



Power ON Visual Documentation and Troubleshooting Guide

Version 24.2

July 2024

Introduction to Data Entry Matrix v24.2	9
Limitations	10
Versions	11
Data Entry Matrix Prerequisites	16
Write-back Service	16
VPService Visual	17
Configure VPService Visuals	17
Warning Message	17
Tabular Model Requirements	18
Data Entry Matrix Setup and Usage	20
Applying Priorities	20
Coloring Priority / Applying Protocol	20
Setup and Configuration of the Visual	20
Validate the Write-back Service	20
Setting up the Basics	21
Add Dimensions and Measures	22
Applying Style	22
Publishing and Testing the Report	23
Configuration	23
WebService	23
Type	23
Connection	23
Data Entry (Settings)	23

Customer	23
Domain	24
Enable Drill Through	24
Input Culture	24
Read Only	25
Apply Write Security Measures To Totals	25
Windows Authentication	25
Save Complete Message	25
General (Settings)	25
Visual Version	25
Region	26
Fetch All Data Before Load	26
Fetch More With Scroll	26
Corner Filtering	26
Layout	27
Values On Rows	28
Display Single Values	28
Format String	28
Auto-size Column Width	28
Horizontal & Vertical Cell Padding	29
Horizontal & Vertical Header Padding	29
Text Size	29
Font Family	30

Custom Font Family Name	30
External CSS URL	30
Collapse Method	32
Collapse Icon	33
Bold Headers	33
Selected Item Font & Background Color	33
Stretch Columns & Rows	33
Selection Border Color & Width	33
Formatting Enabled (Context Menu)	33
Menu Items in Header Area	34
Properties (Header Value Properties)	34
Label	34
Index	35
Drill Down/Up	35
Select	36
Add Computed Sibling	36
How to set up?	36
Add Computed Child	37
Add Global Computed Child	38
Hide	39
Cell Formatting	40
Combined CSS	42
Column Resizing	44

General Cell Border Width & Color	44
Hide Corner	45
Hide Empty Levels	45
Report Settings	46
Visual Border Width & Color	46
Hide Button Row	46
Visual Title	46
Settings Edit Delay	47
Show Tooltip Report	47
Configuration	47
Consistent Tooltip Report	48
Consistent Tooltip Report Class	49
Position and Size	50
Column Formatting	50
Column Alignment	50
Column Collapse	50
Column Headers	50
Column Sorting	51
Column Totals	51
Row Formatting	51
Row Alignment	51
Row Collapse	51
Row Headers	52

Row Sorting	52
Row Totals	53
Conditional Formatting	53
Measure Name Source Measure Display Name	53
Formatting Measure	55
Hide Measure	58
Dynamic Totals	59
Dynamic Spread	60
Measure Name Dynamic Spread	60
Cascade Spreads to Lowest Level	60
Fix Totals	60
Measure Name Fix Totals	60
Highlight	61
Hover Highlight	61
Header-Content Connection Highlight	61
Totals Highlight	62
Total Connections Highlight	62
Spread Highlight	63
Sibling Highlight	63
Labels	63
Totals	66
Values	66
Grid (Settings)	67

Importance of SmartFilter Helper Visual	68
Smart Formulas	69
Write-back on Totals	70
Goal Seek	70
Goal Remains After Save	71
Securing Cells	71
Write Security Measure	71
Measure Alignment	73
Read Only Values	73
SQL Row Level Security Policies	73
Commenting	73
Settings	74
Debug	75
Diagnostic Mode	75
Display Fetch More Icon	75
Use Cases	76
Versioning	76
Custom Validation	76
Auditing	76
Performance Optimization	77
Models with Calculated Tables and Columns	78
Sorting	78
Advanced Configuration	78

Data Entry Matrix Troubleshooting Guide	81
Network Error	81
The Visual is Not Working in Power BI Desktop or the Settings are Not Shown	82
Save Failed	82
Wrong Figures were Saved	83

Introduction to Data Entry Matrix v24.2

Power ON's Data Entry Matrix is a custom visual designed for Microsoft's Power BI. It enhances the user experience by enabling end users to make permanent changes to data through write-back functionality. This means users can target measures and DAX expressions to modify data directly within their reports. The Data Entry Matrix section in the help provides a detailed overview of the matrix and how to use it in reports. It covers common use-case implementations, proper configuration, and strategies for overcoming potential pitfalls.

This topic caters to both technical experts (such as developers, DBAs, and BI professionals) who have in-depth knowledge of SQL Server, SSAS Tabular models, Azure Services, and Power BI, as well as users who primarily concentrate on creating and preparing reports using Power BI Desktop. Some topics delve into more technical subjects.

**Note:**

If you encounter any issues or queries and need assistance, reach out to your local IT team or log in to <https://help.insightsoftware.com/> to submit a ticket, and our support team will provide you with the best service. Additionally, once you have registered and logged in, you can access the Power ON Knowledge Base articles that cover common use cases, tips, and troubleshooting tools.

Power ON's Data Entry Matrix enables users to modify figures that result from DAX expressions defined on aggregations. In traditional dimensional modeling, these aggregations are calculated on fact tables, with the calculation context defined by the dimension or lookup tables that are in relation with the fact table. DEMx enables users to update the results of their measures.

Key features of DEMx include:

- Writing back values to the underlying data source.
- Modifying figures by using smart formulas or exact values.
- Updating values not only at the individual cell level but also at the aggregated levels - totals and subtotals. These changes cascade down to the corresponding members.
- Creating comments on cells.
- Copying and pasting selected cells to and from the visual.
- Copying the entire matrix along with headers.
 - Press CTRL+A on your keyboard to select the entire data table (including corner cells, header cells, and content cells).
 - Press CTRL+C on your keyboard to copy the selected content to the clipboard.
- Dragging pop-up windows using their title to arrange the interface as needed.

Following is the high-level overview of how write-back works for Tabular models. Depending on your data source (SSAS In-Memory, SSAS Direct Query, or SQL only) Power ON's write-back service performs the following steps:

1. The service captures the modified value along with its tuple (the intersection of dimensions used in the calculation of measure for the given cell) and the user context. Based on the SSAS model structure (relationships, table queries, and measure definitions) the service composes T-SQL statements for execution.
2. It executes the compiled T-SQL statement against the underlying data source (fact table) to save the modifications.
3. For SSAS in-memory models, the service reprocesses the table. See [Performance Optimization](#) for more information.
4. It refreshes the visual to display the changes in the report.

