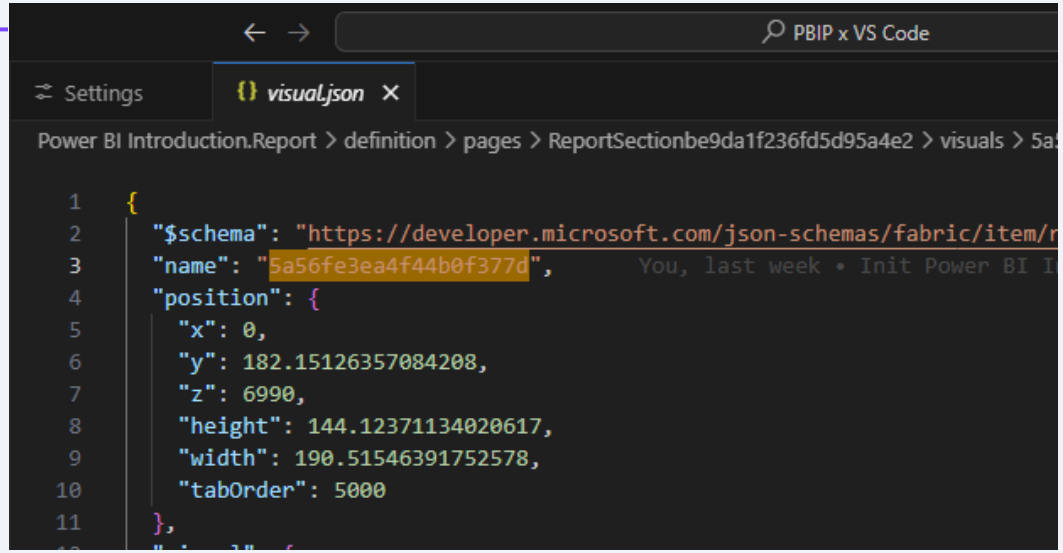

**Open VS Code** and click the search icon in nav bar and paste ID into search




**Right-click on visual and select Copy object name**




**Double-click and open the visual.json file** representing the visual



# Find the visual object in the .PBIP – With Performance Analyzer Log

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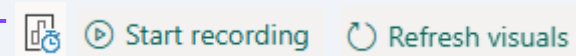
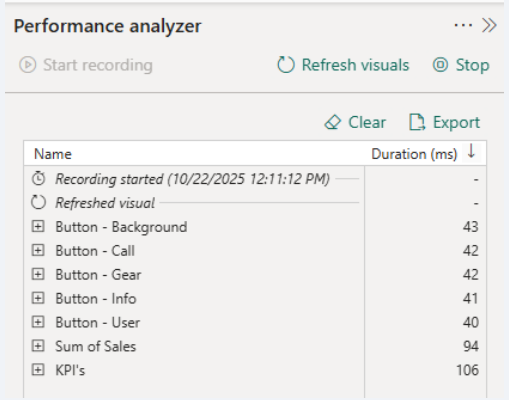
*by David K. Hanna*

**Enable feature** Copy object names when right clicking on report objects

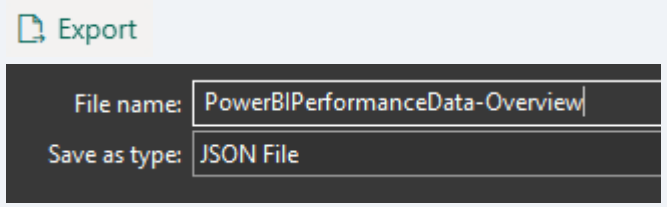


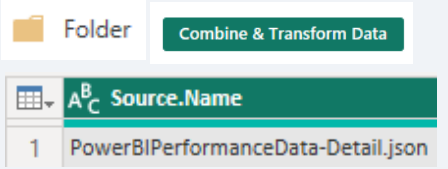

**Open Power BI → Get Data →** JSON and filter column "events.name" on "Visual Container Lifecycle" and now you have the Visual ID

| events.name | events.metrics.visualTitle | events.metrics.visualId | events.metrics.visualType |
|---|---|---|---|
| Visual Container Lifecycle | Button - Background | 46c1e8938c8699825dca | actionButton |
| Visual Container Lifecycle | Button - Call | 80777ddc039b7465dd2b | actionButton |
| Visual Container Lifecycle | Button - Gear | 3468b6aabbb052d00a0e | actionButton |
| Visual Container Lifecycle | Button - Info | c49f0e7c416d9a0729b9 | actionButton |
| Visual Container Lifecycle | Button - User | bdafb1499173777b7655 | actionButton |
| Visual Container Lifecycle | Sum of Sales | 275084804d4ae19c866e | clusteredBarChart |
| Visual Container Lifecycle | KPI's | da6978df0d3e69723080 | cardVisual |

**Click "Export" and save JSON with suffix "-PageName"**




**Do this for all pages in report – and use connect to folder** instead of single JSON file
Save as combined file and we can use this to feed GitHub Copilot for renaming




| | Source.Name | version | events.metrics.visualTitle | events.metrics.visualId | events.metrics.visualType |
|---|---|---|---|---|---|
| 1 | PowerBIPerformanceData-Detail.json | 110 | Slicer | 1d2d90db077845acd055 | slicer |
| 2 | PowerBIPerformanceData-Detail.json | 110 | Card | 6508ddf9c38b2499ae4d | card |
| 3 | PowerBIPerformanceData-Detail.json | 110 | Card | 5c6fc4159109f6eaa08a | card |
| 4 | PowerBIPerformanceData-Detail.json | 110 | Card | 779366c498756dcd168d | card |
| 5 | PowerBIPerformanceData-Detail.json | 110 | Card | 8d00f9a93db955a12a59 | card |
| 6 | PowerBIPerformanceData-Detail.json | 110 | Card | ae8ecd7ef7cffd01a61d | card |
| 7 | PowerBIPerformanceData-Detail.json | 110 | Card | 0cbdb4fa39bced0f3261 | card |
| 8 | PowerBIPerformanceData-Detail.json | 110 | Card | 9896ea3493c13d253220 | card |
| 9 | PowerBIPerformanceData-Detail.json | 110 | Card | d682303ae9fb11687b9c | card |
| 10 | PowerBIPerformanceData-Detail.json | 110 | Card | 5396d98c1459ee075871 | card |
| 11 | PowerBIPerformanceData-Detail.json | 110 | Matrix | 90283a5ab11b31ce7554 | pivotTable |
| 12 | PowerBIPerformanceData-Detail.json | 110 | Matrix | 72b6eb359b7f84935606 | pivotTable |
| 13 | PowerBIPerformanceData-Detail.json | 110 | Card | aa4fecb69490347a88b6 | card |
| 14 | PowerBIPerformanceData-Detail.json | 110 | Card | 1f3d49a356127076243 0 | card |
| 15 | PowerBIPerformanceData-Detail.json | 110 | With VAR | 86329762de4bc3292a70 | pivotTable |
| 16 | PowerBIPerformanceData-Detail.json | 110 | IF | 2033b0f5a58c237bd0c1 | pivotTable |
| 17 | PowerBIPerformanceData-Detail.json | 110 | Table | a6f39934cf2651e912a1 | tableEx |
| 18 | PowerBIPerformanceData-Overview.json | 110 | Button - Background | 46c1e8938c8699825dca | actionButton |
| 19 | PowerBIPerformanceData-Overview.json | 110 | Button - Call | 80777ddc039b7465dd2b | actionButton |
| 20 | PowerBIPerformanceData-Overview.json | 110 | Button - Gear | 3468b6aabbb052d00a0e | actionButton |
| 21 | PowerBIPerformanceData-Overview.json | 110 | Button - Info | c49f0e7c416d9a0729b9 | actionButton |
| 22 | PowerBIPerformanceData-Overview.json | 110 | Button - User | bdafb1499173777b7655 | actionButton |
| 23 | PowerBIPerformanceData-Overview.json | 110 | Sum of Sales | 275084804d4ae19c866e | clusteredBarChart |
| 24 | PowerBIPerformanceData-Overview.json | 110 | KPI's | da6978df0d3e69723080 | cardVisual |

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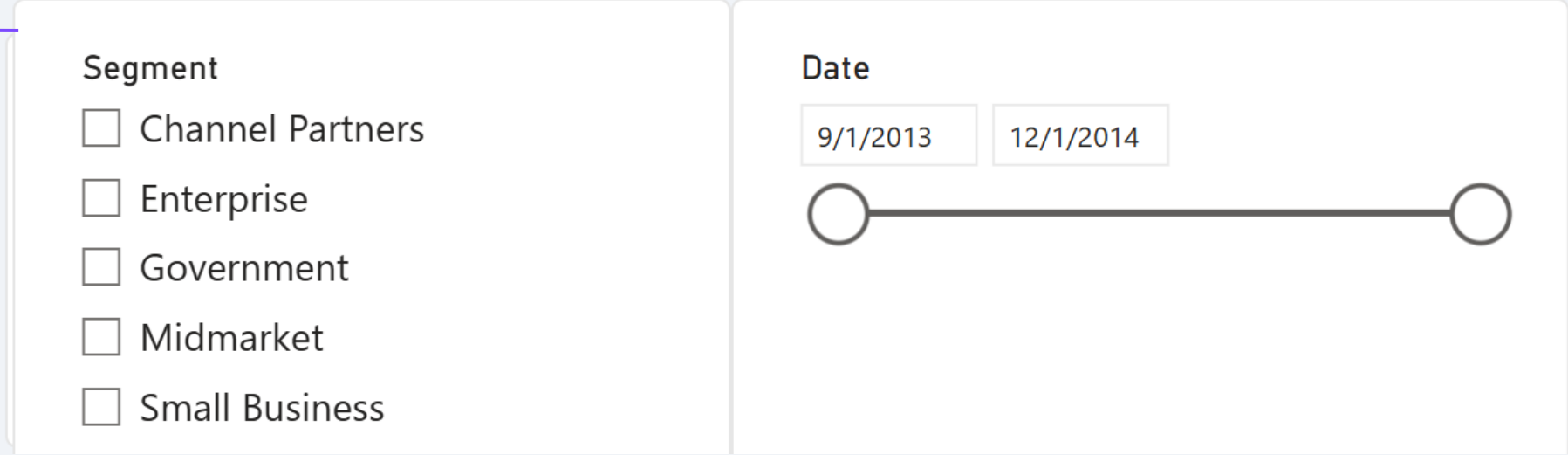
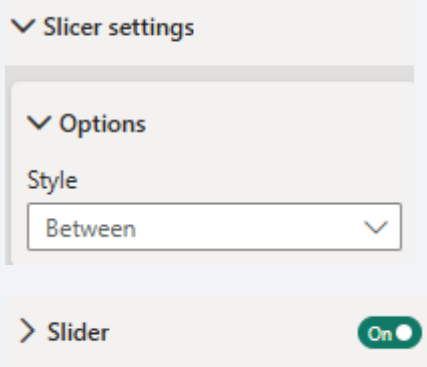
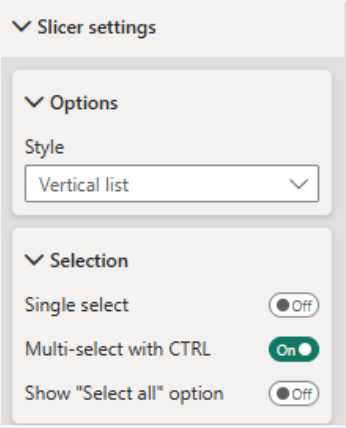
# Working with Report JSON Theme – The Joy of Default Settings

*Self-Service Power BI & Fabric Newsletter*
*by David K. Hanna*

**I rarely see any Power BI developer cheer for the default settings –** especially for slicers… So many clicks



**Please, why these default settings?**

# Working with Report JSON Theme - Overview

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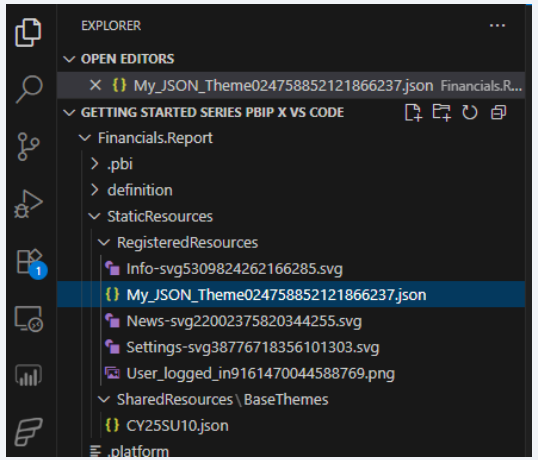
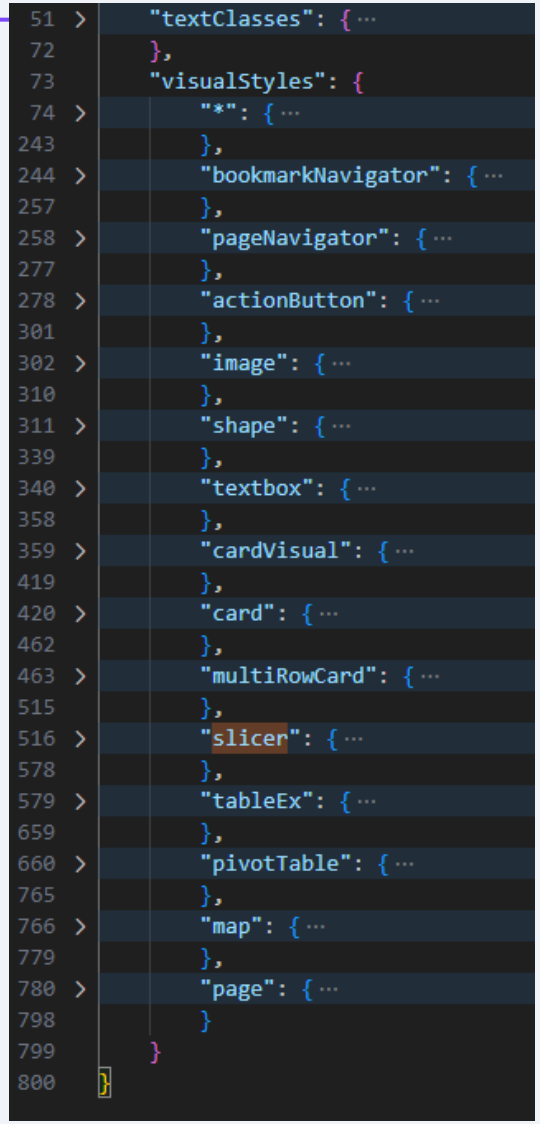
*by David K. Hanna*

