

Power BI's Hottest Upgrade - Developer Mode with TMDL



Dhyan Rathore



19 NOV 2025

- ✓ Date
 - > 1. Year
 - > 2. Quarter
 - > 3. Month
 - > 4. Week
 - ✓ 5. Weekday / Workday

- ✓ Measures
 - > # Workdays

- > Weekday
- > Workdays

- > 6. Calendar Date

- > 7. Boolean Fields

- ✓ Date Hierarchy

- Calendar Year (ie 2021)

- Calendar Quarter (ie Q1)

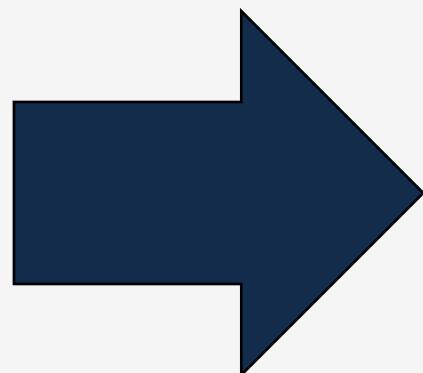
- Calendar Month (ie Jan)

- Calendar Week EU (ie WK25)

- Weekday Short (i.e. Mon)

- Date

- > Measures



Reuse options



Create from scratch



Clean everything else from the model

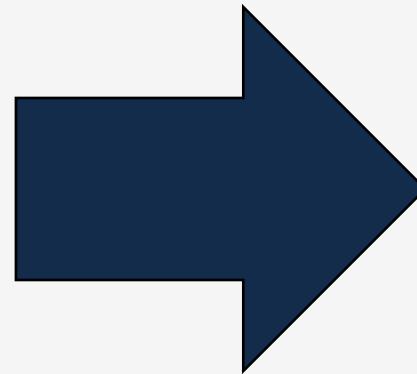


External tools



TMDL

- ✓ Date
 - > 1. Year
 - > 2. Quarter
 - > 3. Month
 - > 4. Week
 - ✓ 5. Weekday / Workday
 - ✓ Measures
 - > # Workdays
 - > Weekday
 - > Workdays
 - > 6. Calendar Date
 - > 7. Boolean Fields
 - ✓ Date Hierarchy
 - Calendar Year (ie 2021)
 - Calendar Quarter (ie Q1)
 - Calendar Month (ie Jan)
 - Calendar Week EU (ie WK25)
 - Weekday Short (i.e. Mon)
 - Date
 - > Measures



Reuse options



Create from scratch



*Clean everything
else from the model*



*External
tools*



TMDL

- **Clicks:** 400
- **Keypresses:** ?
- **Time:** 40 min



- **Clicks:** 6
- **Keypresses:** 3
- **Time:** 10 sec



Dhyan Rathore

Power BI Tech Lead @ [Autoliv](#)

- ✓ **Stockholm, Sweden**
- ✓ **Blogger, Speaker & Hiker**
- ✓ **Automation & Optimization**



Agenda



TMDL: What, Why, When & How



Using TMDL with Local and Remote Models



Tips to unlock full potential

TMDL...???

What is TMDL

Tabular **M**odel **D**efinition **L**anguage



Serialized metadata of a semantic model



Each table, perspective, role, and culture stored as a separate **text** file

How does this look like?