Limitations

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

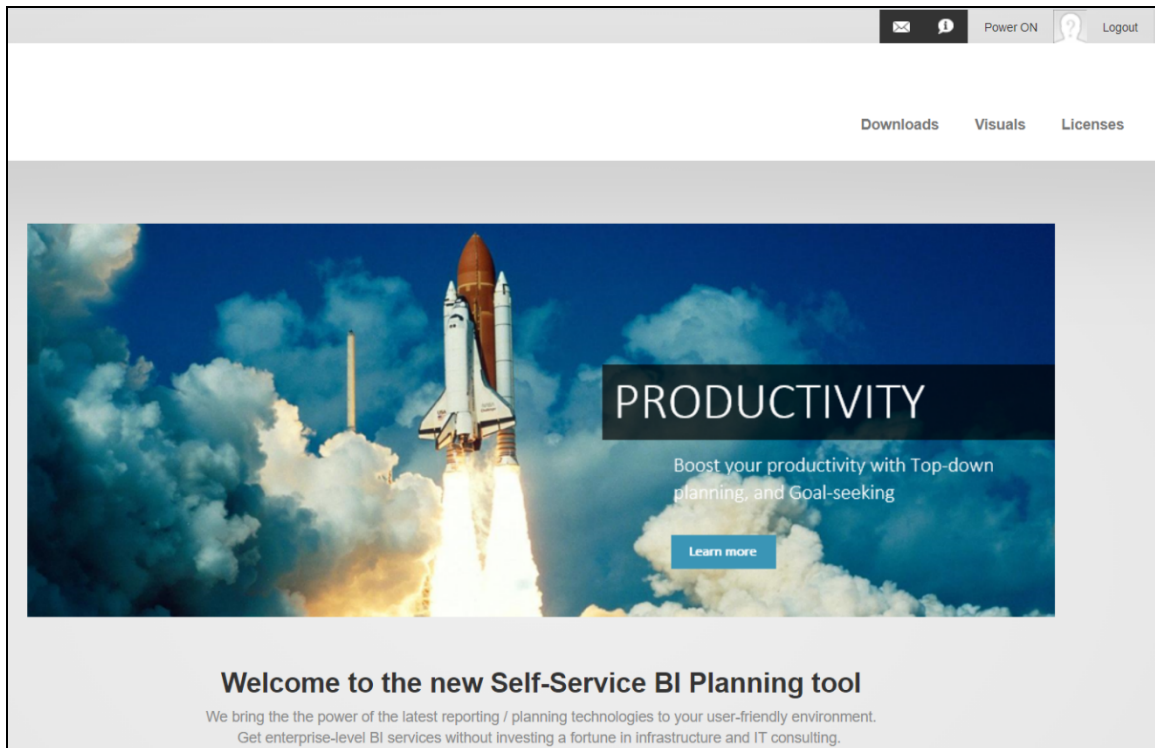
- Renaming columns and tables within the Power BI report is not supported. These names must match those used in the underlying data source. For SSAS models, the names should align with the entities visible in your model or the report's Fields sections.
- The characters '[' and ']' (brackets) are not supported in measure names
- The character '.' (dot) is not supported in table names, although it can exist in schema names. If your table name contains unsupported characters, consider creating a view on top over the table that adheres to the required format and use that view for write-back functionality.
- You can only display 5000 records at once, it is the default value set by Microsoft. For the DEMx visual, this translates to 5000 cells. If the product of the number of rows and columns (dimension members) used in your matrix exceeds this limit, consider incorporating slicers in your report. Slicers allow you to edit a subset of the data, ensuring a seamless workflow.
- The DAX Expression COUNTROWS(Table) is not supported for write-back.
- Non-writable views that serve as a data source for fact tables are not supported for write-back. Consider materializing your view into a physical table or simplifying the view's complexity. Alternatively, you can create INSTEAD OF INSERT | UPDATE triggers to handle the operation. Typically, non-writeable views are views that contains 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.
- If you're using the on-premises Power BI Report Server, ensure you have at least the January 2019 version, along with Power BI Desktop 2019 January or more recent versions.
- When using slicers, page-level, report-level, or visual-level filters, it is essential to also incorporate the SmartFilter helper visual. See [Importance of SmartFilter Helper Visual](#) for more information.
- When the rows are drilled up to the highest level, you cannot utilize collapsing.

Versions

While this help primarily covers the latest version of Data Entry Matrix, you can still utilize previous versions included in the setup kit. However, some features detailed here may not be available in older versions.

The most recent visual is Data Entry Matrix v4.7.pbiviz. To download different versions, follow these steps:

1. Visit the store.poweronbi.com site and register using the same domain name you originally used.
2. Log in to the site and select the **Visuals** tab.



3. Explore the available versions of our write-back capable visuals.

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	

4. Select the desired version of Data Entry Matrix and click **Download**.

**Note:**

You can also download the release notes specific to the Data Entry Matrix version you are downloading.

Data Entry Matrix Prerequisites

This topic outlines the necessary prerequisites for using the Data Entry Matrix visual.

Write-back Service

- Install the write-back service (PPWebService) in your environment. Ensure that you have a properly configured the write-back service (PPWebService) that is accessible from the point of the Report Server. For detailed configuration information, log in to <https://help.insightsoftware.com/> to access the Power ON Knowledge Base articles.
- Import the dataEntryMatrix v4.x .pbviz file into your Power BI Desktop instance. When using DEMx in your reports, it is essential to follow this for each report. The custom visual will be stored within the report itself, allowing other users to utilize the write-back capabilities when they access it. Additionally, for Power BI cloud services, there is an option to store the custom visual in a centralized repository, which simplifies management. For more information, you can refer to [power-bi-custom-visuals-organization](#).
- You can locate the legacy version of the visual in your installation folder under Resources\PPWebService within the VPDemo.zip archive file. Data Matrix Entry can also be converted from other Power BI visuals, similar to other custom visuals in Power BI.
- For on-premises installations or virtual machines hosted in the cloud, ensure that your Power BI Report Server can access the host IIS machine of the PPWebService.
- For Azure, web applications are accessible by default. Configure a dedicated connection string for the data source in the web.config connectionStrings section, pointing to the used SSAS Cube.
- Your IT team should configure connections to the data sources. Refer to the [How to Add a New Data Source for Write-back](#) article in the knowledge base for more information. You can find valid connection string examples for different data sources at <https://www.connectionstrings.com/>.
- The PPWebservice's service account used in the connection string must have the following permissions:
 - Administration rights on the cube.
 - Data reader and data write roles on the cube's underlying data source database.
 - If using the Commenting feature, 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 belong to) must have the following permissions:
 - Data reader membership on the SSAS cube.
 - If impersonation is enabled, end users must also have data writer roles on the underlying SQL databases.

