Write-back & Planning for Power BI. Period

Power ON Visual Planner

Data Entry Matrix v4.7 Documentation & Troubleshooting Guide

Contents

Introduction

What

This document describes Power ON's **write-back** capable tool, **Data Entry Matrix (DEMx)**. The product is a custom visual developed for Microsoft Power BI, that enhances the user experience by enabling end-users to make permanent changes to data – aka write-back – by targeting measures, and DAX expressions.

On the following pages you will see/ learn

- a **detailed** overview of the matrix,
- how to use it in your reports together with some common use-case implementations,
- how to configure it properly
- what the pitfalls are you might encounter and how to overcome them.

Audience

The **audience** of this document are both technicians (developers, DBAs, BI professionals) who are aware of the depths of SQL Server, SSAS Tabular models, Azure Services and Power BI, but also users who mostly focus on building and preparing reports using Power BI Desktop.

Some sections are focusing on more technical specific subjects.

Contact us

If you find something very distant for you, ask for support either from your local IT or from Power ON by submitting a ticket on our site: https://support.poweronbi.com.

Overview

Power ON Data Entry Matrix lets users make changes on figures that are the results of DAX expressions defined aggregations. In traditional dimensional modelling, these aggregations are calculated on fact tables and the context of the calculation is defined by the dimension – or lookup – tables that are in relationship with the fact table. DEMx makes updating the result of your measures possible.

DEMx offers the following built-in features and components:

- Writing back values to the underlying data source
- Make changes to figures by using smart formulas or exact values
- Update values on totals, subtotals that cascade down to members
- Create comments on cells
- Supports copy and paste selected cells to / from the visual
- Supports copy whole matrix with headers:
    1. Press [CTRL] + [a] → this selects the data table (corner cells, header cells, content cells)
    2. Press [CTRL] + [c] → the selected content will be copied to clipboard.
- Supports dragging pop-up windows: You can drag the pop-up window by its title and move it anywhere.

It is worth describing at a high level **how write-back works** for Tabular models. Depending on your data source (SSAS In-Memory, SSAS Direct Query, or SQL only) Power ON Write-Back Service performs the following operations:

- Captures the modified value together with its **tuple** (intersection of dimensions on which the measure is calculated for the given cell) and the user context. After the service understands what to do, based on the SSAS model structure (relationships, table queries and measure definitions) it composes T-SQL statements that should be executed.
- Executes the compiled T-SQL statement against the underlying data source (fact table) to save the modifications
- In the case of SSAS in-memory models it will reprocess the table. For performance optimization please consult the related chapter in this document.
- Initiates a refresh on the visual, so that the changes will appear in the report.

Support

Check out **Power ON Knowledge Base** articles at: https://support.poweronbi.com under [Visuals] » [Visual Planner] for common use cases, tips, troubleshooting tools.

Please note that to access the articles, you need to **register** on the site. It is advised that you will be able **to submit tickets** if you encounter any difficulties or issues, so that our support team can give you the best service. You can also **email** us at: vizsupport@poweronbi.com

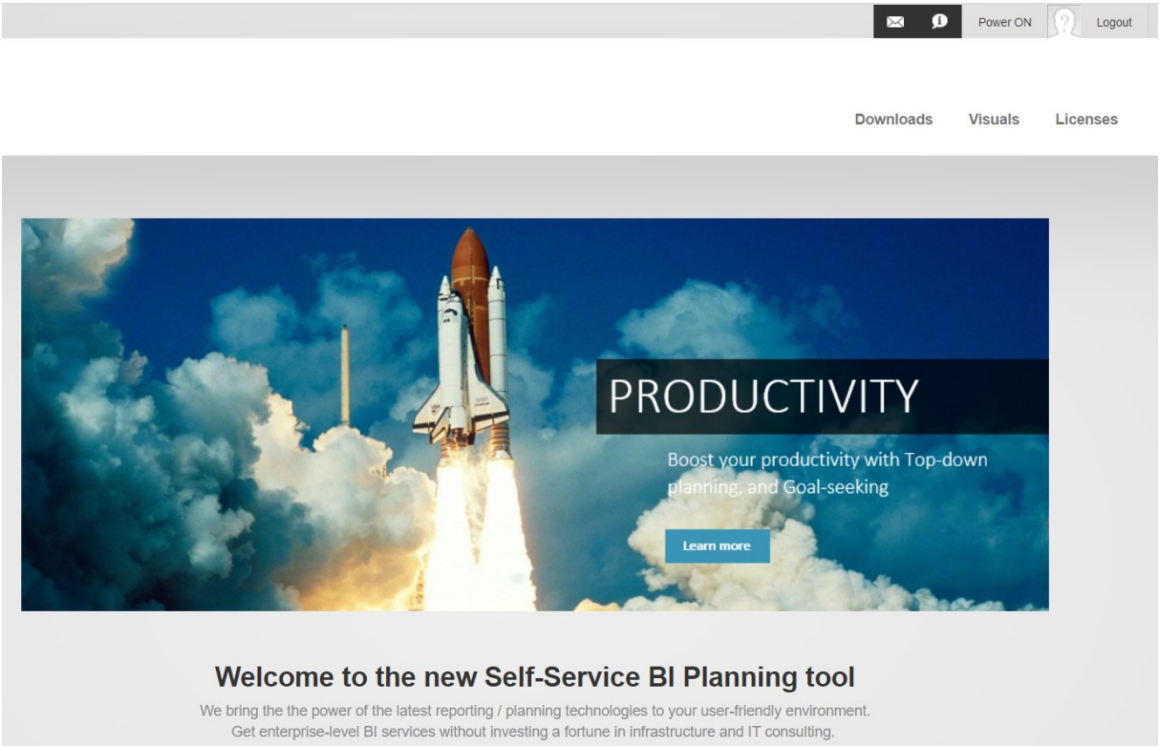
Versions

This document describes the **latest version** of Data Entry Matrix; however, you can use the previous ones as well, as they are included in the setup kit, but keep in mind that some of the features detailed here are not available in older versions.

The most recent visual is **dataEntryMatrix v4.7.pbiviz**.

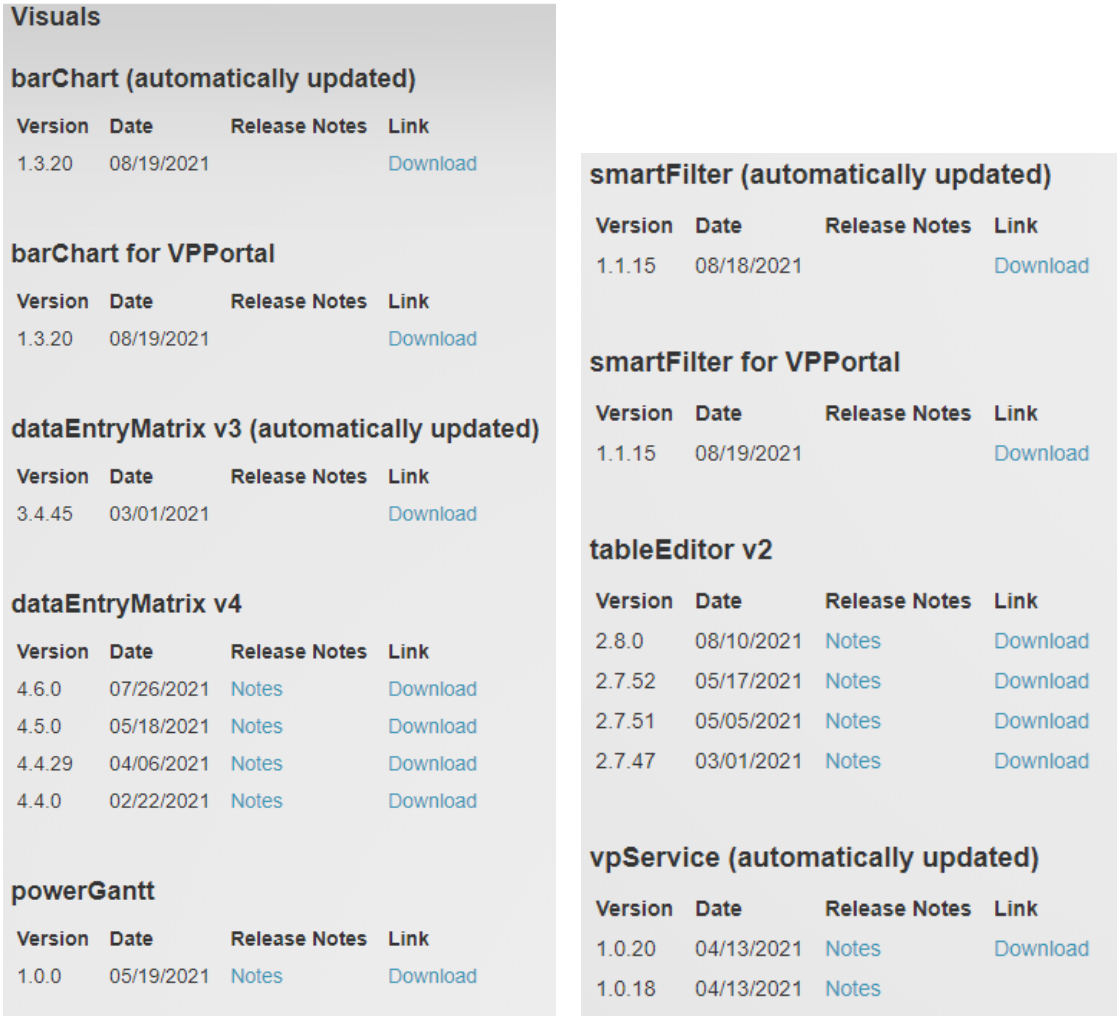
How can you download the different versions?

1. Register at **store.poweronbi.com** site with the same domain name you have registered originally
2. After login:



3. Click on **Visuals** in upper right corner

4. You can find our available write-back capable visuals and their different versions.



Visuals

barChart (automatically updated)

Version	Date	Release Notes	Link
1.3.20	08/19/2021		Download

barChart for VPPortal

Version	Date	Release Notes	Link
1.3.20	08/19/2021		Download

dataEntryMatrix v3 (automatically updated)

Version	Date	Release Notes	Link
3.4.45	03/01/2021		Download

dataEntryMatrix v4

Version	Date	Release Notes	Link
4.6.0	07/26/2021	Notes	Download
4.5.0	05/18/2021	Notes	Download
4.4.29	04/06/2021	Notes	Download
4.4.0	02/22/2021	Notes	Download

powerGantt

Version	Date	Release Notes	Link
1.0.0	05/19/2021	Notes	Download

smartFilter (automatically updated)

Version	Date	Release Notes	Link
1.1.15	08/18/2021		Download

smartFilter for VPPortal

Version	Date	Release Notes	Link
1.1.15	08/19/2021		Download

tableEditor v2

Version	Date	Release Notes	Link
2.8.0	08/10/2021	Notes	Download
2.7.52	05/17/2021	Notes	Download
2.7.51	05/05/2021	Notes	Download
2.7.47	03/01/2021	Notes	Download

vpService (automatically updated)

Version	Date	Release Notes	Link
1.0.20	04/13/2021	Notes	Download
1.0.18	04/13/2021	Notes	

5. Pick the preferable version of Table Editor and click on Download
    a. You can even download its **Release notes** if you like.

Prerequisites

Write-back Service

You must have a working and **configured Write-Back Service** (PPWebService) installed in your environment. If that is set, to build a report, first you must **import the dataEntryMatrix v4.x pbiviz** file into your Power BI Desktop instance. Naturally, you need to do that for each report you want to use DEMx. The visual will be stored in the report itself, so other people will also be able to use the write-back capabilities if they open it. In the case of PowerBI cloud services there is an option to store the custom visual in a centralized repository for easier management. You can find more information on this URL: https://docs.microsoft.com/en-us/power-bi/developer/visuals/power-bi-custom-visuals-organization

The legacy version of the visual can be found in your **installation folder under Resources\PPWebService** in the **VPDemo.zip** archive file.
Also, DEMx can be converted from other Power BI visuals, like other custom visuals in Power BI.

Before you begin, make sure that you have a properly configured Write-Back Service (PPWebService) that is accessible from the point of the Report Server.

For more information about configuring the PPWebService check out Power ON Knowledge Base articles at: https://support.poweronbi.com under Visual Planner – Write-Back Service for more details.

Please note that to access the articles, you need to **register** on the site. It is advised that you will be able to submit tickets if you encounter any difficulties or issues, so that our support team can give you the best service.

In the case of on-premises installations or virtual machines hosted in the cloud make sure that your Power BI Report Server can access the host IIS machine of the PPWebService.
In the case of Azure, the Web Applications are accessible by default. The Webservice must have a dedicated connection string configured for the data source in the web.config 'connectionStrings' section that is pointing to the used SSAS Cube.

Connections to the data sources should be configured by your IT team. Please refer to the following article in our knowledge base on how to add ones at:
https://support.poweronbi.com/portal/kb/articles/how-to-add-a-new-data-source-for-write-back

You can find examples of valid connection strings for different data sources at:
https://www.connectionstrings.com/

The PPWebservice service account - used in the connection string - must have the following permissions:

- administration rights on the cube, plus data reader and data write roles on the underlying data source database of the cube
- if you intend to use the Commenting feature, the SQL permissions must be elevated to dbo, otherwise data reader and data writer roles are sufficient.

The end users (or the user / Active Directory group they are in) must have:

- data reader membership on the SSAS cube

In case of impersonation enabled, then the end users must have data writer role on the underlying SQL databases.

VPService visual

The VPService is a helper visual that establishes the connection between our newest visuals and the Write-Back Service.

The benefits of this solution:

- faster release processes: switching from one version to another is much faster, which results in quicker support from our side (e.g.: in case of implementing new features)
- You can change between the versions of the visuals easily.

The functions of VPService:

- Saves the changes
- Saves the comments (e.g.: in Data Entry Matrix visual)
- Sends the user information
- Opens the pop-up windows (e.g.: in Table Editor visual)

How to configure VPService visuals

After importing the visual you can see its icon () under the built-in visuals. You can check its version by right clicking on the icon and selecting 'About' in the menu. A pop-up window appears with the version information.

Add the VPService helper visual to your Data Entry Matrix related report.

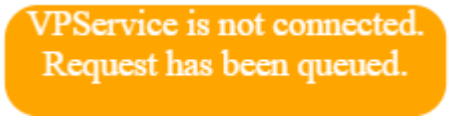
Add an arbitrary field to VPService visual, e.g.: an ID.

The content of the [Web Service] » **Url** property has to be **exactly the same** (case sensitive too!) as in Data Entry Matrix ([Data Entry] » **Web Service**)!

Warning message

This warning message can be seen, when

- the report is in *Edit mode*,
- the user is building the report *in PowerBI Desktop*,
- the report is in Reading View mode and the user tries to save the changes and *there is no VPService connection* OR the *URL of VPService is not exactly the same as in DEMx* (must consider the case sensitivity too).

  This applies to all VPService based visuals (e.g.: version > TE v2.7.23, DEMx v4.x, PowerGantt visuals).

Tabular Model requirements

The most important thing is that you must have an **SSAS tabular** model created. Without an Analysis Services Tabular semantic model, write-back on measures cannot be done.

The followings conditions must meet regarding your SSAS Tabular Model:

- **Power Query** data sources for tables are supported but only **without ANY transformation**. If you have an ETL-like logic in your table definitions leveraging Power Query:
  - consider moving that logic back to the SQL Server level (with writable views)
  - or make the transformation in your data flow (SSIS) so that you have fully prepared data in your data warehouse
  - or you can augment your model and can create separate tables for write-back.
  - Best practice is to use native SQL query definitions for your SSAS entities.
- **Calculated tables** cannot be used for or during the write-back. You can have calculated tables in your model, but you cannot use that table in the DEMX visual (neither on rows, nor on columns), and you cannot use that calculated table as a filtering element (like slicers, page/report level filters). If you have a calculated table in your model, you will need to turn OFF strict model structure checking – described in the Models with calculated tables and columns chapter – otherwise, you will receive an error. The best practice is to create a separate perspective in your model where you have only the supported entities.
- **Calculated columns** cannot be used for or during write-back. You can have calculated columns in your model, but you cannot write-back on them, nor can you use these columns as dimension members on the DEMX's rows or columns.
- **Relationships** based on calculated columns are not supported. The relationships defined in your SSAS model must be able to be mapped to SQL tables and join operators. Every column which is part of a relationship cannot be hidden in the model.
- Write-back on **simple and additive measures** are supported by default, these are:
  - SUM(), AVERAGE()
  - And if only one column is used in the expression: SUMX(), AVERAGEX()
  - Datatype of numeric column which is included in a measure must be float
- To support write-back on **complex measures** you need to fill in the **Description** field of your measure – in Visual Studio or Tabular Editor – that will tell the service which table and column it should target when committing the operation.
- **Complex measures** which are:
  - containing multiple different columns in the expressions
  - modifying the filter context (CALCULATE, FILTER, ALL, etc.)
  - using working tables (CALCULATETABLE, ADDCOLUMNS, SUMMARIZE, etc.)
- Example measure: SUMX(Sales; Sales[Quantity] * Sales[UnitPrice])
  - In this case if you want the Quantity field to be changed put Quantity in the 'Description' property of your measure.
- **Limitation in measures:** In a complex measure, only multiplication or division operations are supported. The engine works with ratios therefore cannot handle addition and subtraction.

Limitations

As with all custom visuals developed for Power BI, due to Microsoft's policies DEMX also has the following limitations:

- **Renaming columns** and tables in the Power BI report are **not supported**. They must be the same as they are called in the used data source. In the case of SSAS models, the names should be equal to the names of the entities (visible in your model or in your report Fields sections).
- The characters '[' and ']' (**brackets**) are **not supported** in measure names
- The character '.' (**dot**) is **not supported in table names**, but they can exist in schema names. If you have unsupported characters in your table name, we recommend creating a view on top over the table that complies with the required format and use that view when writing back.
- All custom visuals developed for PowerBI have a default limitation set by Microsoft which is that 5000 records can be displayed at one time. In case of the DEMX visual this means **5000 cells**. If the product of the number of the rows and columns (dimension members) used in your matrix exceeds this, consider using slicers in your report so that you will edit only a subset of the data and have a seamless workflow.
- **DAX Expression COUNTROWS(Table)** is not supported for write-back.
- Non-writable **views** which serve as a data source for the fact table are not supported for write-back. Either materialize your view into a physical table, reduce the complexity of the view or you can create INSTEAD OF INSERT | UPDATE triggers to handle the operation. Typically, non-writeable views contain complex SQL queries with multiple joins, CASE statements in WHERE clauses, CTEs (Common Table Expressions), and aggregations. You can test your view by duplicating it under a different name and executing an INSERT statement against it.
- In the case of on-premises **Power BI Report Server** at least January 2019 version is required together with Power BI Desktop 2019 January or more recent versions.
- If you use **slicers**, page-, report-, or visual level filters you must use the **SmartFilter** helper visual as well. This is described in the Importance of SmartFilter chapter.
- When the rows are drilled up to the highest level, the collapsing cannot be used.

Applying priorities

Coloring priority / applying protocol

1. Highlight Colors
2. Goal Seek Font / Background Color
3. Modified Font / Background Color
4. Context Menu » Cell Formatting » coloring
5. Coloring from Context menu » Select (based on [General] » **Selected Item Font** / **Background color**)
6. Coloring from [Formatting Measure]
7. [Conditional Formatting]
8. Disabled Font / Background Color
9. Primary / Secondary Font / Background color

Format string priority / applying protocol

1. Context Menu » Cell Formatting » **Format string** on content cells
2. [General] » **Format string**
3. Format string from database

Setup and configuration of the visual

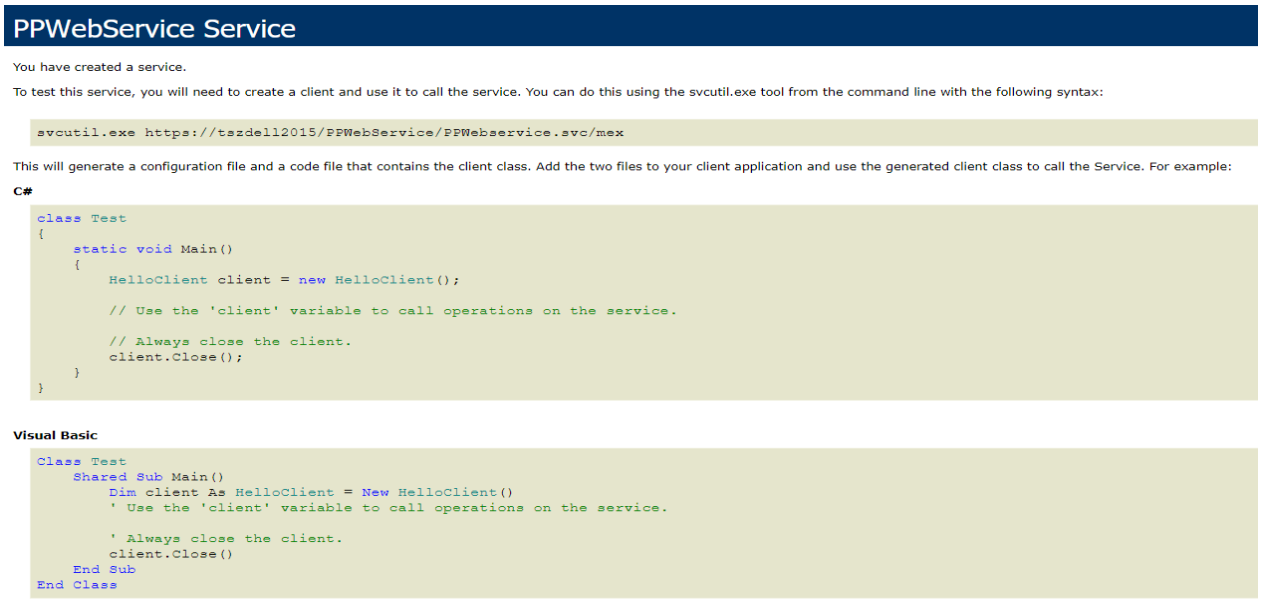
This main section describes the available configuration options for the Data Entry Matrix. Also, the following pages describe short step-by-step instructions for building a **simple** report using DEMx. You will find the details of the configuration elements later in this document.

