

Start with PowerBI

"From Rookie to Rock"

Learn &
Practice

Quick Guide Develop faster with TDML



What is TDML?

An integrated code editor



TDML = Tabular Model Definition Language

The script TDML allows you to:

- ✓ Manage your data model more easily
- ✓ Share your code
- ✓ Modify, optimize, and improve your code with its integrated editor
- ✓ Manage your project versions



In these Patou Tips, we will examine the first 3 points:

- ✓ **Improve reusability**
- ✓ **Reuse Semantic Model**
- ✓ **Document your projects**



Resources on GitHub

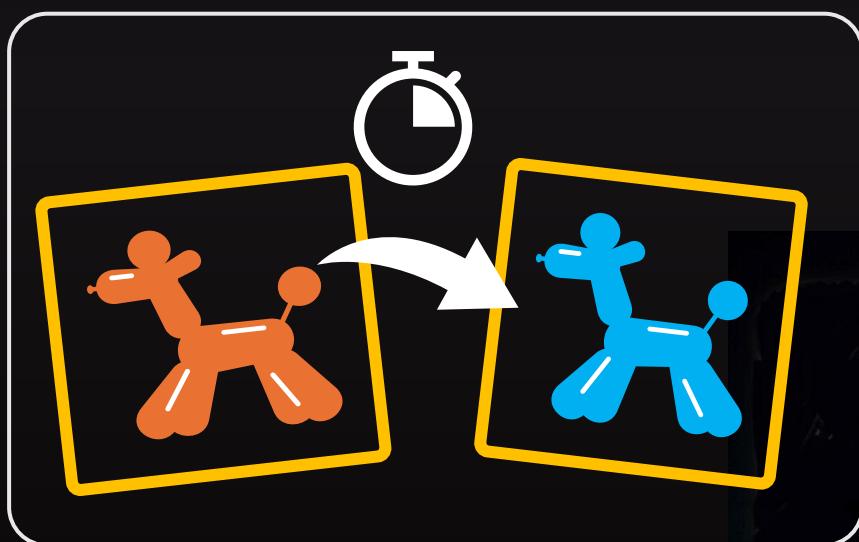
[Patou-Tips/#52 Patou Tips \(Quick guide to develop faster with TDML\) at main :](#)

[PatouTips/Patou-Tips](#)

Develop faster with TDML

Part 1

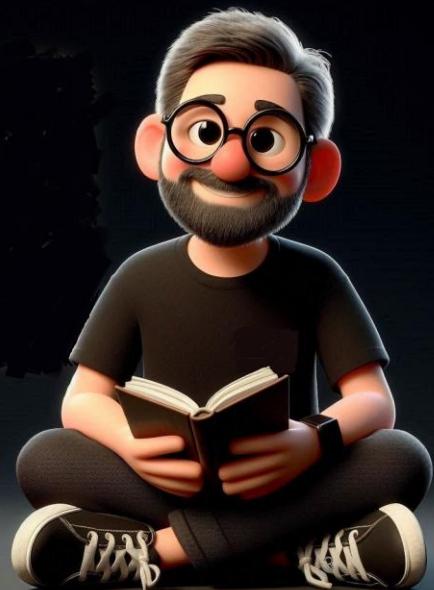
Improve Reusability



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Improve Reusability

Use case: Dimension table for dates (Date_Dim)

In every Power BI* project, it's useful to have a dimension table (Dim_Date). The goal here is to copy this table, incorporating all the measures and operations that follow in another PowerBI project:

- 1 Marking the table as a date table
- 2 Creating a date hierarchy
- 3 Sorting the months by their number (1 to 12), the days of the week by their day number (1 to 7)...
- 4 Hiding all elements of the date dimension except for the date hierarchy



Improve Reusability

Step 1: Generate the code



The screenshot shows the Power BI Data view. A yellow box highlights the 'TDML' tab in the top navigation bar. Inside the TDML View window, there is a code editor containing TDM Language (TDML) code for a 'DimDate' dimension. The code includes operations like 'createOrReplace' and defines the 'DimDate' table with its columns ('Date', 'Year') and various properties. A large orange arrow points from the 'DimDate' entry in the semantic model tree on the right towards the TDML View window.

