#datasatpn

Data Saturday #1

February 27th, 2021

PBI modeling at warp speed with TE Advanced Scripting

Riccardo Perico

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Riccardo Perico

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BI & Power BI Engineer @ Lucient

+10 years in Microsoft “Data Realm”

Giving my little contribution to the community

PASS

PowerBIUG

POWER PLATFORM BOOTCAMP

Power Platform World Tour

damag

DATA SATURDAYS

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Agenda

- What Tabular Editor is?
- Why Tabular Editor?
- Why scripting?
- Modeling Best Practices
- Let’s see it doing the job
- Q&A

What Tabular Editor Is?

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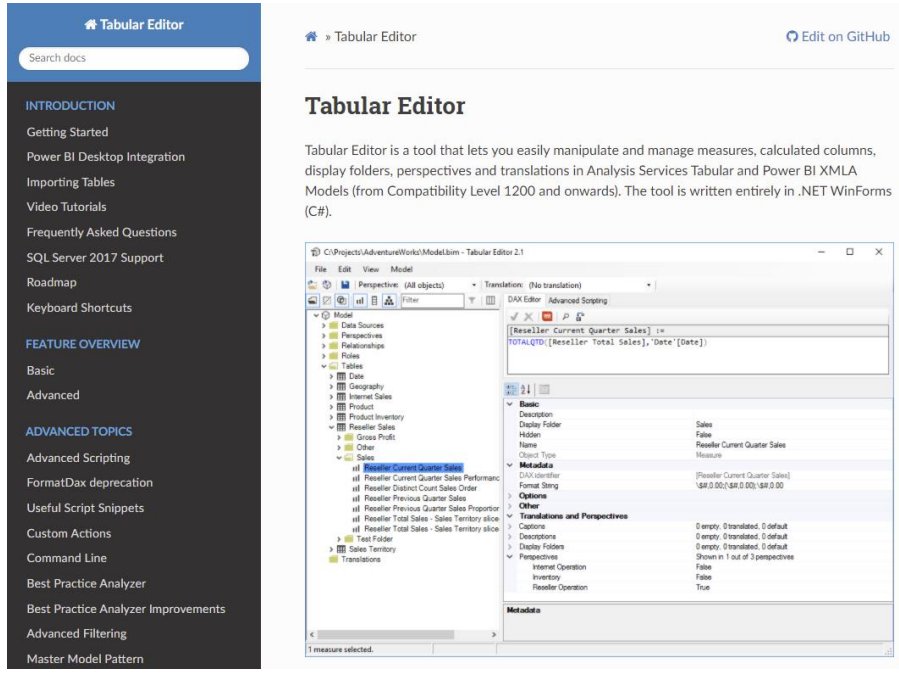
Tabular Editor