Validate the Write-Back Service

After installation you might want to be sure that the Write-Back Service is installed properly. You can validate that by navigating to your deployed URL, which is in the following format:

http(s)://yourserverName/PPWebService/PPWebService.svc

If you see the following page after the page load, then the Write-Back Service is up and running.

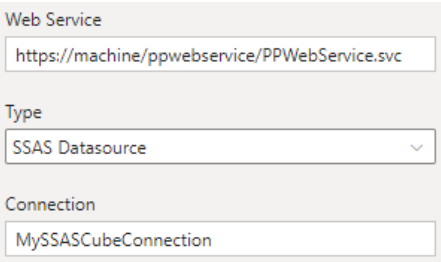


Setting up the basics

After you launch Power BI Desktop, connected to a data source, and imported the visuals (VPService, Data Entry Matrix) into your report, the very first step is the configuration of VPService visual.

We must tell the visuals where they can find the Write-Back Service and which connection they should use during the process. You can see detailed information in this chapter how to configure VPService.

The configuration options will appear in the Format section of the Visualizations **after** you drop the first column into the **Data Entry Matrix** visual. You must complete the following steps to have a working report element for the write-back functionality.

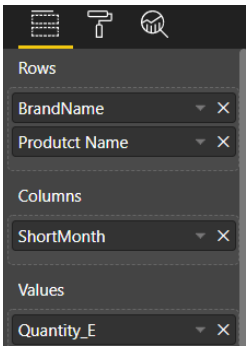


Starting with [Data Entry], you must set the **Web Service**, **Type** and **Connection** properties (see referring chapters) to make the Write-Back Service working.

Note! The content of [Data Entry] » **Web Service** property has to be **exactly the same** (case sensitive too!), like in VPService ([Web Service] » **Url**).

Finally, please make sure you use the matrix properly, meaning adding measure(s) to the Values and multiple dimensions to Rows and Columns. A table supports two dimensions; however, a matrix makes it easier to display data across multiple dimensions. Dimensions are usually text or date(time) type of values, the measures are numeric values.

If you add a numeric type of column to the Rows/ Columns, you will not be able to modify and save the changes in the Data Entry Matrix.



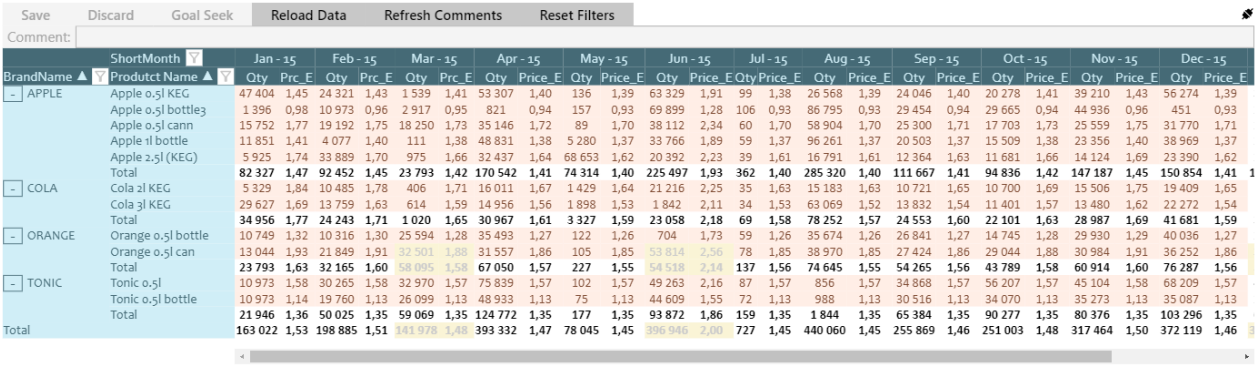
Add dimensions and measures

Simply add some fields into the Rows and Columns sections of the visual and add a write-back compatible measure.

If you want to add some slicers, please refer to the Importance of SmartFilter Helper visual chapter.

Applying style

Navigate to the [Column Headers] and [Row Headers] configuration and set a desired font size and color. You can create different themes for the totals and subtotals if you go to the [Totals] property group. For alternating colors, go the [Values] property group and set different background colors for the primary and secondary parameters. You might produce a result below.



ShortMonth		Jan - 15			Feb - 15			Mar - 15			Apr - 15			May - 15			Jun - 15			Jul - 15			Aug - 15			Sep - 15			Oct - 15			Nov - 15			Dec - 15		
BrandName	Produtct Name	Qty	Prc_E	Price_E	Qty	Prc_E	Price_E	Qty	Prc_E	Price_E	Qty	Price_E	Price_E	Qty	Price_E	Price_E	Qty	Price_E	Price_E	Qty	Price_E	Price_E	Qty	Price_E	Price_E	Qty	Price_E	Price_E	Qty	Price_E	Price_E	Qty	Price_E	Price_E	Qty	Price_E	Price_E
APPLE	Apple 0.5l KEG	47 404	1,45		24 321	1,43		1 539	1,41		53 307	1,40		136	1,39		63 329	1,91		99	1,38		26 568	1,39		24 046	1,40		20 278	1,41		39 210	1,43		56 274	1,39	
	Apple 0.5l bottle3	1 396	0,98		10 973	0,96		2 917	0,95		821	0,94		157	0,93		69 899	1,28		106	0,93		86 795	0,93		29 454	0,94		29 665	0,94		44 936	0,96		451	0,93	
	Apple 0.5l cann	15 752	1,77		19 192	1,75		18 250	1,73		35 146	1,72		89	1,70		38 112	2,34		60	1,70		58 904	1,70		25 300	1,71		17 703	1,73		25 559	1,75		31 770	1,71	
	Apple 1l bottle	11 851	1,41		4 077	1,40		111	1,38		48 831	1,38		5 280	1,37		33 766	1,89		59	1,37		96 261	1,37		20 503	1,37		15 509	1,38		23 356	1,40		38 969	1,37	
	Apple 2.5l (KEG)	5 925	1,74		33 889	1,70		975	1,66		32 437	1,64		68 653	1,62		20 392	2,23		39	1,61		16 791	1,61		12 364	1,63		11 681	1,66		14 124	1,69		23 390	1,62	
	Total	**82 327**	**1,47**		**92 452**	**1,45**		**23 793**	**1,42**		**170 542**	**1,41**		**74 314**	**1,40**		**225 497**	**1,93**		**362**	**1,40**		**285 320**	**1,40**		**111 667**	**1,41**		**94 836**	**1,42**		**147 187**	**1,45**		**150 854**	**1,41**	
COLA	Cola 2l KEG	5 329	1,84		10 485	1,78		406	1,71		16 011	1,67		1 429	1,64		21 216	2,25		35	1,63		15 183	1,63		10 721	1,65		10 700	1,69		15 506	1,75		19 409	1,65	
	Cola 3l KEG	29 627	1,69		13 759	1,63		614	1,59		14 956	1,56		1 898	1,53		1 842	2,11		34	1,53		63 069	1,52		13 832	1,54		11 401	1,57		13 480	1,62		22 272	1,54	
	Total	**34 956**	**1,77**		**24 243**	**1,71**		**1 020**	**1,65**		**30 967**	**1,61**		**3 327**	**1,59**		**23 058**	**2,18**		**69**	**1,58**		**78 252**	**1,57**		**24 553**	**1,60**		**22 101**	**1,63**		**28 987**	**1,69**		**41 681**	**1,59**	
ORANGE	Orange 0.5l bottle	10 749	1,32		10 316	1,30		25 594	1,28		35 493	1,27		122	1,26		704	1,73		59	1,26		35 674	1,26		26 841	1,27		14 745	1,28		29 930	1,29		40 036	1,27	
	Orange 0.5l can	13 044	1,93		21 849	1,91		32 501	1,88		31 557	1,86		105	1,85		53 814	2,56		78	1,85		38 970	1,85		27 424	1,86		29 044	1,88		30 984	1,91		36 252	1,86	
	Total	**23 793**	**1,63**		**32 165**	**1,60**		58 095	1,58		**67 050**	**1,57**		**227**	**1,55**		54 518	2,14		**137**	**1,56**		**74 645**	**1,55**		**54 265**	**1,56**		**43 789**	**1,58**		**60 914**	**1,60**		**76 287**	**1,56**	
TONIC	Tonic 0.5l	10 973	1,58		30 265	1,58		32 970	1,57		75 839	1,57		102	1,57		49 263	2,16		87	1,57		856	1,57		34 868	1,57		56 207	1,57		45 104	1,58		68 209	1,57	
	Tonic 0.5l bottle	10 973	1,14		19 760	1,13		26 099	1,13		48 933	1,13		75	1,13		44 609	1,55		72	1,13		988	1,13		30 516	1,13		34 070	1,13		35 273	1,13		35 087	1,13	
	Total	**21 946**	**1,36**		**50 025**	**1,35**		**59 069**	**1,35**		**124 772**	**1,35**		**177**	**1,35**		**93 872**	**1,86**		**159**	**1,35**		**1 844**	**1,35**		**65 384**	**1,35**		**90 277**	**1,35**		**80 376**	**1,35**		**103 296**	**1,35**	
Total		**163 022**	**1,53**		**198 885**	**1,51**		141 978	1,48		**393 332**	**1,47**		**78 045**	**1,45**		396 946	2,00		**727**	**1,45**		**440 060**	**1,45**		**255 869**	**1,46**		**251 003**	**1,48**		**317 464**	**1,50**		**372 119**	**1,46**	

Publishing and testing the report

When you finish your report, publish it to either your On-premises Power BI Report Server or to PowerBI.com. The **write-back will work only** when your report is **published**, so you cannot test the full functionality in Power BI Desktop while you are authoring it. After publishing your report try to modify a cell value and click on save changes. Your modification should be visible in your report.

Completing the above steps, you should have a working, simple, write-back capable report using Data Entry Matrix visual.

The following pages cover more detailed configuration options as well as typical use-cases that you might find useful for your needs.

Configuration

This chapter contains the configurations regarding the connectivity with the Write-Back Service.

WebService

Here you must set the Write-Back Service URL which should point to the hosting machine – or app service – where it was installed. Typical URL is:

http(s)://WEBSERVICE_COMPUTER_NAME/PPWebservice/PPWebservice.svc

Be careful **not** to have an extra slash at the end of the URL.

Type

This option refers to the connection type that the Write-Back Service will use. The setting is required.

- *SSAS*: Set the connection string directly in the Connection property (leave the connection blank if using the default "SSASConnection" in set in the web.config of the Webservice)
- *SSAS Datasource*: Set a connection name in the Connection property defined in the web.config of the Webservice.

Connection

Specify Name of the SQL or SSAS connection defined in the web.config file of the webservice, or the connection string directly, or **leave blank** depending on the Type setting.

Note: Maximum length of this property is 250 characters.

Data Entry (settings)

This section contains some basic behavior of the DEMx visual.

Customer

Customer name provided by us along with the License server license key. If already specified in the web.config file (generally, you do not have to set this as it is done by the setup), **leave it blank.**

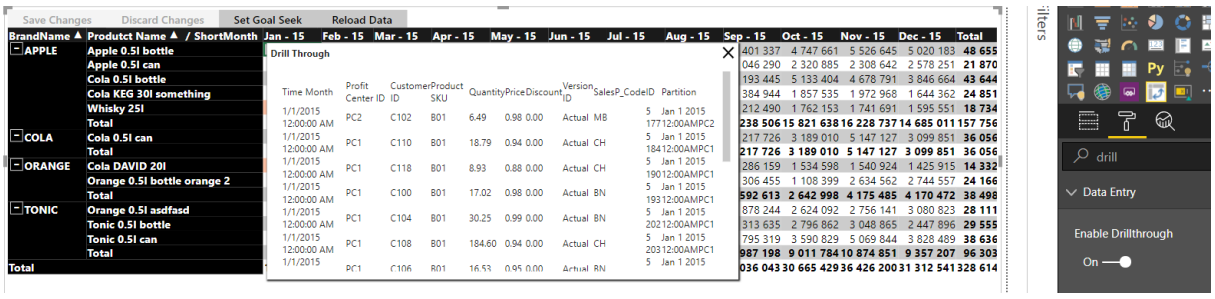
Domain

Set it to one of the following. This should **be left blank** as it is configured in the Write-Back Service web.config file during setup.

- the fixed the name of the internal domain used (e.g.: DOMAIN)
- *auto*: use the domain part (part after @) of the powerbi.com user
- *auto-short*: use the short domain part (part after @ and before the .) of the powerbi.com user
- *azure*: use the full powerbi.com username (e.g.: user@domain.com) for Azure AD authentication
- leave empty for no domain (e.g.: for a SQL authentication user)
- *SQL=…,SSAS=…* set domain options for SQL and SSAS separately
- Custom user mapping of powerbi.com users to SQL and SSAS users can be set up in the UserMapping table in the SQL database (should contain User, SQLUser, SSASUser varchar columns) For more information please visit: https://support.poweronbi.com/portal/kb/articles/custom-user-mapping-when-using-powerbi-com-service

Enable Drill Through

If you enable this setting, by double clicking on a cell a popup will be rendered in which the related records of the fact table will be shown. Those rows will be displayed that are in the intersection of the dimensions determined by the cell. For example, if you clicked on the cell of January for Apple 0.5l bottle product, an SQL query will be executed against the underlying database with a WHERE predicate containing the mentioned dimension members, so the result will be those rows from the Sales fact table that belong to January and the Apple product. Note that this query will be executed on the SQL database even if you have an in-memory SSAS tabular model.



Input culture

If the culture or regional setting of your browser or computer is **different** than the SSAS model property, it might happen that the numeric figures entered will not be saved correctly. It can happen when the decimal separator in the end user's machine is different (due to regional settings) than the model's setting. If you experience these issues during, write-back that is related to formatting, set the input culture to *en-US*.

Read only

If it is turned ON, the matrix becomes read-only, so end users will not be able to change values and commit write-back.

Apply Write Security Measures To Totals

Off: When a cell becomes read-only due to a write security measure, corresponding totals and subtotals will become read-only as well.

On: Totals and subtotals become read-only if the write security measure can be evaluated on these levels and its value indicates they should be read-only.

Windows Authentication

If you are in an On-premises environment using Power BI Report Server, this setting must be turned ON so that the Windows credentials can be passed back to the underlying data source. If you are completely in the cloud - your reports are published to PowerBI.com service - and you are using Azure AD, the setting should be turned OFF so that AD credentials will be used when accessing the data source.

In the case of Gateway turning ON Windows Authentication will have the following effects: Instead of setting the PowerBI.com credentials in the Write-Back Service request, the visual posts the windows login context. This value (e.g.: domain\user instead of username@domain.com) will be set if you use USERNAME() in computed and/or default value columns (see later in this document) as well in SQL context variables. Also, this makes it possible to use impersonation, and it is **necessary to be turned on if Windows Authentication** is the required option set for authentication in **IIS** for the Write-Back Service.

Save Complete Message

If this setting is enabled, the user gets a message after saving if it is successfully done.

General (settings)

Under general settings you can control the behavior of the visual as well as how it is rendered.

Visual Version

This is a way to check what version of the DEMx visual you use in your report.

Fetch All Data Before Load

If it is enabled, you can fetch all data segments before displaying the visual. It may cause longer loading and rendering time.

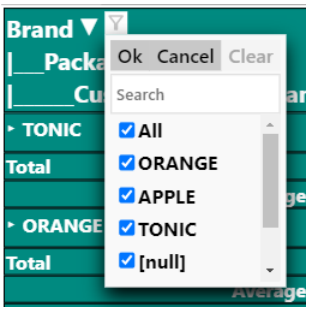
Fetch More With Scroll

This setting results a dynamic data load. As you scroll down, close to the bottom of the visualization, a part of the remaining rows will be fetched.

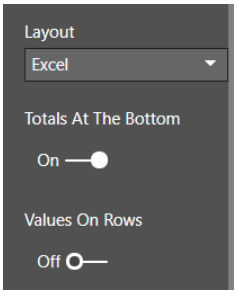
Corner Filtering

It is possible to filter the row/column headers from each of the corners of the cells.

- [Clear]: Approved filtering can be canceled with this button.
- Search box: You can search among the items and select, filter accordingly.



The icon shows us if we have a filter or not.



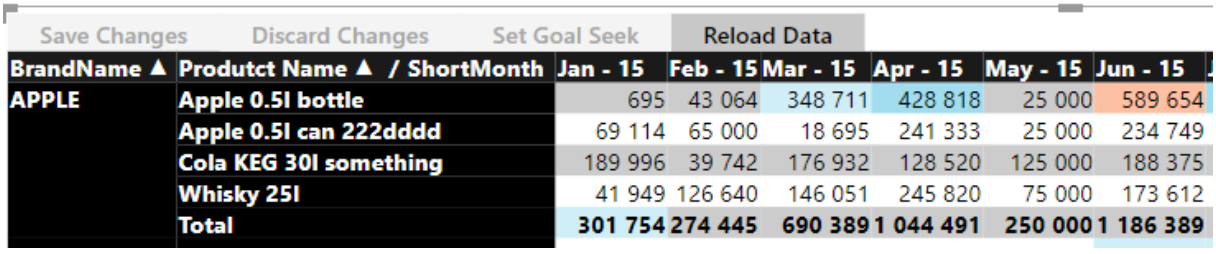
Layout

By default, the DEMx is in *Classic* mode.

In the case of *Excel*, the visual is rendered differently as shown below and you have two options to place the values on rows and show totals at the bottom.

Turning values ON rows can be useful when you are using more measures in the matrix.

Classic rendering:



BrandName ▲	Produtct Name ▲ / ShortMonth	Jan - 15	Feb - 15	Mar - 15	Apr - 15	May - 15	Jun - 15
APPLE	Apple 0.5l bottle	695	43 064	348 711	428 818	25 000	589 654
	Apple 0.5l can 222dddd	69 114	65 000	18 695	241 333	25 000	234 749
	Cola KEG 30l something	189 996	39 742	176 932	128 520	125 000	188 375
	Whisky 25l	41 949	126 640	146 051	245 820	75 000	173 612
	Total	**301 754**	**274 445**	**690 389**	**1 044 491**	**250 000**	**1 186 389**

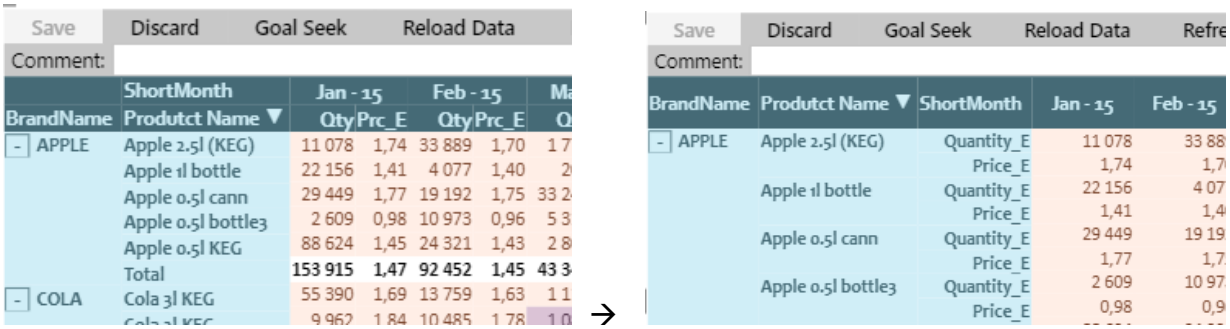
Excel rendering:

BrandName ▲ Produtct Name ▲	ShortMonth	Jan - 15	Feb - 15	Mar - 15	Apr - 15	May - 15	Jun - 15
APPLE							
Apple 0.5l bottle		695	43 064	348 711	428 818	25 000	589 654
Apple 0.5l can 222dddd		69 114	65 000	18 695	241 333	25 000	234 749
Cola KEG 30l something		189 996	39 742	176 932	128 520	125 000	188 375
Whisky 25l		41 949	126 640	146 051	245 820	75 000	173 612
Total		**301 754**	**274 445**	**690 389**	**1 044 491**	**250 000**	**1 186 389**

Values On Rows

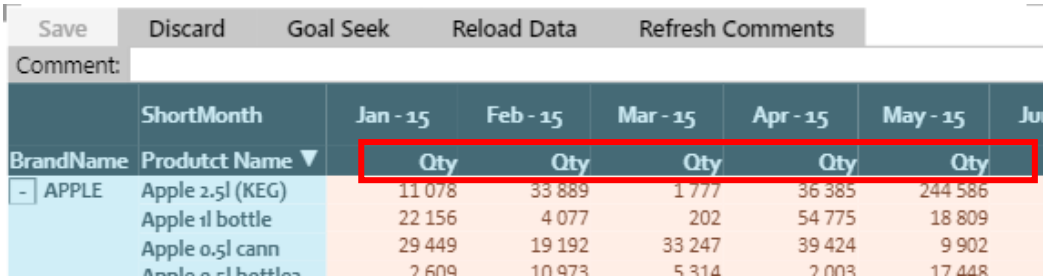
If you have multiple measures in your DEMx, you can see them in separate columns by default.

With this setting you can show them in rows, as you can see below:



Display Single Values

This setting allows you to display a single value name as a column header. So, if you have only one measure in your DEMx, when you pull it into the matrix, it does not show its name in the column header by default. If you enable this setting, the measure name will be shown in the header:



Format String

You can overwrite the measure formatting defined in the SSAS model by setting this property. If you have multiple measures this setting will influence all of it.

Formatting the cell content with the # character:

Cell content	**1258**
Format string	**#$**
Formatted cell content	**1258$**

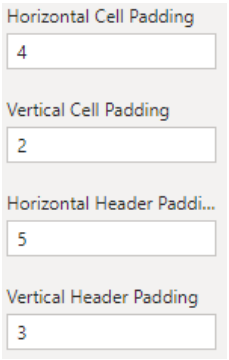
Auto-size Column Width

If you turn this setting ON, the visual will set the width for all your columns based on the widest one. You can specify exactly how many pixels you want your columns to consume. This will influence all your columns.

If you use this setting, it is worth considering using the **Stretch Columns** property, so, that columns will take up all the place that is available determined by the width of the matrix itself.

Horizontal & Vertical Cell Padding

You can control how many pixels space you want to have between the columns/ rows with this setting.



Horizontal & Vertical Header Padding

You can control how many pixels space you want to have between the header columns/ rows with this setting.