**JSON Report** Theme is within Report\StaticResources\RegistredResources




**Color Highlight** (extension) will show the color of the #HEX

**Collapse all levels in JSON with shortcut Ctrl+K and Ctrl+0**



# Working with Report JSON Theme – JSON Overview

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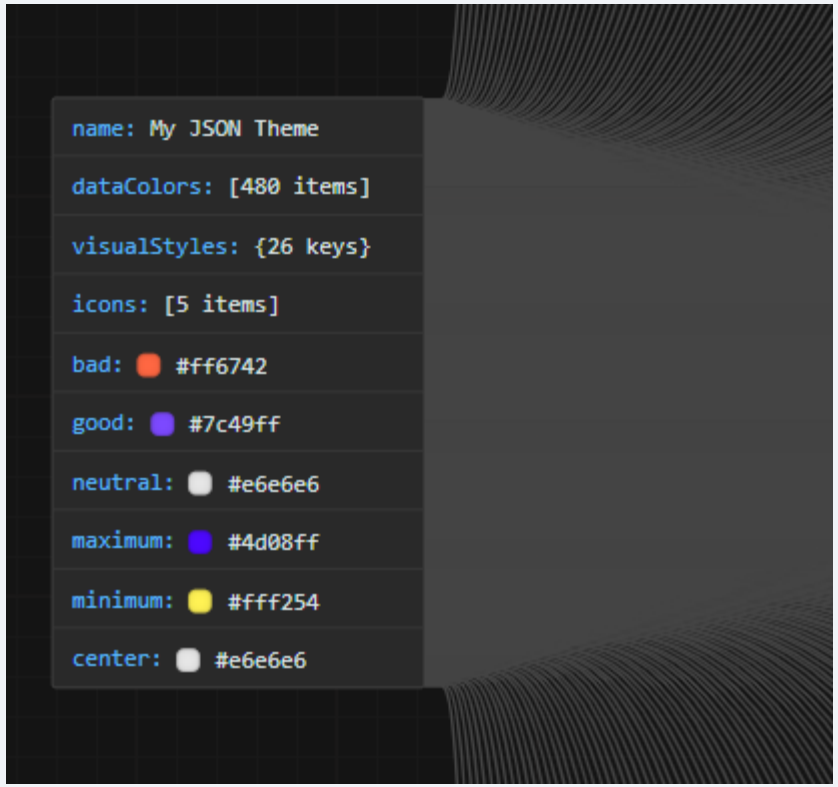
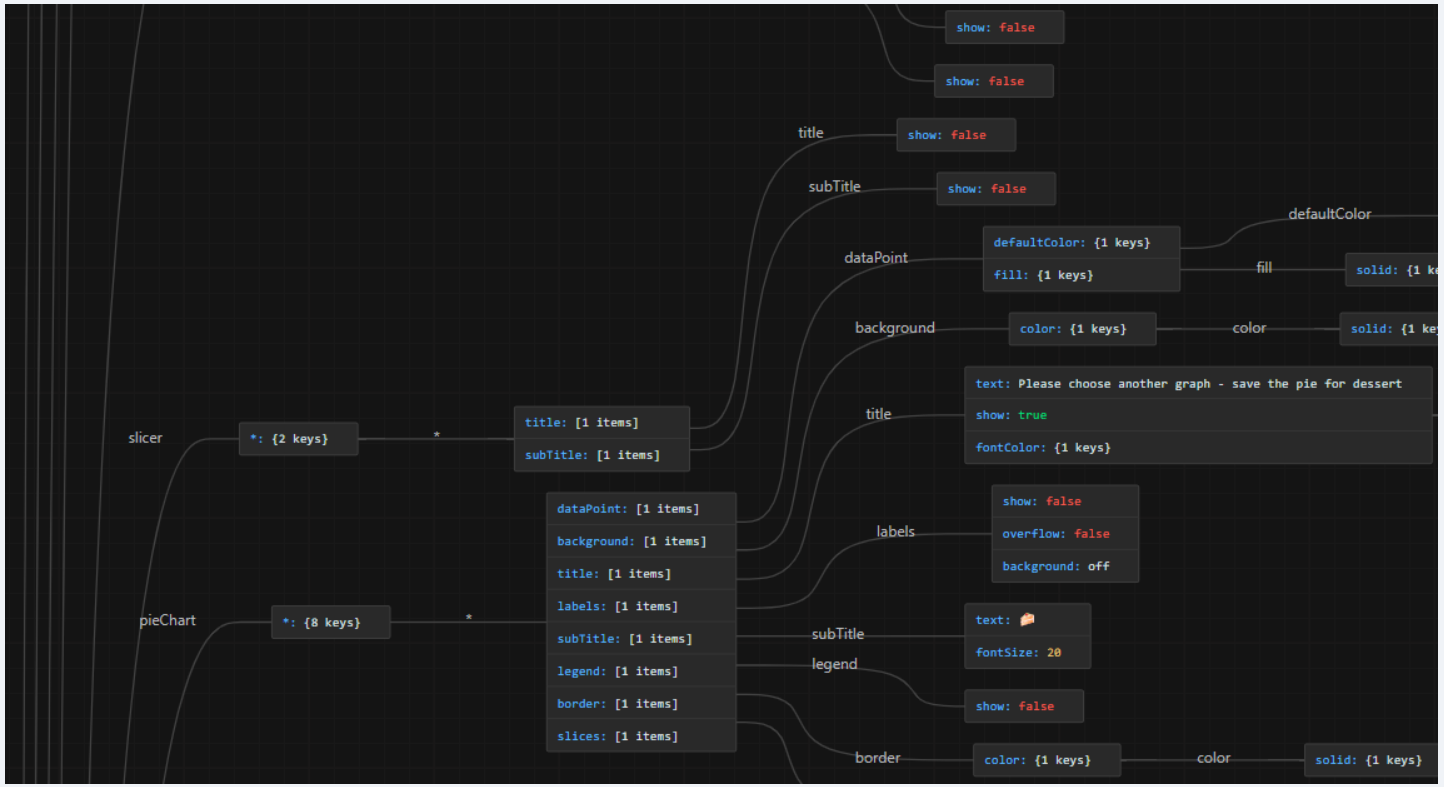
*by David K. Hanna*

**JSON Crack** (Extension) – yes many settings

Open with JSON Crack

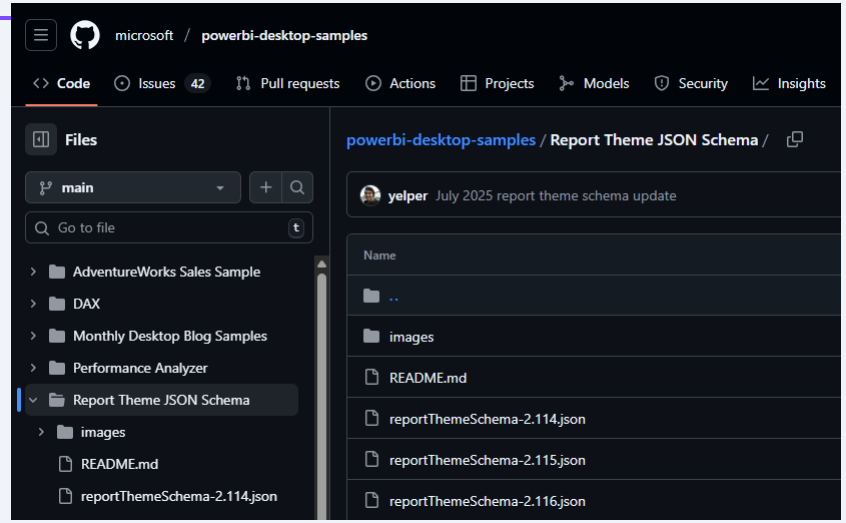


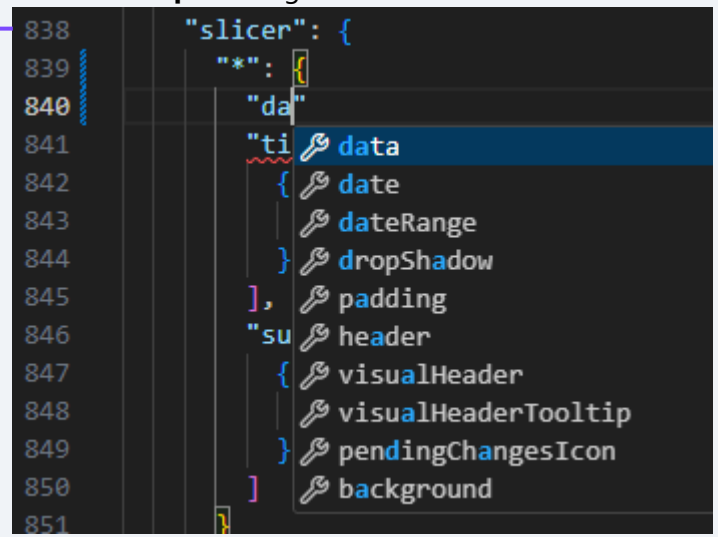
# Working with Report JSON Theme – JSON Schema

*Self-Service Power BI & Fabric Newsletter*
*by David K. Hanna*

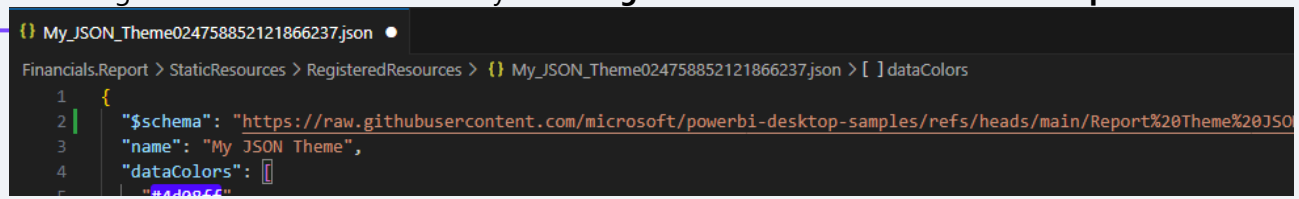
**Microsoft have provided a Report Theme Schema** – but with +80,000 lines of JSON

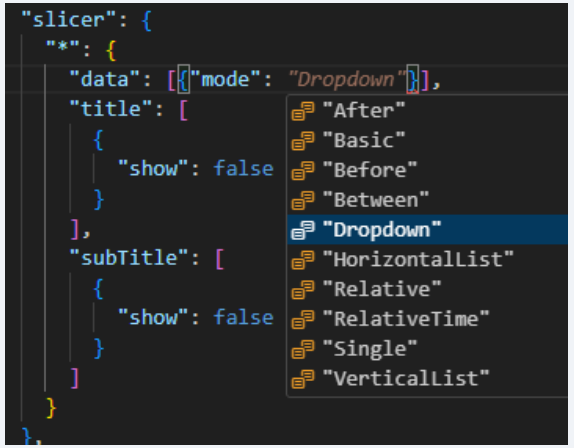



**With Ctrl+Space** we get context assistance based on what's valid in the schema




We can get assistance and validation by **including the Schema as reference in our Report Theme.**



# Working with Report JSON Theme – Change Slicer Settings in Theme

*Self-Service Power BI & Fabric Newsletter*
*by David K. Hanna*

**Before with none or default**

```
"slicer": {
  "*": {
    "title": [
      {
        "show": false
      }
    ],
    "subTitle": [
      {
        "show": false
      }
    ]
  }
},
```

**After –** adding data, selection, slider and items

```
"slicer": {
  "*": {
    "data": [
      {
        "mode": "Dropdown"
      }
    ],
    "selection": [
      {
        "selectAllCheckboxEnabled": true,
        "showSelectAllOption": true,
        "singleSelect": false
      }
    ],
    "slider": [
      {
        "show": false
      }
    ],
    "items": [
      {
        "background": {
          "solid": {
            "color": "#FFFFFF"
          }
        }
      }
    ],
    "title": [
      {
        "show": false
      }
    ],
    "subTitle": [
      {
        "show": false
      }
    ]
  }
},
```