Why do we need TMDL



PBIX

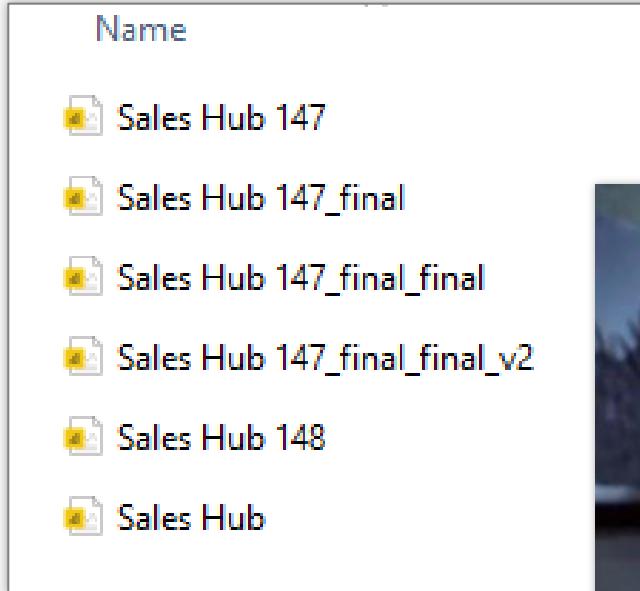


**Power BI Desktop or
external tools only**

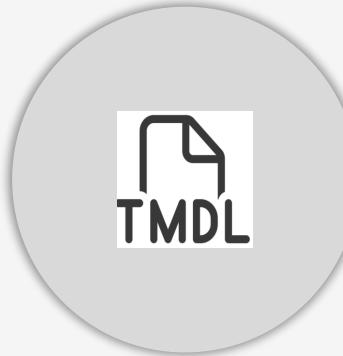
**Unsupported model
changes with external tools**