A lightweight editor for SSAS Tabular Models built in .NET/WinForms



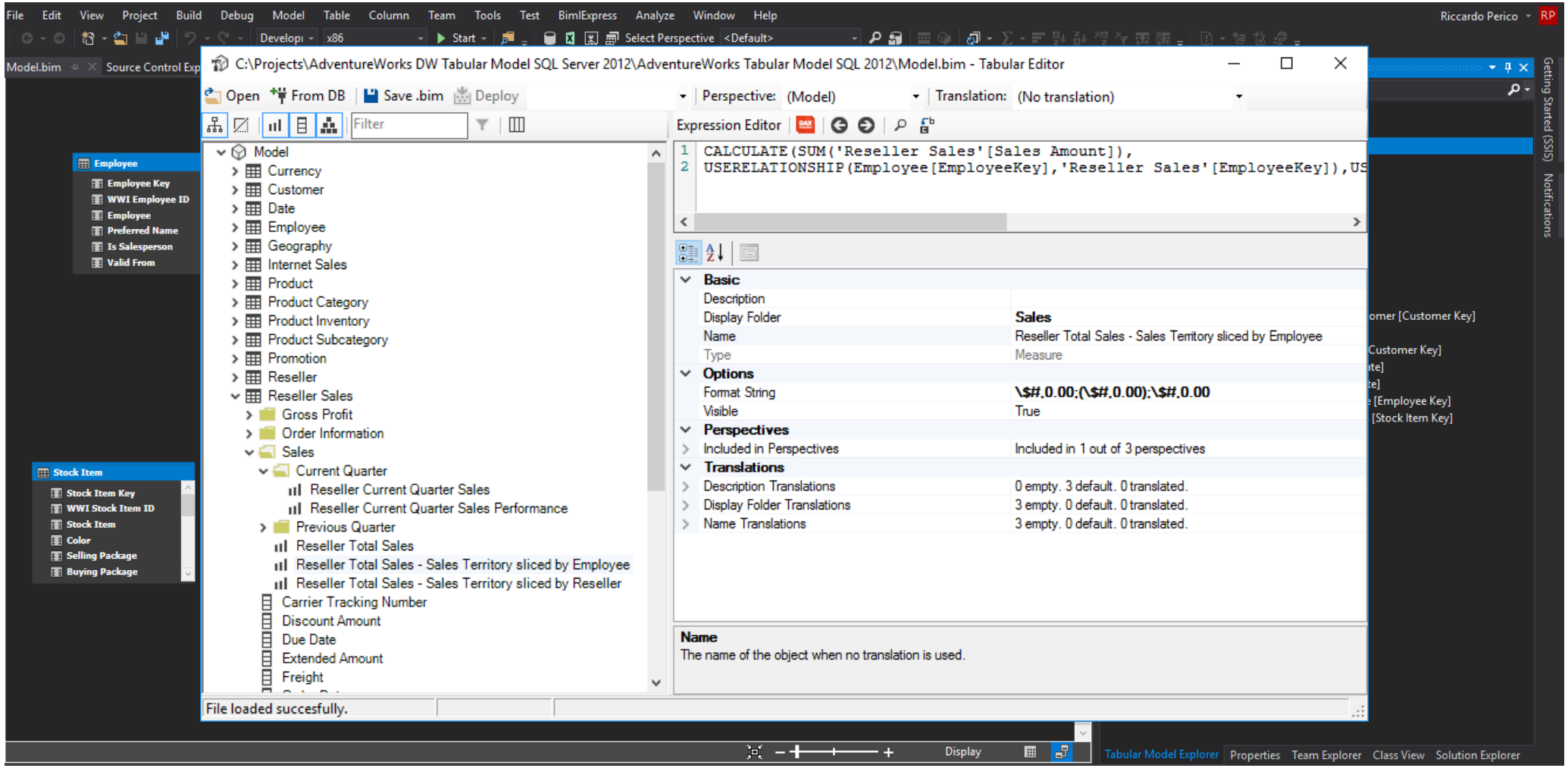
https://tabulareditor.com

The Genesis

Born in 2016 by **Daniel Otykier**

Principal Architect at Kapacity A/S (MVP)

"… I was asked by a client to reorganize thousands of measures in a SSAS Tabular 2016 model… I started with SSDT…"


C:\Projects\AdventureWorks DW Tabular Model SQL Server 2012\AdventureWorks Tabular Model SQL 2012\Model.bim - Tabular Editor
Open
From DB
Save .bim
Deploy
Perspective: (Model)
Translation: (No translation)
Expression Editor
CALCULATE(SUM('Reseller Sales'[Sales Amount]),
USERELATIONSHIP(Employee[EmployeeKey],'Reseller Sales'[EmployeeKey]),US
Model
Currency
Customer
Date
Employee
Geography
Internet Sales
Product
Product Category
Product Inventory
Product Subcategory
Promotion
Reseller
Reseller Sales
Gross Profit
Order Information
Sales
Current Quarter
Reseller Current Quarter Sales
Reseller Current Quarter Sales Performance
Previous Quarter
Reseller Total Sales
Reseller Total Sales - Sales Territory sliced by Employee
Reseller Total Sales - Sales Territory sliced by Reseller
Carrier Tracking Number
Discount Amount
Due Date
Extended Amount
Freight
Basic
Description
Display Folder
Sales
Name
Reseller Total Sales - Sales Territory sliced by Employee
Type
Measure
Options
Format String
\$#,0.00;(\$#,0.00);\$#,0.00
Visible
True
Perspectives
Included in Perspectives
Included in 1 out of 3 perspectives
Translations
Description Translations
0 empty. 3 default. 0 translated.
Display Folder Translations
3 empty. 0 default. 0 translated.
Name Translations
3 empty. 0 default. 0 translated.
Name
The name of the object when no translation is used.
File loaded succesfully.
Employee
Employee Key
WWI Employee ID
Employee
Preferred Name
Is Salesperson
Valid From
Stock Item
Stock Item Key
WWI Stock Item ID
Stock Item
Color
Selling Package
Buying Package
Display
Tabular Model Explorer
Properties
Team Explorer
Class View
Solution Explorer

Again, what is it?