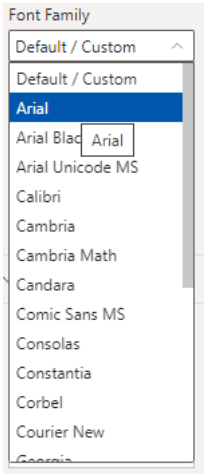
Text Size

You can define a general text size for the matrix. This will be overwritten if you set up varied sizes for your headers, values, or totals, respectively.

Font Family

This setting has a drop-down list with PowerBI-supported font types:

If *Default / Custom* option is selected in **Font Family** property, two textboxes appear, allowing to define any kind of font family.



Custom Font Family Name

This setting allows you to define any kind of font family or a custom font family.

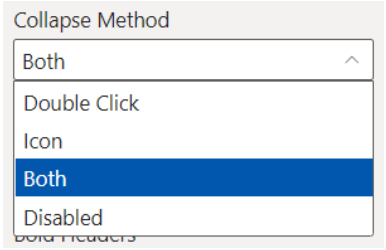
You can give a URL for a font family. The URL of the CSS file for the custom font family can be defined with **External CSS URL** property.

External CSS URL

This setting allows you to set the URL of the CSS file. It is available only from the General menu. See an example below:

```
.dTableContainer .column_0 {
    background-color: rgba(230, 230, 230, 1) !important;
    position: fixed !important;
    width: 80px;
    z-index: 11000;
    height: 20pt;
    padding: 3px;
}
.dTableContainer .column_2 {
    background-color: rgba(230, 230, 230, 1) !important;
    position: fixed !important;
    width: 250px;
    left: 80px;
    z-index: 11000;
    height: 20pt;
    padding: 3px;
}
```

Collapse Method



By default, the *Double Click* method requires the end user to double click on the upper group member to expand.

You can choose the *Icon* method (+/- icons in front of the members) if you like. In this case you need to click on those to collapse or expand the members.

With *Both* you can choose both the *Double Click* and the *Icon* as well.

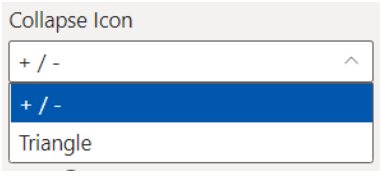
Finally, you can turn OFF this feature completely.

BrandName ▲ Produtct Name ▲	ShortMonth	Jan - 15	F
⊞ APPLE			
Total		301 754	2
⊟ COLA			
Cola 0.5l can		70 553	
Orange 0.5l bottle		135 394	
Total		205 947	

The visual preserves the state of collapsed row or column and after opening the visual, it will be applied.

Every row and column are expanded when there is no enabled collapse method.

Collapse Icon



You can set the icon with this property, *+/-* or *Triangle*.

Bold Headers

If it is enabled, the header will be bold.

Selected Item Font & Background Color

This property sets the font/ background color of the rows or columns, which is selected from the Context Menu » **Select** menu item.

Stretch Columns & Rows

If your matrix has a width that is wider, compared to how much space the total width of the rows and columns would consume, you can force the visual to stretch them to take all available space. Meaning if they are enabled, they remove the space between the matrix and the frame of the visual.

Stretch Column property disappears, if [General] » **Auto-size Column Width** is disabled.

Selection Border Color & Width

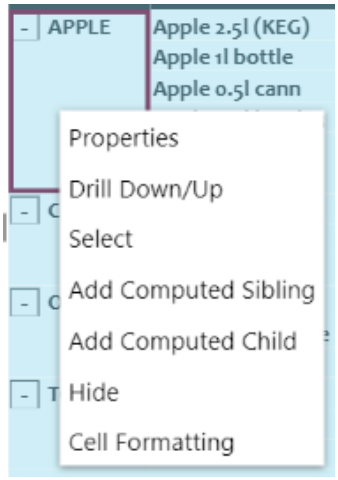
You can control the appearance of the selected cell by modifying the border color and width settings.

Formatting Enabled (Context menu)

This setting allows you to open a context menu on the header or content cells, by right clicking on it. You can use this functionality in Power BI Service, in Edit mode or in Power BI Desktop.

In case of missing VPservice visual, only the Drill Down/Up and Select items are available.

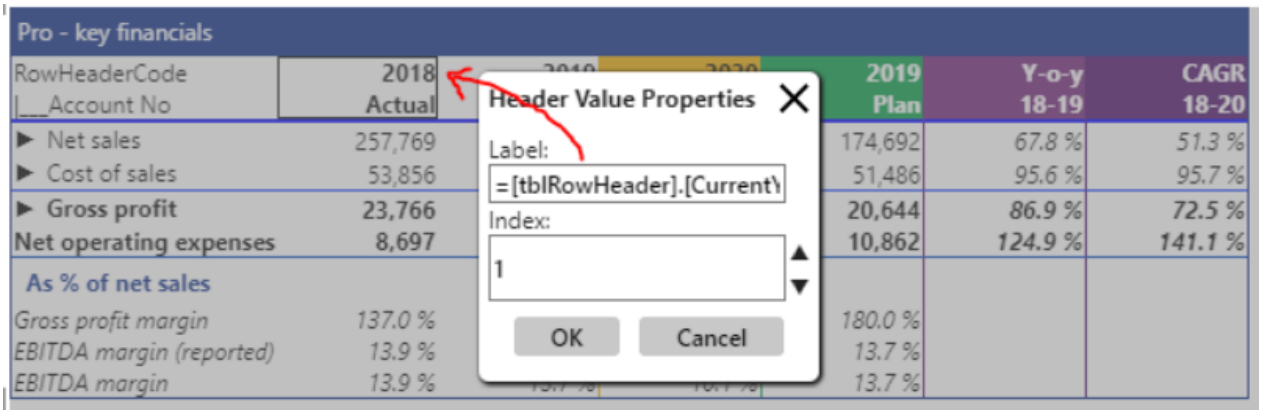
Menu items in header area



Properties (Header Value Properties)

Label

You can give unique column names on the label of the cell.



You can rename the label of the selected column by typing a string or using JavaScript expressions.

Available operations that you can use: mathematical, date, html, JavaScript, and you can refer to another column from another table, as you can see in the example screen shot above.

If you want to use JavaScript expression with table column fields, you should put the desired columns into a SmartFilter Helper visual. You can refer to a column in this way: [TableName].[ColumnName].

If you use this kind of column reference, you must make sure to filter that column to a single value (by slicer on visual, page level filters), otherwise the label will show the given table and column names.

It can accept formulas as well. So, if you have a calculated sibling or measure in your DEMx, you can add a SmartFilter Helper visual and add the sibling/ measure to it, and by this way you do not need to pull it to DEMx.

You are also able to use conditional operators in JavaScript, but in this case, you need to start the expression with "=" operator, then use the following formula:
`Condition ? IfConditionIsTrue : IfConditionIsFalse`.

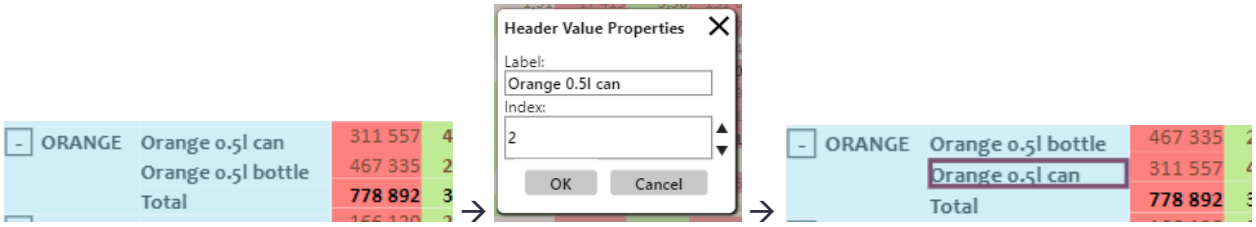
You can see an example for this formula below. In this example the [Year] should come from SmartFilter.

E.g.: 1
`=([Time].[Year] ? ([Time].[Year] - 1) : "") + " - Budget"`
It replaces *[Time].[Year]* with "" until slicer comes. Afterwards it will be replaced with slicer value and do a JavaScript eval() function on the formula in the end.

E.g.: 2 – a simple string concatenation
Instead of **Actuals**: `[Time].[Year] - Actuals` → This is a simple string concatenation.
[Time].[Year] is empty until slicer value arrives, and it will be replaced afterwards.

Index

You can modify the order of the rows/columns, by setting the index.



Drill Down/Up

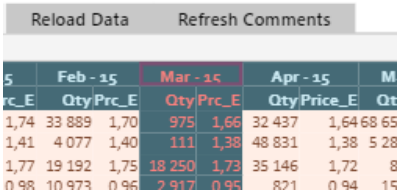
This menu item opens a sub-Context menu from where you can do the drilling provided by Power BI.

Drilling is only possible on a level if there are at least two levels (at least one more).

Please see more detailed description about drilling in this article: https://docs.microsoft.com/en-us/power-bi/consumer/end-user-drill

Select

The selection color can be different from the other cells if you set the [General] » **Selected Items Font Color** and **Selected Items Background Color** properties.



It appears only when **Corner Filtering** setting is disabled.

The selection also filters other visuals on the same report page accordingly.

Add Computed Sibling

The added computed sibling row/ column/ measure appears between header cells and Totals. The position of the computed row/ column can be set in Context menu » **Properties** » *Index*.

Computed sibling can be used to display a new column that contains data, based on a given calculation expression.

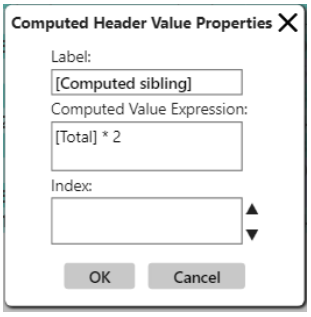
By adding a new computed row or column to your DEMx, it will be on the same dimension hierarchy level, where you opened the Context menu.

Save Changes | Discard Changes | Set Goal Seek | Reload Data

BrandName	ShortMonth Produtct Name	Jul - 15 Price_E	Jul - 15 Quantity_E	Aug - 15 Price_E	Aug - 15 Quantity_E	Sep - 15 Price_E	Sep - 15 Quantity_E	Oct - 15 Price_E	Oct - 15 Quantity_E	Nov - 15 Price_E	Nov - 15 Quantity_E	Dec - 15 Price_E	Dec - 15 Quantity_E	[Computed sibling] Price_E	[Computed sibling] Quantity_E	Total Price_E	Total Quantity_E
APPLE	Apple 0.5l bottle3	1.23	1,118,721	0.89	6,988,043	0.89	2,558,030	0.90	3,204,673	0.91	3,897,298	0.93	631,345	0.89	58,391,872	1.87	**29,195,936**	**0.94**
	Apple 0.5l cann	2.28	447,584	1.66	4,830,560	1.65	1,321,843	1.67	1,653,529	1.69	2,182,958	1.71	4,322,882	1.66	58,215,337	3.47	**29,107,668**	**1.73**
	Apple 0.5l KEG	1.86	595,304	1.34	2,697,638	1.34	2,817,791	1.36	2,651,742	1.37	3,736,878	1.40	5,615,560	1.35	65,293,533	2.82	**32,646,767**	**1.41**
	Apple 1l bottle	1.83	493,593	1.32	9,835,217	1.32	1,952,799	1.33	1,569,521	1.34	1,941,151	1.36	3,880,735	1.33	55,109,586	2.76	**27,554,793**	**1.38**
	Apple 2.5l (KEG)	2.16	230,026	1.57	1,794,070	1.56	1,178,418	1.58	1,194,992	1.61	1,447,738	1.66	2,656,259	1.58	30,899,622	3.31	**15,449,811**	**1.66**
	Total	**1.87**	**2,885,228**	**1.36**	**26,145,527**	**1.35**	**9,828,882**	**1.37**	**10,274,457**	**1.38**	**13,206,024**	**1.41**	**17,106,782**	**1.36**	**267,909,950**	**2.85**	**133,954,975**	**1.42**
COLA	Cola 2l KEG	2.19	247,788	1.58	1,436,249	1.58	1,452,501	1.62	1,003,101	1.66	1,280,346	1.73	2,153,499	1.61	27,673,221	3.40	**13,836,610**	**1.70**
	Cola 3l KEG	2.05	346,037	1.48	4,261,449	1.48	1,745,351	1.50	1,123,391	1.54	1,598,181	1.61	1,980,502	1.50	36,146,047	3.17	**18,073,023**	**1.58**
	Total	**2.12**	**593,825**	**1.53**	**5,697,698**	**1.53**	**3,197,852**	**1.56**	**2,126,492**	**1.60**	**2,878,527**	**1.67**	**4,134,002**	**1.55**	**63,819,267**	**3.28**	**31,909,634**	**1.64**
ORANGE	Orange 0.5l bottle	1.68	497,266	1.22	3,066,886	1.22	1,303,457	1.23	1,233,912	1.25	2,523,538	1.27	4,212,893	1.23	45,385,123	2.56	**22,692,561**	**1.28**
	Orange 0.5l can	2.48	471,746	1.80	3,826,149	1.80	1,686,223	1.81	2,315,810	1.83	3,653,256	1.86	4,783,220	1.81	66,158,556	3.77	**33,079,278**	**1.88**
	Total	**2.08**	**969,012**	**1.51**	**6,893,035**	**1.51**	**2,989,679**	**1.52**	**3,549,722**	**1.54**	**6,176,794**	**1.57**	**8,996,113**	**1.52**	**111,543,679**	**3.17**	**55,771,839**	**1.58**
TONIC	Tonic 0.5l	2.10	543,728	1.52	111,519	1.52	3,396,131	1.52	4,513,820	1.53	4,104,155	1.53	7,183,142	1.52	75,286,041	3.15	**37,643,021**	**1.58**
	Tonic 0.5l bottle	1.50	418,029	1.09	164,168	1.09	2,549,414	1.09	3,504,582	1.10	2,834,903	1.10	3,978,354	1.09	54,404,443	2.26	**27,202,222**	**1.13**
	Total	**1.80**	**961,757**	**1.31**	**275,687**	**1.31**	**5,945,545**	**1.31**	**8,018,402**	**1.31**	**6,939,058**	**1.32**	**11,161,497**	**1.31**	**129,690,485**	**2.70**	**64,845,242**	**1.35**
Total		**1.94**	**5,409,822**	**1.41**	**39,011,948**	**1.41**	**21,961,958**	**1.42**	**23,969,072**	**1.44**	**29,200,402**	**1.47**	**41,398,393**	**1.42**	**572,963,381**	**2.96**	**286,481,690**	**1.48**

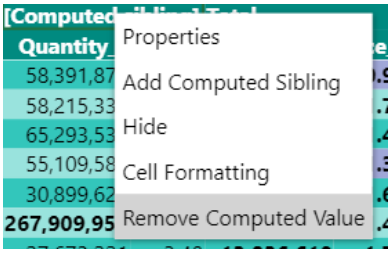
How to set up?

1. Open Context menu » Properties on the new computed value (called *[Computed sibling]* in our example above) to enter the expression for the calculation.
   You can use
   - basic mathematical operators (like: +, -, /, *),
   - constant values
   - refer to an element on the same hierarchy level by using square brackets. (e.g.: If the computed sibling is created on Month Name level, you can use an element of the Month Name for calculation.)



2. Click on [OK] to submit your settings.

You can remove the computed sibling, by Context menu » **Remove Computed Value**:



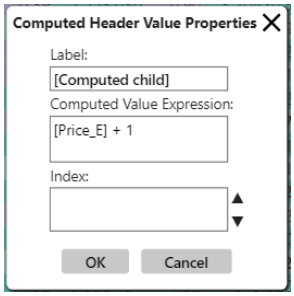
Add Computed Child

The added computed sibling row/ column appears between header cells and Totals. The position of the computed row/ column can be set in Context menu » Properties » Index.

It works like the Computed Siblings, but you can use it only on those dimensions' hierarchy levels, where there is at least one child level.

Oct - 15			Nov - 15		Dec - 15
Quantity_E	Price_E	[Computed child]	Quantity_E	Price_E	Quantity_E
3,204,673	0.91	1.9092475139559513	3,897,298	0.93	631,345
1,653,529	1.69	2.686351055883633	2,182,958	1.71	4,322,882
2,651,742	1.37	2.3723575810641817	3,736,878	1.40	5,615,560
1,569,521	1.34	2.342049330598983	1,941,151	1.36	3,880,735
1,194,992	1.61	2.6123989247485486	1,447,738	1.66	2,656,259
10,274,457	**1.38**	**2.3844808812502594**	**13,206,024**	**1.41**	**17,106,782**
1,003,101	1.66	2.659679795474265	1,280,346	1.73	2,153,499
1,123,391	1.54	2.54087145365068	1,598,181	1.61	1,980,502
2,126,492	**1.60**	**2.6002756245624727**	**2,878,527**	**1.67**	**4,134,002**
1,233,912	1.25	2.2474875891475667	2,523,538	1.27	4,212,893
2,315,810	1.83	2.830618328097982	3,653,256	1.86	4,783,220
3,549,722	**1.54**	**2.539052958622775**	**6,176,794**	**1.57**	**8,996,113**
4,513,820	1.53	2.5275358234459975	4,104,155	1.53	7,183,142
3,504,582	1.10	2.0959463368215747	2,834,903	1.10	3,978,354
8,018,402	**1.31**	**2.3117410801337863**	**6,939,058**	**1.32**	**11,161,497**
23,969,072	**1.44**	**2.438594884808124**	**29,200,402**	**1.47**	**41,398,393**

Calculation of Computed child:

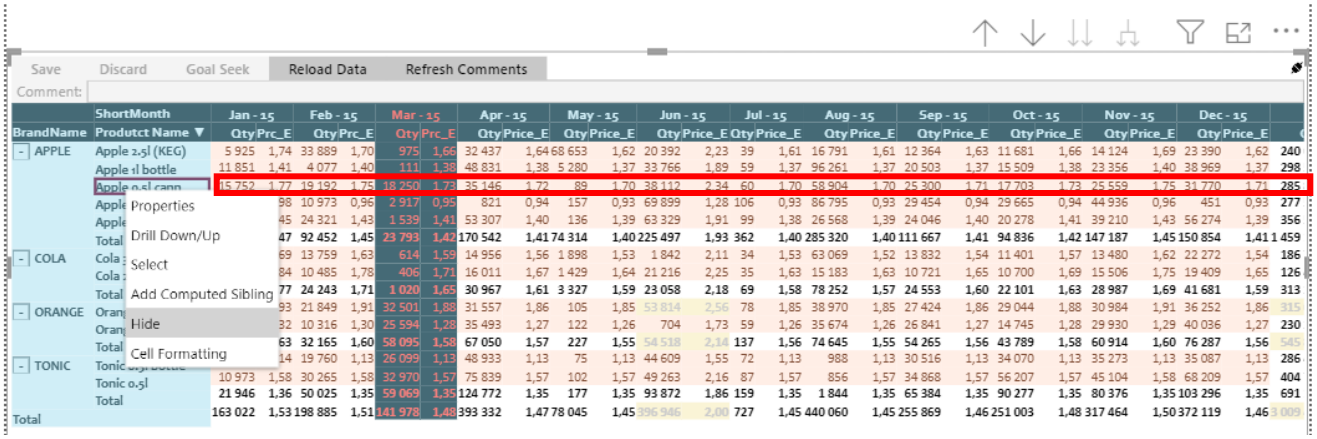


The main difference between Computed sibling and child is on hierarchy level:

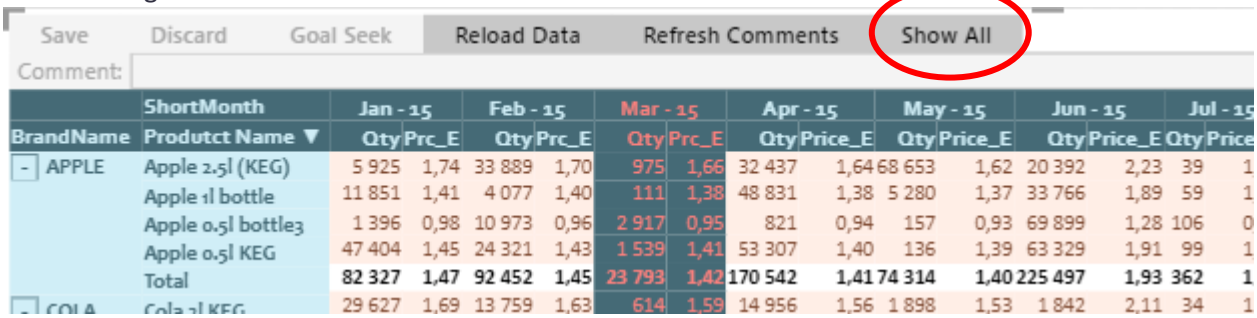
- Siblings are on the same level,
- Child is under the selected dimension.

Hide

With this setting, you can hide a row or column in your matrix. You just need to select the proper row/ column and click on **Hide**, so it will disappear.