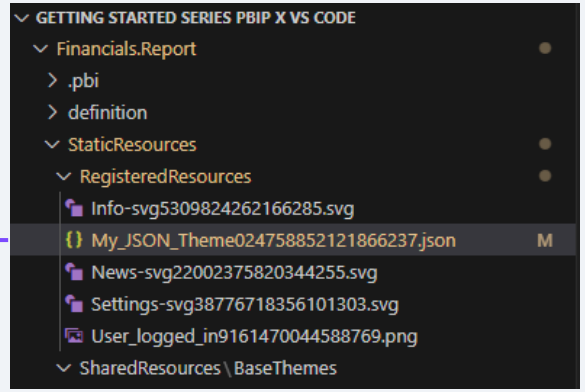
**You can right-click and format the JSON** or use shortcut

| Format Document | Shift+Alt+F |
|---|---|

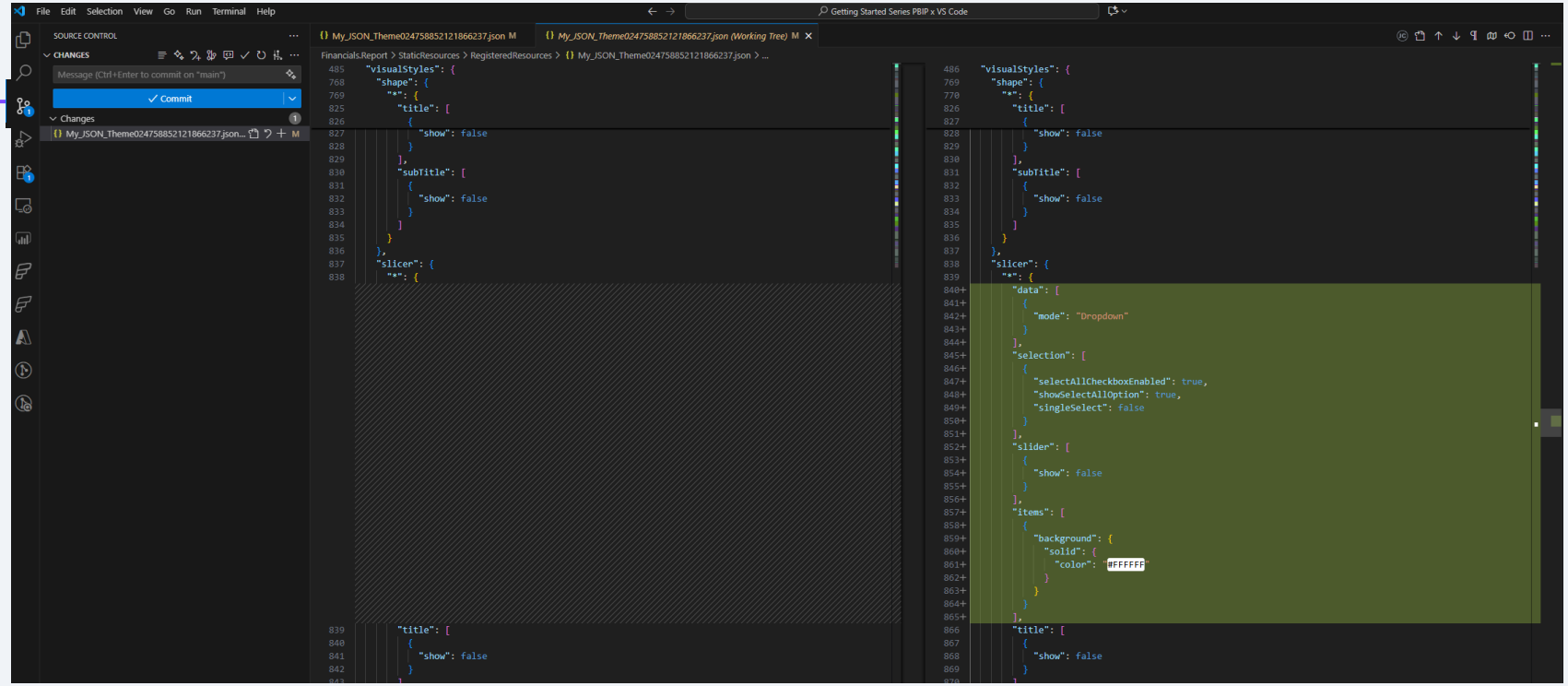
# Detect Changes and See Changes – in VS Code

*Self-Service Power BI & Fabric Newsletter*
*by David K. Hanna*

**Click save and see the file is M for modified**




**In "Source Control", we can compare** the current version we committed earlier and the new with changes



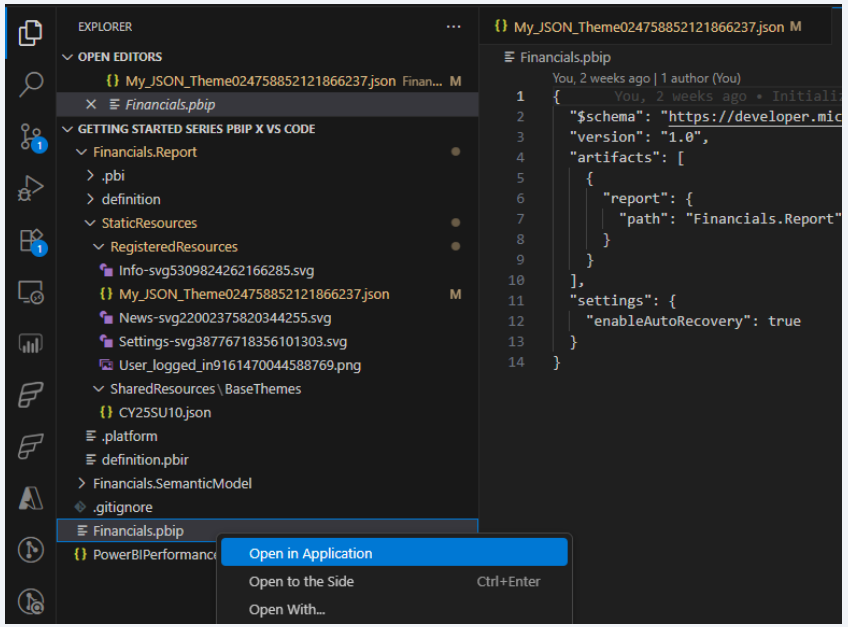

**In Source Control detecting changes**

- **U** - Untracked
- **A** - Added
- **M** - Modified
- **D** - Deleted
- **C** - Conflict
- **R** - Renamed

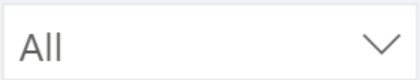
# Detect Changes and See Changes – in Power BI Desktop

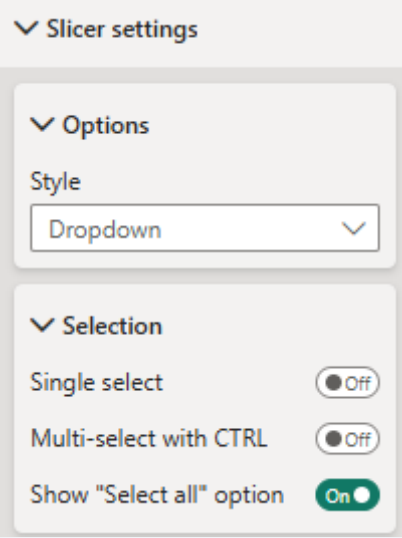
*Self-Service Power BI & Fabric Newsletter by David K. Hanna*

**Close the Power BI Report** and **Right-click the .pbip file** and click **"Open in Application"** (Extension)

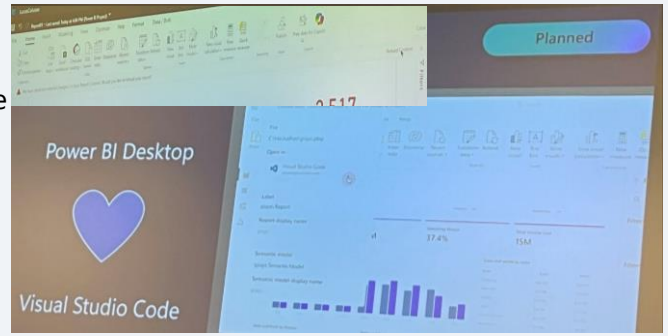



**I can now make my preferred slicers as my new default**






**Current limitations on PBIP – that soon will be solved:**
Power BI Desktop can't detect changes from external tools or manual edits. So in order to view the new changes, need to close and open the file
Rui Romano, PM at Microsoft on this subject have presented at Power BI Next Step that there also will be a native integration to VS Code



# Commit aka. save as snapshot to Git with comment

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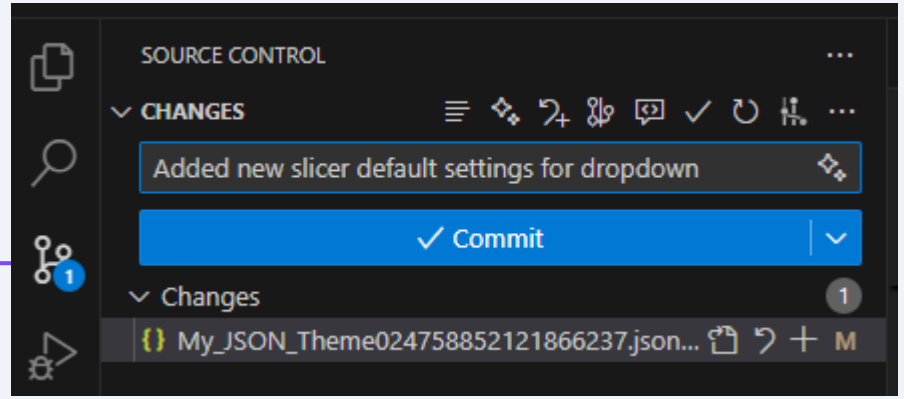
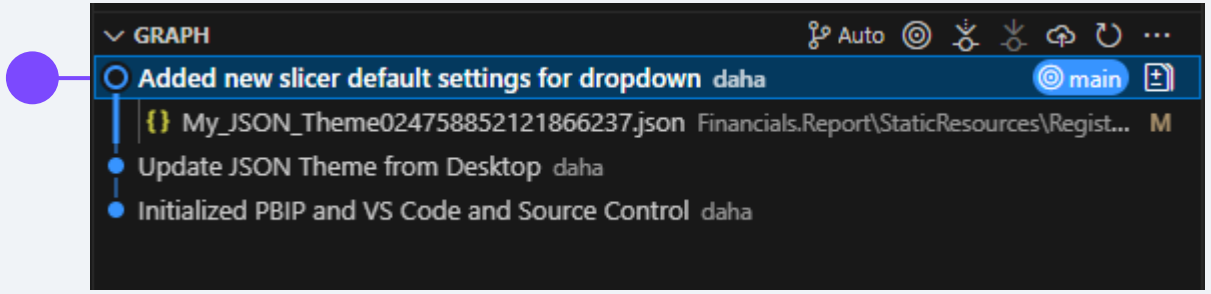
*Fabric Newsletter*
*by David K. Hanna*

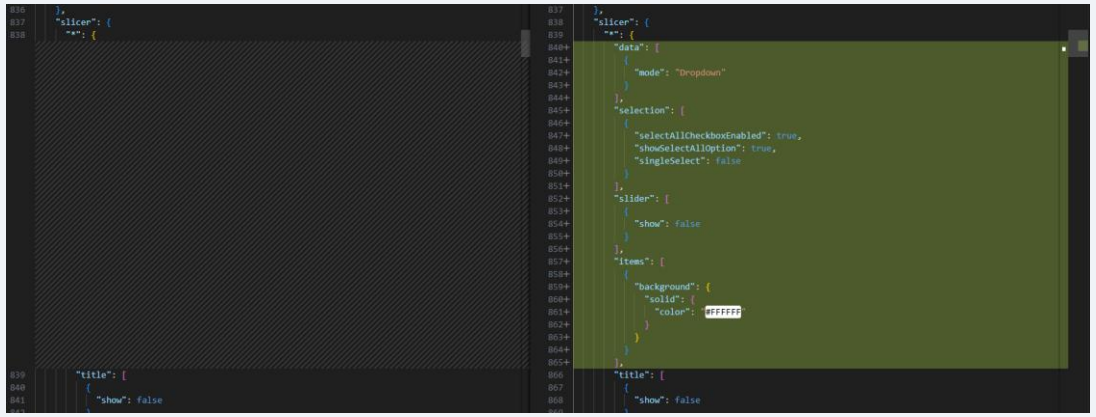
**All looks good, so let's save that as snapshot to Git with Commit**




**Go to Git Graph (Extension) and you can see the history of snapshots**



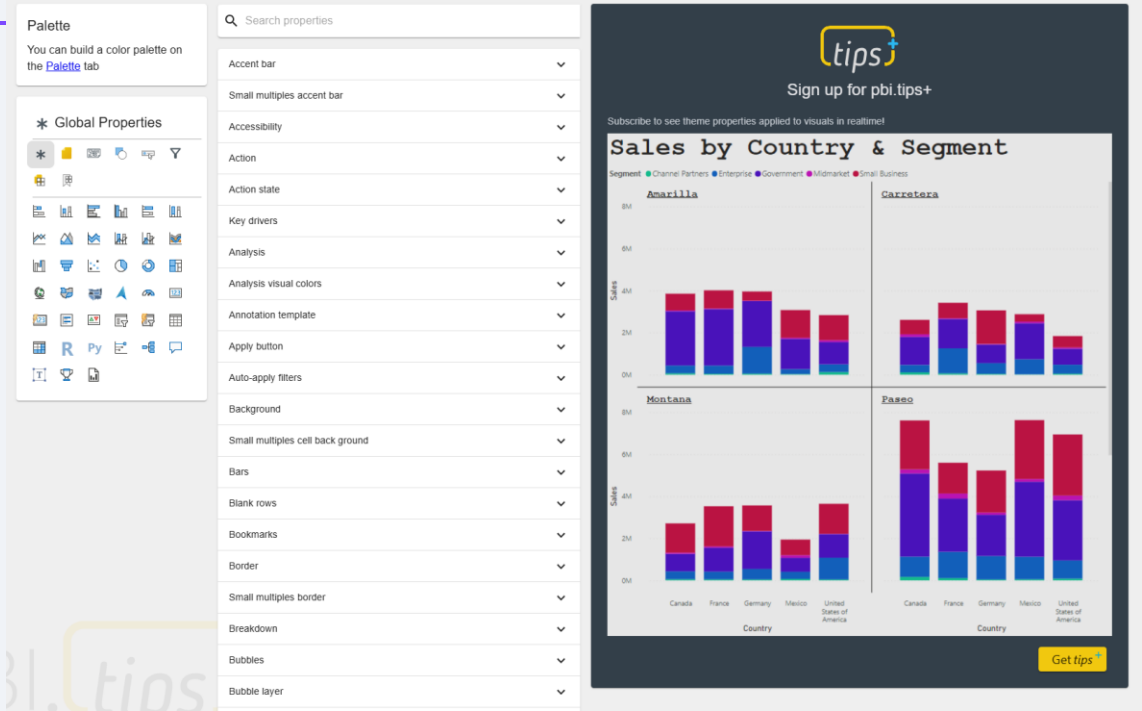

**and which files changed and the code!**



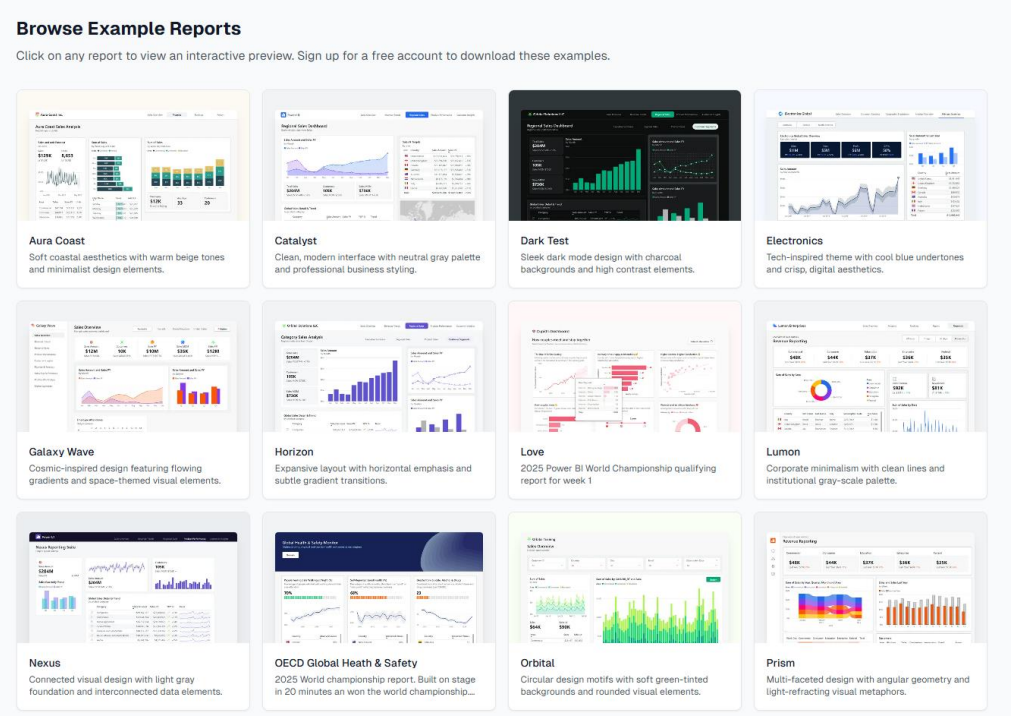
# More help on Report JSON Themes and settings?