- Offline editor for SSAS 2016+ / AAS / Power BI
- It’s a JSON editor
- No diagram view

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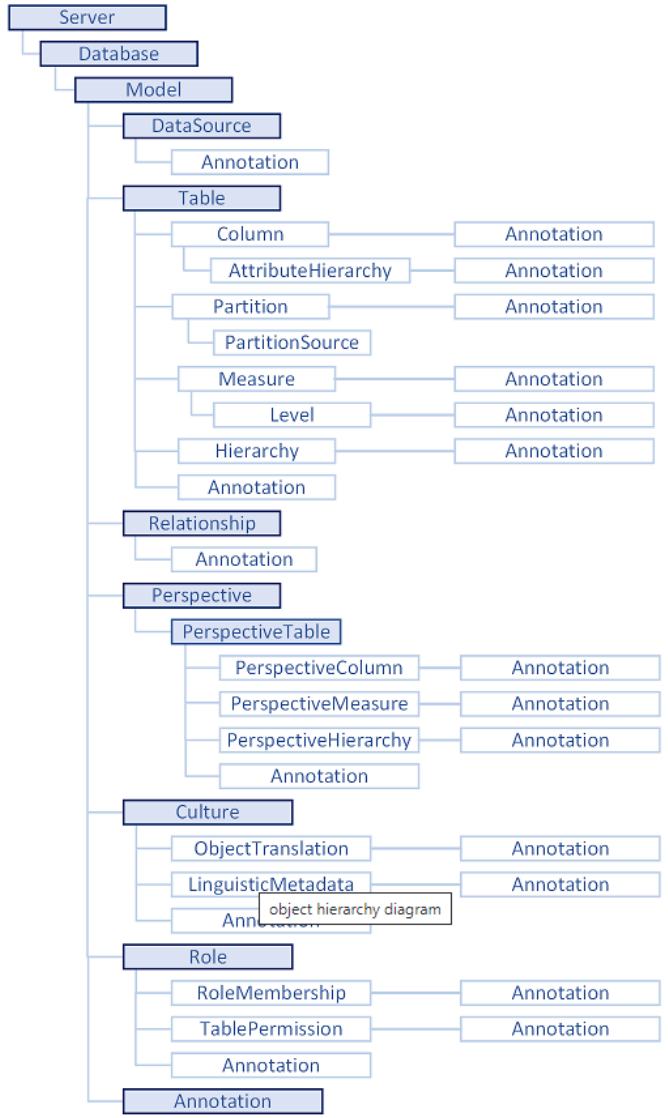
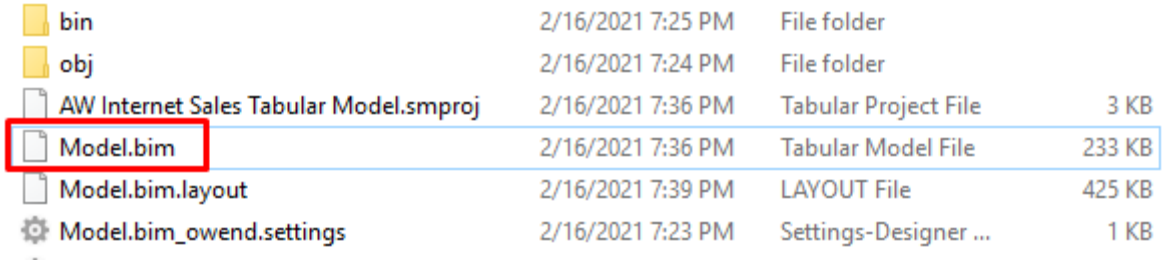
TOM (Tabular Object Model)

- Extensions AMO library
- Support to programming scensarios
- Tree representation model **metadata**



model.bim


bin 2/16/2021 7:25 PM File folder
obj 2/16/2021 7:24 PM File folder
AW Internet Sales Tabular Model.smproj 2/16/2021 7:36 PM Tabular Project File 3 KB
Model.bim 2/16/2021 7:36 PM Tabular Model File 233 KB
Model.bim.layout 2/16/2021 7:39 PM LAYOUT File 425 KB
Model.bim_owend.settings 2/16/2021 7:23 PM Settings-Designer ... 1 KB