After clicking on **Hide**:

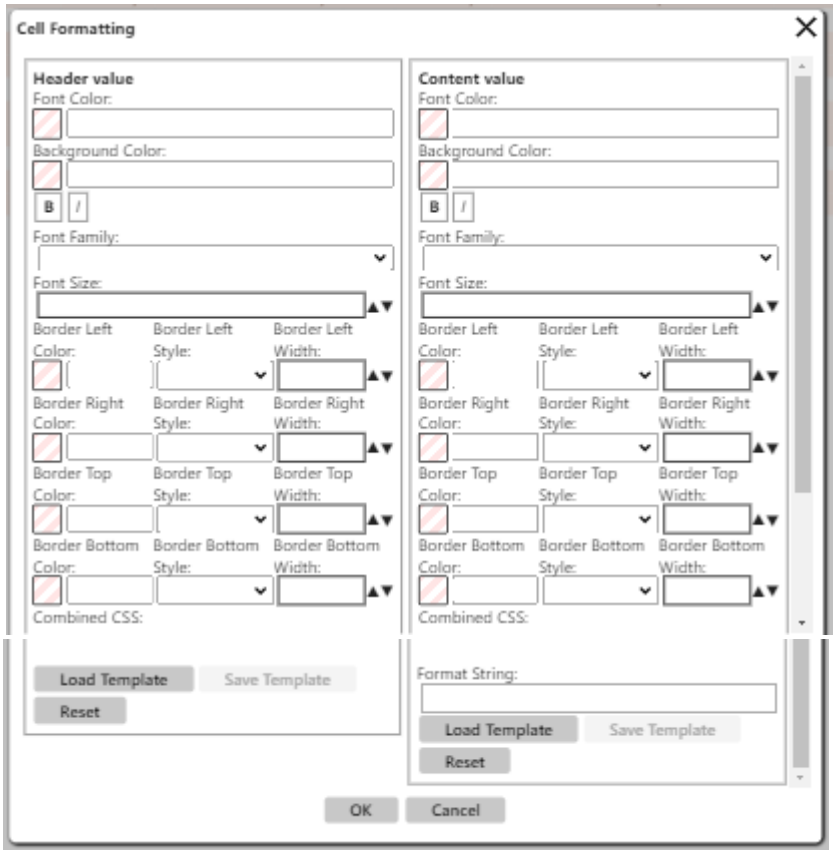


BrandName	Productct Name	ShortMonth	Jan - 15		Feb - 15		Mar - 15		Apr - 15		May - 15		Jun - 15		Jul - 15	
			Qty	Prc_E	Qty	Prc_E	Qty	Prc_E	Qty	Price_E	Qty	Price_E	Qty	Price_E	Qty	Price
APPLE	Apple 2.5l (KEG)		5 925	1,74	33 889	1,70	975	1,66	32 437	1,64	68 653	1,62	20 392	2,23	39	1
	Apple 1l bottle		11 851	1,41	4 077	1,40	111	1,38	48 831	1,38	5 280	1,37	33 766	1,89	59	1
	Apple 0.5l bottle3		1 396	0,98	10 973	0,96	2 917	0,95	821	0,94	157	0,93	69 899	1,28	106	0
	Apple 0.5l KEG		47 404	1,45	24 321	1,43	1 539	1,41	53 307	1,40	136	1,39	63 329	1,91	99	1
	Total		82 327	1,47	92 452	1,45	23 793	1,42	170 542	1,41	74 314	1,40	225 497	1,93	362	1
COLA	Cola 2l KEG		29 627	1,69	13 759	1,63	614	1,59	14 956	1,56	1 898	1,53	1 842	2,11	34	1

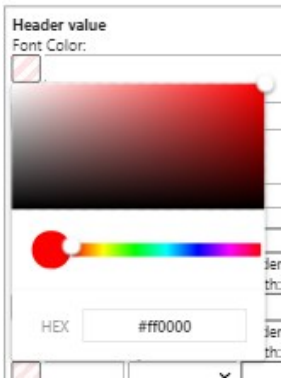
You cannot see that row anymore. With this setting a new button appeared on top of the matrix, in the button row, called [**Show All**]. If you click on this button, your hidden row (or column) appears again.

Cell Formatting

This property opens a window, called **Cell Formatting**, with the following opportunities:

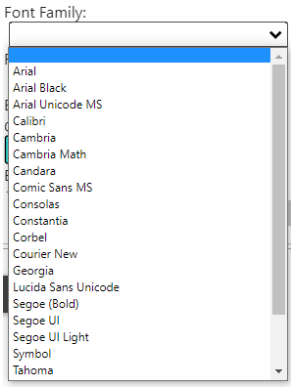


You can use color-picker or color codes (HEX, RGB, HSL) for **coloring**.



You can set the font style to **bold** and/or **italic**. B I

You can choose a **Font Family** from the drop-down list.



You can set the **Font Size** with the arrows. Minimum value is *5*, maximum value is *40*.

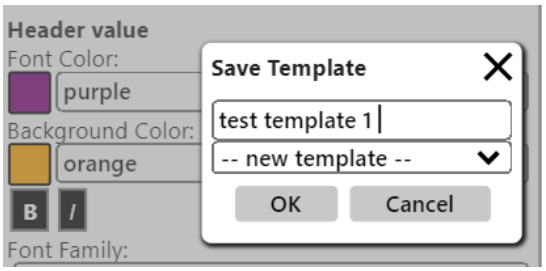
There are properties to set the **border** – style, color, width – for every angle: Left, Right, Top, Bottom. **Border Style** can be *solid*, *dotted*, *dashed*.

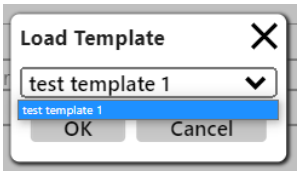
Combined CSS

You can use CSS for cell formatting by typing. Or what you set in the above properties in Cell Formatting, their CSS code is auto-generated, e.g.:

```
font-family: arial;
background-color: black;
font-size: 30px;
color: black;
border-left: 4px orange solid;
```

You can save your settings to a template, which you can use at a later phase. To do that, you need to click on the [**Save Template**] button, give it a custom name and finalize it by clicking on the [**OK**] button.





You can load the previously saved template, from the template list, by [**Load Template**] button.

The templates are stored inside the visual in JSON format. You can find them in [General] » **Report Settings** property. They are valid only in that DEMx.

If you changed your mind and do not want to create a special setting of your cell/ header, you can choose to reset the parameters, by clicking on the [**Reset**] button.

Context Menu opens with the following menu items	Properties	Drill down/up	Select	Add computed sibling	Add computed child	Hide	Cell Formatting	Remove computed value
Edit mode – on row/column header cells	+	+	+	+	+	+	+	–
Edit mode – on row/column computed header cells	+	–	–	+	–	+	+	+
Edit mode – on comment column header cells	+	–	–	–	–	+	+	–
Edit mode – on content cells	+	–	–	–	–	–	+	–
Reading View mode – on row/column header cells	–	+	+	–	–	–	–	–
Reading View mode – on row/column measure header cells	–	+	–	–	–	–	–	–
Reading View mode – on row/column computed header cells	–	–	–	–	–	–	–	–
Reading View mode – on comment column header cells	–	–	–	–	–	–	–	–
Reading View mode – on content cells	–	–	–	–	–	–	–	–

Column Resizing

If you enable this property, you are allowed to resize column width by dragging and moving its border (like in standard PowerBI matrix or in Excel).

In PowerBI Service it works both in 'Reading' and 'Edit' mode.

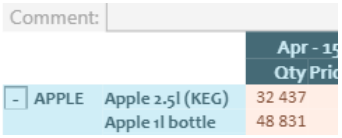
By double-clicking on the border, it will resize the column to its original width.

General Cell Border Width & Color

This property sets the border width & color of all cells of the visual.

Hide Corner

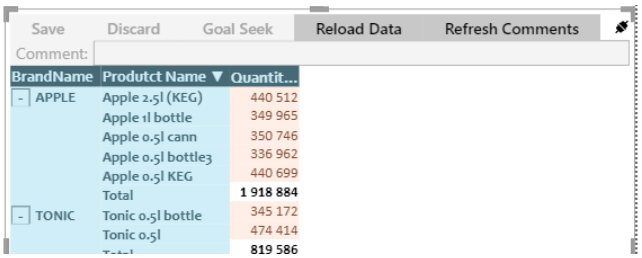
With this setting you can hide the corner cells of the visual.



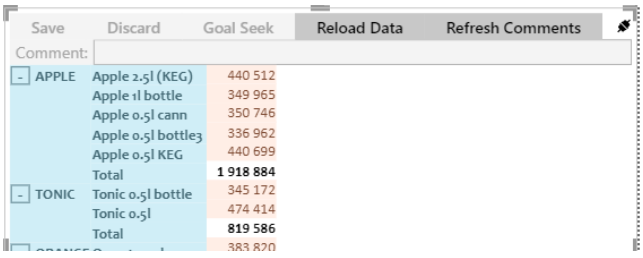
Hide Empty Levels

If there is one measure in the visual and no rows or columns, the header of the measures and the corner cell which belongs to the measure will not be displayed.

Hide Empty Levels OFF:

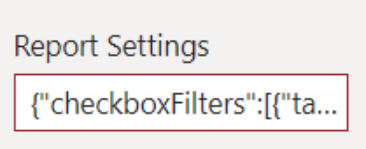


Hide Empty Levels ON:



Report Settings

It contains a JSON string, with all format settings of the visual, like coloring, labels, collapse, order, format. If you delete its content, the default setting will be set automatically.



Visual Border Width & Color

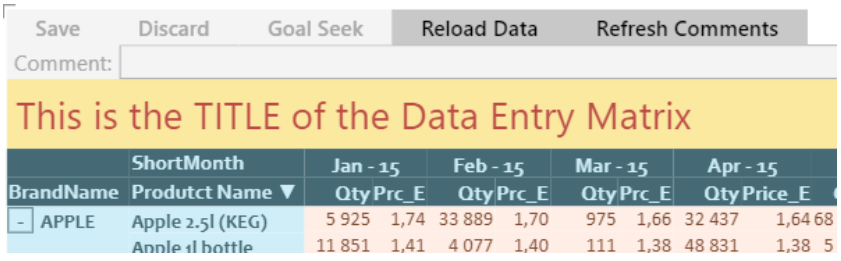
You can set the outer border width and color around the visual.

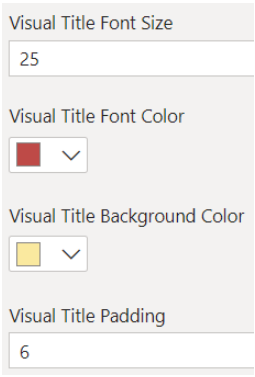
Hide Button Row

You can hide the whole button row, buttons, and icons (e.g.: VPService icon, Fetch more icon) as well.

Visual Title

You can give a title of your matrix right above the corner and column header(s).
If you type a title, additional properties will appear and with their help you can make it unique: **Visual Title Font Size**, **Visual Title Font Color**, **Visual Title Background Color**, **Visual Title Padding**





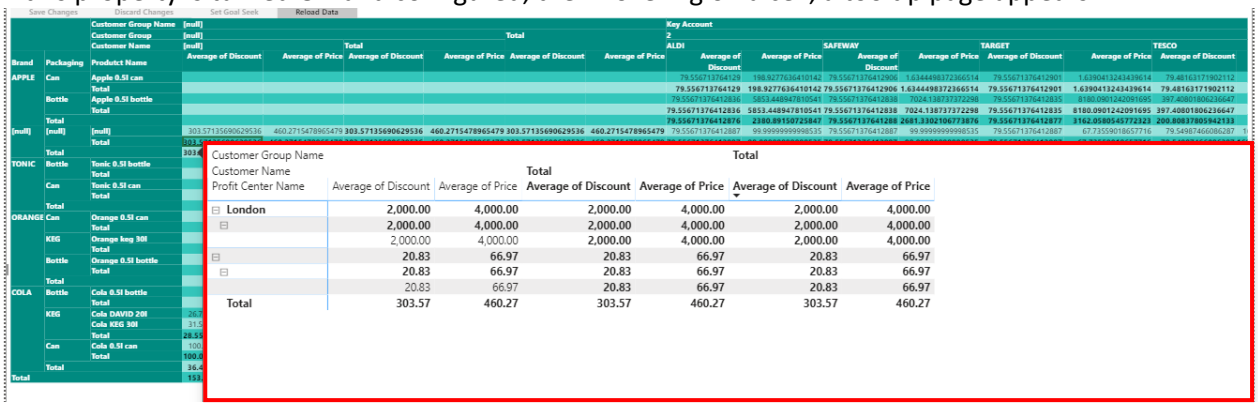
Settings Edit Delay

This property delays the refresh of the DEMx after changing a setting. It can be used to avoid those situations when you want to edit a property (e.g.: Visual Title, Connection, Web Service URL etc.) with data-input and in the middle of the typing the visual refreshes itself and drops the focus out of the input box.

The value of this property is in milliseconds and its value is set to *5000* by default.

Show Tooltip Report

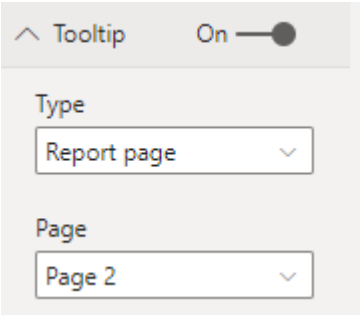
If this property is turned ON and configured, then hovering on a cell, a tooltip page appears.



Configuration

To use the tooltip report feature, you need to set a page of your report as a tooltip.

1. Open your report.
2. Open the page you wish to set as a tooltip.
3. Open the format pane of the page without selecting any visual.
4. On the format pane, turn ON the [Page information] » **Tooltip** setting.
5. Select the page where the DEMx visual can be found.
6. Select the DEMx visual on the page.
7. Open the format pane and scroll down to the bottom. There you will find a property group, called [Tooltip].
8. Turn the setting ON.
9. Set [Tooltip] » **Type** property to *Report page*.
10. Set [Tooltip] » **Page** property to the name of that page you turned ON in Step 4.
11. Turn ON [General] » **Show Tooltip Report** setting. Hovering above a cell, it shows the page you set as tooltip.
12. Create a report on the tooltip page that you want to show. https://docs.microsoft.com/en-us/power-bi/create-reports/desktop-tooltips



Consistent Tooltip Report

This setting is visible only if 'Show Tooltip Report' setting is turned ON.

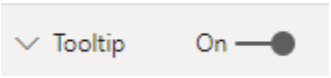
This setting makes a tooltip report stay visible as long as the cell is selected, or any specific user event hides it.

These specific user events could be:

- pressing the "X" button at the top right corner of the tooltip report window
- deselecting the cell (optionally with [CTRL] + click)
- selecting another cell
- right-clicking on headers to open Context menu
- selecting another page in the report
- switching between 'Edit' mode and 'Reading view'

The tooltip report is a pop-up window containing a report. This report receives its filter from the value of the selected cell.

The tooltip report must be set up on another page with enabling 'Tooltip' property:



Additional information:

- 'Consistent Tooltip Report' property becomes visible only if 'Show tooltip report' is enabled.
    - If 'Consistent Tooltip Report' is enabled, 'Consistent Tooltip Report Class' setting appears.
    - If you enable 'Consistent Tooltip Report', 'Show Comment On Cell Selected' property will be disabled automatically &
      If you enable 'Show Comment On Cell Selected', 'Consistent Tooltip Report' property will be disabled automatically.
      The two settings cannot be turned ON at the same time.
- If 'Consistent Tooltip Report' is turned OFF, the tooltip report appears only by moving the mouse pointer above the cell.
- If you have DEMx visual in your tooltip report,
    - please turn OFF
        - 'Commenting'
        - 'Tooltip'
- If you have Power ON write-back capable visual in your tooltip report & you do a write-back in the tooltip report, the change will be saved back and refreshed, when the main report is refreshed.
- Please do not use either VPService, or SmartFilter visuals in the tooltip report. (Tooltip report can use the VPService visual from the main page if necessary.)

Consistent Tooltip Report Class

This setting is visible only if 'Show Tooltip Report' and 'Consistent Tooltip Report' settings are turned ON.

It contains the CSS class name of the tooltip. If you modify it and the CSS name is invalid, the tooltip report will disappear.

The default value is: `.tooltip-container.themeableElement.enhancedTooltips`

Technical details:
The tooltip report is not a part of the DEMx visual, but a unique element of the Power BI application. The visual needs the CSS name of the Tooltip Report for modification.

This is just a “safety setting”, because when Microsoft changes the CSS name of the tooltip report, the user can modify the setting too.

Position and size

As for all visuals you can control the size of the matrix by setting **Width** and **Height** as well as the **X** and **Y Position**s. Setting the **Width** and **Height** influences how stretching can be applied.

Column Formatting

With these settings you can control the behavior and appearance of the columns in the visual.

Column Alignment

You can set the text alignment for each column header with this setting.

Column Collapse

If you have multiple fields added to the column collection, you can turn ON collapse on the top level so, the matrix will be rendered as the group is collapsed by default. If collapse is turned OFF, the visual will be rendered as all dimension members are expanded by default.

Collapsed is turned ON:

Save Changes | Discard Changes | Set Goal Seek | Reload Da

	Year	2015	Total
BrandName ▲	Produtct Name ▲ / ShortMonth	Total	
APPLE	Apple 0.5l bottle	3 439 330	3 439 330
	Apple 0.5l can 222dddd	1 715 367	1 715 367
	Cola KEG 30l something	1 578 232	1 578 232
	Whisky 25l	1 534 188	1 534 188
	Total	8 267 117	8 267 117

Collapsed is turned OFF:

Save Changes | Discard Changes | Set Goal Seek | Reload D

	Year	2015		
BrandName ▲	Produtct Name ▲ / ShortMonth	Jan - 15	Feb - 15	Ma
APPLE	Apple 0.5l bottle	695	43 064	3
	Apple 0.5l can 222dddd	69 114	65 000	
	Cola KEG 30l something	189 996	39 742	1
	Whisky 25l	41 949	126 640	1
	Total	301 754	274 445	6

You can control how collapse works, by setting the [General] » **Collapse Method** property.

Column Headers

You can customize the appearance of the column headers within this group, such as:

- **Outline**: you can set the border
- **Font / Background Color**
- **Font Family**: If you choose *Default / Custom*, an additional setting appears, called **Custom Font Family Name** and you can define any kind of font family, by giving a URL.
- **Size**
- Turn ON or OFF the **Word Wrap** for longer texts
- Setting the **Vertical Alignment** of the column headers from a drop-down list to *Center*, *Top* or *Bottom*.

Currently, you cannot specify the width individually for each of the columns. You can set the width for all the columns, or you can turn on auto column width as well in the General settings.

Column sorting

You can control the ordering of the dimension members to be ascending or descending. Please also check the Sorting section of the Use Cases.

Column totals

You can enable or disable the column totals with this setting.

Row Formatting

With these settings you can control the behavior and appearance of the rows in the visual.

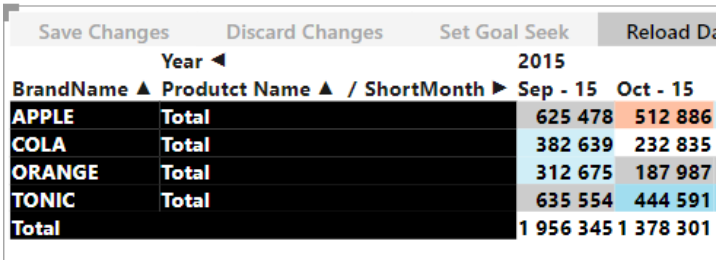
Row Alignment

You can set the text alignment for each row header with this setting.

Row Collapse

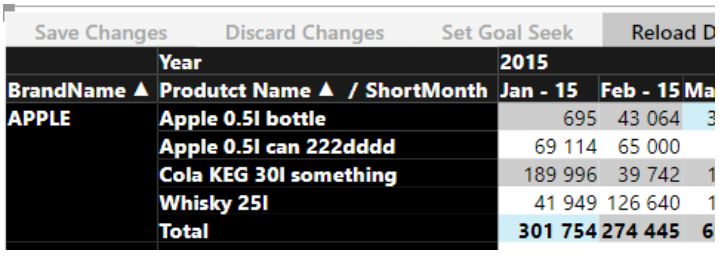
If you have multiple fields added to the row collection, you can turn ON collapse on the top level so, the matrix will be rendered as the group is collapsed by default. If collapse is turned OFF, the visual will be rendered as all dimension members are expanded by default.

Collapsed is turned ON:



	Year ◄	2015	
BrandName ▲	Produtct Name ▲ / ShortMonth ►	Sep - 15	Oct - 15
APPLE	Total	625 478	512 886
COLA	Total	382 639	232 835
ORANGE	Total	312 675	187 987
TONIC	Total	635 554	444 591
Total		1 956 345	1 378 301

Collapsed is turned OFF:



	Year	2015		
BrandName ▲	Produtct Name ▲ / ShortMonth	Jan - 15	Feb - 15	Ma
APPLE	Apple 0.5l bottle	695	43 064	3
	Apple 0.5l can 222dddd	69 114	65 000	
	Cola KEG 30l something	189 996	39 742	1
	Whisky 25l	41 949	126 640	1
	Total	301 754	274 445	6

You can control how collapse works, by setting the [General] » **Collapse Method** property.

Row Headers

You can customize the appearance of the row headers within this group, such as:

- **Outline**: you can set the border
- **Font** / **Background Color**
- **Font Family**: If you choose *Default / Custom*, an additional setting appears, called **Custom Font Family Name** and you can define any kind of font family, by giving a URL.
- **Size**
- Setting the **Row Header Width**
- Turning ON / OFF the **Word Wrap** for longer texts in row header values
    - You can ***scroll in the row header*** area when your mouse pointer is above it.
- Setting the **Vertical Alignment** of the row headers from a drop-down list to *Center*, *Top* or *Bottom*.

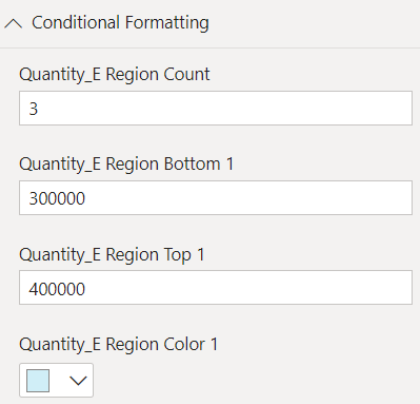
Row Sorting

You can control the ordering of the dimension members to be ascending or descending. Please also check the Sorting section of the Use Cases.

Row Totals

You can enable or disable the row totals with this setting.

Conditional formatting



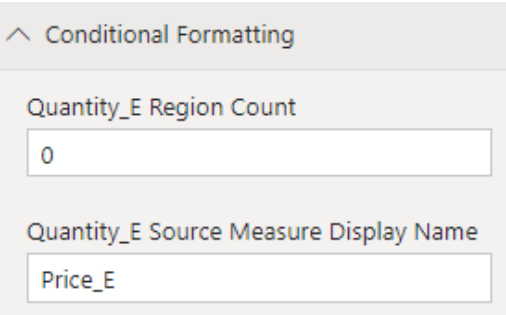
You can set up custom background colors for your measures based on the values.

You need to define how many different colors you want use by setting the **Region Count** property. You can define maximum *10*. After giving it, you need to determine the boundaries for each of them by setting the **Bottom** and **Top** values.

In this example, the first color – a light blue – will be applied as a background for those cells that have values between 300 000 and 400 000.