VPService Visual

The VPService is a helper visual that establishes the connection between PXLT and the Write-Back Service. VPService is updated automatically from the web, eliminating the need for manual updates, unlike other non-legacy versions of the Visuals.

Key benefits:

- Faster Release Processes - Switching from one version of a visual to another becomes much faster. This results in quicker support from our side, especially when implementing new features.
- Easy Version Switching - Users can seamlessly switch between different versions of the visuals.


Key functions:

- Saving Changes - VPService ensures that any modifications made by users are saved appropriately.
- Saving Comments - In visuals like the Data Entry Matrix, VPService handles the saving of comments.
- User Information - VPService sends relevant user information as needed.
- Pop-Up Windows - For visuals like the Table Editor, VPService handles the opening of pop-up windows.

Configure VPService Visuals

Follow these steps to configure VPService:



1. After importing a visual, right-click on the visual icon  and then select **About** from the menu. Review the version information in the pop-up window.
2. Add the VPService helper visual to your Power ON visual-related report.
3. Add an arbitrary field to VPService visual, for example, an ID.
4. Ensure that the content of the Web Service > URL property matches precisely with that in Data Entry Matrix (Data Entry > Web Service). This comparison is case-sensitive.

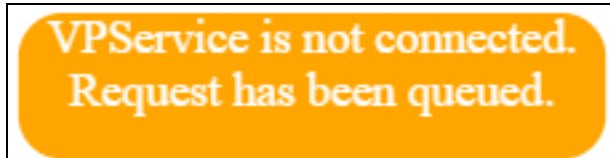
Warning Message



This 'VPService is not connected' warning message displays 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 when there is no VPSERVICE connection
- the URL of VPSERVICE is not exactly the same as in DEMx



This applies to all VPSERVICE-based visuals (version > TE v2.7.23, DEMx v4.x, PowerGantt visuals).

Tabular Model Requirements

Create an SSAS tabular model. Write-back on measures is only possible with an Analysis Services Tabular semantic model.

Ensure that your SSAS Tabular Model meets the following conditions:

- Power Query data sources for tables are supported, but only without ANY transformations. If you have ETL-like logic in your table definitions using Power Query, you can:
 - Move that logic back to the SQL Server level (using writable views).
 - Transform your data flow (SSIS) so that you have fully prepared the data in your data warehouse.
 - Augment your model and create separate tables for write-back.
 - Use native SQL query definitions for your SSAS entities. This is the best practice.
- Calculated tables cannot be used for write-back. You can have calculated tables in your model, but you cannot use that table in the Data Entry Matrix 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 must turn off strict model structure checking. See [Models with Calculated Tables and Columns](#) for more information. Best practice is to create a separate perspective in your model with only supported entities.
- Calculated columns cannot be used for write-back. You can have calculated columns in your model, but you cannot write-back on them. You cannot use these columns as dimension members on the DEMx's rows and columns.
- Relationships based on calculated columns are not supported. The relationships defined in your SSAS model must be mapped to SQL tables and join operators. Every column in a relationship must be visible in the model.
- Write-back on simple and additive measures - SUM(), AVERAGE() - are supported by default. If only one column is used in the expression, SUMX(), AVERAGEX() are supported too. Numeric columns included in measures must have a float data type.
- For complex measures, fill in the Description field of your measure in Visual Studio or Tabular Editor. This specifies the target table and column when committing write-back operations.
 - Complex measures which contain multiple columns in the expressions, modify filter context (CALCULATE, FILTER, ALL, etc.), use working tables (CALCULATETABLE,

ADDCOLUMNS, SUMMARIZE, etc.).

- Example measure - $SUMX(Sales; Sales[Quantity] * Sales[UnitPrice])$. To enable write-back for the Quantity field, specify "Quantity" in the Description property of your measure.
- In a complex measure, only multiplication or division operations are supported. The engine operates with ratios and cannot handle addition and subtraction.

Data Entry Matrix Setup and Usage

This topic covers the fundamental aspects of creating a write-back capable report using the Data Entry Matrix (DEMx) visual.

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.

PPWebService Service

You have created a service.

To test this service, you will need to create a client and use it to call the service. You can do this using the svcutil.exe tool from the command line with the following syntax:

```
svcutil.exe https://tszdell2015/PPWebService/PPWebService.svc/mex
```

This will generate a configuration file and a code file that contains the client class. Add the two files to your client application and use the generated client class to call the Service. For example:

C#

```
class Test
{
    static void Main()
    {
        HelloClient client = new HelloClient();

        // Use the 'client' variable to call operations on the service.

        // Always close the client.
        client.Close();
    }
}
```

Visual Basic

```
Class Test
    Shared Sub Main()
        Dim client As HelloClient = New HelloClient()
        ' Use the 'client' variable to call operations on the service.

        ' Always close the client.
        client.Close()
    End Sub
End Class
```

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.

Web Service

https://machine/ppwebservice/PPWebService.svc

Type

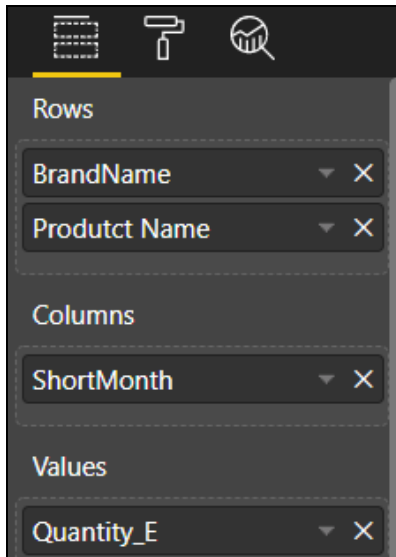
SSAS Datasource

Connection

MySSASCubeConnection

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.

		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	Productct Name	Qty	Prc_E	Qty	Prc_E	Qty	Price_E	Qty	Price_E	Qty	Price_E	Qty	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
	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
	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
	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
	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
	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
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
	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
	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
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
	Orange 0.5l can	13 044	1,93	21 849	1,91	32 931	1,88	31 557	1,86	105	1,85	33 814	2,36
	Total	23 793	1,63	32 165	1,60	58 095	1,58	67 050	1,57	227	1,55	54 518	2,14
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
	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
	Total	21 946	1,36	50 025	1,35	59 069	1,35	124 772	1,35	177	1,35	93 872	1,86
Total		163 022	1,53	198 885	1,51	181 978	1,48	393 332	1,47	78 045	1,45	896 946	2,00

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](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.