{
"name": "SemanticModel",
"compatibilityLevel": 1200,
"model": {
"culture": "en-US",
"dataSources": [
{
"name": "Adventure Works DB from SQL",
"connectionString": "Provider=SQLNCLI11;Data Source=.\\rik
"impersonationMode": "impersonateServiceAccount",
"annotations": [
{
"name": "ConnectionEditUISource",
"value": "SqlServer"
}
]
}
],
"tables": [
{
"name": "Customer",
"columns": [
],
"partitions": [
],
"annotations": [
]
},
{
"name": "Date",
"dataCategory": "Time",
"columns": [
{
"name": "Date",
"dataType": "dateTime",
"isKey": true,
"sourceColumn": "FullDateAlternateKey",
"formatString": "General Date",
"sourceProviderType": "DBDate"
},
{
"name": "Day Number of Week",
"dataType": "int64",
"sourceColumn": "DayNumberOfWeek",
"sourceProviderType": "UnsignedTinyInt"
},
{
"name": "Day Name",

Why Tabular Editor?

(3 slides many reasons)

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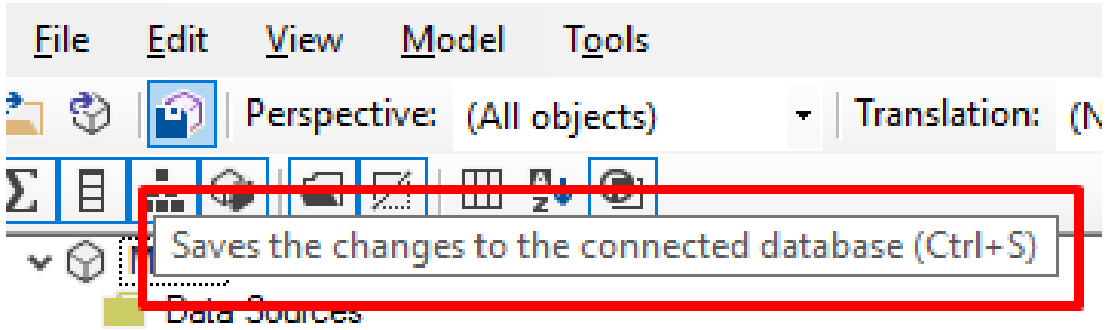
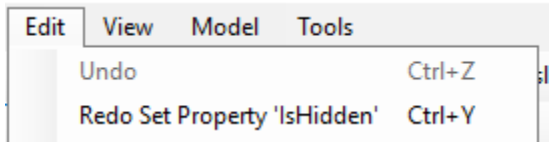
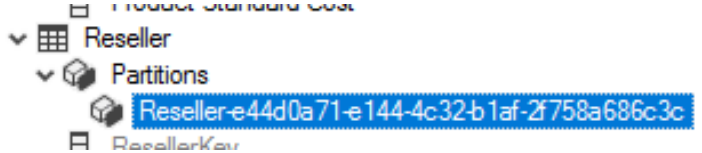
1. It’s fast

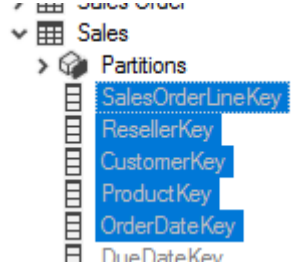
- JSON is loaded into RAM
- Persisted when you save