**Lack of Git based
Version Control**

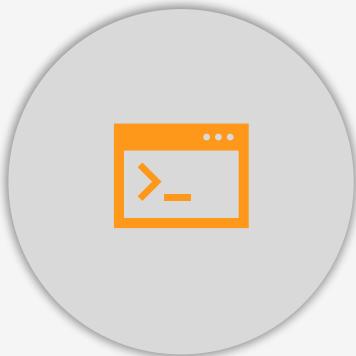
Version Control



Why do we need TMDL



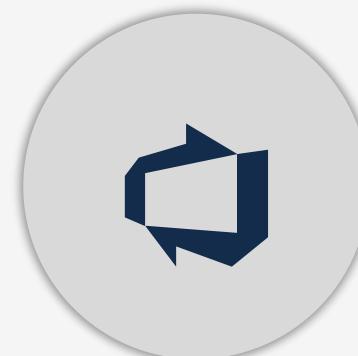
TMDL



Developer mode



Desktop hardening



Git based versioning

What can we do with TMDL



Create Objects



**Edit Objects &
Properties**



**Objects &
Properties
without a UI in
PBI Desktop**



Objects as Text

When to use TMDL



Viewing multiple objects at once



Making multiple changes at once



Work with objects & properties without an UI



Reuse objects across different models



View & edit Power Query transformations



Take a “one-page” backup of semantic model



Working with a code first experience

Using TMDL with *Local Models*

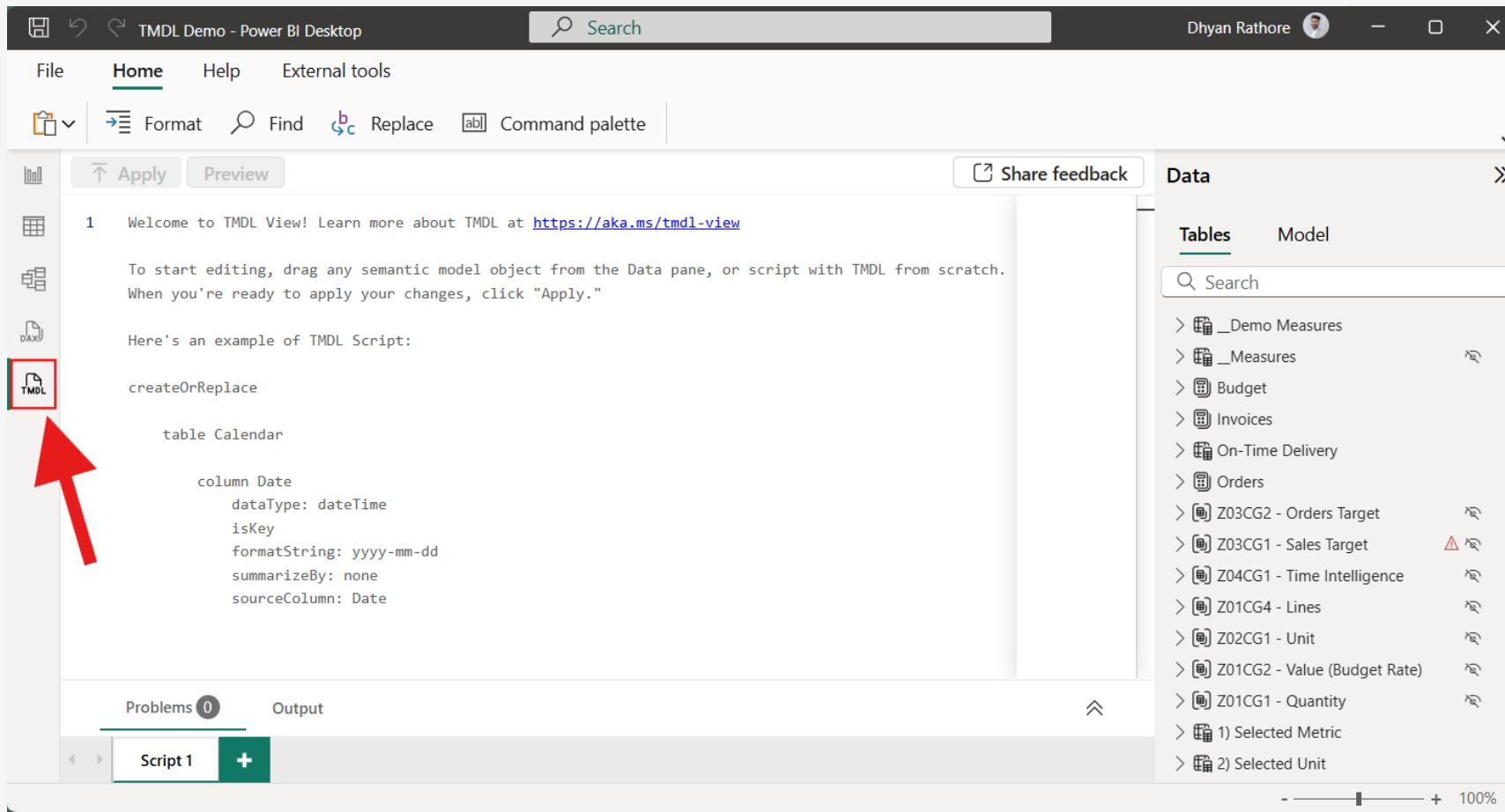
Let's see it in Action!

Different Types of TMDL

TMDL Scripts

TMDL View

- **Power BI Desktop** – GA since September 2025 release 🤓
- **Power BI Web** – Planned



TMDL File Format

Enable TMDL File Format

[Preview in Desktop](#)

File > Options and settings > Options > Preview features (only with pbip)

Options

GLOBAL
Data Load
Power Query Editor
DirectQuery
R scripting
Python scripting
Security
Privacy
Regional Settings
Updates
Usage Data
Diagnostics
Preview features
Auto recovery
Report settings
Copilot (preview)
CURRENT FILE
Data Load
Regional Settings
Privacy
Auto recovery
Published semantic model settings
Query reduction
Report settings

Preview features

The following features are available for you to try in this release. Preview features might change or be removed in future releases.