BrandName	Product Name	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	Total		
APPLE	Apple 0.5l bottle		401 337	4 747 661	5 526 645	5 020 183	48 655	046 290	2 320 885	2 308 642	2 578 251	21 870	193 445	5 133 404	4 678 791	3 846 664	43 644
	Apple 0.5l can		384 944	1 857 535	1 972 968	1 644 362	24 851	212 490	1 762 153	1 741 691	1 595 551	18 734	238 506	15 821 638 16	228 737 14	685 011	157 756
	Apple 0.5l bottle		237 726	3 189 010	5 147 127	3 099 851	36 056	217 726	3 189 010	5 147 127	3 099 851	36 056	286 159	1 534 598	1 540 924	1 425 915	14 332
	Cola KEG 30l something		306 455	1 108 399	2 634 562	2 744 557	24 166	592 613	2 642 998	4 175 485	4 170 472	38 498	878 244	2 624 092	2 756 141	3 080 823	28 111
	Whisky 25l		313 635	2 796 862	3 048 865	2 447 896	29 555	795 319	3 590 829	5 069 844	3 828 489	38 636	987 198	9 011 784 10	874 851	9 357 207	96 303
	Total		336 043	30 665 429 36	426 200 31	312 541	328 614										

Input Culture

The input culture depends on the value selected in the **Region** field which allows you to either auto-detect the browser language or manually set the preferred language. The separator used in the number, date, and date-time columns is based on this selection.

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.

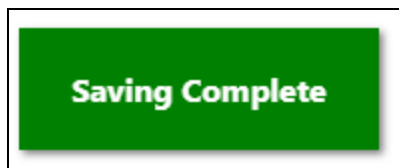
Windows Authentication

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

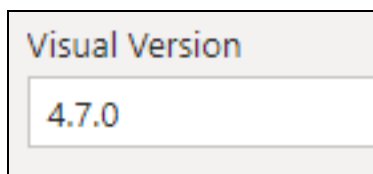
If this setting is enabled, the user gets a message after saving if it is successfully done.



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.

Region

This setting allows you to specify the input format for the visual. You can either select **Auto Detect**, which identifies the browser language, or select any preferred language/region. The default value is **English**. The language and separator used in the number, date, and date-time columns is based on this selection.

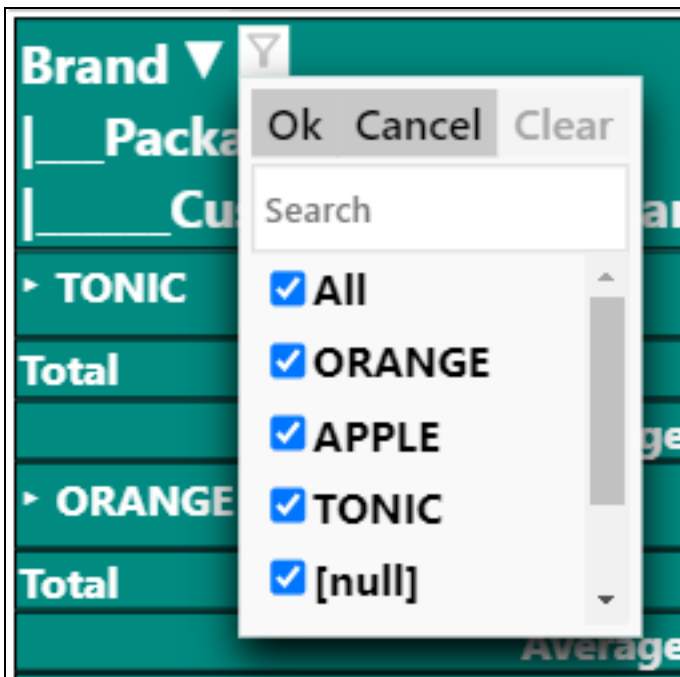
Fetch All Data Before Load

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

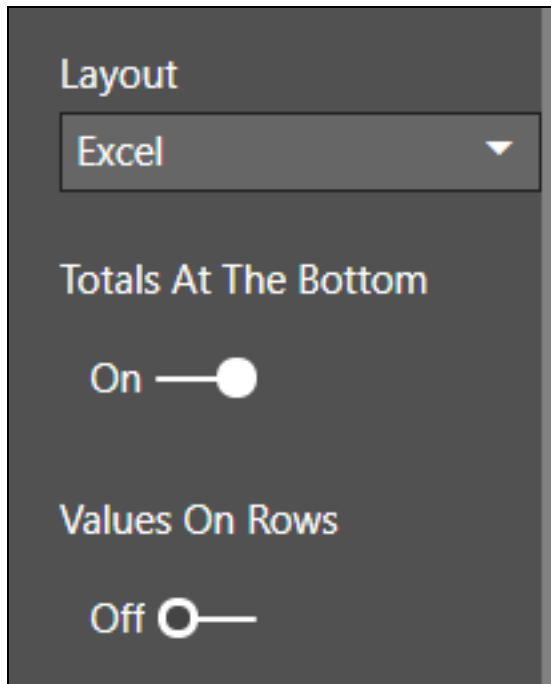


It is possible to filter the row/column headers from each of the corners of the cells.

- [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:

		Save Changes	Discard Changes	Set Goal Seek	Reload Data			
BrandName ▲	Product 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 ▲	Product 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:

Save		Discard		Goal Seek		Reload Data	
Comment:							
BrandName	ShortMonth	Jan -15	Feb -15	Mar -15	Apr -15	May -15	Jun -15
[-] APPLE	Apple 2.5l (KEG)	11 078	1,74	33 889	1,70	1,7	1,7
	Apple 1l bottle	22 156	1,41	4 077	1,40	2	2
	Apple 0.5l cann	29 449	1,77	19 192	1,75	33 2	33 2
	Apple 0.5l bottle3	2 609	0,98	10 973	0,96	5 3	5 3
	Apple 0.5l KEG	88 624	1,45	24 321	1,43	2 8	2 8
	Total	153 915	1,47	92 452	1,45	43 3	43 3
[-] COLA	Cola 3l KEG	55 390	1,69	13 759	1,63	1 1	1 1
	Cola 1l KEG	9 962	1,84	10 485	1,78	1 0	1 0

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:

Save		Discard		Goal Seek		Reload Data		Refresh Comments	
Comment:									
BrandName	ShortMonth	Jan -15	Feb -15	Mar -15	Apr -15	May -15	Jun -15	Jul -15	Aug -15
[-] APPLE	Apple 2.5l (KEG)	Qty	Qty	Qty	Qty	Qty	Qty	Qty	Qty
	Apple 1l bottle	11 078	33 889	1 777	36 385	244 586			
	Apple 0.5l cann	22 156	4 077	202	54 775	18 809			
	Apple 0.5l bottles	29 449	19 192	33 247	39 424	9 902			