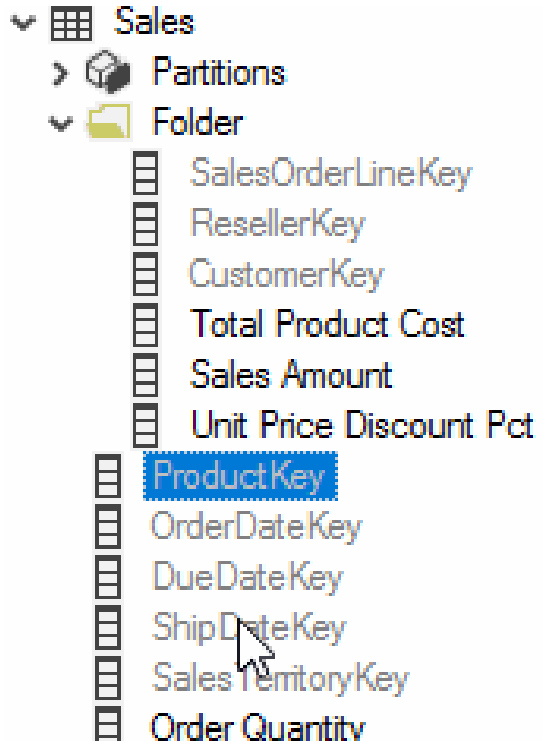


2. Cool features

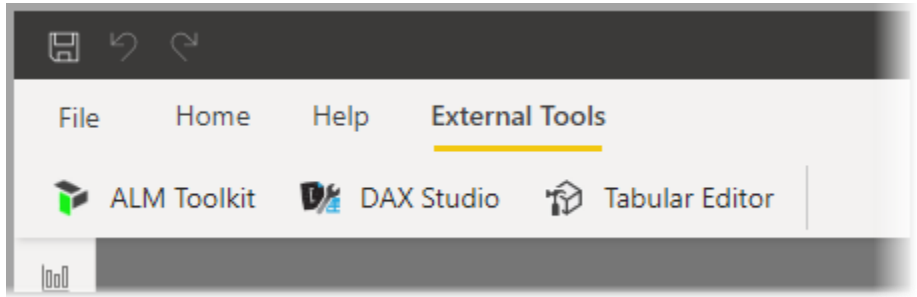








3. Featured in Power BI External Tools



- Measures
- Calculation groups
- Perspectives
- Translations

- Other like Creating Tables possible but **not supported yet**

Advanced Scripting

Why scripting?

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Basically to…

- Automation
- Standardization
- Increase productivity
- Push reusability
- Apply Best Practices