1 Go in the **TDML View**

2 Drag and drop the "DimDate" in the "**TDML View window**"

3 A code appears in the **TDML View window** and includes all the characteristics of the dimension; its measures, the preparation operations described previously (see previous page).

Improve Reusability

Step 2: Reproduce the code



The screenshot shows three steps in PowerBI:

- Step 1: A TDML View window with code for a DimDate table. An orange circle highlights the code area.
- Step 2: A "New" dialog box for creating a new PowerBI project. An orange circle highlights the "Blank report" option.
- Step 3: A TDML View window in a new project with the same DimDate table code pasted in. An orange circle highlights the pasted code.

```
1 createOrReplace
2
3   table DimDate
4     + lineageTag: 723ffede-04e5-48af-9cf8-2975c961bca8
5     + dataCategory: Time
6
7       column Date
8         + isKey
9         + formatString: General-Date
10        + lineageTag: 4f0b183d-a93f-4b76-93d6-a1b0942448c
11        + summarizeBy: none
12        + isNameInferred
13        + sourceColumn: [Date]
14
15       annotation SummarizationSetBy = Automatic
16
17       column Year
18         + formatString: 0
19         + lineageTag: 53f72a62-40b7-4911-91c3-5d4d4d54b771
20         + summarizeBy: sum
21         + isNameInferred
22         + sourceColumn: [Year]
23
24       annotation SummarizationSetBy = Automatic
25
26       column YearSemester
27         + lineageTag: fad97932-5b2f-4afb-a125-4769aa8652f4
28         + summarizeBy: none
29         + isNameInferred
30         + sourceColumn: [YearSemester]
```

- 1 Select all the code (ctrl + A) and copy it (ctrl + C)
- 2 Create a new PowerBI project
- 3 Paste the code (ctrl + V) in the TDML View window

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Improve Reusability

Step 3: That's all folks!



Click on the Apply button (1), then to the Refresh button (2).

The screenshot shows a modal window titled 'Changes applied to the model'. At the top left is an 'Apply' button (1) with a dashed red circle around it, and a 'Preview' button. At the top right are 'Refresh now' (2) and 'Share feedback' buttons. The main area displays the following code:

```
1 createOrReplace
3     table DimDate
152         hierarchy 'Date Hierarchy'
159             level Month
162
163     partition DimDate - calculated
164         mode: import
```

- All the measures and properties are here;
- the mark of the table as a date table (3),
 - date hierarchy (4),
 - sort months by their number (1 to 12), days of the week by their day number (1 to 7) (5)
 - and all elements of the date dimension are hided except for the date hierarchy (6)

The screenshot shows the 'DimDate' table properties pane. A large yellow arrow points from the 'Changes applied to the model' pane down to this pane. Numbered callouts point to specific parts:

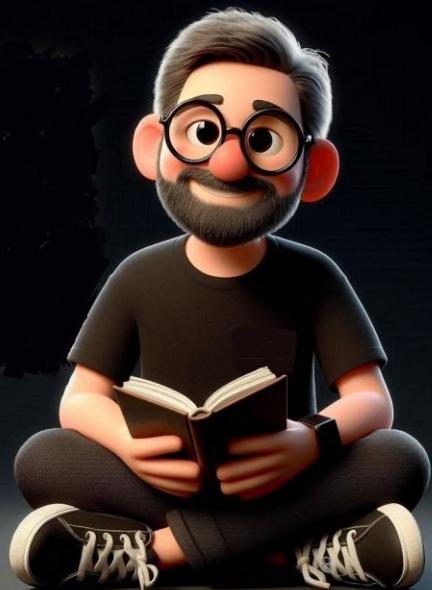
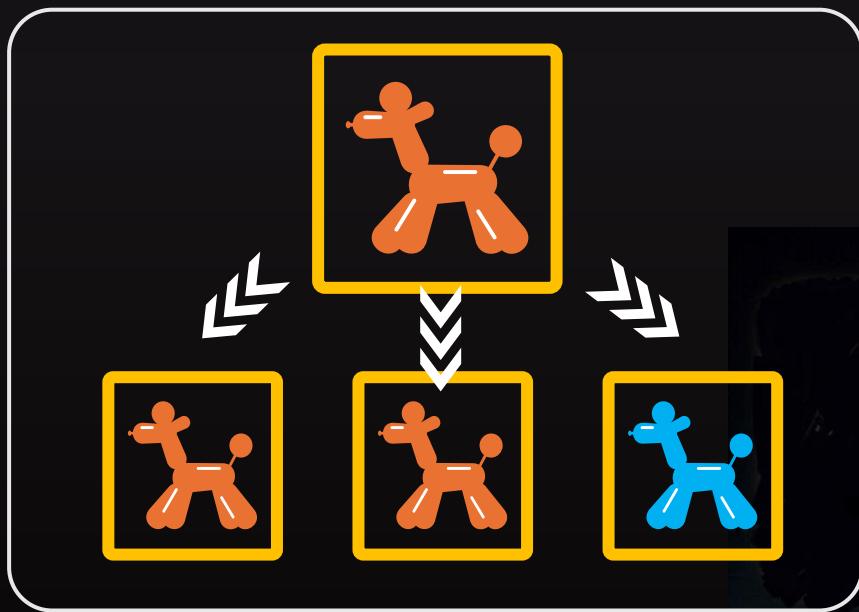
- (3) Date
- (4) Date Hierarchy
- (5) Month
- (6) NumMonth

Element
Year
Month
Day
Month
MonthLong
MonthShort
NumDayMonth
NumDayWeek
NumMonth
NumWeek
Quarter

Develop faster with TDML

Part 2

Reuse Semantic Modelability



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Reuse Semantic Model

2 Use cases (1/2)

In every Power BI project, the two use cases we will describe are frequently encountered:

Use case 1 Moving objects from one project to another one



Use case 2 Quickly modifying the properties of an object



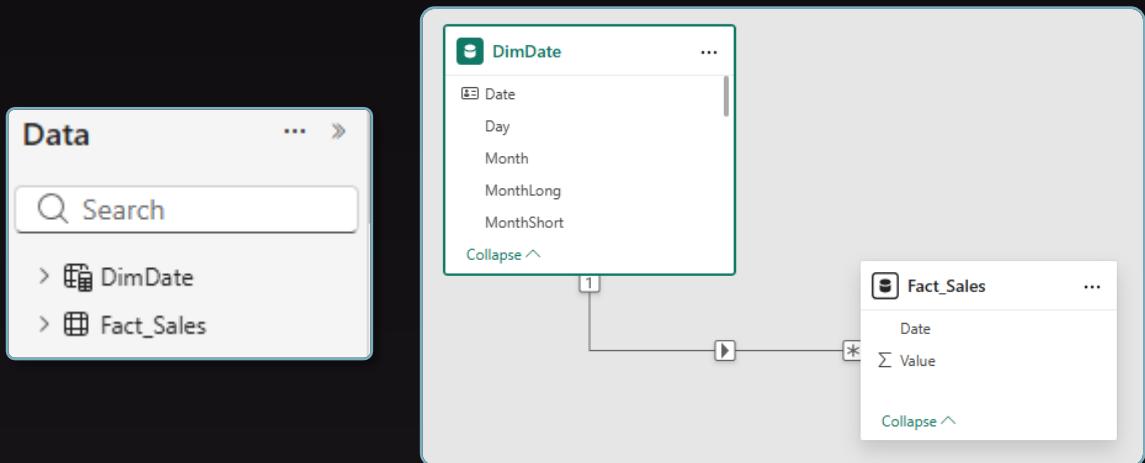


Reuse Semantic Model 2 Use cases (2/2)

Here is a Power BI project with two tables:

- ✓ A date dimension table (see the previous section) created from a DAX formula, "DimDate"
- ✓ A sales fact table, "Fact_Sales".