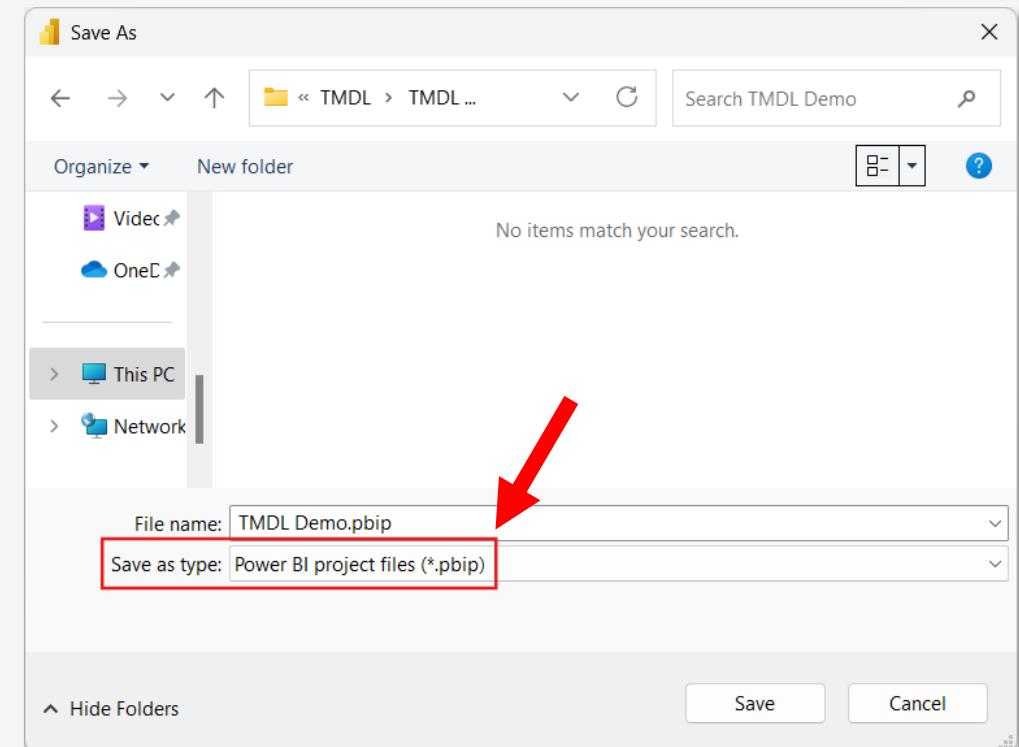
- Use new Databricks connector implementation [Learn more](#)
- Use new Google BigQuery connector implementation [Learn more](#)
- Use legacy Snowflake connector implementation [Learn more](#)
- Shape map visual [Learn more](#)
- Spanish language support for Q&A [Learn more](#)
- Q&A for live connected Analysis Services databases [Learn more](#)
- Import your Metrics into your report [Learn more](#)
- Connect to external semantic models shared with me [Learn more](#) | [Share feedback](#)
- Modern visual tooltips [Learn more](#) | [Share feedback](#)
- Metrics visual [Learn more](#)
- On-object interaction [Learn more](#) | [Share feedback](#)
- Set sensitivity label on exported PDF [Learn more](#)
- Save to OneDrive and SharePoint [Learn more](#)
 - Share to OneDrive and SharePoint [Learn more](#)
 - Saving to OneDrive and SharePoint uploads the file in the background [Learn more](#)
 - Show the new file saving and open experience [Learn more](#)
- Enhanced publish dialogs [Learn more](#)
 - Publish dialogs support folder selection [Learn more](#)
- Power BI Project (.pbip) save option [Learn more](#)
 - Store semantic model using TMDL format [Learn more](#)
 - Store reports using enhanced metadata format (PBIR) [Learn more](#)
- Store PBIX reports using enhanced metadata format (PBIR) [Learn more](#)
- Create semantic models in Direct Lake storage mode from one or more Fabric artifacts [Learn more](#)

OK

Cancel

Save pbix as .pbip

File > Save as



In Power BI Service, TMDL is the default storage mode for semantic models

Let's look under the hood!

Summary

TMDL Scripts GA

Script containing the object metadata as text that Power BI **Desktop** can use to make changes to the model.

Keywords: *createOrReplace, ref*

```
1  createOrReplace
2
3      table Date
4          lineageTag: 0bb45e29-3908-422d-ade4-4100434bdfa4
5          dataCategory: Time
6
7          measure '# Workdays MTD' =
8              CALCULATE(
9                  MAX( 'Date'[Workdays MTD] ),
10                 'Date'[IsDateInScope] = TRUE
11             )
12             formatString: #,##0
13             displayFolder: 5. Weekday / Workday\Measures\# Workdays
14             lineageTag: 4b0555ab-6912-4d3c-b613-0d2d542a6965
```

TMDL Files Preview in Desktop

Files storing object metadata as text that Power BI can use to render a model.