Modeling Best Practices

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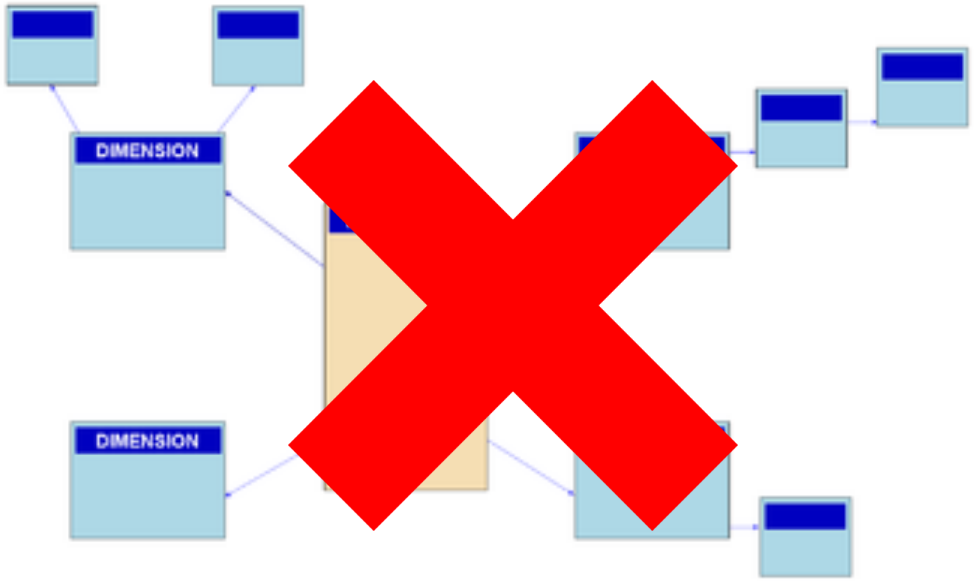
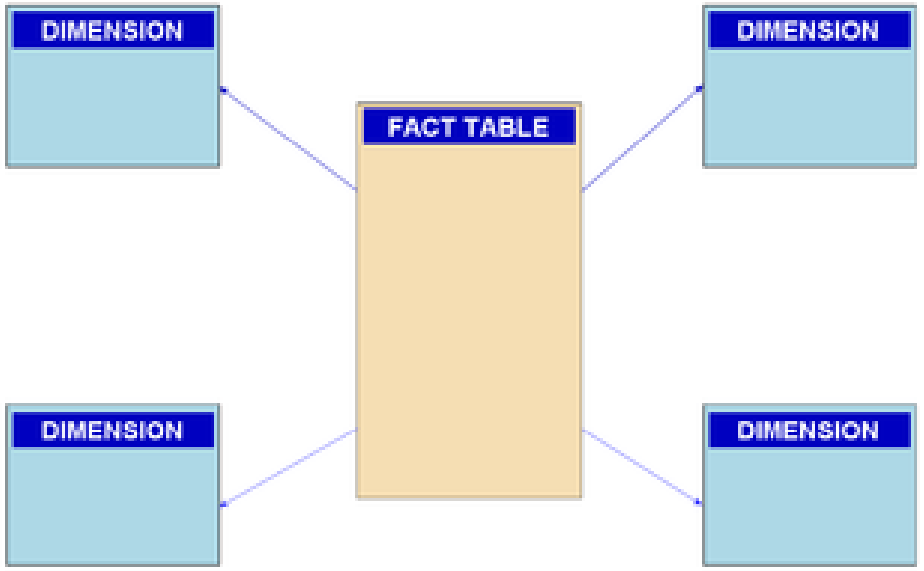
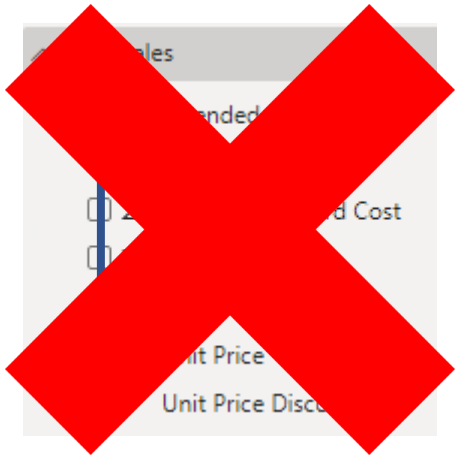
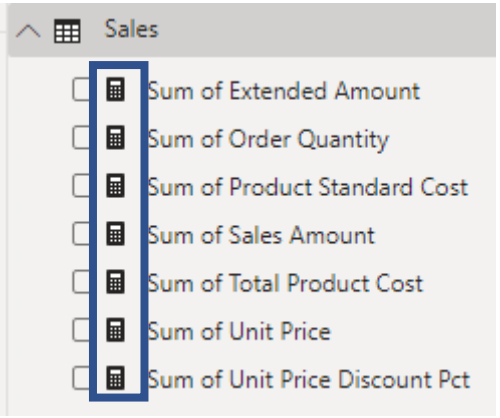
Choose the right schema





Explicit it’s better





Hide confusing objects

- Explicit Measure's base column
- Dimensions Keys
- Lookup Columns
- Working tables

Time Intelligence

Sales Amount

Sales Amount PY

Sales YTD

Sales PYTD

Sales PMonth

…

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Format that DAX

```
EVALUATE
SUMMARIZECOLUMNS (
    'Product'[Product],
    Manufacturer[Manufacturer],
    'Date'[Month],
    "sales", Sales[sales],
    "PY Sales",
        CALCULATE (
            Sales[Sales],
            SAMEPERIODLASTYEAR ( 'Date'[Date] )
        )
)
```

```
EVALUATE SUMMARIZECOLUMNS('Product'[Product], Manufacturer[Manufacturer],'Date'[Month],"sales", Sales[sales], "PY Sales", CALCULATE(Sales[Sales], SAMEPERIODLASTYEAR('Date'[Date])))
```

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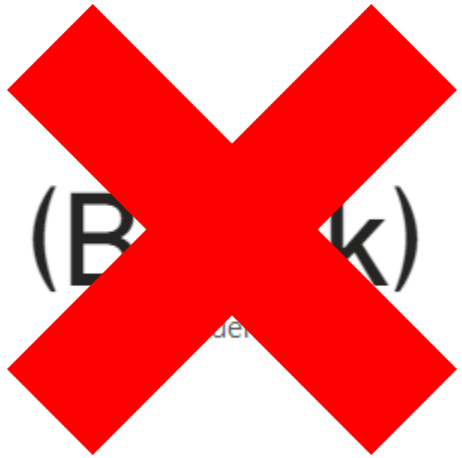
Numeric measures for cards



0

Sum of Order Quantity

Demo

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Use case:
Star Schema in 2 Clicks