*Self-Service Power BI & Fabric Newsletter by David K. Hanna*

## Power BI Tips Theme Generator



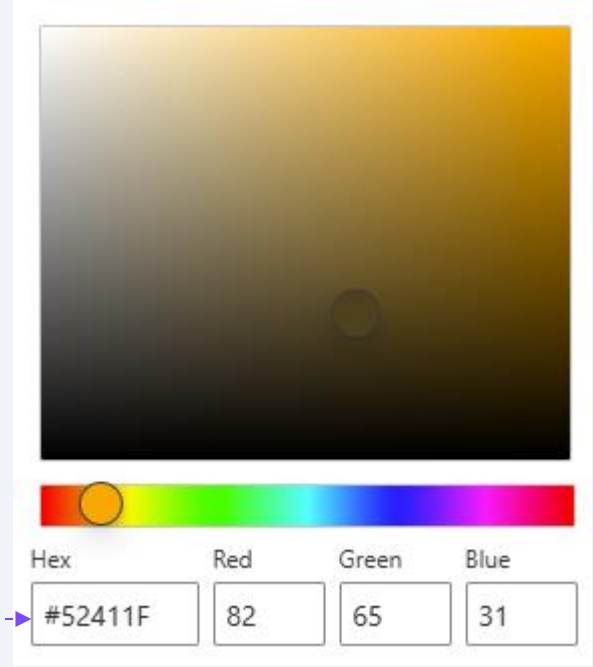

## Power UI



# Working with Report JSON Theme - Theme Data Colors

*Self-Service Power BI &*
*Fabric Newsletter*
*by David K. Hanna*

**❗ Don’t you dare set your own custom color in Power BI Report**



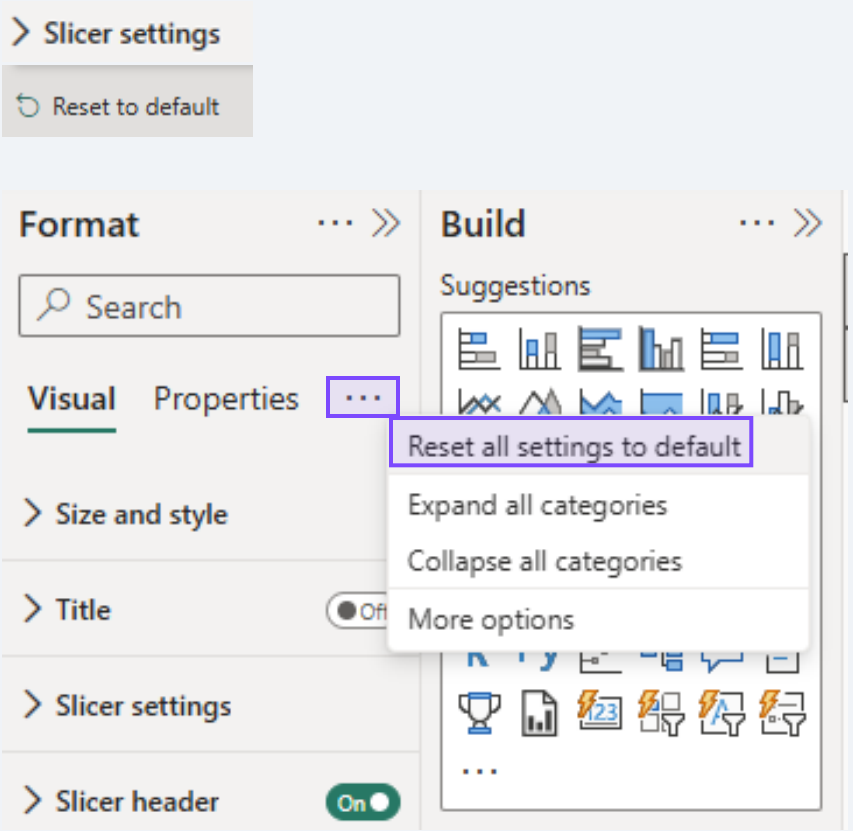
# Working with Report JSON Theme - Theme Data Colors

*Self-Service Power BI & Fabric Newsletter*
*by David K. Hanna*

❗ If you set your own custom # HEX color in Power BI Report – **changes in the report JSON theme will not be applied automatically.** Then you need to click "Reset to default" for specic format setting or alternatively "Reset all settings to default" – and this is per visual

**Be careful** with the "Reset all settings to default" as conditional formatting will be removed 😉

- **Fully dynamic ThemeDataColor** in JSON Report Theme
- **Semi-dynamic with hard-coded #HEX** colors into JSON Report Theme
- **Custom-Cowboy Country Color** set in Power BI report visual – only applicable for specific visual and if changing the JSON Report Theme, it will not change as the visual is not at default state.



# Working with Report JSON Theme - Theme Data Colors

*Self-Service Power BI &*
*Fabric Newsletter*
*by David K. Hanna*

**! Avoid hard-coding #HEX Colors into the theme**

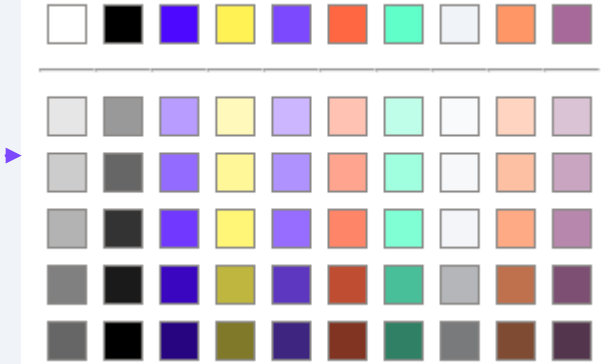
```
"fontColor": {
    "solid": {
        "color": "#333333"
    }
},
```

**Utilize this pattern for dynamic**

```
"fontColor": {
    "solid": {
        "color": {
            "expr": {
                "ThemeDataColor": {
                    "ColorId": 2,
                    "Percent": 0
                }
            }
        }
    }
},
```

```
"dataColors": [
    "#4d08ff",
    "#fff254",
    "#7c49ff",
    "#ff6742",
    "#60ffca",
    "#F0F3F7",
    "#FE9666",
    "#A66999",
```

Theme colors



Transparency

Transparency

0 %

# Working with Report JSON Theme - Theme Data Colors – Different ID?

*Self-Service Power BI & Fabric Newsletter*
*by David K. Hanna*

**! However, the Theme Color 1 in Power BI Desktop is not the same ID in JSON Report Theme 😂**

```
"dataColors": [
  "#4d08ff",
  "#fff254",
  "#7c49ff",
  "#ff6742",
  "#60ffca",
  "#F0F3F7",
  "#FE9666",
  "#A66999",
```

**Theme Data Color 2**

```
"items": [
  {
    "background": {
      "solid": {
        "color": {
          "expr": {
            "ThemeDataColor": {
              "ColorId": 2,
              "Percent": 0
            }
          }
        }
      }
    }
  }
],
```

# Working with Report JSON Theme - Theme Data Colors – Max 8

*Self-Service Power BI & Fabric Newsletter*
*by David K. Hanna*

**We can only see 8 report theme color ID in the UI** of Power BI Desktop (white and black) is preset.

**You can add as many HEX colors you want in dataColors in the JSON Report theme,** but if you refer to ThemeDataColor 15 it will just give you white.

```
1   {
2     "$schema": "https://raw.git
3     "name": "My JSON Theme",
4     "dataColors": [
5       "#4d08ff",
6       "#fff254",
7       "#7c49ff",
8       "#ff6742",
9       "#60ffca",
10      "#F0F3F7",
11      "#FE9666",
12      "#A66999",
13      "#3599B8",
14      "#DFBFBF",
15      "#4AC5BB",
16      "#5F6B6D",
17      "#FB8281",
18      "#F4D25A",
19      "#7F898A",
20      "#A4DDEE",
21      "#FDAB89",
22      "#B687AC",
23      "#28738A",
24      "#A78F8F",
25      "#168980",
26      "#293537",
27      "#BB4A4A",
28      "#B59525",
29      "#475052",
30      "#6A9FB0",
31      "#BD7150"
```

☑ **Only the first 8 ThemeDataColors** can be used in the expression ThemeDataColor

❗ You can write ColorID 15, it should give you **yellow**, but **will return white as default** in the report

```
"items": [
  {
    "background": {
      "solid": {
        "color": {
          "expr": {
            "ThemeDataColor": {
              "ColorId": 15,
              "Percent": 0
            }
```

*Self-Service Power BI & Fabric Newsletter*
*by David K. Hanna*

# Getting Started Series:

## Power BI Projects .PBIP and VS Code as a Power BI Developer

### Setup

- *Install Git, VS Code & enable Power BI Projects .PBIP*
- *TMDL and PBIR in .PBIP*
- *Extensions for VS Code when using .PBIP*
- *AI Extensions for VS Code when using .PBIP*
- *Open folder & Initialize Repo for Source Control*
- *Terminology of Git (that frightens Power BI developers)*
- *Clone Repository from GitHub to your PC*

### Develop in VS Code and Validate in Power BI Desktop

- *Find the visual object in the .PBIP*
- *Detect Changes and See Changes*
- *Working with Report JSON Theme*
- **Style Presets in Report JSON Theme**
- Renaming GUID's to Display Names
- Annotations in PBIR
- Bookmarks in .PBIR
- Find and change the active report page
- Live-connected Reports
- Find Report Level Measures
- Add generic model docs TMDL and report page file

### GitHub Copilot

- GitHub Copilot Agent Mode & Power BI Modeling MCP Server
- Diagram Layout View
- Documentation on table, column and measures
- Power Query Folders
- Power Query Applied Steps
- SVG for wireframe of report objects

### Semantic Link Labs with .PBIP

- Semantic Link Labs in Fabric with Power BI Projects .PBIP
- Discover Bookmarks and Visual Level Filters
- Set Active Page
- Report Best Practice Analyzer

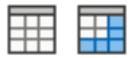
### Multiple Developers on a Single Project

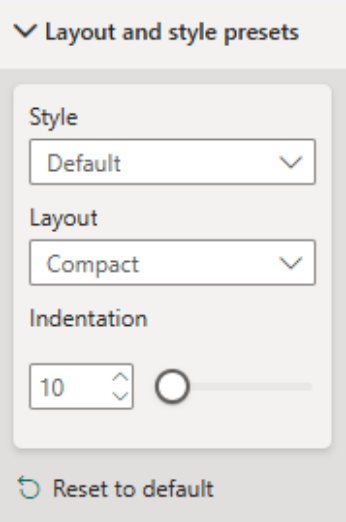
- OneDrive & ALM Toolkit
- Deployment Pipelines
- Azure DevOps, GitHub & Fabric Git Integration
- Collaboration with Merge Conflicts, Feature Branches and Pull Requests

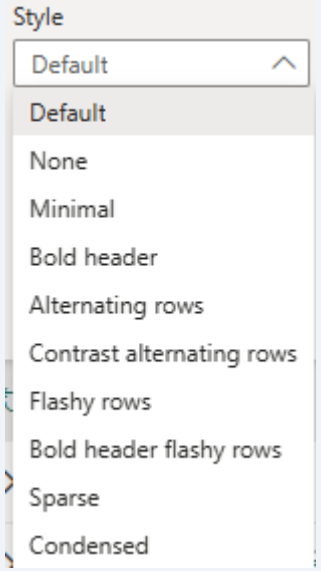
# Style Presets in Report JSON Theme

*Self-Service Power BI & Fabric Newsletter*
*by David K. Hanna*

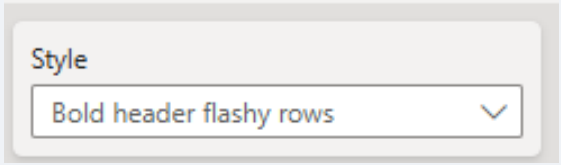
**You already know Style Presets in Table or Matrix visuals**



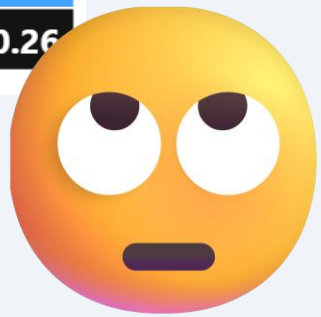



**However – there is not much that is usable…**
My favorite useless style is Bold header flashy rows




| Product | Sum of Sales |
|---|---|
| Paseo | 33,011,143.95 |
| VTT | 20,511,921.02 |
| Velo | 18,250,059.47 |
| Amarilla | 17,747,116.06 |
| Montana | 15,390,801.88 |
| Carretera | 13,815,307.89 |
| **Total** | **118,726,350.26** |



# Style Presets in Report JSON Theme

*Self-Service Power BI & Fabric Newsletter*
*by David K. Hanna*

**We can in the JSON them define our own Style Presets!**
A must have for wider adoption. There are always several ways of using Power BI visual objects. We can easily maintain that logic in our JSON theme compared to visual report level logic.