These two tables are linked by a one-to-many relationship (modeling view) on the Date value.



Reuse Semantic Model

Step 1: Generate the code



Use case 1: Moving objects from one project to another one

The screenshot shows the Power BI Data view interface. On the left, there's a code editor window with a yellow border containing T-SQL-like DAX code for creating a DimDate table. A red box labeled '3' highlights the 'TMDL' icon in the top-left corner of this window. To the right, a large orange arrow points from the 'Semantic model' section towards the TMDL icon. The main area is titled 'Data' and shows a tree view of the semantic model. A red circle labeled '2' is over the 'Model' node in the tree. A white callout box labeled 'Semantic model' contains a list of semantic model components: Cultures (1), Expressions (0), Functions (0), Measures (0), Perspectives (0), Relationships (0), Roles (0), and Tables (1). The 'Tables (1)' item is expanded, showing a list of tables including DimDate, FactInternetSales, FactResellerSales, FactSales, FactSalesTerritory, FactWebSales, and FactWebUsage.

- 1 Go in the **TDML View**
 - 2 Drag and drop the "Semantic model" in the "**TDML View window**"
 - 3 A code appears in the **TDML View window** and includes all the characteristics of the Semantic Model.

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Reuse Semantic Model

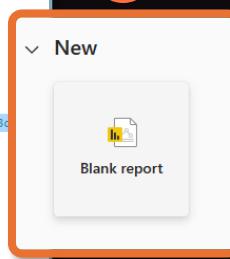
Step 2: Reproduce the code



Use case 1: Moving objects from one project to another one

1

```
1 createOrReplace
2
3   table DimDate
4     -> lineageTag: 723ffede-04e5-48af-9cf8-2975c961bca8
5     -> dataCategory: Time
6
7     column Date
8       -> isKey
9       -> formatString: General Date
10      -> lineageTag: 4f0b183d-a93f-4b76-93d6-a1b0942448c1
11      -> summarizeBy: none
12      -> isNameInferred
13      -> sourceColumn: [Date]
14
15      annotation SummarizationSetBy = Automatic
16
17     column Year
18       -> formatString: 0
19       -> lineageTag: 53f72a62-40b7-4911-91c3-5d4d4d54b771
20       -> summarizeBy: sum
21       -> isNameInferred
22       -> sourceColumn: [Year]
23
24       annotation SummarizationSetBy = Automatic
25
26     column YearSemester
27       -> lineageTag: fad97932-5b2f-4afb-a125-4769aa8652f4
28       -> summarizeBy: none
29       -> isNameInferred
30       -> sourceColumn: [YearSemester]
```



3

```
1 createOrReplace
2
3   table DimDate
4     -> lineageTag: 723ffede-04e5-48af-9cf8-2975c961bca8
5     -> dataCategory: Time
6
7     column Date
8       -> isKey
9       -> formatString: General Date
10      -> lineageTag: 4f0b183d-a93f-4b76-93d6-a1b0942448c2
11      -> summarizeBy: none
12      -> isNameInferred
13      -> sourceColumn: [Date]
14
15      annotation SummarizationSetBy = Automatic
16
17     column Year
18       -> formatString: 0
19       -> lineageTag: 53f72a62-40b7-4911-91c3-5d4d4d54b771
20       -> summarizeBy: sum
21       -> isNameInferred
22       -> sourceColumn: [Year]
23
24       annotation SummarizationSetBy = Automatic
25
26     column YearSemester
27       -> lineageTag: fad97932-5b2f-4afb-a125-4769aa8652f4
28       -> summarizeBy: none
29       -> isNameInferred
30       -> sourceColumn: [YearSemester]
```

- 1 Select all the code (ctrl + A) and copy it (ctrl + C)
- 2 Create a new PowerBI project
- 3 Paste the code (ctrl + V) in the TDML View window

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Reuse Semantic Model

Step 3: That's all folks!