File extension: *tmdl*

```
1  table Date
2      lineageTag: 0bb45e29-3908-422d-ade4-4100434bdfa4
3      dataCategory: Time
4
5      measure '# Workdays MTD' =
6          CALCULATE(
7              MAX( 'Date'[Workdays MTD] ),
8              'Date'[IsDateInScope] = TRUE
9          )
10         formatString: #,##0
11         displayFolder: 5. Weekday / Workday\Measures\# Workdays
12         lineageTag: 4b0555ab-6912-4d3c-b613-0d2d542a6965
```

One can be used without using the other

**Can we use TMDL files to do things
that we did with TMDL scripts?**

Using TMDL Files with *Local Models*

Local Model: Reuse Objects with TMDL Files

TMDL Demo.SemanticModel > definition > tables	
Sort View ...	
_Demo Measures.tmdl	Last Refresh.tmdl
_Measures.tmdl	On-Time Delivery.tmdl
1) Selected Metric.tmdl	Order Document Type.tmdl
2) Selected Unit.tmdl	Order Status.tmdl
3) Selected Target.tmdl	Orders.tmdl
4) Selected Period.tmdl	Products.tmdl
Brands.tmdl	Regions.tmdl
Budget Rate.tmdl	Table.tmdl
Budget.tmdl	Z01CG1 - Quantity.tmdl
Customers.tmdl	Z01CG2 - Value(Budget Rate).tmdl
Date.tmdl	Z01CG4 - Lines.tmdl
Employees.tmdl	Z02CG1 - Unit.tmdl
Exchange Rate.tmdl	Z03CG1 - Sales Target.tmdl
Invoice Document Type.tmdl	Z03CG2 - Orders Target.tmdl
Invoices.tmdl	Z04CG1 - Time Intelligence.tmdl

Source Model: TMDL Files

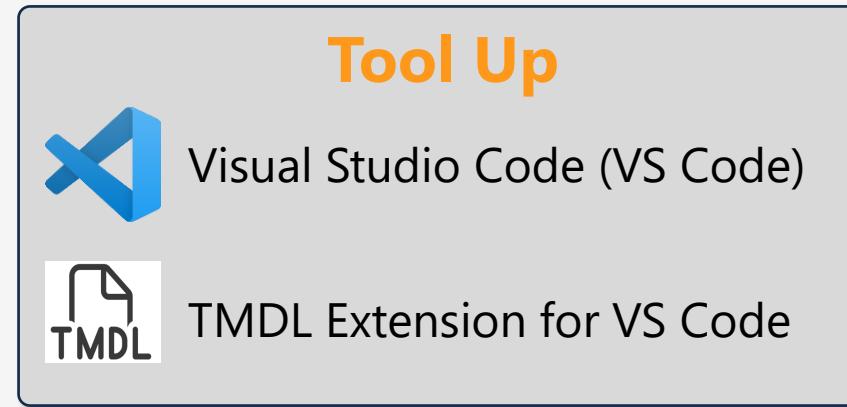
New Model.SemanticModel > definition > tables	
Sort View ...	
_Measures.tmdl	
Brands.tmdl	
Invoices.tmdl	
Products.tmdl	
Regions.tmdl	