**Example with Page Navigator**

Navigator > Page navigator

```
1048        "pageNavigator": {
1049 >          "*": {···
1179            },
1180 >          "Navigation with Accentbar below": {···
1320            },
1321 >          "Vertical Grid Navigation": {···
1478            }
1479        },
```

```
            "Navigation with Accentbar below": {
>                 "title": [···
                 ],
>                 "padding": [···
                 ],
>                 "fill": [···
                 ],
>                 "text": [···
                 ],
>                 "shape": [···
                 ],
>                 "border": [···
                 ],
>                 "outline": [···
                 ],
                 "accentBar": [
                     {
                         "show": false,
                         "position": "Bottom",
                         "$id": "default"
                     },
                     {
                         "show": true,
                         "color": {
                             "solid": {
                                 "color": "#B7B7B7"
                             }
                         },
                         "$id": "selected"
                     }
                 ],
>                 "background": [···
                 ]
             },
```

Overview | **Analysis** | Details

Style presets

Style

Navigation with Acc...

- Default
- Navigation with Accentbar below
- Vertical Grid Navigation

# Style Presets in Report JSON Theme

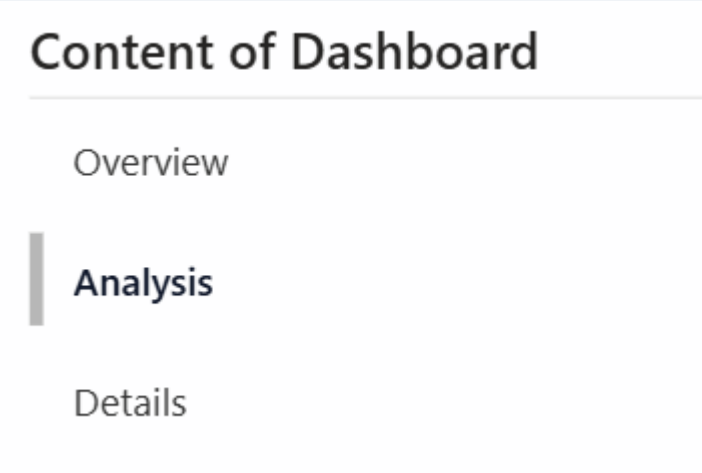
*Self-Service Power BI & Fabric Newsletter*
*by David K. Hanna*

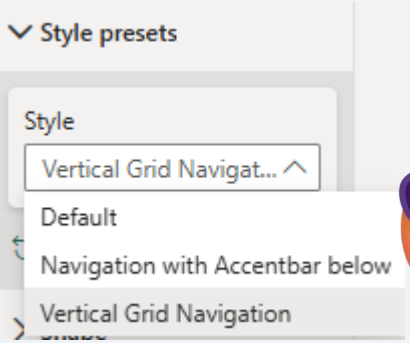
**We can in the JSON them define our own Style Presets!**
A must have for wider adoption. There are always several ways of using Power BI visual objects. We can easily maintain that logic in our JSON theme compared to visual report level logic.

**Example with Page Navigator**

```
1048        "pageNavigator": {
1049 >          "*": {···
1179            },
1180 >          "Navigation with Accentbar below": {···
1320            },
1321 >          "Vertical Grid Navigation": {···
1478            }
1479        },
```

```
"Vertical Grid Navigation": {
    "title": [
        {
            "show": true,
            "fontSize": 14,
            "fontFamily": "Segoe UI Semibold",
            "text": "Content of Dashboard"
        }
    ],
    "padding": [···
    ],
    "fill": [···
    ],
    "text": [···
    ],
    "shape": [···
    ],
    "border": [···
    ],
    "layout": [
        {
            "orientation": 1
        }
    ],
    "outline": [···
    ],
    "accentBar": [
        {
            "show": false,
            "$id": "default",
            "width": 5
        },
        {
            "show": true,
            "color": {
                "solid": {
                    "color": "#B7B7B7"
                }
            },
            "position": "Left",
            "$id": "selected"
        },
        {
            "width": 5
        }
    ],
    "background": [···
    ]
}
```



# Style Presets in Report JSON Theme – Dynamic Color from Theme

*Self-Service Power BI & Fabric Newsletter*
*by David K. Hanna*

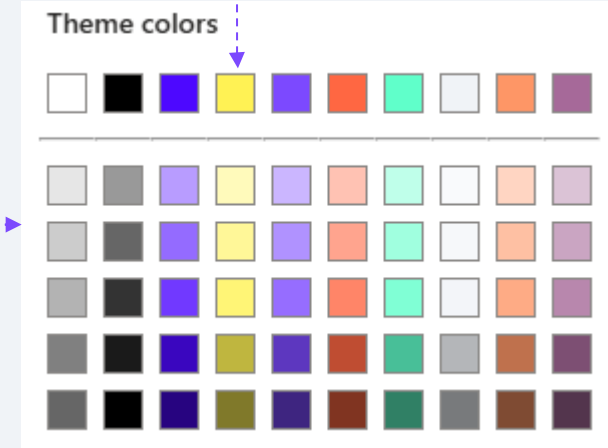
**! Avoid hard-coding #HEX Colors into the theme**

```
"fontColor": {
    "solid": {
        "color": "#333333"
    }
},
```

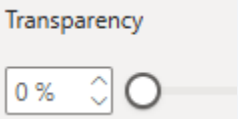
**☑ Utilize this pattern for dynamic**

```
"fontColor": {
    "solid": {
        "color": {
            "expr": {
                "ThemeDataColor": {
                    "ColorId": 2,
                    "Percent": 0
                }
            }
        }
    }
},
```

```
"dataColors": [
  "#4d08ff",
  "#fff254",
  "#7c49ff",
  "#ff6742",
  "#60ffca",
  "#F0F3F7",
  "#FE9666",
  "#A66999",
```

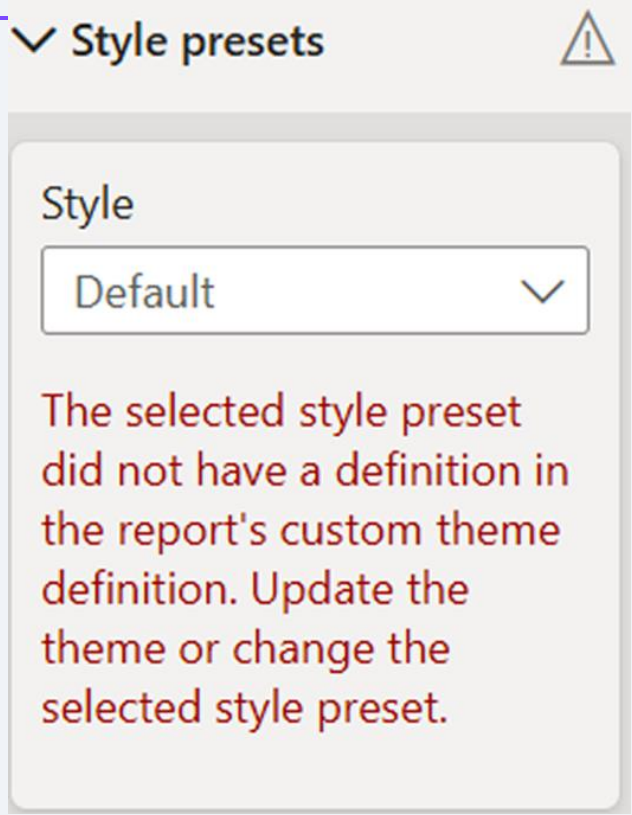



Transparency



# Style Presets in Report JSON Theme – Errors

**If there is an error with Style Preset,** you will see this author-only error message:



*Self-Service Power BI & Fabric Newsletter*
*by David K. Hanna*

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- *Style Presets in Report JSON Theme*
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- **Annotations in PBIR**
- Bookmarks in .PBIR
- **Find and change the active report page**
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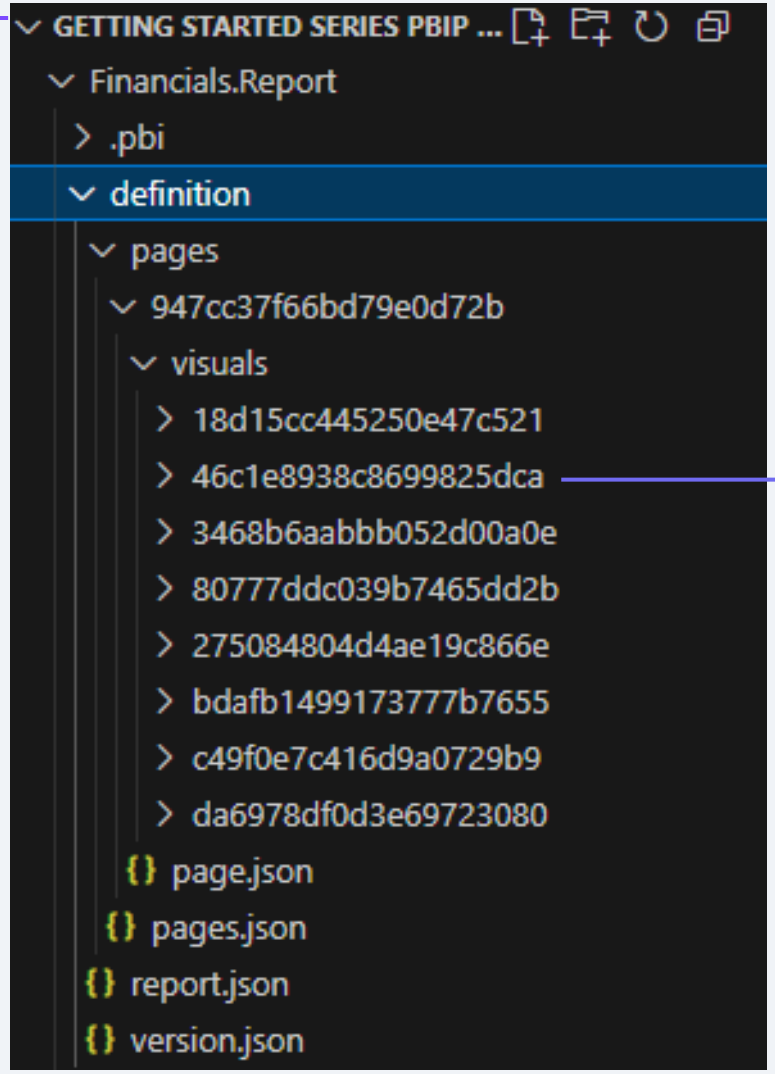
# Renaming GUID's to Display Names

*Self-Service Power BI & Fabric Newsletter*
*by David K. Hanna*

**Where is my visual? I can't find it?**




**20 character what?**

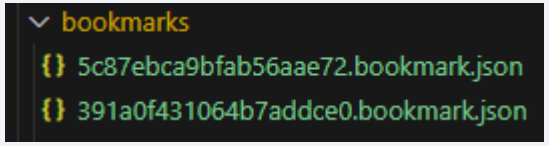
"46c1e8938c8699825dca"

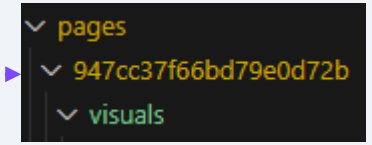
# Renaming GUID's to Display Names

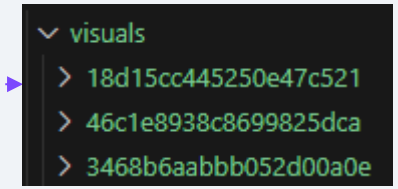
*Self-Service Power BI & Fabric Newsletter*
*by David K. Hanna*

**We can only rename a few but important objects [ ] Bookmarks, Page and Visual**

```
├── bookmarks\
│   ├── [bookmarkName].bookmark.json
│   └── bookmarks.json
├── pages\
│   ├── [pageName]\
│   │   ├── \visuals
│   │   │   ├── [visualName]\
│   │   │   │   ├── mobile.json
│   │   │   │   └── visual.json
│   │   │   └── page.json
│   └── pages.json
├── version.json
├── reportExtensions.json
└── report.json
```



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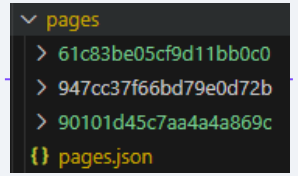
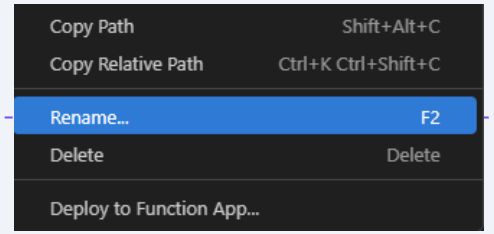
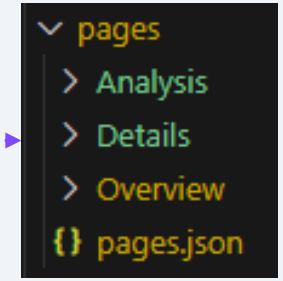
```
├── bookmarks\
│   ├── [bookmarkName].bookmark.json
│   └── bookmarks.json
├── pages\
│   ├── [pageName]\
│   │   ├── \visuals
│   │   │   ├── [visualName]\
│   │   │   │   ├── mobile.json
│   │   │   │   └── visual.json
│   │   │   └── page.json
│   └── pages.json
├── version.json
├── reportExtensions.json
└── report.json
```



# Find and change the active report page

*Self-Service Power BI & Fabric Newsletter*
*by David K. Hanna*

**In pages.json you can see page order and more important "activePageName".**
Here you can specify what page should be the opening page for end users in Power BI Service
As default, the page the report developer is located on in Desktop when publishing to the service will be the active page. So remember to locate on the front page or check or set it in this file

{} pages.json

Financials.Report > definition > pages > {} pages.json > ...

You, 37 seconds ago | 1 author (You)

```
1  {
2    "$schema": "https://developer.microsoft.com/json-schemas/fabric/item/report/definition/pagesMetadata/1.0.0/schema.json",
3    "pageOrder": [
4      "947cc37f66bd79e0d72b",
5      "1cd8c3c3051f1c1cef1c",
6      "91cbba63f8db2f47bdce"
7    ],
8    "activePageName": "947cc37f66bd79e0d72b"
9  }
```

You, 3 weeks ago • Initialized PBIP and VS Code and Source Control…

**You can't leave the activePageName empty.**
I hope for an option to set activePageName to first page in report.

**Your report had issues that have been resolved.**

We encountered some issues in the report definition and resolved them. We can continue and open the report, but if you save, there may be unexpected changes

**List of applied fixes (1):**

- ActivePageName not found

Copy details to clipboard

Continue | Close Desktop

# Annotations in PBIR

*Self-Service Power BI & Fabric Newsletter*
*by David K. Hanna*

**You can also add annotations, like Tabular Editor uses in TMDL,** we can save meta data as part of the PBIR where scripting or AI can read from that context.