***MeasureName* Source Measure Display Name**

The conditional formatting rule can be based on a referenced value (another measure), by the following way:



When the **Region Count** of the measure (*Quantity_E*) is set to 0, a source measure (*Price_E*) can be provided and based on this source you can set coloring regions.

The source measure that you are referring to must be added to the Data Entry Matrix.

If you like, you can hide that source measure, by enabling its [Hide Measure] property.

You need to set the region(s) (boundaries and colors) for the source measure.
In our example Source Measure is *Price_E*, we have *one* region, between *2* and *5*.
Its result can be seen below:

Save | Discard | Goal Seek | Reload Data | Refresh Comments

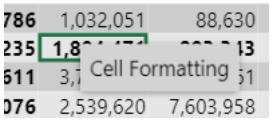
Comment:

BrandName	ShortMonth / Produtct Name	Jan - 15 Qty	Jan - 15 Prc_E	Feb - 15 Qty	Feb - 15 Prc_E	Mar - 15 Qty	Mar - 15 Prc_E	Apr - 15 Qty	Apr - 15 Price_E	May - 15 Qty	May - 15 Price_E	Jun - 15 Qty	Jun - 15 Price_E	Jul - 15 Qty	Jul - 15 Price_E	Aug - 15 Qty	Aug - 15 Price_
APPLE	Apple 2.5l (KEG)	5 925	1,74	33 889	1,70	975	1,66	32 437	1,64	68 653	1,62	20 392	2,23	39	1,61	16 791	1,6
	Apple 1l bottle	11 851	1,41	4 077	1,40	111	1,38	48 831	1,38	5 280	1,37	33 766	1,89	59	1,37	96 261	1,3
	Apple 0.5l cann	15 752	1,77	19 192	1,75	18 250	1,73	35 146	1,72	89	1,70	38 112	2,34	60	1,70	58 904	1,7
	Apple 0.5l bottle3	1 396	0,98	10 973	0,96	2 917	0,95	821	0,94	157	0,93	69 899	1,28	106	0,93	86 795	0,9
	Apple 0.5l KEG	47 404	1,45	24 321	1,43	1 539	1,41	53 307	1,40	136	1,39	63 329	1,91	99	1,38	26 568	1,3
	Total	**82 327**	**1,47**	**92 452**	**1,45**	**23 793**	**1,42**	**170 542**	**1,41**	**74 314**	**1,40**	**225 497**	**1,93**	**362**	**1,40**	**285 320**	**1,4**
COLA	Cola 3l KEG	29 627	1,69	13 759	1,63	614	1,59	14 956	1,56	1 898	1,53	1 842	2,11	34	1,53	63 069	1,5
	Cola 2l KEG	5 329	1,84	10 485	1,78	406	1,71	16 011	1,67	1 429	1,64	21 216	2,25	35	1,63	15 183	1,6
	Total	**34 956**	**1,77**	**24 243**	**1,71**	**1 020**	**1,65**	**30 967**	**1,61**	**3 327**	**1,59**	**23 058**	**2,18**	**69**	**1,58**	**78 252**	**1,5**
ORANGE	Orange 0.5l can	13 044	1,93	21 849	1,91	32 501	1,88	31 557	1,86	105	1,85	33 814	2,56	78	1,85	38 970	1,8
	Orange 0.5l bottle	10 749	1,32	10 316	1,30	25 594	1,28	35 493	1,27	122	1,26	704	1,73	59	1,26	35 674	1,2
	Total	**23 793**	**1,63**	**32 165**	**1,60**	58 095	1,58	**67 050**	**1,57**	**227**	**1,55**	34 518	2,17	**137**	**1,56**	**74 645**	**1,5**
TONIC	Tonic 0.5l bottle	10 973	1,14	19 760	1,13	26 099	1,13	48 933	1,13	75	1,13	44 609	1,55	72	1,13	988	1,1
	Tonic 0.5l	10 973	1,58	30 265	1,58	32 970	1,57	75 839	1,57	102	1,57	49 263	2,16	87	1,57	856	1,5
	Total	**21 946**	**1,36**	**50 025**	**1,35**	**59 069**	**1,35**	**124 772**	**1,35**	**177**	**1,35**	**93 872**	**1,86**	**159**	**1,35**	**1 844**	**1,3**
Total		**163 022**	**1,53**	**198 885**	**1,51**	141 978	1,48	**393 332**	**1,47**	**78 045**	**1,45**	326 946	2,08	**727**	**1,45**	**440 060**	**1,4**

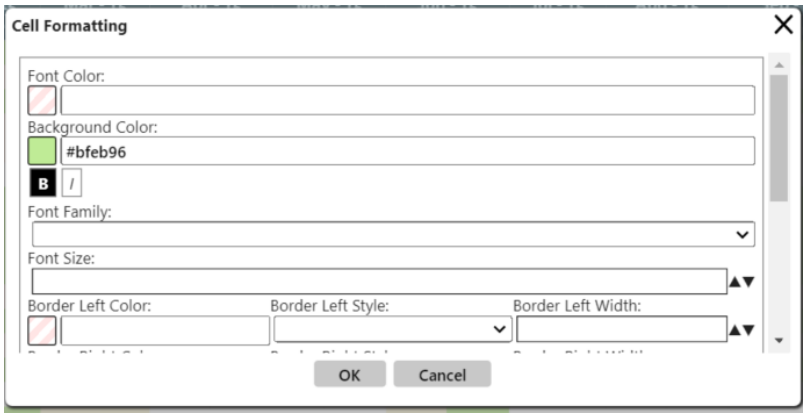
Formatting Measure

This feature is like conditional formatting but uses templates from 'Cell Formatting' via DAX measure. Through the example below you will be able to understand how you can use this feature. We combine conditional formatting with styling.

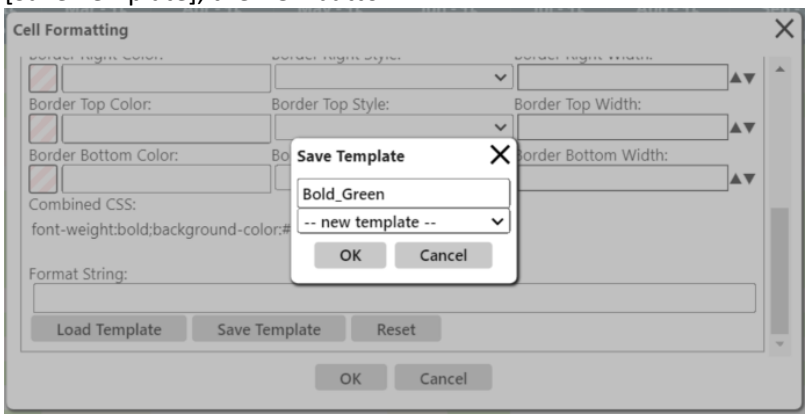
1. Open your DEMx related report in Power BI Desktop
2. Set the following styles:
   a. Select the DEMx visual
   b. Right click on a cell → 'Cell Formatting' should be seen and if you click on it, a window opens with settings possibilities, like font color, background color, font family, size, borders, etc.



   c. Set the styling as you like. In our example we have set a background color (green) and we made it bold.



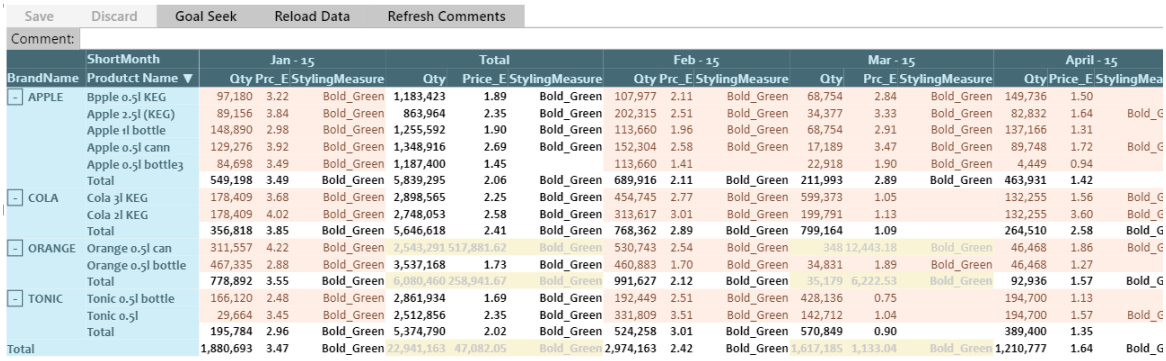
   d. Scroll down to the bottom of the window and save your settings as a template. Click on [Save Template], then OK button.



3. Create a DAX formatting measure (in our case we call it *StylingMeasure*) that returns the name of at least one template in string format:

```
StylingMeasure =
IF(
    [Price_E] > 1.5,
    "Bold_Green"
)
// Bold_Italis_Comic
// Italic_Courier
// Bold_Green
```

4. Add the measure to the DEMx as a value. You should see this:

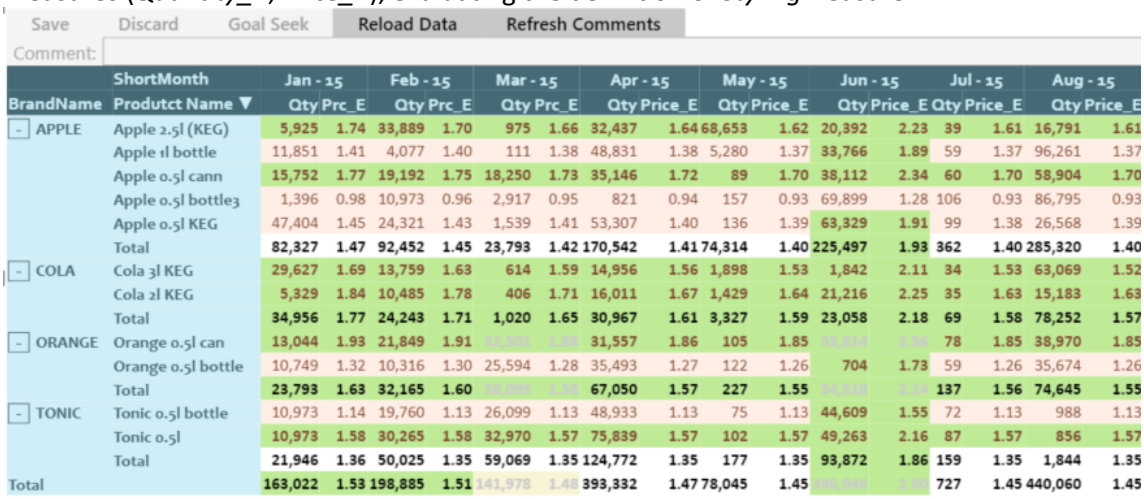


Save | Discard | Goal Seek | Reload Data | Refresh Comments

Comment:

BrandName	ShortMonth / Productct Name	Jan - 15 Qty	Prc_E	StylingMeasure	Total Qty	Price_E	StylingMeasure	Feb - 15 Qty	Prc_E	StylingMeasure	Mar - 15 Qty	Prc_E	StylingMeasure	April - 15 Qty	Price_E	StylingMea
APPLE	Bpple 0.5l KEG	97,180	3.22	Bold_Green	1,183,423	1.89	Bold_Green	107,977	2.11	Bold_Green	68,754	2.84	Bold_Green	149,736	1.50	
	Apple 2.5l (KEG)	89,156	3.84	Bold_Green	863,964	2.35	Bold_Green	202,315	2.51	Bold_Green	34,377	3.33	Bold_Green	82,832	1.64	Bold_G
	Apple 1l bottle	148,890	2.98	Bold_Green	1,255,592	1.90	Bold_Green	113,660	1.96	Bold_Green	68,754	2.91	Bold_Green	137,166	1.31	
	Apple 0.5l cann	129,276	3.92	Bold_Green	1,348,916	2.69	Bold_Green	152,304	2.58	Bold_Green	17,189	3.47	Bold_Green	89,748	1.72	Bold_G
	Apple 0.5l bottle3	84,698	3.49	Bold_Green	1,187,400	1.45		113,660	1.41		22,918	1.90	Bold_Green	4,449	0.94	
	Total	549,198	3.49	Bold_Green	5,839,295	2.06	Bold_Green	689,916	2.11	Bold_Green	211,993	2.89	Bold_Green	463,931	1.42	
COLA	Cola 3l KEG	178,409	3.68	Bold_Green	2,898,565	2.25	Bold_Green	454,745	2.77	Bold_Green	599,373	1.05		132,255	1.56	Bold_G
	Cola 2l KEG	178,409	4.02	Bold_Green	2,748,053	2.58	Bold_Green	313,617	3.01	Bold_Green	199,791	1.13		132,255	3.60	Bold_G
	Total	356,818	3.85	Bold_Green	5,646,618	2.41	Bold_Green	768,362	2.89	Bold_Green	799,164	1.09		264,510	2.58	Bold_G
ORANGE	Orange 0.5l can	311,557	4.22	Bold_Green	2,543,291	517,881.62	Bold_Green	530,743	2.54	Bold_Green	348	12,443.18	Bold_Green	46,468	1.86	Bold_G
	Orange 0.5l bottle	467,335	2.88	Bold_Green	3,537,168	1.73	Bold_Green	460,883	1.70	Bold_Green	34,831	1.89	Bold_Green	46,468	1.27	
	Total	778,892	3.55	Bold_Green	6,080,460	258,941.67	Bold_Green	991,627	2.12	Bold_Green	35,179	6,222.53	Bold_Green	92,936	1.57	Bold_G
TONIC	Tonic 0.5l bottle	166,120	2.48	Bold_Green	2,861,934	1.69	Bold_Green	192,449	2.51	Bold_Green	428,136	0.75		194,700	1.13	
	Tonic 0.5l	29,664	3.45	Bold_Green	2,512,856	2.35	Bold_Green	331,809	3.51	Bold_Green	142,712	1.04		194,700	1.57	Bold_G
	Total	195,784	2.96	Bold_Green	5,374,790	2.02	Bold_Green	524,258	3.01	Bold_Green	570,849	0.90		389,400	1.35	
Total		1,880,693	3.47	Bold_Green	22,941,163	47,082.05	Bold_Green	2,974,163	2.42	Bold_Green	1,617,185	1,133.04	Bold_Green	1,210,777	1.64	Bold_G

5. Enable ***StylingMeasure* as Formatting Measure** property → *StylingMeasure* columns disappear from the matrix and the previously set styling will be valid for the whole matrix, both of our measures (*Quantity_E*; *Price_E*), evaluating the definition of *StylingMeasure*.

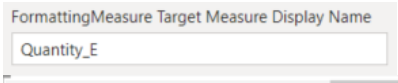


Save | Discard | Goal Seek | Reload Data | Refresh Comments

Comment:

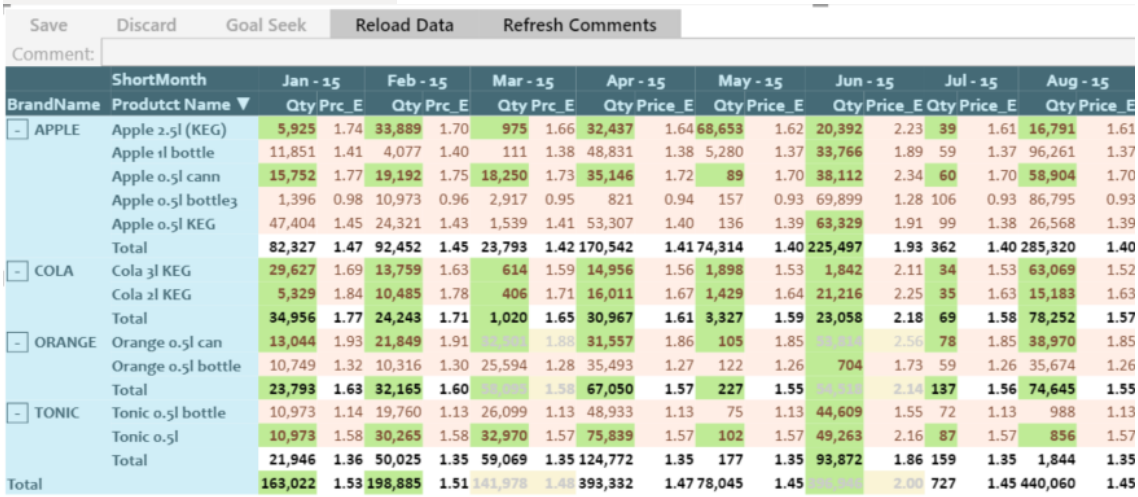
BrandName	ShortMonth / Productct Name	Jan - 15 Qty	Prc_E	Feb - 15 Qty	Prc_E	Mar - 15 Qty	Prc_E	Apr - 15 Qty	Price_E	May - 15 Qty	Price_E	Jun - 15 Qty	Price_E	Jul - 15 Qty	Price_E	Aug - 15 Qty	Price_E
APPLE	Apple 2.5l (KEG)	5,925	1.74	33,889	1.70	975	1.66	32,437	1.64	68,653	1.62	20,392	2.23	39	1.61	16,791	1.61
	Apple 1l bottle	11,851	1.41	4,077	1.40	111	1.38	48,831	1.38	5,280	1.37	33,766	1.89	59	1.37	96,261	1.37
	Apple 0.5l cann	15,752	1.77	19,192	1.75	18,250	1.73	35,146	1.72	89	1.70	38,112	2.34	60	1.70	58,904	1.70
	Apple 0.5l bottle3	1,396	0.98	10,973	0.96	2,917	0.95	821	0.94	157	0.93	69,899	1.28	106	0.93	86,795	0.93
	Apple 0.5l KEG	47,404	1.45	24,321	1.43	1,539	1.41	53,307	1.40	136	1.39	63,329	1.91	99	1.38	26,568	1.39
	Total	82,327	1.47	92,452	1.45	23,793	1.42	170,542	1.41	74,314	1.40	225,497	1.93	362	1.40	285,320	1.40
COLA	Cola 3l KEG	29,627	1.69	13,759	1.63	614	1.59	14,956	1.56	1,898	1.53	1,842	2.11	34	1.53	63,069	1.52
	Cola 2l KEG	5,329	1.84	10,485	1.78	406	1.71	16,011	1.67	1,429	1.64	21,216	2.25	35	1.63	15,183	1.63
	Total	34,956	1.77	24,243	1.71	1,020	1.65	30,967	1.61	3,327	1.59	23,058	2.18	69	1.58	78,252	1.57
ORANGE	Orange 0.5l can	13,044	1.93	21,849	1.91	32,301	1.88	31,557	1.86	105	1.85	38,814	2.56	78	1.85	38,970	1.85
	Orange 0.5l bottle	10,749	1.32	10,316	1.30	25,594	1.28	35,493	1.27	122	1.26	704	1.73	59	1.26	35,674	1.26
	Total	23,793	1.63	32,165	1.60	58,095	1.58	67,050	1.57	227	1.55	94,318	2.14	137	1.56	74,645	1.55
TONIC	Tonic 0.5l bottle	10,973	1.14	19,760	1.13	26,099	1.13	48,933	1.13	75	1.13	44,609	1.55	72	1.13	988	1.13
	Tonic 0.5l	10,973	1.58	30,265	1.58	32,970	1.57	75,839	1.57	102	1.57	49,263	2.16	87	1.57	856	1.57
	Total	21,946	1.36	50,025	1.35	59,069	1.35	124,772	1.35	177	1.35	93,872	1.86	159	1.35	1,844	1.35
Total		163,022	1.53	198,885	1.51	141,978	1.48	393,332	1.47	78,045	1.45	236,948	2.00	727	1.45	440,060	1.45

An additional, empty property appears with this setting, called ***StylingMeasure* Target Measure Display Name**.
What you give in here, for that measure (*Quatity_E*; *Price_E*) the setting will be valid.
With *Quantity_E*:



FormattingMeasure Target Measure Display Name

Quantity_E

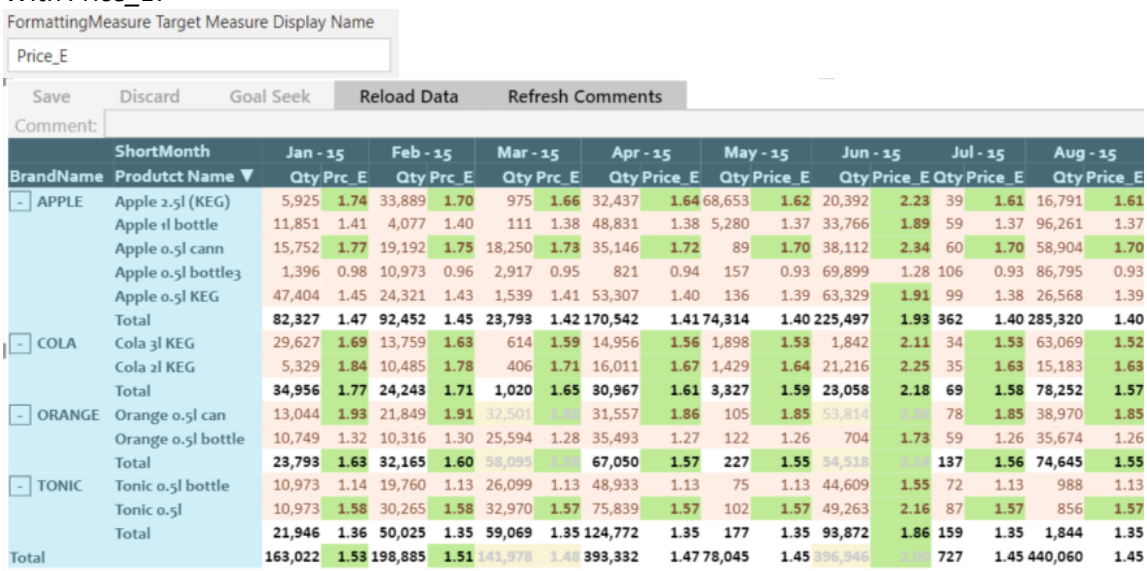


Save | Discard | Goal Seek | Reload Data | Refresh Comments

Comment:

BrandName	ShortMonth / Productct Name	Jan - 15 Qty	Prc_E	Feb - 15 Qty	Prc_E	Mar - 15 Qty	Prc_E	Apr - 15 Qty	Price_E	May - 15 Qty	Price_E	Jun - 15 Qty	Price_E	Jul - 15 Qty	Price_E	Aug - 15 Qty	Price_E
APPLE	Apple 2.5l (KEG)	5,925	1.74	33,889	1.70	975	1.66	32,437	1.64	68,653	1.62	20,392	2.23	39	1.61	16,791	1.61
	Apple 1l bottle	11,851	1.41	4,077	1.40	111	1.38	48,831	1.38	5,280	1.37	33,766	1.89	59	1.37	96,261	1.37
	Apple 0.5l cann	15,752	1.77	19,192	1.75	18,250	1.73	35,146	1.72	89	1.70	38,112	2.34	60	1.70	58,904	1.70
	Apple 0.5l bottle3	1,396	0.98	10,973	0.96	2,917	0.95	821	0.94	157	0.93	69,899	1.28	106	0.93	86,795	0.93
	Apple 0.5l KEG	47,404	1.45	24,321	1.43	1,539	1.41	53,307	1.40	136	1.39	63,329	1.91	99	1.38	26,568	1.39
	Total	82,327	1.47	92,452	1.45	23,793	1.42	170,542	1.41	74,314	1.40	225,497	1.93	362	1.40	285,320	1.40
COLA	Cola 3l KEG	29,627	1.69	13,759	1.63	614	1.59	14,956	1.56	1,898	1.53	1,842	2.11	34	1.53	63,069	1.52
	Cola 2l KEG	5,329	1.84	10,485	1.78	406	1.71	16,011	1.67	1,429	1.64	21,216	2.25	35	1.63	15,183	1.63
	Total	34,956	1.77	24,243	1.71	1,020	1.65	30,967	1.61	3,327	1.59	23,058	2.18	69	1.58	78,252	1.57
ORANGE	Orange 0.5l can	13,044	1.93	21,849	1.91	32,301	1.88	31,557	1.86	105	1.85	38,814	2.56	78	1.85	38,970	1.85
	Orange 0.5l bottle	10,749	1.32	10,316	1.30	25,594	1.28	35,493	1.27	122	1.26	704	1.73	59	1.26	35,674	1.26
	Total	23,793	1.63	32,165	1.60	58,095	1.58	67,050	1.57	227	1.55	94,318	2.14	137	1.56	74,645	1.55
TONIC	Tonic 0.5l bottle	10,973	1.14	19,760	1.13	26,099	1.13	48,933	1.13	75	1.13	44,609	1.55	72	1.13	988	1.13
	Tonic 0.5l	10,973	1.58	30,265	1.58	32,970	1.57	75,839	1.57	102	1.57	49,263	2.16	87	1.57	856	1.57
	Total	21,946	1.36	50,025	1.35	59,069	1.35	124,772	1.35	177	1.35	93,872	1.86	159	1.35	1,844	1.35
Total		163,022	1.53	198,885	1.51	141,978	1.48	393,332	1.47	78,045	1.45	236,948	2.00	727	1.45	440,060	1.45

With *Price_E*:



	ShortMonth	Jan - 15		Feb - 15		Mar - 15		Apr - 15		May - 15		Jun - 15		Jul - 15		Aug - 15	
BrandName	Produtct Name ▼	Qty	Prc_E	Qty	Prc_E	Qty	Prc_E	Qty	Price_E	Qty	Price_E	Qty	Price_E	Qty	Price_E	Qty	Price_E
APPLE	Apple 2.5l (KEG)	5,925	1.74	33,889	1.70	975	1.66	32,437	1.64	68,653	1.62	20,392	2.23	39	1.61	16,791	1.61
	Apple 1l bottle	11,851	1.41	4,077	1.40	111	1.38	48,831	1.38	5,280	1.37	33,766	1.89	59	1.37	96,261	1.37
	Apple 0.5l cann	15,752	1.77	19,192	1.75	18,250	1.73	35,146	1.72	89	1.70	38,112	2.34	60	1.70	58,904	1.70
	Apple 0.5l bottle3	1,396	0.98	10,973	0.96	2,917	0.95	821	0.94	157	0.93	69,899	1.28	106	0.93	86,795	0.93
	Apple 0.5l KEG	47,404	1.45	24,321	1.43	1,539	1.41	53,307	1.40	136	1.39	63,329	1.91	99	1.38	26,568	1.39
	Total	82,327	1.47	92,452	1.45	23,793	1.42	170,542	1.41	74,314	1.40	225,497	1.93	362	1.40	285,320	1.40
COLA	Cola 3l KEG	29,627	1.69	13,759	1.63	614	1.59	14,956	1.56	1,898	1.53	1,842	2.11	34	1.53	63,069	1.52
	Cola 2l KEG	5,329	1.84	10,485	1.78	406	1.71	16,011	1.67	1,429	1.64	21,216	2.25	35	1.63	15,183	1.63
	Total	34,956	1.77	24,243	1.71	1,020	1.65	30,967	1.61	3,327	1.59	23,058	2.18	69	1.58	78,252	1.57
ORANGE	Orange 0.5l can	13,044	1.93	21,849	1.91	32,501	1.88	31,557	1.86	105	1.85	53,814	2.36	78	1.85	38,970	1.85
	Orange 0.5l bottle	10,749	1.32	10,316	1.30	25,594	1.28	35,493	1.27	122	1.26	704	1.73	59	1.26	35,674	1.26
	Total	23,793	1.63	32,165	1.60	58,095	1.58	67,050	1.57	227	1.55	54,518	2.14	137	1.56	74,645	1.55
TONIC	Tonic 0.5l bottle	10,973	1.14	19,760	1.13	26,099	1.13	48,933	1.13	75	1.13	44,609	1.55	72	1.13	988	1.13
	Tonic 0.5l	10,973	1.58	30,265	1.58	32,970	1.57	75,839	1.57	102	1.57	49,263	2.16	87	1.57	856	1.57
	Total	21,946	1.36	50,025	1.35	59,069	1.35	124,772	1.35	177	1.35	93,872	1.86	159	1.35	1,844	1.35
Total		163,022	1.53	198,885	1.51	141,978	1.48	393,332	1.47	78,045	1.45	396,946	2.00	727	1.45	440,060	1.45

6. Save your modified report and publish it.

When one of the measures formatting is ON, the column for that measure should not appear.

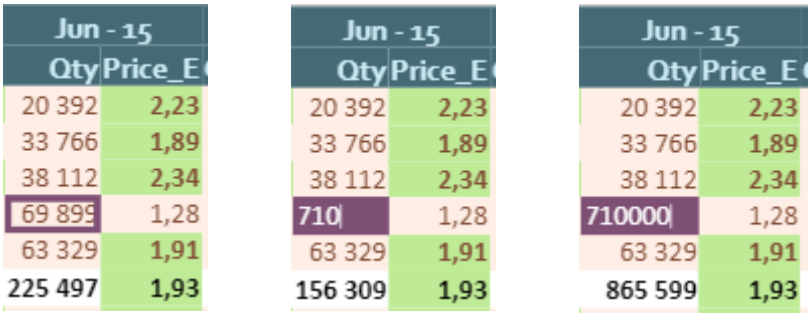
Hide Measure

You can hide the current measure(s) from the DEMx, by enabling this property.

Even if this setting is turned ON for any of the measures, the [Show All] button will not appear on top of the matrix, in button row.

Dynamic Totals

If it is enabled for a particular measure in DEMx, then while you are typing the new value into a cell, or using a smart formula, all its (sub-)totals, in rows and columns are changing accordingly.



Jun - 15	
Qty	Price_E
20 392	2,23
33 766	1,89
38 112	2,34
69 899	1,28
63 329	1,91
225 497	1,93

Jun - 15	
Qty	Price_E
20 392	2,23
33 766	1,89
38 112	2,34
710	1,28
63 329	1,91
156 309	1,93

Jun - 15	
Qty	Price_E
20 392	2,23
33 766	1,89
38 112	2,34
710000	1,28
63 329	1,91
865 599	1,93

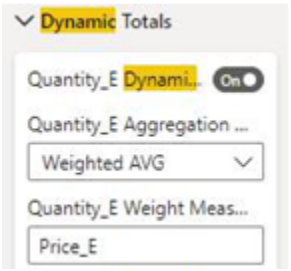
If this property is turned ON for a measure, 'Aggregation Method' can be picked:

- AVG: average
- SUM: summary of all the values
- MIN: minimum of the values
- MAX: maximum of the values

- Weighted AVG: weighted average
  In this case 'Weight Measure Display Name' should be determined, and added to DEMx.
  Meaning we define based on what we would like to calculate the weighted average.

IMPORTANT: The weighted average setting (also MIN, MAX) is only for showing purposes, ***during modification***. After saving the changes **not** weighted average total will be saved back to the database, but the basic aggregation (if we pulled a summary measure to DEMx, then summary total; in the case of average, the average total).

E.g.:



Jul - 19	
Quantity_E	Price_E
6 629	464 612,85
6 629	447 992,84
13 257	**456 302,85**
200 000	1,00
200 000	2,00
200 000	3,00
600 000	**2,00**

Jul - 19	
Quantity_E	Price_E
6 629	464 612,85
6 629	447 992,84
13 257	**456 302,85**
200 000	1,00
200 000	2,00
10 000	3,00
105 000	**2,00**

After saving the changes:

Jul - 19	
Quantity_E	Price_E
6 629	464 612,85
6 629	447 992,84
13 257	**456 302,85**
200 000	1,00
200 000	2,00
10 000	3,00
410 000	**2,00**

Dynamic Spread

***MeasureName* Dynamic Spread**

If the (sub-)total value is changed, it updates the detailed cell numbers, based on the spreading. Meaning it maintains the original ratio within the aggregation group. (You can read more about writing back to totals in this chapter.)

The spreading result is relevant only in SUM (summary) type of aggregation.

Note! The updated lower-level numbers are only displayed, but they are not sent as part of the save request. When a lower-level cell is changed that has an updated displayed value, it will be used as the *oldValue* in the save request.

Dynamic spread can be calculated with "E" smart formula in another way as the backend. It does not calculate in proportion to the SUM of the values of the rows in the fact table, it just simply equally divides the number indicated by the formula (See more information about smart formulas in this chapter.)

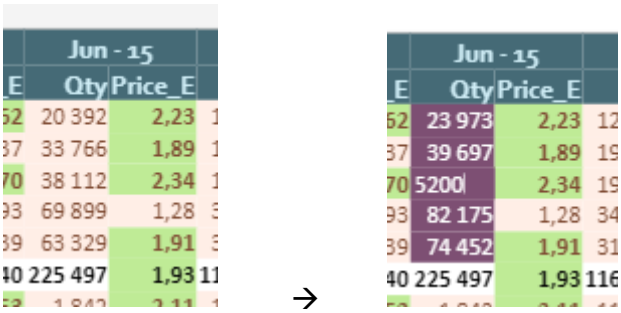
Fix Totals

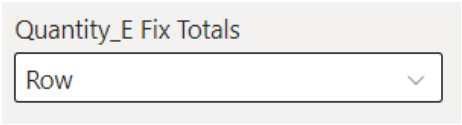
***MeasureName* Fix Totals**

By enabling this setting, you can modify one or more cells, while the corresponding (sub-)totals remain the same value, only all belonging detailed values will be recalculated.

Any data point has been modified, the (sub-)total value is always 100%.

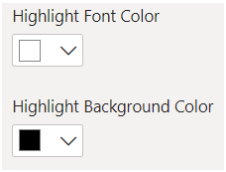
After enabling **Qty Fix Totals**:





Highlight

You can highlight the cells in the matrix in different situations, by giving them other, arbitrary background and font colors.



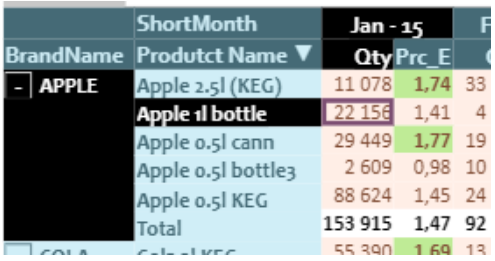
Hover Highlight

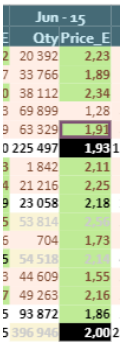
If it is enabled, you can see where your mouse pointer is when it is above the matrix. The background and font color of the cells will be highlighted, as you are moving the mouse.

It uses the same colors that have been set in **Highlight Font** and **Background Color** properties.

Header-Content Connection Highlight

If it is enabled, and you click on a cell in the Data Entry Matrix, its headers will be highlighted.



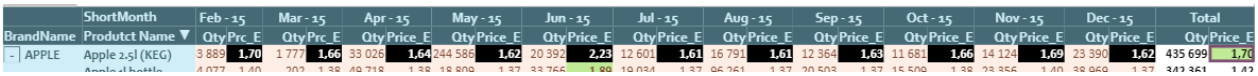


Totals Highlight

If it is enabled, the (sub-)total values of the selected cell will be highlighted.

Total Connections Highlight

If it is enabled, when you select a (sub-)total cell, the cells from which it is calculated, will be highlighted.



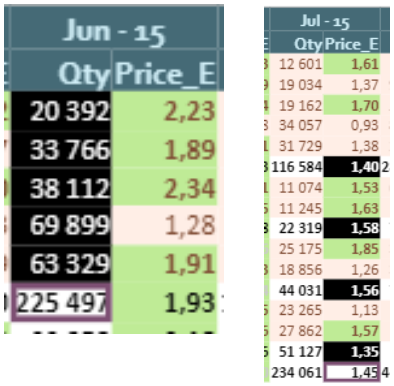
BrandName	ShortMonth / Produtct Name	Feb - 15 Qty	Feb - 15 Price_E	Mar - 15 Qty	Mar - 15 Price_E	Apr - 15 Qty	Apr - 15 Price_E	May - 15 Qty	May - 15 Price_E	Jun - 15 Qty	Jun - 15 Price_E	Jul - 15 Qty	Jul - 15 Price_E	Aug - 15 Qty	Aug - 15 Price_E	Sep - 15 Qty	Sep - 15 Price_E	Oct - 15 Qty	Oct - 15 Price_E	Nov - 15 Qty	Nov - 15 Price_E	Dec - 15 Qty	Dec - 15 Price_E	Total Qty	Total Price_E
APPLE	Apple 2.5l (KEG)	3 889	1,70	1 777	1,66	33 026	1,64	244 586	1,62	20 392	2,23	12 601	1,61	16 791	1,61	12 364	1,63	11 681	1,66	14 124	1,69	23 390	1,62	435 699	1,70

Spread Highlight

If it is enabled, when you select a (sub-)total cell, the cells

- which are on the next lower level and
- which will be modified if the selected (sub-)total will be modified

will be highlighted.

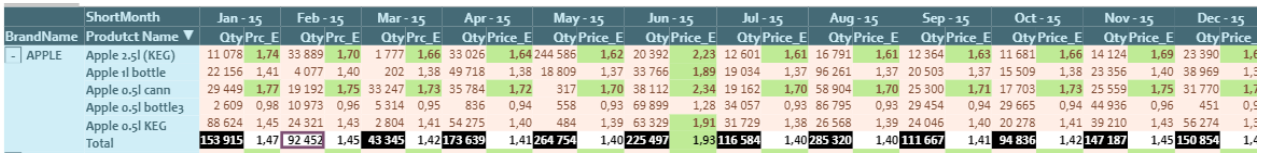


Jun - 15 Qty	Jun - 15 Price_E
20 392	2,23
33 766	1,89
38 112	2,34
69 899	1,28
63 329	1,91
225 497	1,93

Jul - 15 Qty	Jul - 15 Price_E
12 601	1,61
19 034	1,37
19 162	1,70
34 057	0,93
31 729	1,38
116 584	1,40
11 074	1,53
11 245	1,63
22 319	1,58
25 175	1,85
18 856	1,26
44 031	1,56
23 265	1,13
27 862	1,57
51 127	1,35
234 061	1,45

Sibling Highlight

If it is enabled, when you select a (sub-)total cell, which has a sibling (sub-)total(s), it (they) will be highlighted.



BrandName	ShortMonth / Produtct Name	Jan - 15 Qty	Jan - 15 Prc_E	Feb - 15 Qty	Feb - 15 Prc_E	Mar - 15 Qty	Mar - 15 Prc_E	Apr - 15 Qty	Apr - 15 Price_E	May - 15 Qty	May - 15 Price_E	Jun - 15 Qty	Jun - 15 Price_E	Jul - 15 Qty	Jul - 15 Price_E	Aug - 15 Qty	Aug - 15 Price_E	Sep - 15 Qty	Sep - 15 Price_E	Oct - 15 Qty	Oct - 15 Price_E	Nov - 15 Qty	Nov - 15 Price_E	Dec - 15 Qty	Dec - 15 Price_E
APPLE	Apple 2.5l (KEG)	11 078	1,74	33 889	1,70	1 777	1,66	33 026	1,64	244 586	1,62	20 392	2,23	12 601	1,61	16 791	1,61	12 364	1,63	11 681	1,66	14 124	1,69	23 390	1,6
	Apple 1l bottle	22 156	1,41	4 077	1,40	202	1,38	49 718	1,38	18 809	1,37	33 766	1,89	19 034	1,37	96 261	1,37	20 503	1,37	15 509	1,38	23 356	1,40	38 969	1,3
	Apple 0.5l cann	29 449	1,77	19 192	1,75	33 247	1,73	35 784	1,72	317	1,70	38 112	2,34	19 162	1,70	58 904	1,70	25 300	1,71	17 703	1,73	25 559	1,75	31 770	1,7
	Apple 0.5l bottle3	2 609	0,98	10 973	0,96	5 314	0,95	836	0,94	558	0,93	69 899	1,28	34 057	0,93	86 795	0,93	29 454	0,94	29 665	0,94	44 936	0,96	451	0,9
	Apple 0.5l KEG	88 624	1,45	24 321	1,43	2 804	1,41	54 275	1,40	484	1,39	63 329	1,91	31 729	1,38	26 568	1,39	24 046	1,40	20 278	1,41	39 210	1,43	56 274	1,3
	Total	153 915	1,47	92 452	1,45	43 345	1,42	173 639	1,41	264 754	1,40	225 497	1,93	116 584	1,40	285 320	1,40	111 667	1,41	94 836	1,42	147 187	1,45	150 854	1,4

Labels

If you do not like the original text that is used in Data Entry Matrix (e.g.: [Save Changes], [Discard Changes], Totals), you can change them here.

Save Changes Label

Discard Changes Label

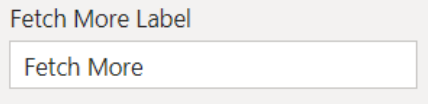
Save Comment Label

Set Goal Seek Label

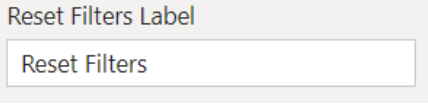
Reload Data Label

Refresh Comments Label

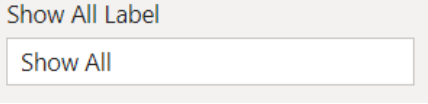
Fetch More Label



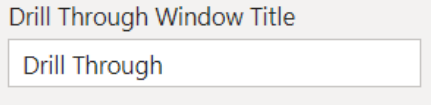
Reset Filters Label



Show All Label

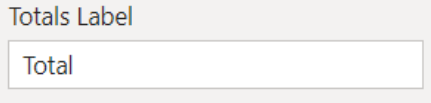


Drill Through Window Title



Column Grandtotal Comment Label

Totals Label



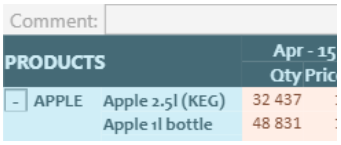
Comment Label

If you would like to edit a cell that has a pop-up comment above the cell, with [**ESC**] you can make it disappear.

This is how the renaming labels can look like:

Custom Corner Label

If you want a specific text to the corner of the matrix, not the original row/ column names coming from the tables, then you can set a custom label for the whole corner.



Totals

In the Totals property group, you can control:

- **Show Totals**: Whether to show totals or not
- **Collapse To Totals**: Collapse the rows/columns and display just the Totals of the corresponding rows/columns.
- **Bold Totals**: Set the font style of the Totals bold.
- **Outline**: you can set the borders
- The **Primary** and **Secondary Font** & **Background Colors** – for alternating
- Show **Sub**-, and **Grandtotals** on **Rows** & **Columns** as well
- **Subtotals At The Bottom** OR **On The Right**: Inserts the subtotal under the corresponding rows. Inserts the subtotal to the right of the corresponding columns.

Values

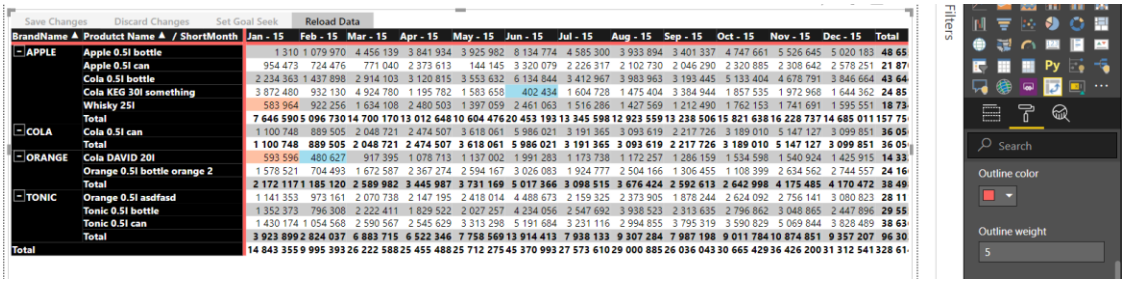
In the Values property group, you can control:

- **Font Family**: If you choose *Default / Custom*, an additional setting appears, called **Custom Font Family Name** and you can define any kind of font family, by giving a URL.
- **Size**
- **Outline**: you can set the borders
- The **Primary** and **Secondary Font** & **Background Colors** – for alternating
- The **Primary** and **Secondary Font** & **Background Colors** for **Disabled**: read-only cells
- The **Primary** and **Secondary Font** & **Background Colors** for **Modified** values: those cells where the values have been changed
- **Max Edit Value Decimals**: The maximum decimal places shown when you edit the cell value
- **Word Wrap**: New setting for values wraps text.