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 Cell Padding	<input type="text" value="4"/>
Vertical Cell Padding	<input type="text" value="2"/>
Horizontal Header Paddi...	<input type="text" value="5"/>
Vertical Header Padding	<input type="text" value="3"/>

Horizontal & Vertical Cell Padding

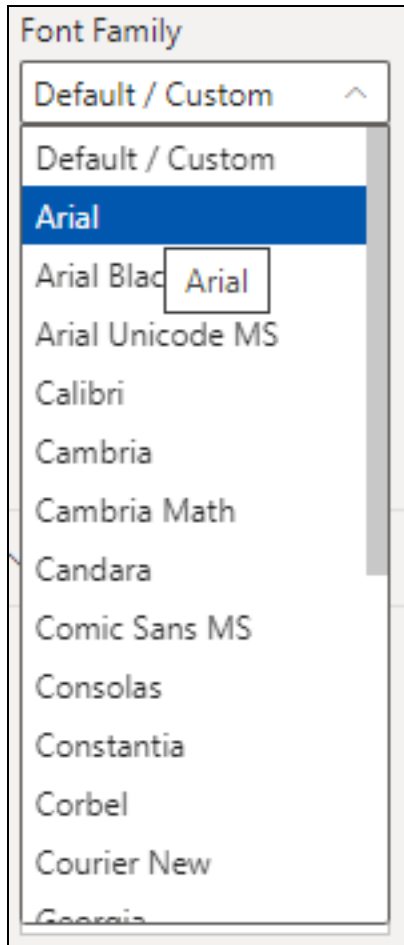
You can control how many pixels space you want to have between the columns/ rows with this setting.

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.

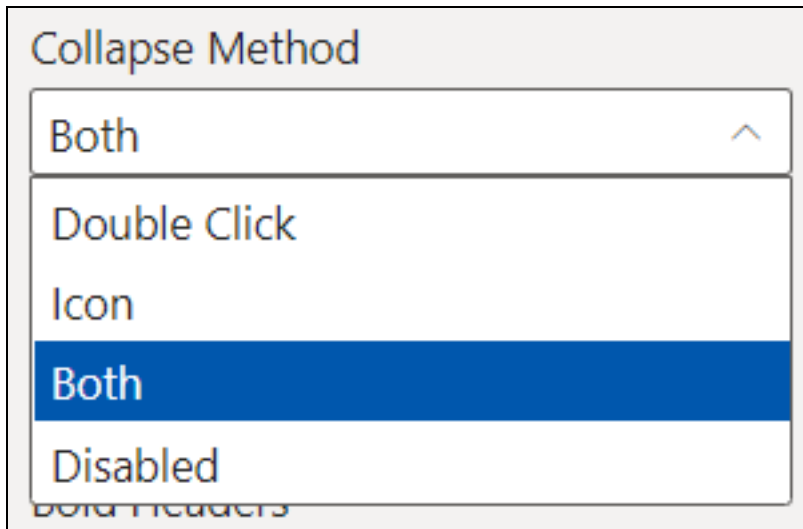
External CSS URL

This setting allows you to set the URL of the CSS file. It is available only from the General menu.

See an example below:

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

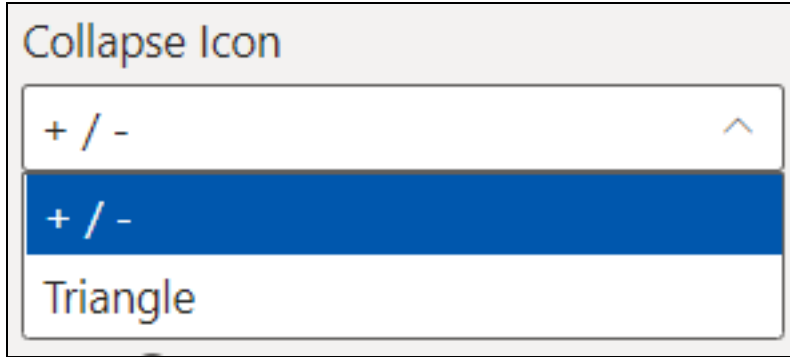
With Both you can choose both the Double Click and the Icon as well.

Finally, you can turn OFF this feature completely.

BrandName ▲	ShortMonth	Jan - 15	F
Product Name ▲			
+ 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

Customer Name	Brand	Packaging	Product Name / Month Name	1900.01.19.
ALDI	ORANGE	Can	Orange 0.5l can	112
Total				112
LIDL	ORANGE	Can	Orange 0.5l can	112
Total				112
Total				112

Properties (Header Value Properties)

Label

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

Pro - key financials	2018	2019	2019	2019	2019	2019
RowHeaderCode	Actual	Plan	Y-o-y	CAGR	18-19	18-20
Net sales	257,769	174,692	67.8 %	51.3 %		
Cost of sales	53,856	51,486	95.6 %	95.7 %		
Gross profit	23,766	20,644	86.9 %	72.5 %		
Net operating expenses	8,697	10,862	124.9 %	141.1 %		
As % of net sales						
Gross profit margin	137.0 %	180.0 %				
EBITDA margin (reported)	13.9 %	13.7 %				
EBITDA margin	13.9 %	13.7 %				

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 à 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.

The image illustrates the 'Index' property in a PivotTable. It shows a PivotTable with columns for 'ORANGE', 'Orange o.5l can', 'Orange o.5l bottle', and 'Total'. A 'Header Value Properties' dialog box is open, showing the 'Label' as 'Orange 0.5l can' and the 'Index' as '2'. Below the PivotTable, a context menu is shown with options like 'Show as a table', 'Drill up', 'Include', 'Exclude', 'Group', 'Summarize', 'Copy', and 'Copy visual'.

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

Reload Data			Refresh Comments		
5	Feb - 15	Mar - 15	Apr - 15	M	
rc_E	Qty Prc_E	Qty Prc_E	Qty Price_E	Qt	
1,74	33 889 1,70	975 1,66	32 437 1,64	68 65	
1,41	4 077 1,40	111 1,38	48 831 1,38	5 28	
1,77	19 192 1,75	18 250 1,73	35 146 1,72	8	
0,98	10 973 0,96	2 917 0,95	821 0,94	15	

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.

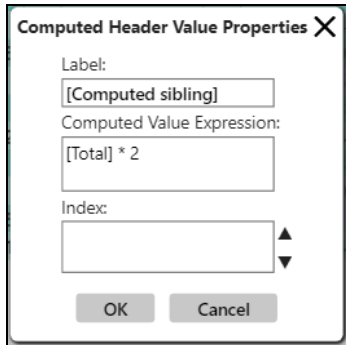
By adding a new computed row or column to your DEMx, it will be on the same dimension hierarchy level, where you opened the Context menu.