## PBIR annotations

You can include annotations as name-value pairs within the report definition for each `visual`, `page` and `report`. While Power BI Desktop ignores these annotations, they can be valuable for external applications like scripts.

For instance, you could specify the defaultPage for the report at the `report.json` file, which can then be utilized by a deployment script.

JSON Copy

```
{
  "$schema": "https://developer.microsoft.com/json-schemas/fabric/item/report/definition/r
  "themeCollection": {
    "baseTheme": {
      "name": "CY24SU06",
      "reportVersionAtImport": "5.55",
      "type": "SharedResources"
    }
  },
  ...
  "annotations": [
    {
      "name": "defaultPage",
      "value": "c2d9b4b1487b2eb30e98"
    }
  ]
}
```

https://learn.microsoft.com/en-us/power-bi/developer/projects/projects-report?tabs=v2%2Cdesktop#pbir-annotations

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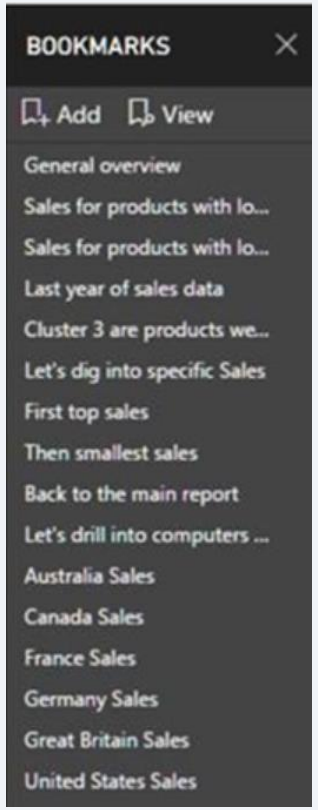
# Bookmarks in .PBIP

# Bookmarks in .PBIP

*Self-Service Power BI & Fabric Newsletter by David K. Hanna*

**Preview in October 2017 and GA in March 2018**

Looks way too familiar even though it's 7 years ago…




Microsoft | Power BI  Overview  Products  Pricing  Solutions  Partners  Resources  Community

## Power BI Desktop October Feature Summary

**Amanda Cofsky**
Program Manager

October 5, 2017

Share  Tweet  Like

This month we are very excited to share one of our most anticipated features from the Microsoft Data Insights Summit: Bookmarking. Combining bookmarking with some of our other recently released features such as drillthrough and what if gives you powerful storytelling capabilities and lets you create highly interactive reports. We also have some more visual improvements and a big update to our quick measures feature this month.

Download Power BI Desktop

Here's the complete list of October updates:

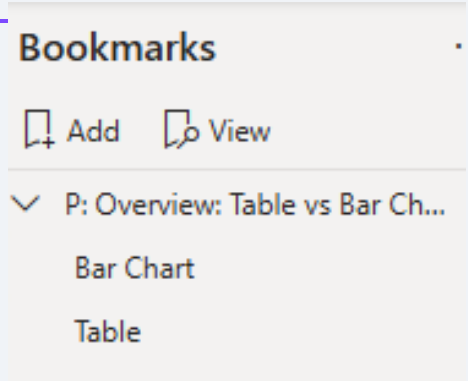
Reporting

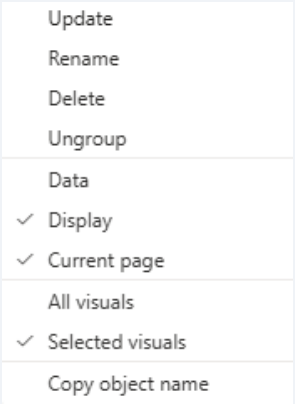
- Bookmarking (preview)
- Selection pane and visual display controls
- Bookmark links for shapes and images (preview)
- Spotlight
- Scatter & bubble markers
- Increase the number of data points shown in scatter charts

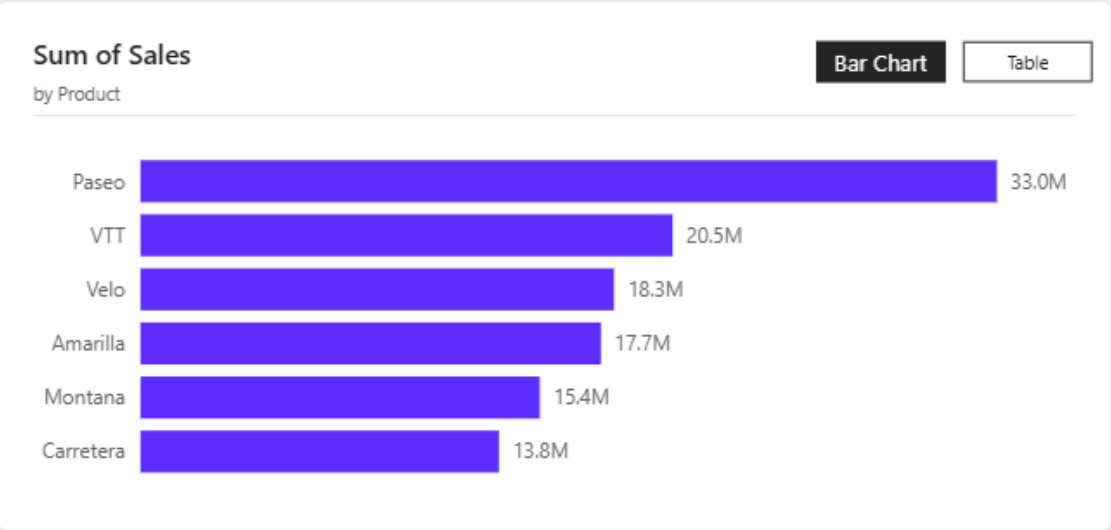
# Bookmarks in .PBIP

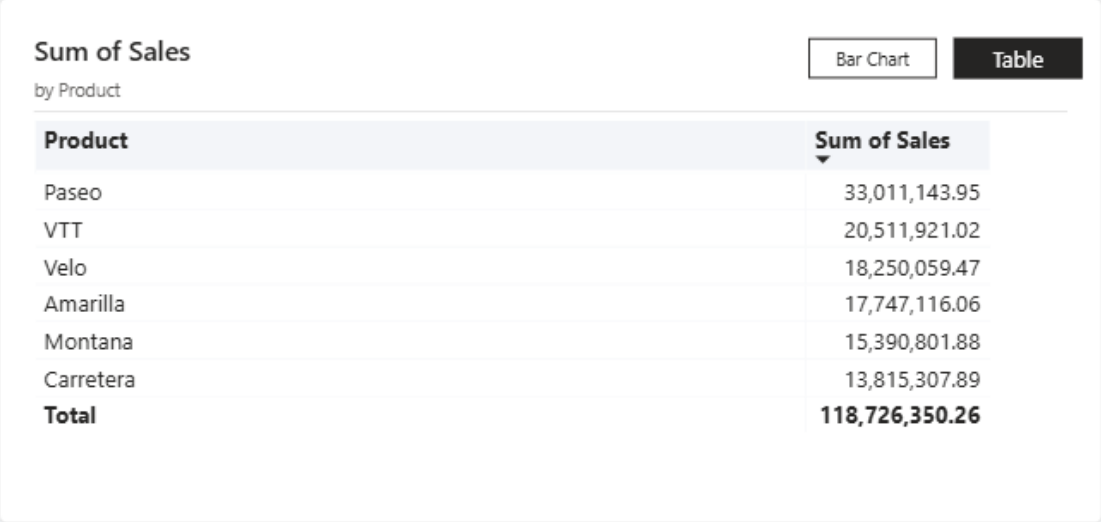
*Self-Service Power BI & Fabric Newsletter*
*by David K. Hanna*

**Simple Bookmark wit Selected Visuals** to switch between bar chart and table




| Product | Sum of Sales |
|---|---|
| Paseo | 33,011,143.95 |
| VTT | 20,511,921.02 |
| Velo | 18,250,059.47 |
| Amarilla | 17,747,116.06 |
| Montana | 15,390,801.88 |
| Carretera | 13,815,307.89 |
| **Total** | **118,726,350.26** |

# Bookmarks in .PBIP

*Self-Service Power BI & Fabric Newsletter*
*by David K. Hanna*

**Two bookmarks – which can be renamed**

- definition
  - bookmarks
    - 8bf40a8301175f9c5ec5.bookmark.json
    - bookmarks.json
    - f4c3d88ebc3f1591057b.bookmark.json

| | |
|---|---|
| Copy Path | Shift+Alt+C |
| Copy Relative Path | Ctrl+K Ctrl+Shift+C |
| Rename... | F2 |
| Delete | Delete |
| Deploy to Function App... | |

- definition
  - bookmarks
    - BarChart.json
    - bookmarks.json
    - Table.json

**The bookmarks.json contain the GUID and know of the bookmark group and children part of the group**

Financials.Report > definition > bookmarks > {} bookmarks.json > ...

```
1  {
2    "$schema": "https://developer.microsoft.com/json-schemas/fabric/item/report/definition/bookmarksMetadata/1.0.0/schema.json",
3    "items": [
4      {
5        "name": "1a8d25565b653f40421b",
6        "displayName": "P: Overview: Table vs Bar Chart",
7        "children": [
8          "8bf40a8301175f9c5ec5",
9          "f4c3d88ebc3f1591057b"
10       ]
11     }
12   ]
13 }
```

# Bookmarks in .PBIP

*Self-Service Power BI & Fabric Newsletter*
*by David K. Hanna*

**326 lines of JSON in the bookmark.json**

A simple report page with bookmarks to switch visualizations from table to clustered bar chart using "Selected Visuals"

BarChart.json

```
1  {
2    "$schema": "https://developer.microsoft.com/js
3    "displayName": "Bar Chart",
4    "name": "8bf40a8301175f9c5ec5",
5    "options": {
6      "applyOnlyToTargetVisuals": true,
7      "targetVisualNames": [
8        "275084804d4ae19c866e",
9        "d13d68c6434ee80cf377"
10     ],
11     "suppressData": true
12   },
13   "explorationState": {
14     "version": "1.3",
15     "activeSection": "947cc37f66bd79e0d72b",
16     "filters": {
17       "byExpr": [
18         {
19           "name": "7b6e4b2725b7d3240222",
20           "type": "Categorical",
21           "expression": {
22             "Column": {
23               "Expression": {
24                 "SourceRef": {
25                   "Entity": "Date"
26                 }
27               },
28               "Property": "Year"
29             }
30           },
31           "howCreated": 1
32         }
33       ]
34     },
```

```
"options": {
  "applyOnlyToTargetVisuals": true,
  "targetVisualNames": [
    "d13d68c6434ee80cf377",
    "275084804d4ae19c866e"
  ],
```

# ?

Can you duplicate a report page where **bookmarks** are copied as well...

# Bookmarks in .PBIP

*Self-Service Power BI & Fabric Newsletter*
*by David K. Hanna*

**It won't work in Power BI Desktop.**
With PBIR I have hopes. I know external tools can do this now – see Reid Havens' Report tool.
However, natively in PBIR – good luck

**Bookmarks and Pages are two separate files**

- definition
  - bookmarks
  - pages

**If I search for my pagename GUID I can see the page in "activeSection" in my bookmark.** So metadata is there

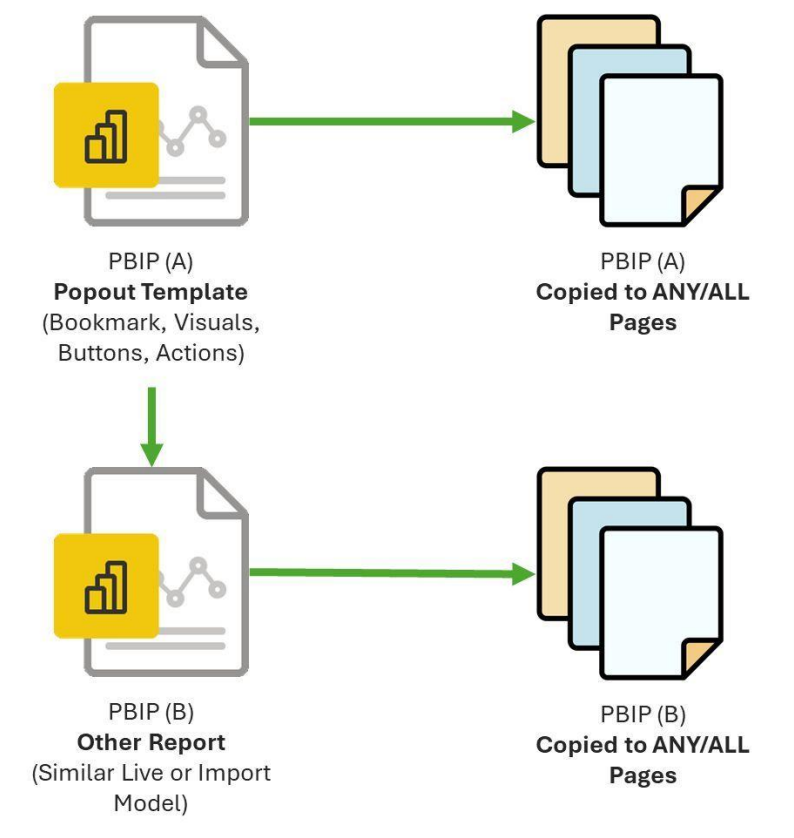
Financials.Report > definition > bookmarks > {} BarChart.json > ...