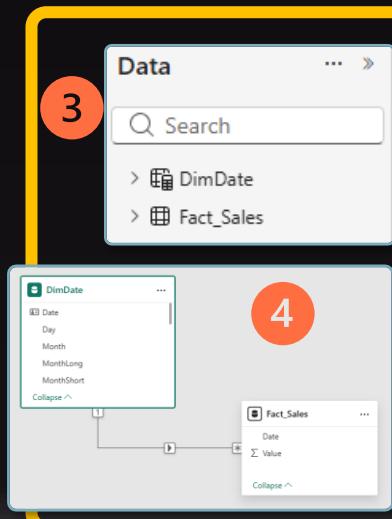
Use case 1: Moving objects from one project to another one

Click on the Apply button (1), then to the Refresh button (2).

One or more calculated tables need to be manually refreshed.

Changes applied to the model.

```
1 createOrReplace
3     table DimDate
152         hierarchy 'Date Hierarchy'
159             level Month
162
163     partition DimDate Calculated
164         mode import
```



All the Semantic Model is here; the tables (3), the modeling (4) and in PowerQuery all the operations created (5) in the Sales table.

Queries [1]

Fact_Sales

Date	Value
01/01/2023	10
01/02/2023	12
01/03/2023	13
01/04/2023	15
01/05/2023	17
01/06/2023	20
01/07/2023	24
01/08/2023	27
01/09/2023	22
01/10/2023	15
01/11/2023	14
01/12/2023	19

Query Settings

Properties

APPLIED STEPS

- Source
- Navigation
- Changed Type
- Promoted Headers
- Changed Type1
- Unpivoted Other Columns
- Removed Columns
- Renamed Columns
- Changed Type2
- Renamed Column1

Reuse Semantic Model

Step 1: Save and duplicate script



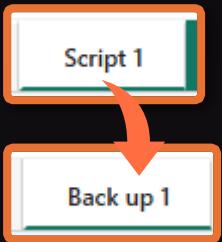
>>>



Use case 2: Quickly modifying the properties of an object

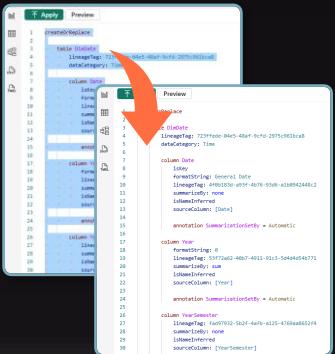
In this use case, the modification will consist of renaming the DimDate dimension to "Dim_Date". However, many other modifications are possible; it's just a simple example.

1



Before modifying a property, back up your script. By double-clicking the tab in the bottom left corner, rename the "Script 1" tab to "Backup 1". You can ultimately create many scripts—pretty cool, right?

2



Select all the code (**ctrl + A**) and copy it (**ctrl + C**).
Create a new script and paste the code (**ctrl + V**) in the TDML View window

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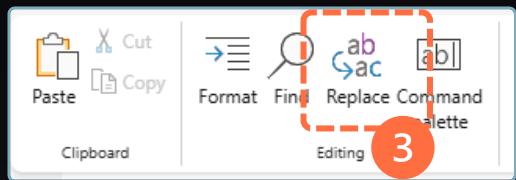
Patou Tips #52