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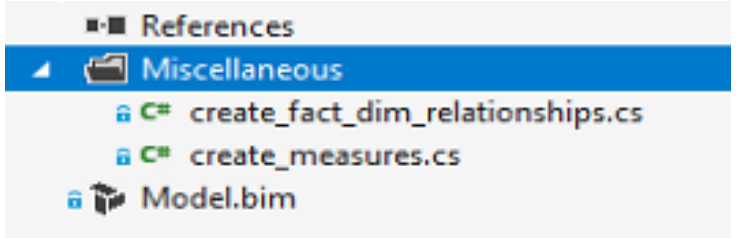
Agile Star Schema

- TE to make development **faster**
- TE to make development **more agile**
- TE to **standardize** development
- TE to **lower effort**

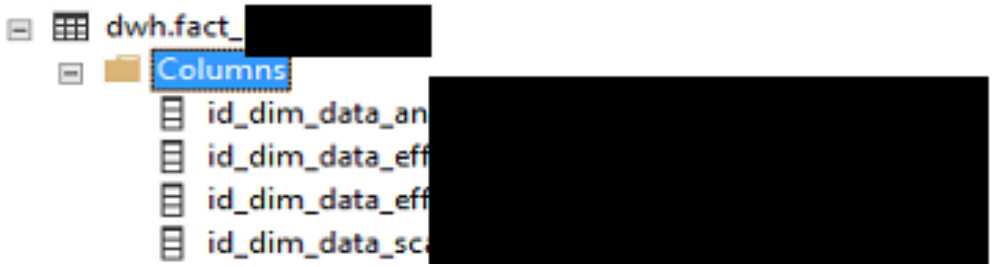


Measures Creation (+50)

```
var displayFolder = “<Area of Interest>";
var destinationTable = "Metriche";
var destTable = Model.Tables.FirstOrDefault(t => t.Name == destinationTable);
// Creates a SUM measure for every currently selected column and hide the column.
foreach(var c in Selected.Columns)
{
    TextInfo textInfo = new CultureInfo("en-US", false).TextInfo;
    var name = textInfo.ToTitleCase(c.Name.Replace("_", " "));

    var newMeasure = destTable.AddMeasure(
        name,                    // Name
        "SUM(" + c.DaxObjectFullName + ")",    // DAX expression
        displayFolder                        // Display Folder
    );
    // Set the format string on the new measure:
    newMeasure.FormatString = "#,##0.00";

    // Hide the base column:
    c.IsHidden = true;
}
```

Relationships Creation (8Fact, 22Dim)

```
var keyPrefix = "id_dim_";

// Loop through all currently selected tables (assumed to be fact tables):
foreach(var fact in Selected.Tables)
{
    // Loop through all SK columns on the current table:
    foreach(var factColumn in fact.Columns.Where(c => c.Name.StartsWith(keyPrefix)))
    {
        // Find the dimension table corresponding to the current SK column:
        var dim = Model.Tables.FirstOrDefault(t => factColumn.Name == (keyPrefix + t.Name.Replace(" ", "_").ToLower()));
        if(dim != null)
        {
            // Find the key column on the dimension table:
            var dimColumn = dim.Columns.FirstOrDefault(c => factColumn.Name == (c.Name.Replace(" ", "_").ToLower()));
            if(dimColumn != null)
            {
                // Check whether a relationship already exists between the two columns:
                if(!Model.Relationships.Any(r => r.FromColumn == factColumn && r.ToColumn == dimColumn))
                {
                    // If relationships already exists between the two tables, new relationships will be created as inactive:
                    var makeInactive = Model.Relationships.Any(r => r.FromTable == fact && r.ToTable == dim);

                    // Add the new relationship:
                    var rel = Model.AddRelationship();
                    rel.FromColumn = factColumn;
                    rel.ToColumn = dimColumn;
                    factColumn.IsHidden = true;
                    if(makeInactive) rel.IsActive = false;
                }
            }
        }
    }
}
```



Useful Links

- Tabular Editor
- Tabular Object Model (TOM) in AMO
- Using external tools in Power BI (preview)
- Useful Script Snippets — Tabular Editor documentation
- Best practice rules to improve your model’s performance
- Chris Webb's BI Blog: IsAvailableInMDX Property

Q&A

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Thank You

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