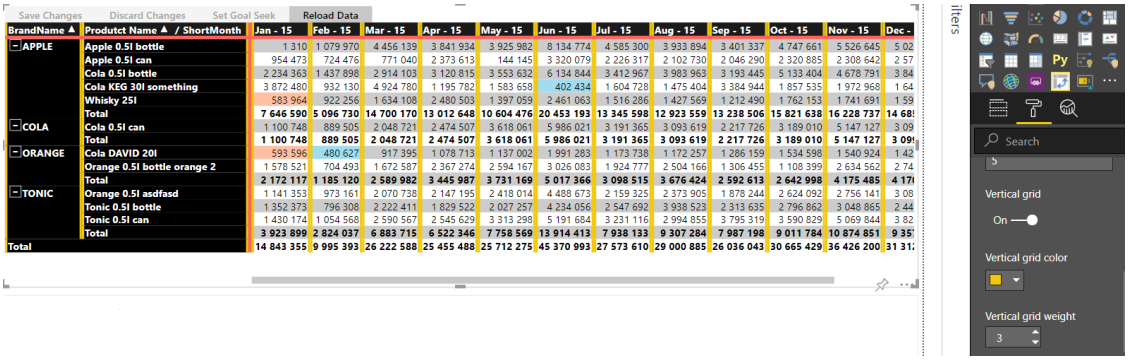
Grid (settings)

You can further customize the appearance of the matrix by specifying the parameters under this configuration collection.

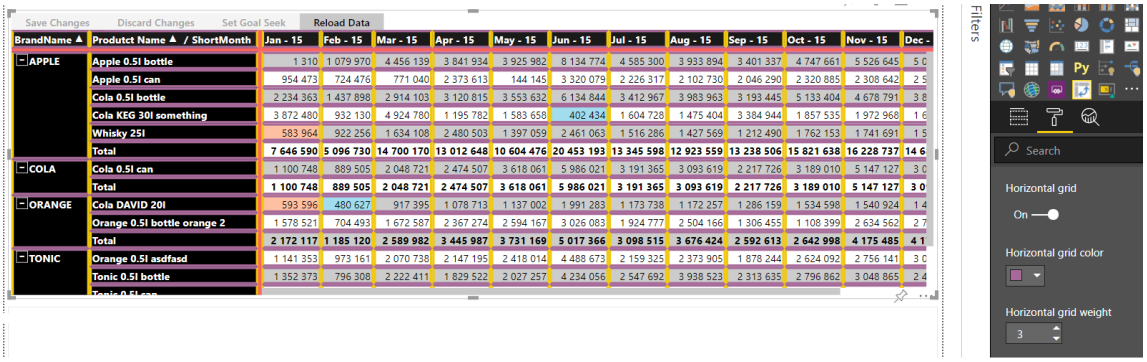
Setting the outline color and width affects the borders between the row/column headers and the cells:



Setting the vertical grid properties, you can modify the borders between columns:



Horizontal grid settings affect the borders between rows:



Importance of SmartFilter helper visual

It is a general functionality in Power BI that when you are using **slicers**, page-report, or visual level filters the visual itself is not aware that it is receiving a filtered dataset. For the writeback to work properly if you are using any of these filtering capable elements, you need **place SmartFilter** helper visuals in your report, so that the DEMX will be aware of these, and the write-back engine will take these into consideration when it composes the SQL statements. Without it, slicer selection will be left out of the tuple that is being sent back to the service, it will be missing from the SQL statement, hence the saved result will be wrong. **It is important that you use the visual that is shipped with the setup kit**, as you can find a visual with the same name in the Microsoft Visual Store but that does not have this functionality.

This visual is invisible to the end users as it has no background, no borders and the values are not shown.

General rules:

- If you use a field that is not used in your matrix and originated from a different dimension (table), **put a SmartFilter** into your report with the same field.
  Example: Let us assume you have a slicer on Customer Group Name, but the 'Customer' table is not used at all in DEMx. In this case add a SmartFilter helper visual in your report and place the same field into it (in this case the Customer Group Name).
- If you have more slicers which fields are originated from the same table, **put a SmartFilter** into your report and use the lowest granularity field in it.
  Example: Let us assume you have slicers on Size and Brand which are coming from the 'Product' table. In this case add a SmartFilter helper visual in your report and put the ProductId in it. (ProductId is on the lowest granularity level.)
- Exceptions when you **do NOT(!) need to put a SmartFilter** into your report:
  - If the field or a lower granularity field from the same table is already on the field list of DEMx
    Example:
    - If you have a slicer or filter for Product.Brand &
    - Product.Brand or Product.SKU is in DEMx field list.
  - If the field has lower granularity than data in your write-back table. In this case you only need to add a SmartFilter with a field that corresponds to the granularity of the write-back data.
    Example:
    - If the granularity of your write-back data is based on Product.Brand
    - You do not need to add a SmartFilter for Product.SKU only for Product.Brand.
  - If the field is already determined by the combination of one or more SmartFilters or DEMx fields.
    Example:
    - If you have a slicer for Time.Quarter & Time.Year and Time.Month are in DEMx field list.
    - If you have a slicer or filter for Account.Name & Account.ID is in DEMx field list.

From a performance perspective, it is better to use multiple SmartFilters with higher granularity fields than one SmartFilter with a low granularity field. (e.g.: If there are slicers or filters on Product.Brand and

Product.Size, it is more performant to add SmartFilters for these, instead of adding a SmartFilter for Product.SKU.

Smart formulas

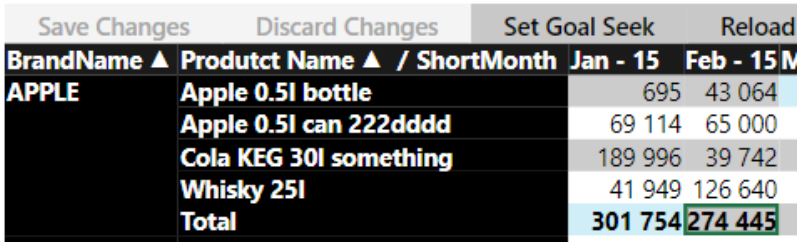
You can invoke smart formulas on cells. Instead of typing exact values, you can use the following formulas:

- inc# : increases the value by the given # number
- inc%# : increases the value by the given # percentage
- dec# : decreases the value by the given # number
- dec%# : decreases the value by the given # percentage
- mul# : multiplies the value by the given # number
- div#: divides the value by the given # number
- <# : copies the entered # value all to the left to all columns in the given row
- #> : copies the entered # value all to the right to all columns in the given row
- v#: copies the entered # value until next total down in the given column
- ^#: copies the entered # value until next total up in the given column
- E# : only usable on total or sub totals. Will evenly distribute the # number between the detail rows in the aggregation group instead of proportional distribution. If there are different number of fact rows behind each cell, the cells will have different values after save.

Multiple Smart Formulas can be applied in the same cell e.g.: <inc5 vdec10% >mul3 ^inc8

Write-back on totals

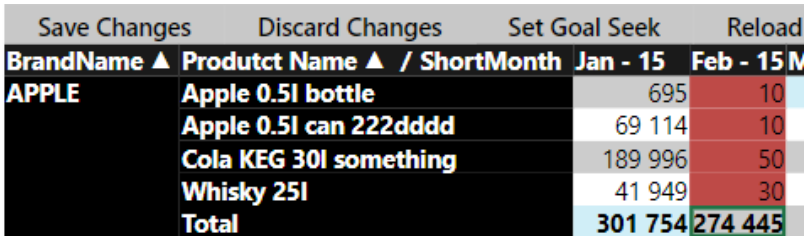
The Data Entry Matrix has a unique feature when it comes to writing back on totals or subtotals. Consider the following example where we have four products in the APPLE brand



BrandName ▲	Produtct Name ▲ / ShortMonth	Jan - 15	Feb - 15	M
APPLE	Apple 0.5l bottle	695	43 064	
	Apple 0.5l can 222dddd	69 114	65 000	
	Cola KEG 30l something	189 996	39 742	
	Whisky 25l	41 949	126 640	
	Total	301 754	274 445	

As you can see the 274k total is a sum of the four products. There is a rate between these products in terms of how much they contribute to the total. Whisky gives the most, as 126 640 / 274 445 is 46% of the total, and Cola KEG contributes the least with its 14%. If you write-back on a total or subtotal, by default the service will try to distribute the modified value honoring the original ratio between the products. When you change the subtotal value to 300 000 for example, 46% will be allocated for the Whisky product.

Tip: if you want to distribute the total value by a predetermined ratio here is a trick that you can apply. Before modifying the total, set a percentage figure for each of the elements inside that aggregation group like below and save changes.



BrandName ▲	Produtct Name ▲ / ShortMonth	Jan - 15	Feb - 15	M
APPLE	Apple 0.5l bottle	695	10	
	Apple 0.5l can 222dddd	69 114	10	
	Cola KEG 30l something	189 996	50	
	Whisky 25l	41 949	30	
	Total	301 754	274 445	

Then you can set a value for your total. In this case 10% will be allocated for Apple 0.5L bottle, and 30% for the Whisky product. Note: this technique will not work on complex measures.

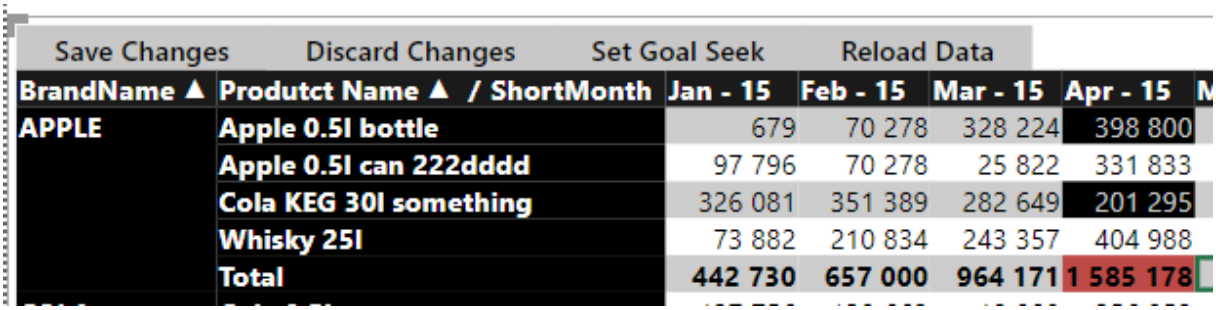
You can force the service to use even distribution by using the smart formula E#. If you enter E400000 in this example, 100 000 will be allocated for each of the products, as there are 4 items in this aggregation group.

Note: If you use a separate write-back table with default values displayed if there is no written back record on that tuple, writing back on totals will only influence those cells where there are saved records for that tuple in your write-back table.

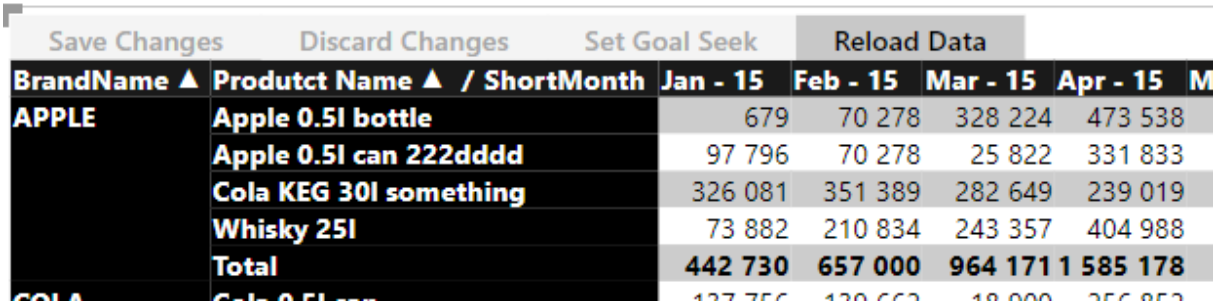
Goal Seek

You can use the goal seek functionality to only modify selected cells to achieve a target goal.

Consider the example below, where we want to increase total sales by 10% for the APPLE brand for April month, but by only modifying the Apple 0.5l bottle and Cola KEG products. You can do this by selecting these product cells and marking them for goal seek by clicking on Set Goal Seek followed by an inc10% smart formula applied on the subtotal row. When you click on save changes, that 10% increase will be distributed amongst these two products.



BrandName ▲	Produtct Name ▲ / ShortMonth	Jan - 15	Feb - 15	Mar - 15	Apr - 15	M
APPLE	Apple 0.5l bottle	679	70 278	328 224	398 800	
	Apple 0.5l can 222dddd	97 796	70 278	25 822	331 833	
	Cola KEG 30l something	326 081	351 389	282 649	201 295	
	Whisky 25l	73 882	210 834	243 357	404 988	
	Total	442 730	657 000	964 171	1 585 178	



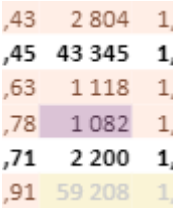
BrandName ▲	Produtct Name ▲ / ShortMonth	Jan - 15	Feb - 15	Mar - 15	Apr - 15	M
APPLE	Apple 0.5l bottle	679	70 278	328 224	473 538	
	Apple 0.5l can 222dddd	97 796	70 278	25 822	331 833	
	Cola KEG 30l something	326 081	351 389	282 649	239 019	
	Whisky 25l	73 882	210 834	243 357	404 988	
	Total	442 730	657 000	964 171	1 585 178	

You can turn OFF this functionality in the Goal seek settings collection. You can also set the coloring theme for the cells that are marked to participate in the operation.

Important note: You can only use the goal seek feature on those measures and cells which are in relation to each other, and the operation is arithmetically possible. For example, if you set goal seek on a cell which is not included in the measure of the target (the cell you modify) then the operation will not complete.

Goal Remains After Save

If it is enabled, after the Goal Seeking feature has been used, it shows the modified cells:



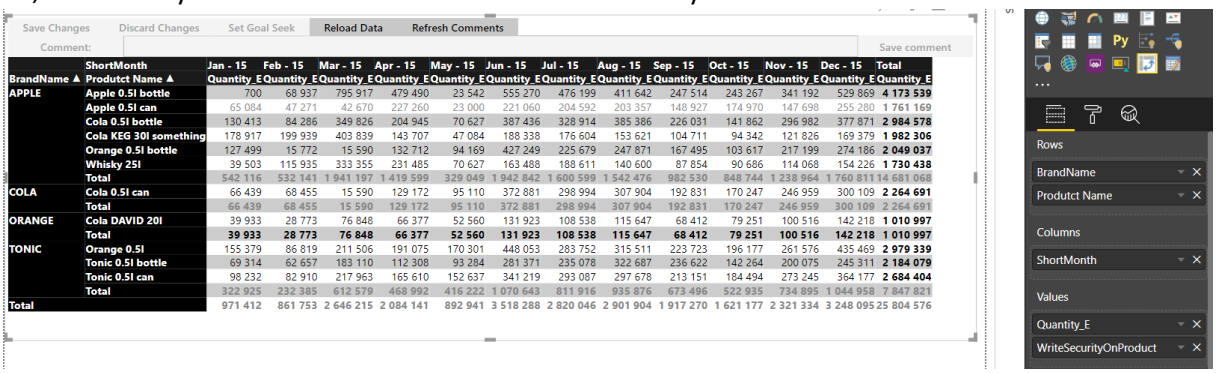
After saving, [Discard Changes] button remains alive. If you click on it, the highlight of goal-sought values disappears.

Securing cells

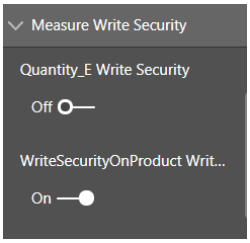
Write Security Measure

You can control which cells are editable and which are not in the visual by creating a measure that will be evaluated on the cells, but its result will be solely used for this security purpose. This measure can be deployed into your SSAS model, or it can be an embedded measure in the report itself.

So, at the end you will have two at least two measures in your matrix as below can be seen:



BrandName	ShortMonth Productct Name	Jan - 15 Quantity_E	Feb - 15 Quantity_E	Mar - 15 Quantity_E	Apr - 15 Quantity_E	May - 15 Quantity_E	Jun - 15 Quantity_E	Jul - 15 Quantity_E	Aug - 15 Quantity_E	Sep - 15 Quantity_E	Oct - 15 Quantity_E	Nov - 15 Quantity_E	Dec - 15 Quantity_E	Total Quantity_E
APPLE	Apple 0.5l bottle	700	68 937	795 917	479 490	23 542	555 270	476 199	411 642	247 514	243 267	341 192	529 869	**4 173 539**
	Apple 0.5l can	65 084	47 271	42 670	227 260	23 000	221 060	204 592	203 357	148 927	174 970	147 698	255 280	**1 761 169**
	Cola 0.5l bottle	130 413	84 286	349 826	204 945	70 627	387 436	328 914	385 386	226 031	141 862	296 982	377 871	**2 984 578**
	Cola KEG 30l something	178 917	199 939	403 839	143 707	47 084	188 338	176 604	153 621	104 711	94 342	121 826	169 379	**1 982 306**
	Orange 0.5l bottle	127 499	15 772	15 590	132 712	94 169	427 249	225 679	247 871	167 495	103 617	217 199	274 186	**2 049 037**
	Whisky 25l	39 503	115 935	333 355	231 485	70 627	163 488	188 611	140 600	87 854	90 686	114 068	154 226	**1 730 438**
	Total	542 116	532 141	1 941 197	1 419 599	329 049	1 942 842	1 600 599	1 542 476	982 530	848 744	1 238 964	1 760 811	14 681 068
COLA	Cola 0.5l can	66 439	68 455	15 590	129 172	95 110	372 881	298 994	307 904	192 831	170 247	246 959	300 109	**2 264 691**
	Total	66 439	68 455	15 590	129 172	95 110	372 881	298 994	307 904	192 831	170 247	246 959	300 109	2 264 691
ORANGE	Cola DAVID 20l	39 933	28 773	76 848	66 377	52 560	131 923	108 538	115 647	68 412	79 251	100 516	142 218	**1 010 997**
	Total	**39 933**	**28 773**	**76 848**	**66 377**	**52 560**	**131 923**	**108 538**	**115 647**	**68 412**	**79 251**	**100 516**	**142 218**	**1 010 997**
TONIC	Orange 0.5l	155 379	86 819	211 506	191 075	170 301	448 053	283 752	315 511	223 723	196 177	261 576	435 469	**2 979 339**
	Tonic 0.5l bottle	69 314	62 657	183 110	112 308	93 284	281 371	235 078	322 687	236 622	142 264	200 075	245 311	**2 184 079**
	Tonic 0.5l can	98 232	82 910	217 963	165 610	152 637	341 219	293 087	297 678	213 151	184 494	273 245	364 177	**2 684 404**
	Total	322 925	232 385	612 579	468 992	416 222	1 070 643	811 916	935 876	673 496	522 935	734 895	1 044 958	7 847 821
Total		971 412	861 753	2 646 215	2 084 141	892 941	3 518 288	2 820 046	2 901 904	1 917 270	1 621 177	2 321 334	3 248 095	25 804 576



The Quantity_E measure is shown and can be written back, and the result of the WriteSecurityOnProduct measure is used to control which cell is read-only. If you turn the Write Security setting ON for this measure, it will be hidden and will be used to determine the security.

The logic of this security measure:
If the DAX expression returns an empty string (“”) or BLANK(), the visual considers this cell to be read-only. If it returns anything else – like 1 or TRUE(), it considers this cell writeable.

Disadvantage of BLANK(): the visual might filter out those rows, where the displayed measure also does not have a value. Look for show members with no values setting in your report.

Disadvantage of empty string: it can cause the “crossjoin” behavior.

Consider this example:

```
CanWrite :=
MAXX (
    Sales;
    IF (
        AND (
            OR (
                SELECTEDVALUE ( 'Time'[ShortMonth] ) = "Mar - 15";
                SELECTEDVALUE ( 'Time'[ShortMonth] ) = "Jun - 15"
            );
            SELECTEDVALUE ( 'Product'[SKU] ) = "H02"
        );
        "";
        1
    )
)
```

It will prohibit modification on cells that belong to the H02 Product and contains data for March and June in 2015.

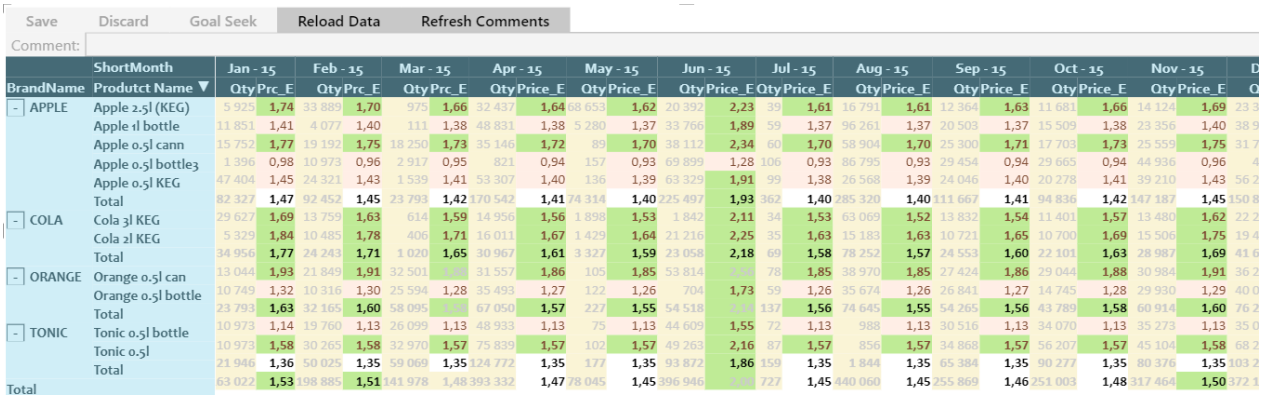
You can implement more complex securities with this technique such as control permissions by user – entity mapping (which user can edit which product). Please refer to the following article that contains a detailed example on how to implement such a use case:
https://support.poweronbi.com/portal/kb/articles/implement-complex-write-security-per-entity

Measure Alignment

Set the horizontal alignment of the measure label.

Read Only Values

This is a separate property group. You can make a measure read-only in the DEMx, validly for the entire matrix. Enabling this property and from that point that measure is not editable anymore.