Target Model: TMDL Files

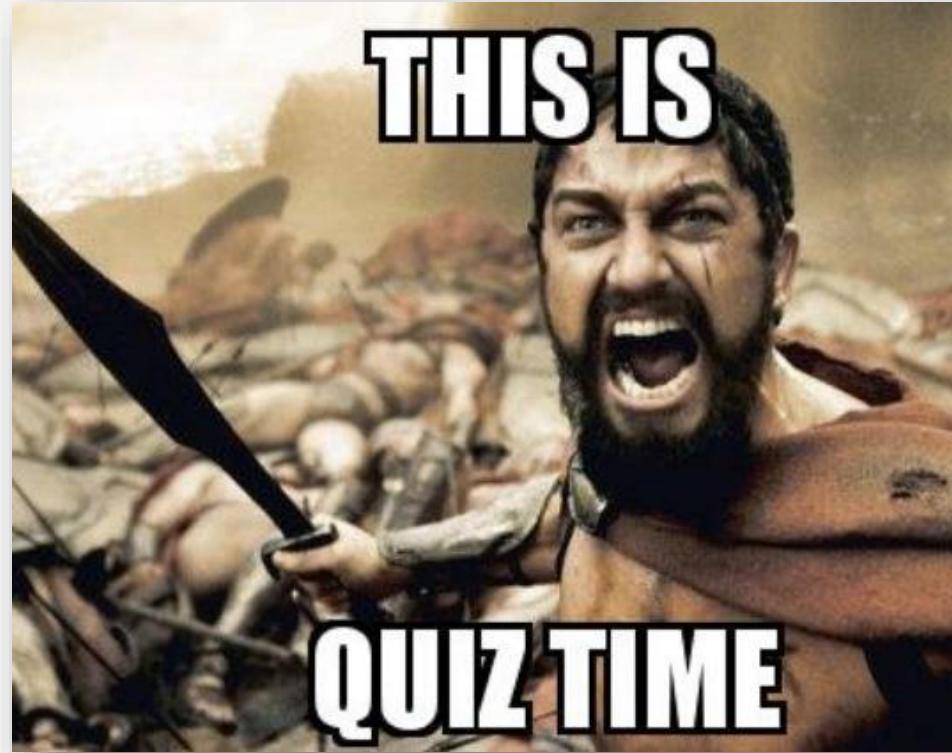
1. Move the object TMDL files from source to target model TMDL files
2. Relaunch Power BI Desktop
3. Refresh the object (if required)