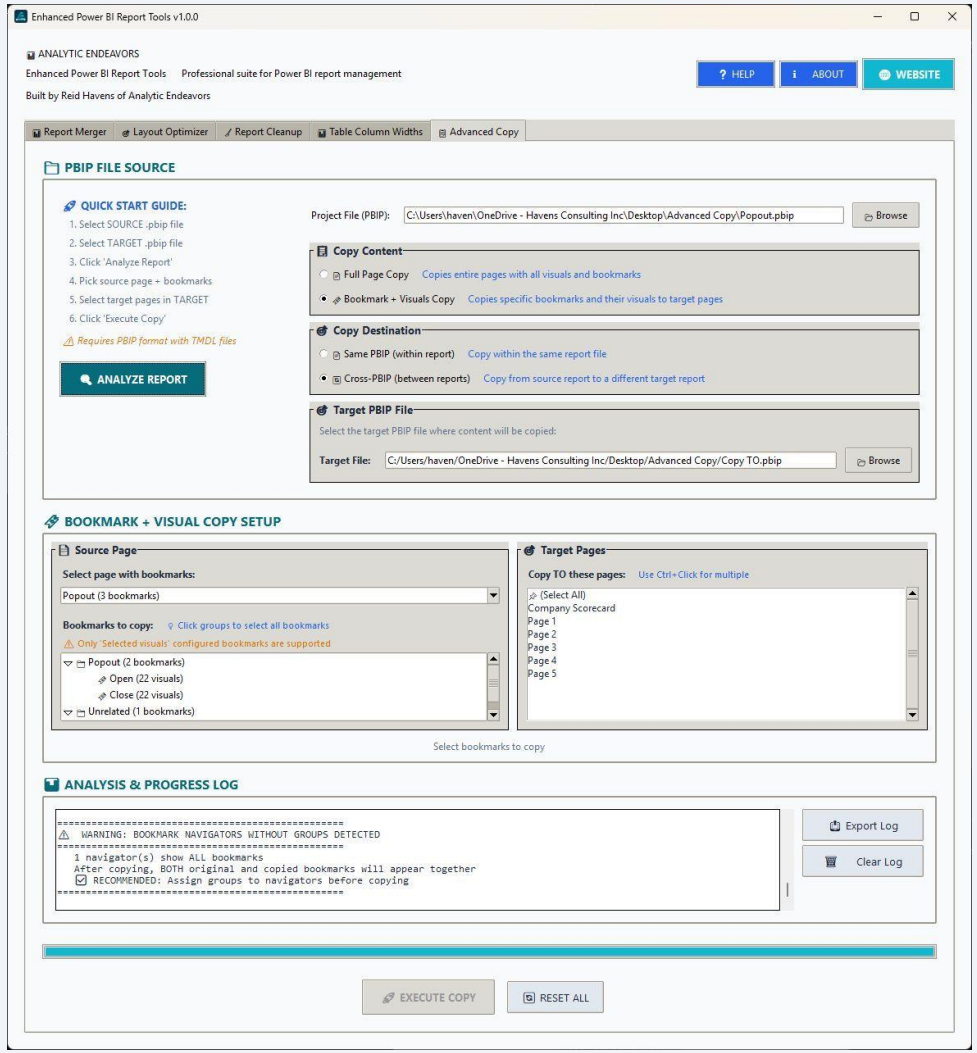
```
1  {
2    "$schema": "https://developer.microsoft.com/jso
3    "displayName": "Bar Chart",
4    "name": "8bf40a8301175f9c5ec5",
5    "options": {
6      "applyOnlyToTargetVisuals": true,
7      "targetVisualNames": [
8        "275084804d4ae19c866e",
9        "d13d68c6434ee80cf377"
10     ],
11     "suppressData": true
12   },
13   "explorationState": {
14     "version": "1.3",
15     "activeSection": "947cc37f66bd79e0d72b",
16     "filters": {
17       "byExpr": [
```

# Bookmarks in .PBIP

*Self-Service Power BI & Fabric Newsletter*
*by David K. Hanna*

## External tool: Power BI Multi-Tool by Analytic Endeavors




https://analyticendeavors.com/external-tools-and-software

# Bookmarks in .PBIP

*Self-Service Power BI & Fabric Newsletter by David K. Hanna*

## External tool: Powerops

Bookmarks (15)

| Bookmark Group | Bookmark Name | Bookmark Details | Data | Display | Current Page | All Visuals | Selected Visuals |
|---|---|---|---|---|---|---|---|
| Switch attributes | Y-M | BookmarkName: Y-M Filter Pane: Close ... | ✓ | ✓ | Switch between attributes | ✗ | ✓ |
| | Y-M-D | BookmarkName: Y-M-D Filter Pane: Close ... | ✓ | ✓ | Switch between attributes | ✗ | ✓ |
| Switch visualizations | Column | BookmarkName: Column Filter Pane: Close ... | ✗ | ✓ | Switch visualizations | ✗ | ✓ |
| | Matrix | BookmarkName: Matrix Filter Pane: Close ... | ✗ | ✓ | Switch visualizations | ✗ | ✓ |
| | Ribbon | BookmarkName: Ribbon Filter Pane: Close ... | ✗ | ✓ | Switch visualizations | ✗ | ✓ |
| P4: Location: Navigation & slicer pane | Navigation collapsed | BookmarkName: Navigation collapsed Filter Pane: Close ... | ✗ | ✓ | Slicer Panel | ✗ | ✓ |
| | Navigation extended | BookmarkName: Navigation extended Filter Pane: Close ... | ✗ | ✓ | Slicer Panel | ✓ | ✗ |
| | Slicer Pane closed | BookmarkName: Slicer Pane closed Filter Pane: Close ... | ✗ | ✓ | Slicer Panel | ✗ | ✓ |
| | Slicer Pane opened | BookmarkName: Slicer Pane opened Filter Pane: Close ... | ✗ | ✓ | Slicer Panel | ✗ | ✓ |
| | Reset slicers | BookmarkName: Reset slicers Filter Pane: Close ... | ✓ | ✓ | Reset slicers | ✓ | ✗ |
| | Reset slicers with predefined selections | BookmarkName: Reset slicers with predefined selections Fil... | ✓ | ✓ | Reset slicers with predefined selections | ✗ | ✓ |
| | Switch measures - report views | BookmarkName: Switch measures - report views Filter Pan... | ✗ | ✓ | Switch between measures | ✗ | ✓ |
| | Switch measures - UER | BookmarkName: Switch measures - UER Filter Pane: Close ... | ✗ | ✓ | Switch between measures | ✗ | ✓ |
| | Documentation hidden | BookmarkName: Documentation hidden Filter Pane: Open ... | ✓ | ✓ | Documentation info | ✗ | ✓ |
| | Documentation info | BookmarkName: Documentation info Filter Pane: Open ... | ✓ | ✓ | Documentation info | ✗ | ✓ |

There you are!

Bookmark

| | |
|---|---|
| Bookmark Name | Column |
| Filter Pane | Close |
| Report Filters Applied | |
| **Bookmark Details** | |
| 1 | |
| Visual Type | Text Box |
| Visual Title | Info text on page |
| 2 | |
| Visual Type | Slicer |
| Visual Title | Distribution Method |
| Filter Type | Categorical |
| Style | Dropdown |
| Table | Distribution Method |
| Visual Filters Applied | Alberto effect is 1 |
| Fields | Alberto effect |
| | Distribution Method |
| 3 | |
| Visual Type | Slicer |
| Visual Title | Office Location |
| Filter Type | Categorical |
| Style | Dropdown |
| Table | User |
| Visual Filters Applied | Alberto effect is 1 |
| Fields | Alberto effect |
| | Office Location |
| 4 | |
| Visual Type | Button |
| Visual Title | |
| 5 | |

# Bookmarks in .PBIP

*Self-Service Power BI & Fabric Newsletter by David K. Hanna*

**Semantic Link Labs in Fabric**

```
#Shows a list of all bookmarks in the report.
rpt.list_bookmarks()
```

[9] ✓ - Command executed in 10 sec 143 ms by DAHA Admin David Kofod Hanna on 4:53:13 PM, 10/22/24 PySpark (Python)

| | File Path | Bookmark Name | Bookmark Display Name | Page Name | Page Display Name | Visual Name | Visual Hidden |
|---|---|---|---|---|---|---|---|
| 0 | definition/bookmarks/06eb5dbc17a2a766628c.book... | 06eb5dbc17a2a766628c | Q | ff7a3305010160561ec0 | Report Analysis | 12a8fc4204adebeb8a41 | False |
| 1 | definition/bookmarks/06eb5dbc17a2a766628c.book... | 06eb5dbc17a2a766628c | Q | ff7a3305010160561ec0 | Report Analysis | cb866d6ad2b80080581b | False |
| 2 | definition/bookmarks/b6e655a598623dd09210.book... | b6e655a598623dd09210 | M | ff7a3305010160561ec0 | Report Analysis | 12a8fc4204adebeb8a41 | False |
| 3 | definition/bookmarks/b6e655a598623dd09210.book... | b6e655a598623dd09210 | M | ff7a3305010160561ec0 | Report Analysis | cb866d6ad2b80080581b | False |

There you are!

https://semantic-link-labs.readthedocs.io/en/stable/sempy_labs.report.html

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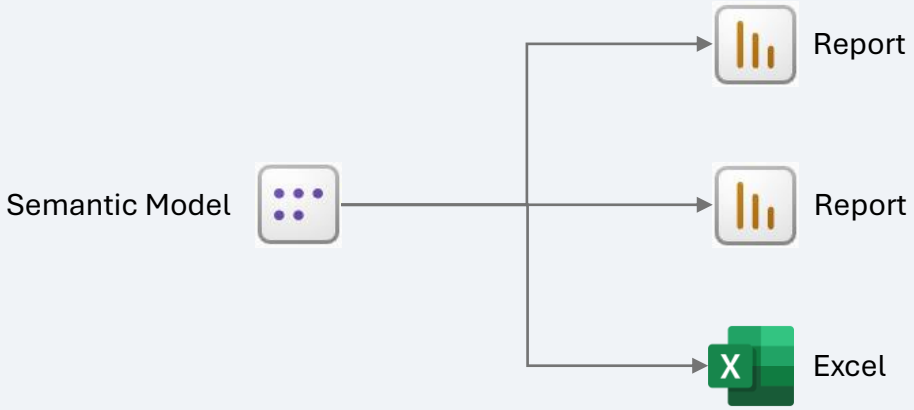
# Live-connected Reports

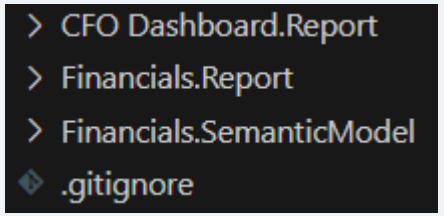
**Multiple Live-connected reports to the same semantic model**

We can have many reports or other artifacts building a live-connection to the same semantic model.




**We can have multiple PBIP inside one Git folder**

Below I have two reports and one semantic model



# Live-connected Reports

*Self-Service Power BI & Fabric Newsletter*
*by David K. Hanna*

**Import model with byPath** reference to PBIP folder semantic model
This imply I can add tables, Power Query, Field Parameter and edit global measures as I'm connected to the semantic model in import

Financials.Report

*definition.pbir*

Financials.Report > definition.pbir

You, last month | 1 author (You)

```
{        You, last month • Initialized PBIP and VS Code a
  "$schema": "https://developer.microsoft.com/json-scher
  "version": "4.0",
  "datasetReference": {
    "byPath": {
      "path": "../Financials.SemanticModel"
    }
  }
}
```

**Live-connected Report with "byConnection"**
Opening this report will not give me access to add tables (only via Composite Model) but can utilize the model to be connected to the same version and still be able to add report level measures.

CFO Dashboard.Report

CFO Dashboard.Report > definition.pbir

You, 8 minutes ago | 1 author (You)

```
{        You, 8 minutes ago • Live connected report CFO Dashboard …
  "$schema": "https://developer.microsoft.com/json-schemas/fabric/item/report/definiti
  "version": "4.0",
  "datasetReference": {
    "byConnection": {
      "connectionString": "Data Source=pbiazure://api.powerbi.com;initial catalog=a83f
    }
  }
}
```

# Live-connected Reports

*Self-Service Power BI & Fabric Newsletter*
*by David K. Hanna*

🔥 **Hot-Swap connection:**
If you are full-stack owner. You can make it seem like semantic model is part of the report and not live-connected.

Go to the definition.pbir of the live-connected report (CFO Dashboard.Report)
Replace datasetReference with

```
"datasetReference": {
  "byPath": {
    "path": "../Financials.SemanticModel"
  }
```

Open report in Power BI Desktop and see we are connected in Import Mode and not Live-connection.

CFO Dashboard.Report > definition.pbir

```
1  {
2    "$schema": "https://developer.microsoft.com/json-
3    "version": "4.0",
4    "datasetReference": {
5-     "byConnection": {
6-       "connectionString": "Data Source=pbiazure://a
7      }
8    }
9  }
```

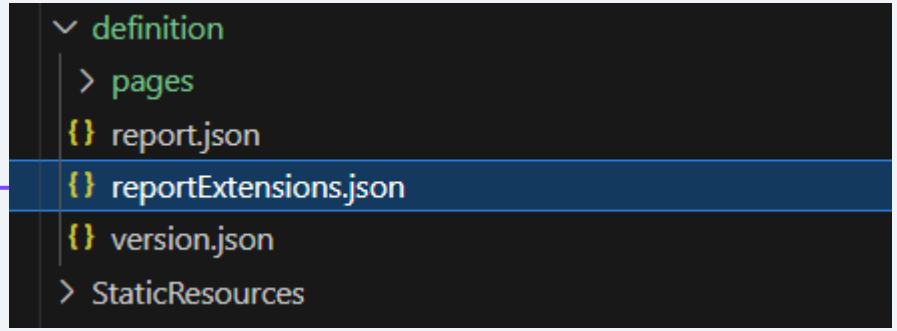
```
1  {
2    "$schema": "https://developer.microsoft.com/json-sch
3    "version": "4.0",
4    "datasetReference": {
5+     "byPath": {        You, 9 seconds ago • Uncommitted
6+       "path": "../Financials.SemanticModel"
7      }
8    }
9  }
```

Connected live to the Power BI semantic model: Financials in My workspace

# Find Report Level Measures

*Self-Service Power BI & Fabric Newsletter by David K. Hanna*

**Where is my report level measures – now we can easy find it**



There you are!