Reuse Semantic Model

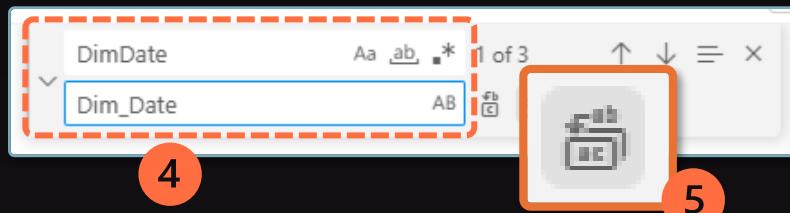
Step 2: Modify script



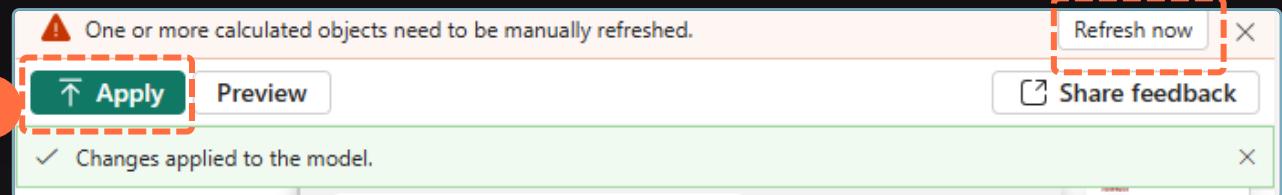
Use case 2: Quickly modifying the properties of an object



Click on the button "find and replace"



Replace "DimDate" by
"Dim_Date (4)" and
click on the button
"replace all (5)"



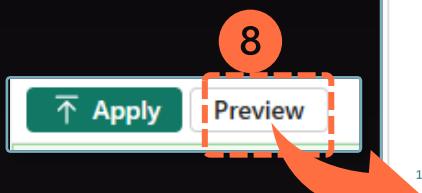
Click on the Apply button (6), then to the Refresh button (7).

Reuse Semantic Model

Step 3: That's all folks!



Use case 2: Quickly modifying the properties of an object



Click on the "preview" button, a panel appear and show the difference before and after the script.

The screenshot shows the Power BI Model Editor interface. On the left, there is a preview panel with the number '8' above it. The preview panel has two sections: 'Before' and 'After'. In the 'Before' section, a table named 'DimDate' is shown with its 'lineageTag' and 'dataCategory'. In the 'After' section, the same table is shown with a different 'lineageTag'. Below the preview panel, there are two tabs: 'Tables' and 'Model'. The 'Tables' tab is selected, showing a list of tables: 'DimDate' and 'Fact_Sales'. The 'Model' tab is also visible.

```
1 model Model
2 culture: 'en-us'
3 defaultSource: 'BI_V3'
4 source: 'BI_V3'
5 dataAccess: 'Open'
6 legacyRedirects
7 returnErrorValuesAsNull
8
9+ table DimDate
10 lineageTag: 723ffede-04e5-48af-9cf8-2975c961bca8
11 dataCategory: Time
12
13 column Date
14 isKey
15 Commentaries: General Data
16
17
18
19
20
21
22
23
24
25
```

```
1 model Model
2 culture: 'en-us'
3 defaultSource: 'BI_V3'
4 source: 'BI_V3'
5 dataAccess: 'Open'
6 legacyRedirects
7 returnErrorValuesAsNull
8
9+ table DimDate
10 lineageTag: 723ffede-04e5-48af-9cf8-2975c961bca8
11 dataCategory: Time
12
13 column Date
14 isKey
15 Commentaries: General Data
16
17
18
19
20
21
22
23
24
25
```

Tables Model

Search

> DimDate

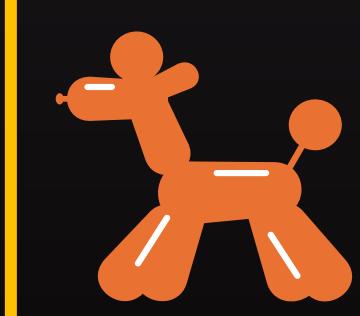
> Fact_Sales

This use case is very practical and the best solution for modifying repeated terms across multiple tables or measures. Great!