Power BI Desktop auto-detect changes: Planned

Local Model: Working with TMDL Files

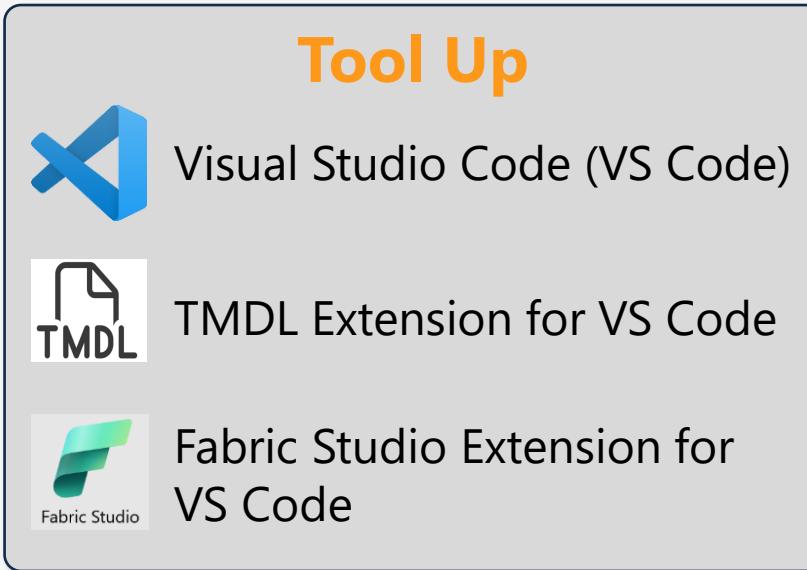


Updating *Remote Models* with TMDL



**To change a model in Power BI Service, do we go for
TMDL Scripts or TMDL Files?**

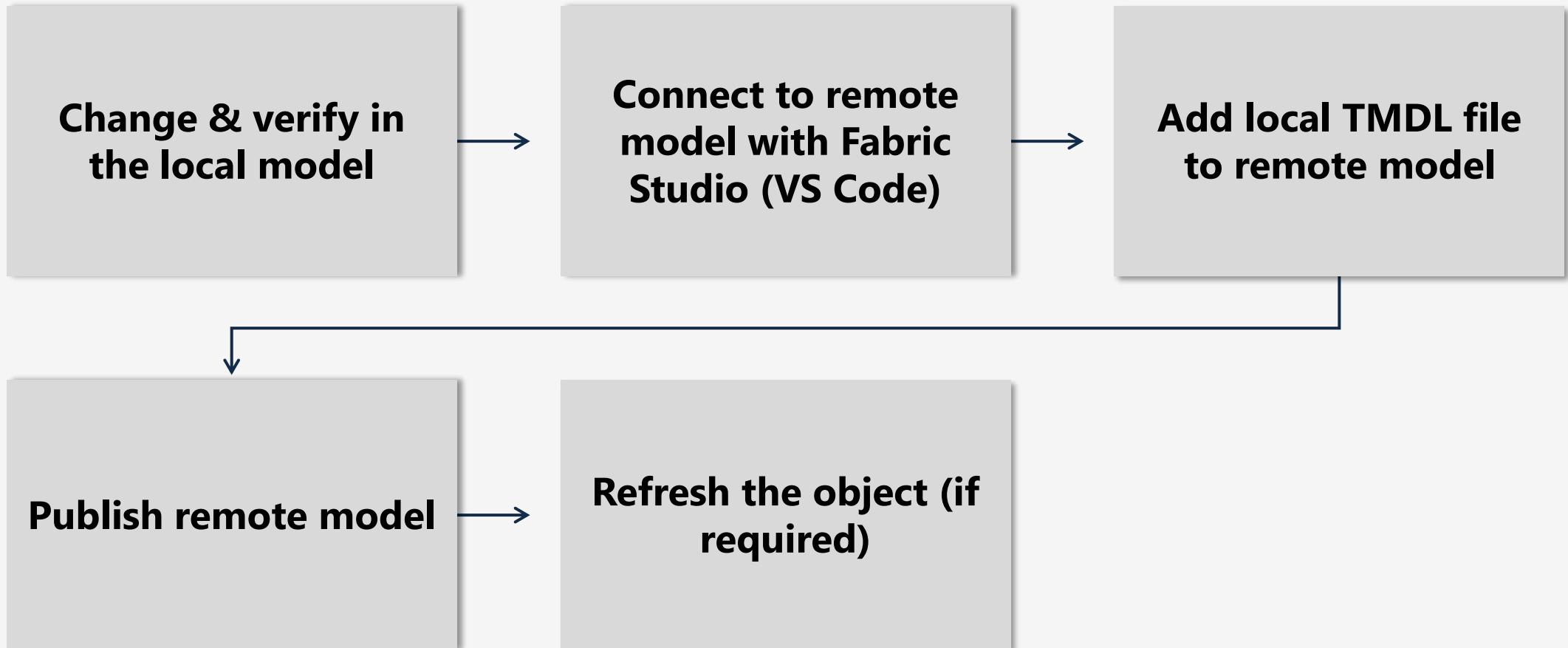
Remote Model: Update with TMDL Files



TMDL Magic with Fabric Studio!



Remote Model: Update with TMDL Files



TMDL View in Power BI Web: Planned

TMDL: The Smart Way

When **NOT** to use TMDL



Editing DAX or Power Query



When the user interface is simpler



Changing unknown properties



Creating Perspectives for the first time

Tips



Default values of properties are not shown



A closed TMDL script tab can't be recovered



Preview before applying changes



No undo for data modeling changes

Some Warnings



Careful with Find & Replace as you can make unintended changes



Dependencies are not cross highlighted



TMDL only changes the model metadata and does not update the visuals

Recap



**What, Why,
When & How**



**TMDL Scripts
with local
models**



**TMDL files with
local & remote
models**



**Tips & warning
to unlock full
potential**



Questions?

Get the slides...



[https://github.com/DhyanRathore/Presentations/
tree/main/2025/20251119_BudapestBIForum](https://github.com/DhyanRathore/Presentations/tree/main/2025/20251119_BudapestBIForum)

Thank You!!

Dhyan Rathore