Save Changes		Discard Changes		Set Goal Seek		Reload Data		Jul - 15		Aug - 15		Sep - 15		Oct - 15		Nov - 15		Dec - 15		[Computed sibling] Total			
BrandName	Product Name	Price_E	Quantity	Price_E	Quantity	Price_E	Quantity	Price_E	Quantity	Price_E	Quantity	Price_E	Quantity	Price_E	Quantity	Price_E	Quantity	Price_E	Quantity	Price_E	Quantity	Price_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?

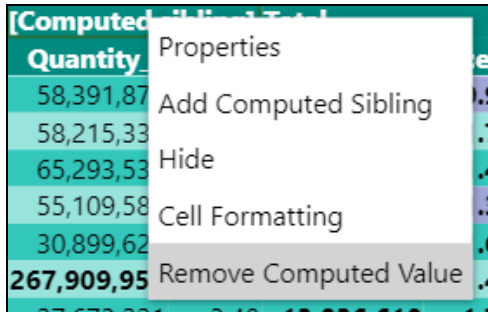
1. Open Context menu » Properties on the new computed value (called [Computed sibling] in our example above) to enter the expression for the calculation.
2. You can use
 - basic mathematical operators (like: +, -, /, *),
 - constant values

- 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.)



3. 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	Price_E	[Computed child]	Quantity	Price_E	Quantity
	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:

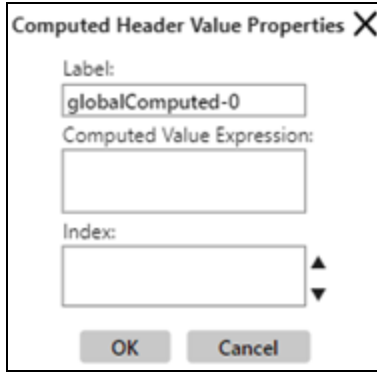
- Siblings are on the same level,
- Child is under the selected dimension.

Add Global Computed Child

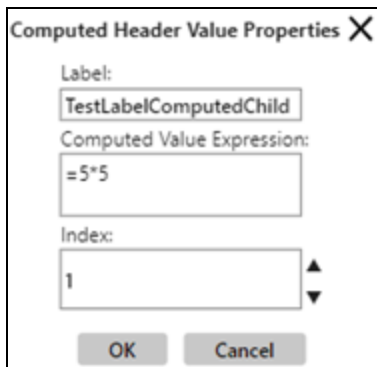
The **Add Global Computed Child** setting allows you to add global variables, thereby providing the option of modifying values globally. The **Add Global Computed Child** is available through the context menu.

If you want to modify the properties of **The Global Computed Child**, follow these steps:

1. On the header cell, right click and select the "Properties" menu. The following pop-up dialog appears:



2. Modify the following attributes to apply changes globally:
 - i. Label
 - ii. Computed Value Expression
 - iii. Index

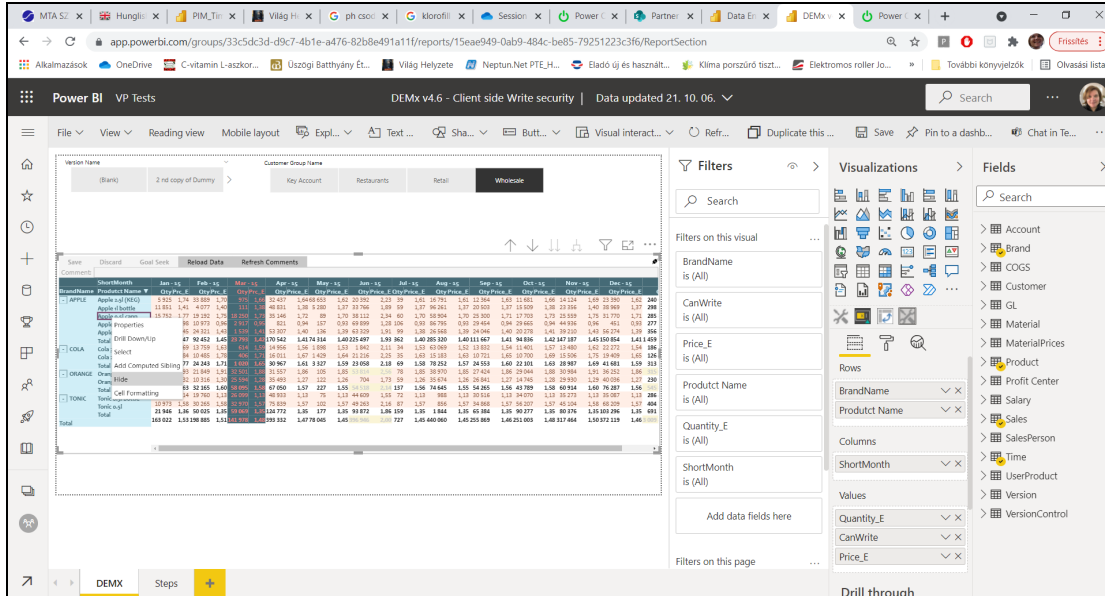


3. Click **OK**. The **Global Computed Child** values are set.

The example shown above, the **Label** is named as 'TestLabelComputedChild' in every level. Their value will be 25 and displayed at the first place amongst the level elements.

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.



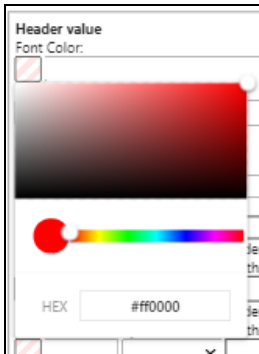
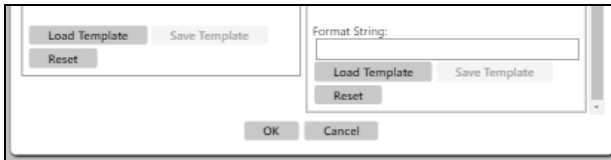
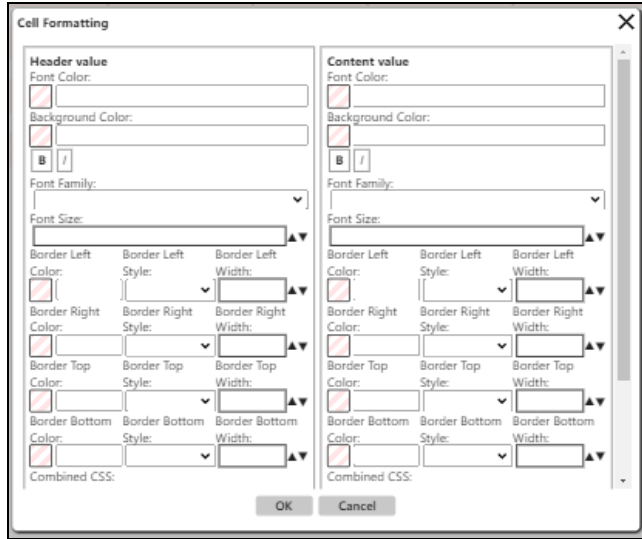
After clicking on Hide:

Comment:		Jan -15	Feb -15	Mar -15	Apr -15	May -15	Jun -15	Jul -15	
BrandName	Product Name	Qty	Prc_E	Qty	Prc_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
	Apple 1l bottle	11 851	1,41	4 077	1,40	111	1,38	48 831	1,38
	Apple 0.5l bottle3	1 396	0,98	10 973	0,96	2 917	0,95	821	0,94
	Apple 0.5l KEG	47 404	1,45	24 321	1,43	1 539	1,41	53 307	1,40
	Total	82 327	1,47	92 452	1,45	23 793	1,42	170 542	1,41
- COLA	Cola 2l KEG	29 627	1,69	13 759	1,63	614	1,59	14 956	1,56

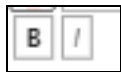
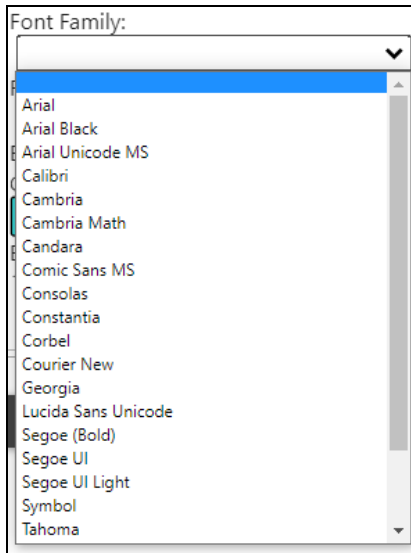
You cannot see that row anymore. With this setting a new button appeared on top of the matrix, in the button row, called [Show All]. If you click on this button, your hidden row (or column) appears again.

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.

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.

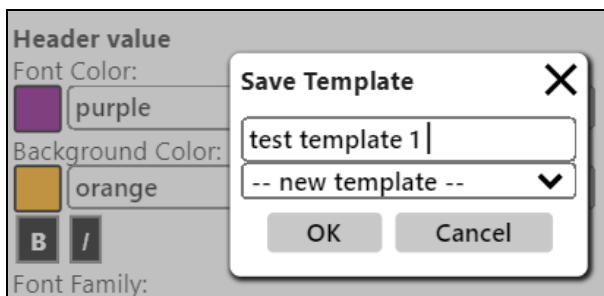
There are properties to set the border - style, color, width - for every angle: Left, Right, Top, Bottom.

Border Style can be solid, dotted, dashed.

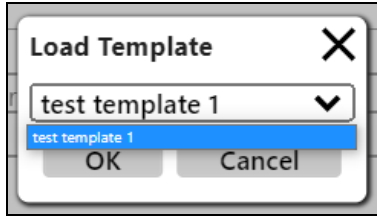
Combined CSS

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	Add Global 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	-	+	+	-	-	-	-	-	-

Context Menu opens with the following menu items	Properties	Drill Down/Up	Select	Add Computed Sibling	Add Computed Child	Add Global computed child	Hide	Cell Formatting	Remove Computed Value
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

Comment:		Apr - 15
		Qty Price
-	APPLE Apple 2.5l (KEG)	32 437
	Apple 1l bottle	48 831

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.

The screenshot shows a data table with columns for BrandName, Product Name, and Quantity. The table lists items like Apple 2.5l (KEG), Apple 1l bottle, etc., with their respective quantities. The settings panel on the right shows the 'Hide Empty Levels' toggle set to 'On'.

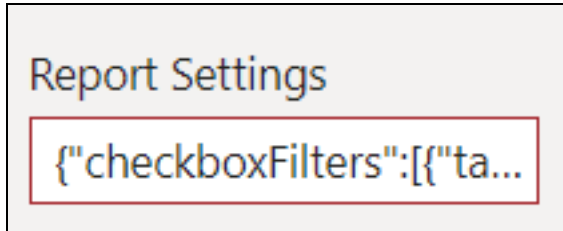
BrandName	Product Name	Quantity
-	APPLE Apple 2.5l (KEG)	440 512
	Apple 1l bottle	349 965
	Apple 0.5l cann	350 746
	Apple 0.5l bottle3	336 962
	Apple 0.5l KEG	440 699
	Total	1 918 884
-	TONIC Tonic 0.5l bottle	345 172
	Tonic 0.5l	474 414
	Total	819 586
-	ORANGE Orange 0.5l can	383 820
	Orange 0.5l bottle	281 654
	Total	665 474
-	COLA Cola 3l KEG	220 417
	Cola 2l KEG	198 079
	Total	418 496
Total		3 822 440

The screenshot shows the same data table as above, but with the 'Hide Empty Levels' toggle set to 'Off' in the settings panel. The table header is visible, and the corner cell for the measure is also present.

BrandName	Product Name	Quantit...
-	APPLE Apple 2.5l (KEG)	440 512
	Apple 1l bottle	349 965
	Apple 0.5l cann	350 746
	Apple 0.5l bottle3	336 962
	Apple 0.5l KEG	440 699
	Total	1 918 884
-	TONIC Tonic 0.5l bottle	345 172
	Tonic 0.5l	474 414
	Total	819 586
-	ORANGE Orange 0.5l can	383 820
	Orange 0.5l bottle	281 654
	Total	665 474
-	COLA Cola 3l KEG	220 417
	Cola 2l KEG	198 079
	Total	418 496
Total		3 822 440

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

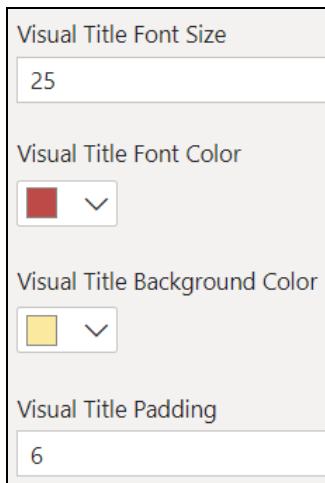
You can set the outer border width and color around the visual.