Develop faster with TDML

Part 3

Document your PowerBI projects



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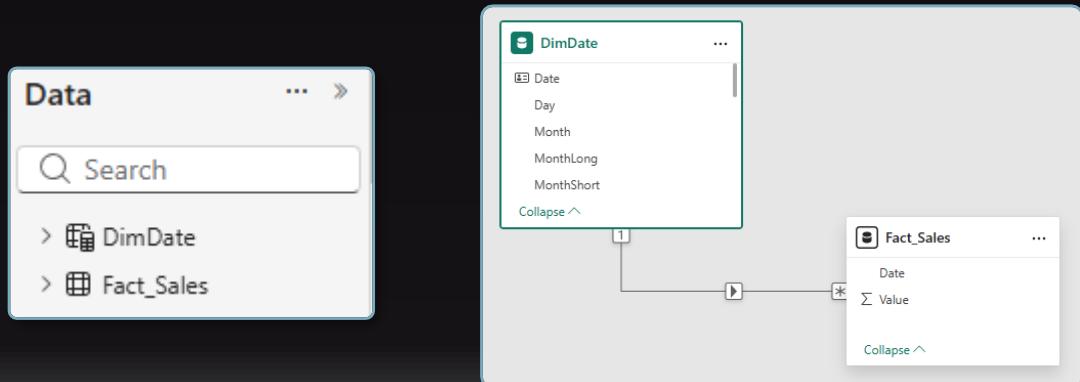
Document your PowerBI projects



Documenting a project is a tedious task that can take as much time as the project itself, especially for small projects. However, this documentation is useful not only for you if you are working alone, but also for your collaborators and the teams that will manage the execution and development phases.

To do this, we will use the Power BI TDML script and a prompt in an AI (here, Mistral).

We use the project of the previous part 2, Patou Tips#50.



Document your PowerBI projects

Step 1: Generate the code



The screenshot shows the Alteryx Designer interface with a yellow box highlighting the 'Semantic model' panel on the right. The panel title '2 Model' is circled in red with the number '2'. Below it, the section 'Semantic model' is expanded, showing categories like 'Cultures (1)', 'Expressions (0)', etc., each with a red circle containing a number (e.g., 1, 0). A large orange arrow points from the 'TMDL' icon in the top-left corner to the 'Semantic model' panel. A red circle with the number '3' is placed over the third line of code in the TMDL editor.

```
1  <!-- Create or replace the DimDate table -->
2  createOrReplace
3  <table DimDate
4    lineageTag: 723ffede-04e5-48af-9cf8-2975c961bca8
5    dataCategory: Time
6
7    column Date
8      isHidden
9      isKey
10     formatString: General Date
11     lineageTag: 4f0b183d-a93f-4b76-93d6-a1b0942448c2
12     summarizeBy: none
13     isNameInferred
14     sourceColumn: [Date]
15
16     annotation SummarizationSetBy = Automatic
17
18   </table>
```

- 1 Go in the **TDML View**
 - 2 Drag and drop the "Semantic model" in the "**TDML View window**"
 - 3 A code appears in the **TDML View window** and includes all the characteristics of the Semantic Model.

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Patou Tips #52



Document your PowerBI projects

Step 2: Prompt your project

4

```
1 CreateOrReplace
2
3   table [Date]
4     lineageTag: 723fnode-84e5-48ef-9cf4-2975c463bce8
5     dataCategory: Time
6
7     column Date
8       isKey
9       formatString: General Date
10      lineageTag: 723fnode-84e5-48ef-9cf4-2975c463bce8
11      summaryBy: none
12      isNameInferred
13      sourceColumn: [Date]
14
15      annotation SummarizationSetBy = Automatic
16
17     column Year
18       formatString: 0
19       lineageTag: 723fnode-84e5-48ef-9cf4-2975c463bce8
```

Select all the code (ctrl + A) and copy it (ctrl + C)

5

Posez une question au Chatbot

Create comprehensive technical documentation in 3 chapters:
1 - Data Modeling: Architecture and Data Flows,
2 - List of Tables and Measures,
3 - Maintenance: Guide to Data Sources to Update and Best Practices

Prompt

6

Based on the following TDML code from a Power BI project:

```
createOrReplace

model Model
culture: fr-FR
defaultPowerBIDataSourceVersion: powerBI V3
```

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Document your PowerBI projects

Step 3: That's all folks!



7

Prompt

Create comprehensive technical documentation in 3 chapters:

- 1 - Data Modeling: Architecture and Data Flows,
- 2 - List of Tables and Measures,
- 3 - Maintenance: Guide to Data Sources to Update and Best Practices

Based on the following TDML code from a Power BI project
[add the TDML script of your PowerBI project]

8

Now the documentation is ready,
paste it in Microsoft Word by
example then save it in PDF
format!