**Open VS Code** (see Notebook to save a Delta Table in Lakehouse)

reportExtensions.json U

CFO Dashboard.Report > definition > reportExtensions.json > ...

```
{
  "$schema": "https://developer.microsoft.com/json-schemas/fabric/item/report/definition
  "name": "extension",
  "entities": [
    {
      "name": "Budget",
      "measures": [
        {
          "name": "Revenue vs Budget",
          "dataType": "Double",
          "expression": "SUM('Finance Transactions'[ Sales]) - SUM(Budget[Budget])",
          "formatString": "0.0"
        },
        {
          "name": "Revenue vs Budget YTD",
          "dataType": "Double",
          "expression": "\nTOTALYTD([Revenue vs Budget],'Calendar'[Date])",
          "formatString": "#,0.0",
          "references": {
            "measures": [
              {
                "schema": "extension",
                "entity": "Budget",
                "name": "Revenue vs Budget"
              }
            ]
          }
        },
        {
          "name": "Icon",
          "dataType": "Text",
          "expression": "\nIF([Revenue vs Budget YTD]>=0, \"✔\", \"⚠\")",
          "formatString": "General Number",
          "references": {
            "measures": [
              {
                "schema": "extension",
                "entity": "Budget",
                "name": "Revenue vs Budget YTD"
              }
            ]
```

**Other ways is external tools as:**
Semantic Link Labs, Measure Killer and Tabular Editor C# Script Michael Kovalsky to find report level measure

*Self-Service Power BI & Fabric Newsletter*
*by David K. Hanna*

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# Add generic model docs TMDL and report page file

*Self-Service Power BI & Fabric Newsletter*
*by David K. Hanna*

## I ❤️ auto-updated documentation with INFO.VIEW DAX Functions

### Semantic Model Information

Clear all slicers

**Model Documentation**
by INFO.VIEW Functions

Filter by keyword | Column | Measure | Relationship | Table

| Location | Name | Type | Expression | Description |
|---|---|---|---|---|
| | Finance Transactions | Table | | The wonderful sample data by Microsoft "Financials" from 2013 |
| Finance Transactions | Revenue YTD | Measure | CALCULATE([Revenue], DATESYTD('Date'[Date])) | If blank, remember to filter on a year with data |
| | Budget | Table | | From Excel workbook Owner: David Hanna |
| | Calendar | Table | | Calendar table |
| | 'Budget'[Date] *[<-]1 'Calen... | Relationship | 'Budget'[Date] *[<-]1 'Calendar'[Date] | |
| | 'Budget'[Date] *[<-]1 'Date'... | Relationship | 'Budget'[Date] *[<-]1 'Date'[Date] | |
| | 'Calendar'[Date] *[<-]1 'Loc... | Relationship | 'Calendar'[Date] *[<-]1 'LocalDateTable_27428003-7dd4-49... | |
| | 'Calendar'[Year-Month] *[<-... | Relationship | 'Calendar'[Year-Month] *[<-]1 'LocalDateTable_ea79abb1-2... | |
| | Country | Table | | |
| | Date | Table | | |
| | 'Date'[Date] *[<-]1 'LocalDa... | Relationship | 'Date'[Date] *[<-]1 'LocalDateTable_2d9661bf-0097-4ec8-b... | |
| | 'Finance Transactions'[Coun... | Relationship | 'Finance Transactions'[Country Key] *[<-]1 'Country'[Countr... | |
| | 'Finance Transactions'[Date]... | Relationship | 'Finance Transactions'[Date] *[<-]1 'Calendar'[Date] | |
| | 'Finance Transactions'[Seg... | Relationship | 'Finance Transactions'[Segment Key] *[<-]1 'Segment'[Seg... | |
| | Segment | Table | | |
| Budget | Budget | Column | | |
| Budget | Date | Column | | |
| Budget | Product | Column | | |
| Budget | Total Budget | Measure | SUM(Budget[Budget]) | |
| Calendar | Date | Column | | |
| Calendar | Day | Column | | |
| Calendar | Day Name | Column | | |

### Model Documentation

```
Model Documentation =
VAR _columns =
    SELECTCOLUMNS(
        FILTER(
            INFO.VIEW.COLUMNS(),
            [Table] <> "Model Documentation" && NOT([IsHidden])
        ),
        "Type", "Column",
        "Name", [Name],
        "Description", [Description],
        "Location", [Table],
        "Expression", [Expression]
    )
VAR _measures =
    SELECTCOLUMNS(
        FILTER(
            INFO.VIEW.MEASURES(),
            [Table] <> "Model Documentation" && NOT([IsHidden])
        ),
        "Type", "Measure",
        "Name", [Name],
        "Description", [Description],
        "Location", [Table],
        "Expression", [Expression]
    )
VAR _tables =
    SELECTCOLUMNS(
        FILTER(
            INFO.VIEW.TABLES(),
            [Name] <> "Model Documentation" && [Name] <> "Calculations" && NOT([IsHidden])
        ),
        "Type", "Table",
        "Name", [Name],
        "Description", [Description],
        "Location", BLANK(),
        "Expression", [Expression]
    )
VAR _relationships =
    SELECTCOLUMNS(
        INFO.VIEW.RELATIONSHIPS(),
        "Type", "Relationship",
        "Name", [Relationship],
        "Description", BLANK(),
        "Location", BLANK(),
        "Expression", [Relationship]
    )
RETURN
    UNION(_columns, _measures, _tables, _relationships)
```

# Add generic model docs TMDL and report page file

*Self-Service Power BI & Fabric Newsletter*
*by David K. Hanna*

**It consist of two files.**
One **TMDL file** with the calculated DAX table and **one report folder** with page and its visuals

Financials.SemanticModel > definition > tables

Model Documentation

Model Documentation.tmdl

Financials.SemanticModel > definition > tables > Model Documentation.tmdl > ...

```
You, 2 days ago | 1 author (You)
/// This table dynamically lists model objects (tables, columns, measures, relationships) and their metadata using INFO.VIEW functions.
You, 2 days ago | 1 author (You)
table 'Model Documentation'
    lineageTag: 719aaba1-7662-4f86-89ae-ace098c0e087

    You, 2 days ago | 1 author (You)
    column Type
        lineageTag: 53dc69c6-9d67-4663-8de6-a677b0bd77b1
        isNameInferred
        sourceColumn: [Type]

    You, 2 days ago | 1 author (You)
    column Name
        lineageTag: a0cdb474-028c-4dd6-a977-c8fa4cd4569f
        isNameInferred
        sourceColumn: [Name]

    You, 2 days ago | 1 author (You)
    column Description
        lineageTag: a5af8f3c-156b-4905-bb9c-2ed3fcd9530f
        isNameInferred
        sourceColumn: [Description]

    You, 2 days ago | 1 author (You)
    column Location
        lineageTag: 7f7dda65-0322-4b76-9f05-8ecb12de240a
        isNameInferred
        sourceColumn: [Location]

    You, 2 days ago | 1 author (You)
    column Expression
        lineageTag: 53f5de4b-6bee-442e-a11b-1f76e4c34bcc
        isNameInferred
        sourceColumn: [Expression]

    You, 2 days ago | 1 author (You)
    partition 'Model Documentation' = calculated
        mode: import
        You, 2 days ago | 1 author (You)
        source = ```

                VAR _columns =
                    SELECTCOLUMNS(
                        FILTER(
                            INFO.VIEW.COLUMNS(),
                            [Table] <> "Model Documentation" && NOT([IsHidden])
                        ),
                        "Type", "Column",
                        "Name", [Name],
                        "Description", [Description],
                        "Location", [Table],
                        "Expression", [Expression]
                    )
                VAR _measures =
                    SELECTCOLUMNS(
```

Financials.Report > definition > pages >

8f8c4130524c1902aae4

pages

visuals

page

4afa7cb8000d79962052

5f4bae7b03b43e49d776

6f368180e6886520e307

4093d68d39c83e666740

58262c77d74de348e5eb

fa3db7e7d0ec6879700a

# Add generic model docs TMDL and report page file

*Self-Service Power BI & Fabric Newsletter*
*by David K. Hanna*

**Copy paste two files and now you have a template Model Docs for all your semantic model and reports ☺**
No inputs or parameters required with INFO.VIEW DAX Functions

Financials.SemanticModel › definition › tables
Model Documentation

Financials.Report › definition › pages ›
8f8c4130524c1902aae4

CFO Dashboard.Report › definition › pages ›
8f8c4130524c1902aae4

Changes 8

- page.json Financials.Report\definition\pages\8f8c4130524c1902aae4 U
- visual.json Financials.Report\definition\pages\8f8c4130524c1902aae4\visuals\button_clearallslicers U
- visual.json Financials.Report\definition\pages\8f8c4130524c1902aae4\visuals\shape_titleofreport U
- visual.json Financials.Report\definition\pages\8f8c4130524c1902aae4\visuals\slicer_type U
- visual.json Financials.Report\definition\pages\8f8c4130524c1902aae4\visuals\table U
- visual.json Financials.Report\definition\pages\8f8c4130524c1902aae4\visuals\textslicer_expression U
- visual.json Financials.Report\definition\pages\8f8c4130524c1902aae4\visuals\visualgroup U
- Model Documentation.tmdl Financials.SemanticModel\definition\tables U

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| | Budget | Table | | From Excel workbook Owner: David Hanna |
| | Calendar | Table | | Calendar table |
| | 'Budget'[Date] *[<-]1 'Calen... | Relationship | 'Budget'[Date] *[<-]1 'Calendar'[Date] | |
| | 'Budget'[Date] *[<-]1 'Date'... | Relationship | 'Budget'[Date] *[<-]1 'Date'[Date] | |
| | 'Calendar'[Date] *[<-]1 'Loc... | Relationship | 'Calendar'[Date] *[<-]1 'LocalDateTable_27428003-7dd4-49... | |
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| | 'Finance Transactions'[Seg... | Relationship | 'Finance Transactions'[Segment Key] *[<-]1 'Segment'[Seg... | |
| | Segment | Table | | |
| Budget | Budget | Column | | |
| Budget | Date | Column | | |
| Budget | Product | Column | | |
| Budget | Total Budget | Measure | SUM(Budget[Budget]) | |
| Calendar | Date | Column | | |
| Calendar | Day | Column | | |
| Calendar | Day Name | Column | | |

# Add generic model docs TMDL and report page file

*Self-Service Power BI & Fabric Newsletter*
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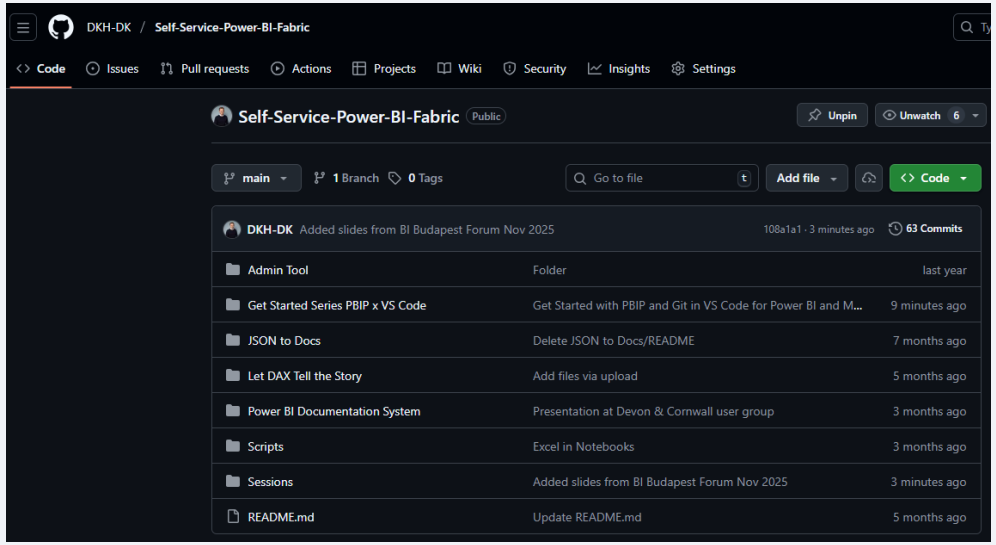
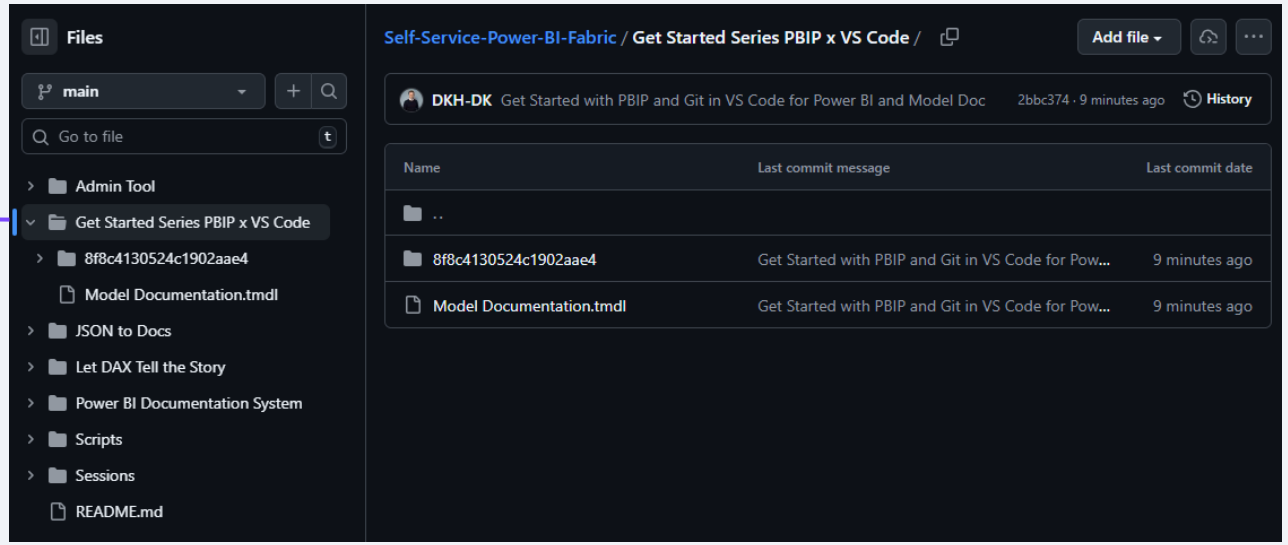
**Files are here on my GitHub:** https://github.com/DKH-DK/Self-Service-Power-BI-Fabric



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Estimated in Dec '25

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