	ShortMonth	Jan - 15		Feb - 15		Mar - 15		Apr - 15		May - 15		Jun - 15		Jul - 15		Aug - 15		Sep - 15		Oct - 15		Nov - 15		D
BrandName	Productct Name ▼	Qty	Prc_E	Qty	Prc_E	Qty	Prc_E	Qty	Price_E	Qty	Price_E	Qty	Price_E	Qty	Price_E	Qty	Price_E	Qty	Price_E	Qty	Price_E	Qty	Price_E	Q
- APPLE	Apple 2.5l (KEG)	5 925	1,74	33 883	1,70	975	1,66	32 437	1,64	68 653	1,62	20 392	2,23	39	1,61	16 791	1,61	12 364	1,63	11 681	1,66	14 124	1,69	23 3
	Apple 1l bottle	11 851	1,41	4 077	1,40	111	1,38	48 831	1,38	5 280	1,37	33 766	1,89	59	1,37	96 261	1,37	20 503	1,37	15 509	1,38	23 356	1,40	38 9
	Apple 0.5l cann	15 752	1,77	19 192	1,75	18 250	1,73	35 146	1,72	89	1,70	38 112	2,34	60	1,70	58 904	1,70	25 300	1,71	17 703	1,73	25 559	1,75	31 7
	Apple 0.5l bottle3	1 396	0,98	10 973	0,96	2 917	0,95	821	0,94	157	0,93	69 899	1,28	106	0,93	86 795	0,93	29 454	0,94	29 665	0,94	44 936	0,96	4
	Apple 0.5l KEG	47 404	1,45	24 321	1,43	1 539	1,41	53 307	1,40	136	1,39	63 329	1,91	99	1,38	26 568	1,39	24 046	1,40	20 278	1,41	39 210	1,43	56 2
	Total	82 327	1,47	92 452	1,45	23 793	1,42	170 542	1,41	74 314	1,40	225 497	1,93	362	1,40	285 320	1,40	111 667	1,41	94 836	1,42	147 187	1,45	150 8
- COLA	Cola 3l KEG	29 627	1,69	13 759	1,63	614	1,59	14 956	1,56	1 898	1,53	1 842	2,11	34	1,53	63 069	1,52	13 832	1,54	11 401	1,57	13 480	1,62	22 2
	Cola 2l KEG	5 329	1,84	10 485	1,78	406	1,71	16 011	1,67	1 429	1,64	21 216	2,25	35	1,63	15 183	1,63	10 721	1,65	10 700	1,69	15 506	1,75	19 4
	Total	34 956	1,77	24 243	1,71	1 020	1,65	30 967	1,61	3 327	1,59	23 058	2,18	69	1,58	78 252	1,57	24 553	1,60	22 101	1,63	28 987	1,69	41 6
- ORANGE	Orange 0.5l can	13 044	1,93	21 849	1,91	32 501	1,88	31 557	1,86	105	1,85	53 814	2,08	78	1,85	38 970	1,85	27 424	1,86	29 044	1,88	30 984	1,91	36 2
	Orange 0.5l bottle	10 749	1,32	10 316	1,30	25 594	1,28	35 493	1,27	122	1,26	704	1,73	59	1,26	35 674	1,26	26 841	1,27	14 745	1,28	29 930	1,29	40 0
	Total	23 793	1,63	32 165	1,60	58 095	1,58	67 050	1,57	227	1,55	54 518	2,14	137	1,56	74 645	1,55	54 265	1,56	43 789	1,58	60 914	1,60	76 2
- TONIC	Tonic 0.5l bottle	10 973	1,14	19 760	1,13	26 099	1,13	48 933	1,13	75	1,13	44 609	1,55	72	1,13	988	1,13	30 516	1,13	34 070	1,13	35 273	1,13	35 0
	Tonic 0.5l	10 973	1,58	30 265	1,58	32 970	1,57	75 839	1,57	102	1,57	49 263	2,16	87	1,57	856	1,57	34 868	1,57	56 207	1,57	45 104	1,58	68 2
	Total	21 946	1,36	50 025	1,35	59 069	1,35	124 772	1,35	177	1,35	93 872	1,86	159	1,35	1 844	1,35	65 384	1,35	90 277	1,35	80 376	1,35	103 2
Total		63 022	1,53	198 885	1,51	141 978	1,48	393 332	1,47	78 045	1,45	396 946	2,08	727	1,45	440 060	1,45	255 869	1,46	251 003	1,48	317 464	1,50	372 1

SQL Row Level Security Policies

You can implement RLS policies on your fact tables to further tighten the security. Please refer to the following article in our Knowledge Base:
https://support.poweronbi.com/portal/kb/articles/control-write-back-permissions-on-back-end-sql-server

Commenting

If the feature is enabled, you can create comments on each cell and they will be saved to the underlying SQL database, to **dbo.Comments** table, by clicking on [Save Changes] button.

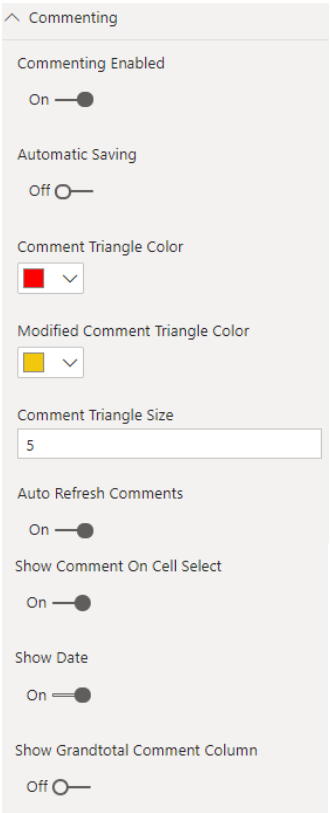
[Save Comment] button appears only, if [Data Entry] » **Read only** property is enabled. In this case you can add comment to cells but cannot modify the values in the matrix.

The **dbo.Comments** table is created automatically by the write-back engine inside your SQL database at the very first time, when the feature has been enabled.

A comment record contains:

- Tuple – on which cell the comment has been created
- DateTime
- User
- Text

Settings



Commenting Enabled: If the setting is OFF, ALL triangles and comment settings are hidden.

Automatic Saving: If it is enabled, comments are automatically saved after changes. If you start typing into the comment input field and stop typing or leave the selected cell, the comment is saved automatically.

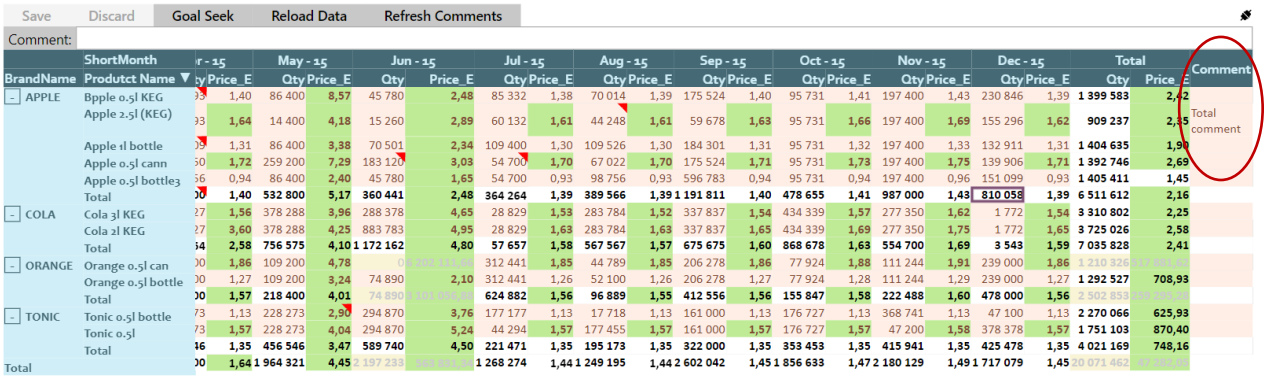
Comment Triangle Color: You can select a color for the comment symbol (triangle).

Modified Comment Triangle Color: You can select a different color for modified or newly created comments symbol (triangle).
[Save Changes] and [Discard Changes] buttons become active as soon as you start typing/ modifying a comment.
Comment Triangle Size: Size of triangle in pixels

Auto Refresh Comments: If it is enabled, comments automatically refresh without the need of pressing the 'Refresh Comments' button.
Show Comments On Cell Select: If it is enabled when a cell selected and there is comment, the popup will automatically be rendered.
Show Date: If it is enabled, displays the date of the comment's creation/last update.

Show Grandtotal Comment Column: If it is enabled, 'Comment' column becomes visible in the DEMx, otherwise it is hidden.
Show Grandtotal Comment Column Triangle: This setting is visible only if **Show Grandtotal Comment Column** is enabled. If it is enabled, triangles become visible on **GrandTotal Comment Column**, otherwise they are hidden. This setting ensures you to be able to see who created the comment and when.

Show Grandtotal Comment Triangle: This setting is visible only if **Show GrandTotal Comment Column** is enabled. If it is enabled, triangles become visible even if **GrandTotal Comment Column** is visible, otherwise the triangles are hidden.



By default, the last comment will be persisted on a cell if you overwrite it. However, by leveraging SQL triggers, you can preserve the comment history. Please refer to this article on how you can implement it: https://support.poweronbi.com/portal/kb/articles/preserve-comments-in-the-same-cell-aka-saving-comments-history

Grandtotal Comment Column Auto Size: This setting is visible only if **Show GrandTotal Comment Column** is enabled. Turning ON this property will always automatically set the width of this column to fit its content.

While it is turned OFF its width can be set only with **Grandtotal Comment Column Width**. This property is visible only if **Grandtotal Comment Column Auto Size** property is disabled.

Disable Comment Error Message: Turning ON this property will disable Refresh comments error message in Power BI desktop.

Debug

Diagnostic Mode

Turning it ON, it reveals debug settings.

Display Fetch More Icon

Enabling this setting, a "+" icon appears in front of the VPConnection icon ( ), in the upper right corner of the DEMx while scrolling down, showing us, there are more values to fetch. When you reach the last value, the icon disappears.

A tooltip also appears, when hovering the icon, saying *Additional rows available*.

Use cases

This chapter describes typical uses cases that you can implement in your environment to enrich Data Entry Matrix feature leveraging native database objects. Chapter references Microsoft's SQL Server's features.

Versioning

Please refer to the following articles in our knowledge base regarding versioning:

- https://support.poweronbi.com/portal/kb/articles/implement-versioning
- https://support.poweronbi.com/portal/kb/articles/implement-version-management

Custom validation

You can create complex validation logic by leveraging SQL server features, more precisely **triggers** to check certain conditions and send back messages to the client in case of violation of a business rule. The core logic of the trigger can contain anything you like, only the return method of your message needs to be in a certain format. The following example shows how to return a custom message in a trigger:

```
IF (@YourCondition)
   THROW 50001, N'<SQLError>Cannot save modifications due to violation of business
rules.</SQLError>', 1
```

Auditing

This chapter will provide you a guide how to capture the username who is modifying the current measure. Please refer to the following article in our Knowledge Base: https://support.poweronbi.com/portal/kb/articles/get-user-name-on-back-end-during-write-back-sql-server

For example, if you modify a cell that is an aggregation of multiple records of the Fact table, you can create a FactAudit table with the same structure as the table in question with columns that can contain extra information about the operation, like:

- ModifiedBy – the user's name
- ModifiedAt – the date
- OldValue
- NewValue

The following trigger will capture the actual user's name and the current date, and save it to an audit table:

```
CREATE TRIGGER [dbo].[trg_FactAudit] on [dbo].[Fact]
AFTER INSERT, UPDATE
AS
BEGIN

	DECLARE @USERNAME VARCHAR(255)

	SET  @USERNAME = CAST(SESSION_CONTEXT(N'user_name') as varchar(255))

	INSERT INTO [dbo].[ProductAudit]
	SELECT
	[SKU]
	,@USERNAME
	,GETDATE()
	,yourFactTableColumns
	FROM INSERTED

END
```

Please note that writing back to a measure can influence multiple rows in the underlying fact table. If you implement this solution your audit table can grow quickly depending on the granularity of your fact table. Consider using the Tracing feature or enabling the SaveWriteBackHistory setting as described in the Advanced Settings chapter.

Performance optimization

In the case of large fact tables reprocessing in-memory SSAS models can take some time. The Write-Back Service can determine which portion of your data should be processed. For that, you can implement special partitioning. Please refer to the following article in our Knowledge Base for examples, walkthroughs, and tips:

- https://support.poweronbi.com/portal/kb/articles/performance-tips-for-direct-query-mode
- https://support.poweronbi.com/portal/kb/articles/performance-optimization-tips
- https://support.poweronbi.com/portal/kb/articles/implement-ssas-partitioning-for-improved-write-back-performance
- https://support.poweronbi.com/portal/kb/articles/dedicated-table-for-write-back-using-ssas-partitioning

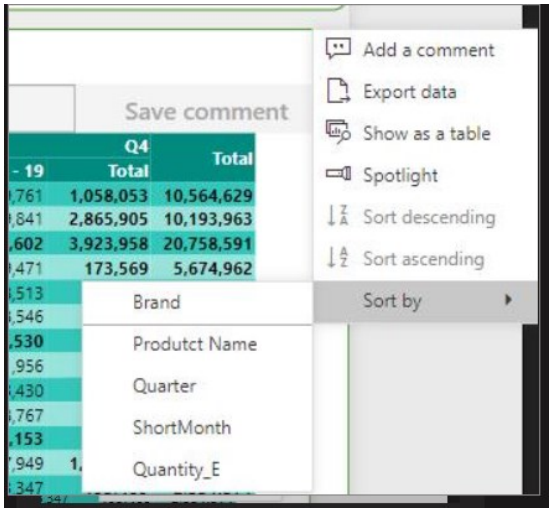
Models with calculated tables and columns

As described in the Limitations chapter, you cannot write-back on calculated tables and columns. You can have these types of objects inside your SSAS model, but by default, the Write-Back Service always does a model metadata check before saving changes, and if it finds such structures will prohibit the process. If you are certain that you do not try to write-back on measures that are using calculated columns, and you do not use calculated tables in your matrix (neither on rows nor columns), also these objects are not used in any kind of filters (slicers, visual level filters, etc.), you can turn this strict checking OFF, by using Advanced Configurations.

Sorting

If you do not achieve the desired result when it comes to the built-in sorting functionality, you can still try out the following:

You can use PowerBI built in sorting functionality:



Or you can set up a Sort By Column parameter in your SSAS model in Visual Studio or Tabular Editor.

Advanced Configuration

You can control the behavior of the Write-Back Service for each SSAS model. For this, you need to create a dedicated SQL table in a strict format. It is important to know that if you have multiple data sources in your SSAS model, you need to tell the write-back engine which data source it should look for in this setting table. The way to do it is to add the "WriteBack" – case-sensitive string in the name of your data source where you will be creating this helper table. So, for instance, if you have three data sources defined (ds_A, ds_B and ds_C) for three different SQL databases (Database_1, Database_2, Database_3) and you want to create this settings table in Database_2 – which is used in ds_B, then rename it to be ds_B_WriteBack for instance.

The structure of the table is:

```
CREATE TABLE [dbo].[AdvancedSettings]
(
    [Setting] [varchar](255) NOT NULL,
    [Value] [sql_variant] NULL,
CONSTRAINT [pk_AdvancedSettings] PRIMARY KEY CLUSTERED( [Setting] ASC )
)
```

You cannot rename the table or use another schema than dbo now. Be aware, that the [Value] column is a sql_variant datatype, so different settings will have different types (like bit, varchar, numeric, etc.) It means that when you try to copy this table by the Generate Script tasks in SQL Management Studio it will not recognize the correct data types and might result in a non-compatible setting. If you need to move/copy this table – or the entire database – always re-create this helper table with the appropriate data types by using the correct insert statements.

Below you will find the most important settings, for the complete list please refer to this article: https://support.poweronbi.com/portal/kb/articles/advanced-configuration

Important settings:

1. Turn strict metadata checking OFF (**SkipCalculatedRelationShips**; **SkipInvalidMeasures**): If you have calculated tables, relationships, then the service will prohibit the operation by default. If you turn this OFF, the operation will not be blocked. Be careful that you will not use unsupported objects (e.g.: calculated column as a row / column member in your matrix or as slicers, etc.) during the write-back.
2. **EnableTracing**: if you enable this, a Trace.Txt file will be created in the folder at the location of the webservice which will log all operations during write-back.
3. **SaveWriteBackHistory**: if you enable this, a dbo.WriteBackHistory table will be created automatically in your database, by the write-back engine after the following write-back. (In case of multiple data sources, it will use the connection with the 'WriteBack' tag.)
   The table contains the following information for each cell modification:
   a. ChangeDate – time of change
   b. ChangedBy – name of the user who committed the change
   c. Tuple – the cell's tuple or coordinate
   d. OldValue – original value of the cell
   e. NewValue the updated value of the cell.

For point 1:

```
INSERT [dbo].[AdvancedSettings] ([Setting], [Value]) VALUES (N'SkipInvalidMeasures',
CAST(1 as bit)) --Don't throw error on non-parsable DAX expressions
INSERT [dbo].[AdvancedSettings] ([Setting], [Value]) VALUES
(N'SkipCalculatedRelationships', CAST(1 as bit)) --Don't throw error if calculated column
used in relation
```

For point 2:

```
INSERT [dbo].[AdvancedSettings] ([Setting], [Value]) VALUES (N'EnableTracing', CAST(1 as
bit)) -- creates Trace.txt inside the web service's folder and log all operations
```

For point 3:

```
INSERT [dbo].[AdvancedSettings] ([Setting], [Value]) VALUES (N'SaveWritebackHistory',
CAST(1 as bit)) -- creates dbo.WritebackHistory table and logs cell changes
```

Troubleshooting

For all cases, please visit our Knowledge Base at: https://support.poweronbi.com/ to find a solution to your problem. Below you can find common cases. If your issue cannot be solved by the provided materials, please open a ticket on our support site, and Power ON will assist you.

Network Error

Symptom: You receive Network Error message when you try to save data.

Cause: You may get this error typically in the following cases:

- the Write-Back Service URL is not set correctly – or it is malformed – in the Data Entry settings
- the Write-Back Service is not reachable or off-line
- bad connection name or/and type was specified
- the license service stopped unexpectedly
- in case of on-premises or Gateway installations the Windows Authentication setting is turned accordingly in the visual under Data Entry based on the IIS authentication settings
- Missing files in the web service folder, or typo / malformed strings in the web.config file
- Windows / Kerberos authentication issue
- Missing Service Principal Names
- Missing Active Directory permissions for service accounts
- Report server URL web service URL format mismatch
- Invalid SSL certificate

Solution: Make sure that the Write-Back Service is up and running and reachable (firewall not interfering) as it is described earlier in this document. Verify that the referenced connection exists in the Write-Back Service configuration and the connection type is selected correctly.

A particular error can indicate a license service failure. Please refer to this article: https://support.poweronbi.com/portal/kb/articles/error-the-communication-object-system-servicemodel-channels-servicechannel-cannot-be-used-for-communication-because-it-is-in-the-faulted-state

If you encounter CORS issue, please check the web.config file of the Write-Back Service for typos, and also missing DLL-s and config files inside the web service folder. As a last resort, try updating the web service file following these articles:

- https://support.poweronbi.com/portal/kb/articles/how-to-update-the-service-manually-azure-cloud
- https://support.poweronbi.com/portal/kb/articles/how-to-update

If you encounter SSL error, make sure that the certificate is issued by a trusted authority for the full qualified domain name of the IIS server, or that the certificate is set to ignore by the client's browser in case of self-signed certificate, or if the certificate is issued internally by your organization and you try to reach the report outside of the organization domain.

If you are using Power BI Reporting Services on-premises, make sure that the report server URL and the web service URL format match. Either both must reference the machine name or the fully qualified domain name, and both must be HTTP or HTTPS. Also, if Windows Authentication is set in the IIS configuration make sure that **Windows Authentication** is enabled in your visual under [Data Entry] group.

In case of on-premises installation in a domain with Windows Authentication, make sure that Service Principal Names are created for your SQL and SSAS servers and the correct domain users are used for the services. An SPN is also needed for the service account that is running the PPWebService on the IIS machine as the Application Pool user. Make sure that delegation is enabled in your Active Directory from the App Pool's user (which must be a trusted user) to the SQL/SSAS services. If these are not set correctly, Kerberos authentication issues can occur, which might result in HTTP 403 or 404 errors or log-in popups appearing. Please refer to the following article and contact your internal IT team:
https://support.poweronbi.com/portal/kb/articles/configure-iis-for-kerberos-authentication

The visual is not working in Power BI Desktop or the settings are not shown

Symptom: The visual is not rendered, or Data Entry Matrix specific settings are not displayed (like Data Entry, General, etc.)

Cause: There can be two reasons for this:

- your machine is running out of memory, therefore Power BI Desktop cannot render the elements properly
- your Power BI Desktop Cache is outdated.

Solution: Free up memory on your computer by closing other applications. For clearing the Power BI Desktop cache, please refer to the article in our Knowledge Base at:
https://support.poweronbi.com/portal/kb/articles/power-bi-desktop-clear-cache

Save Failed

Symptom: You receive Save Failed message when you try to write-back to the selected cell.

Cause: You may get this error if there is a configuration error in your visual, the Write-Back Service is not configured properly, or in the following cases:

- there is a custom validation implemented that prohibits write-back
- SQL objects are interfering with the data modification TSQL statements (like security policies, triggers, unique constraints, etc.)
- the service account used by the Write-Back Service does not have permission on the underlying SQL database to make the necessary modification on the source table

Solution:

- Check if the service account has the necessary permissions, the password has not expired
- Verify that RLS policies or triggers are not prohibiting the operations

Wrong figures were saved

Symptom: Writeback was successful, but bad number is shown after the visual is refreshed.

Cause: You may get this error if:

- You are using slicers page-report or visual level filters and you forgot to add SmartFilter helper visuals properly
- You have an issue with the relationships in your SSAS model
- You have data quality issues in your underlying database, like duplicate members, incompatible data types, null values in foreign keys in the fact table, etc.
- You have a logic error in your DAX measure formula

Solution:

- Add SmartFilter helper visuals
- Check your SSAS model relationships
- Verify your data integrity in your underlying SQL database
- Check your DAX measure

As there can be various reasons for this error, review the paragraphs in this chapter and please also visit our Knowledge Base to find the solution at: https://support.poweronbi.com

If you were not able to overcome your issue, please submit a ticket on our support site or write at vizsupport@poweronbi.com and we will contact you shortly to help you investigate and fix the problem.