See example in the GitHub folder
(see link in the beginning of this
Patou Tips).

5 minutes for really complete and
great documentation!

Here's a structured technical documentation for the provided Tabular Model Definition Language (TDML) code. This documentation explains the purpose, included components, and specific configurations.					
Tabular Model Documentation: Sales Data Model					
1. Overview					
This TDML script defines a Power BI Tabular Data Model for sales data analysis. The model includes:					
<ul style="list-style-type: none">A date dimension table (Dim Date) for time intelligence.A fact table (Fact Sales) for sales transactions.A relationship between the fact and dimension tables.Model-level configurations for culture, data access, and Power BI compatibility.					
2. Model Configuration					
2.1. Model Metadata					
Property	Value	Description			
culture	fr-FR	Sets the model's locale to French (France).			
defaultPowerBIDataSourceVersion	powerbi_V3	Specifies the Power BI data source version.			
sourceQueryCulture	fr-FR	Ensures date/number formatting follows French conventions.			
dataAccessOptions	legacyRedirects, returnErrorValuesIfNull	Configures how errors and legacy redirects are handled.			
3. Tables					
3.1. Dim Date (Date Dimension Table)					
Purpose: Provides a comprehensive date hierarchy for time-based analysis.					
Columns					
Column	Date Type Description	Lineage Tag	Source Column Format	Summarization	
Date	Date Primary key for the date table.	4fb0183d-a93f-4b76-93d6-a1b094244bc2 [Date]	General Date	None	
Year	Integer Year of the date.	S3772e62-40b7-4911-9c3-5dd4d5b771 [Year]	0	None	
YearSemester	Text Year and semester (e.g., 2024-S1), fd597932-5b2f-4fb-a125-4769aa8652f4 [YearSemester]	-	-	None	
YearQuarter	Text Year and quarter (e.g., 2024-Q1), 6f177fc6-5ff9-4bf-a61d-0f60ed33e10 [YearQuarter]	-	-	None	

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Coming soon, in 2026!



Patrice Fayard

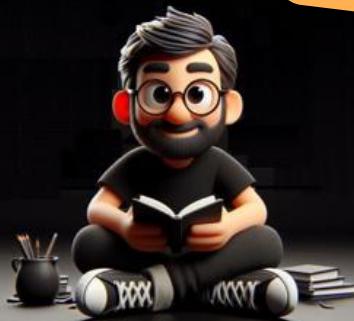
Business Intelligence WORKBOOK

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Learn & Practice

- ✓ 1000 Video tutorials
- ✓ 500 Step by step
- ✓ 5 Cheat Sheet
- ✓ 100 Power Patou Tips
- ✓ Hacking & Workshops



To develop your knowledge, find more explanations and exercises

Over 500 pages to learn and practice: video tutorials and resources

Learn and practice

Find past issues of "Patou Tips" and download resources to practice on GitHub



Easy to do it...

Patou Tips #5



Create a **Customized Chart** (for income statement)



To practice downloadable free resources in GitHub



Patou Tips #5
Create a
Customized
Chart
(for income
statement)

Easy to do it...

Patou Tips #6



Create
Customized Icon



(with PowerPoint for PowerBI)



Patou Tips #6
Create
Customized Icon

Easy to do it...

Patou Tips #7



Create an **Age Pyramid Chart** (for Human Ressources)



To practice downloadable free resources in GitHub



Patou Tips #7
Create an Age
Pyramid Chart
(for Human
Ressources)

Easy to do it...

Patou Tips #12



Calculate the correct evolution for KPI



Patou Tips #12
Calculate right
evolution for
KPI

Patou Tips #23



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9 tips explained step by step to practice

Quick Guide Visualization & Storytelling



Patou Tips #23
Quick Guide Visualization &
Storytelling



Resources on GitHub
<https://github.com/Patou-Tips/Patou-Tips>

Don't forget!
This isn't the truth, it's just my truth!

Patou Tips



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