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

Save Discard Goal Seek Reload Data Refresh Comments

Comment:

This is the TITLE of the Data Entry Matrix

ShortMonth	Jan - 15	Feb - 15	Mar - 15	Apr - 15
BrandName Product Name	Qty Prc_E	Qty Prc_E	Qty Prc_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
Apple 1l bottle	11 851 1,41	4 077 1,40	111 1,38	48 831 1,38 5

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.

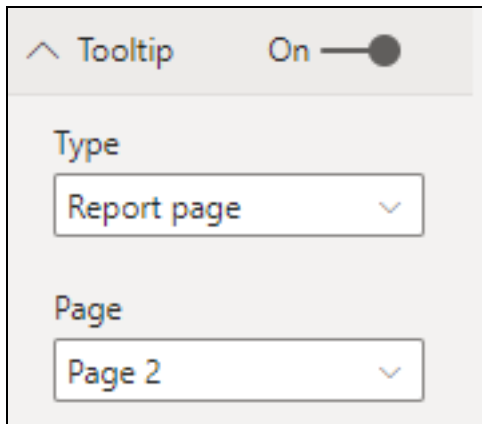
Customer Group Name	Total	ALDI		SAFeway		TARGET		TESCO	
Average of Discount	Average of Price	Average of Discount	Average of Price	Average of Discount	Average of Price	Average of Discount	Average of Price	Average of Discount	Average of Price
London	2,000.00	4,000.00	2,000.00	4,000.00	2,000.00	4,000.00	2,000.00	4,000.00	4,000.00
Total	303.57	460.27	303.57	460.27	303.57	460.27	303.57	460.27	460.27

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.

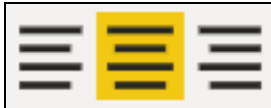
Position and Size

As for all visuals you can control the size of the matrix by setting Width and Height as well as the X and Y Positions. 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 Data	
BrandName ▲	Year	2015					
BrandName ▲	Product Name ▲ / ShortMonth	Total	Total				
APPLE	Apple 0.5l bottle	3 439 330	3 439 330				
	Apple 0.5l can 222ddd	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 Data	
BrandName ▲	Year	2015					
BrandName ▲	Product Name ▲ / ShortMonth	Jan - 15	Feb - 15 Ma				
APPLE	Apple 0.5l bottle	695	43 064				
	Apple 0.5l can 222ddd	69 114	65 000				
	Cola KEG 30l something	189 996	39 742				
	Whisky 25l	41 949	126 640				
	Total	301 754	274 445				

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:

Save Changes		Discard Changes		Set Goal Seek		Reload D	
Year ◀		2015					
BrandName ▲	Product 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:

Save Changes		Discard Changes		Set Goal Seek		Reload D	
Year		2015					
BrandName ▲	Product Name ▲ / ShortMonth	Jan - 15	Feb - 15	Ma			
APPLE	Apple 0.5l bottle	695	43 064	3			
	Apple 0.5l can 222ddd	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.

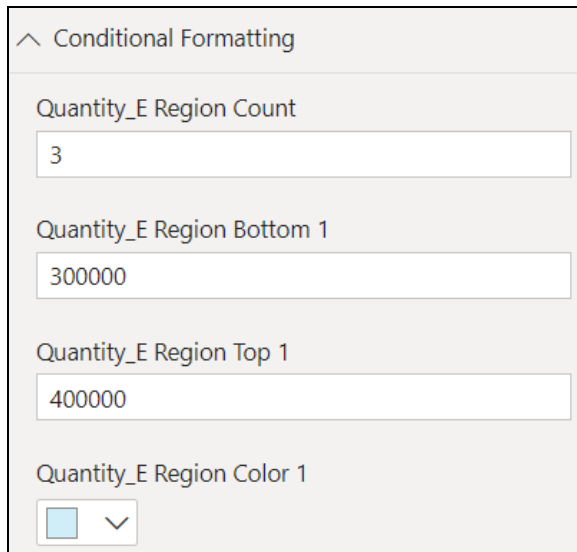
Row Sorting

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



Conditional Formatting

Quantity_E Region Count
3

Quantity_E Region Bottom 1
300000

Quantity_E Region Top 1
400000

Quantity_E Region Color 1
Light Blue

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.

Measure Name Source Measure Display Name

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

^ Conditional Formatting

Quantity_E Region Count

Quantity_E Source Measure Display Name

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.

Price_E Region Count

Price_E Region Bottom 1

Price_E Region Top 1

Price_E Region Color 1

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.

Save		Discard		Goal Seek		Reload Data		Refresh Comments									
Comment:																	
ShortMonth		Jan - 15		Feb - 15		Mar - 15		Apr - 15		May - 15		Jun - 15		Jul - 15		Aug - 15	
BrandName	Product 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	1,6
	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	53 814	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	54 518	2,14	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	396 946	2,08	727	1,45	440 060	1,4

Its result can be seen below:

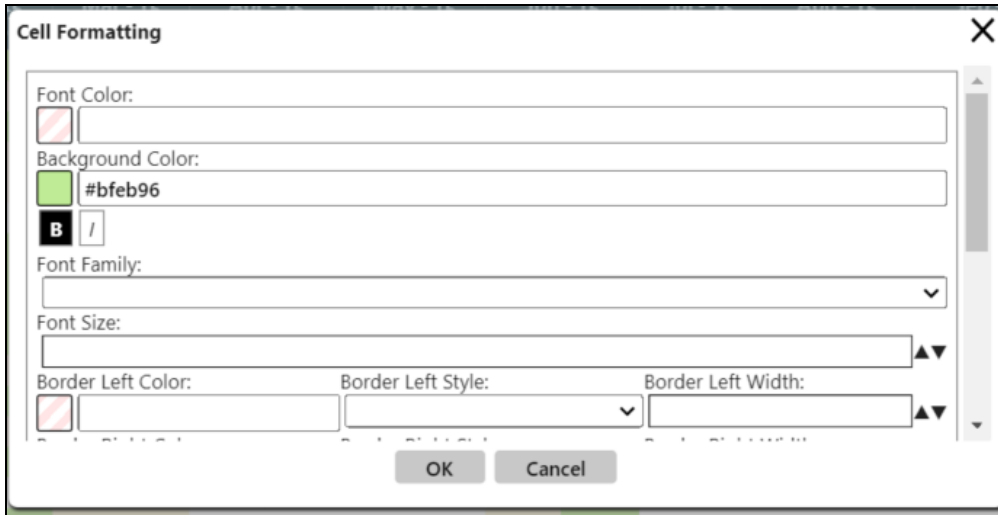
Formatting Measure

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.

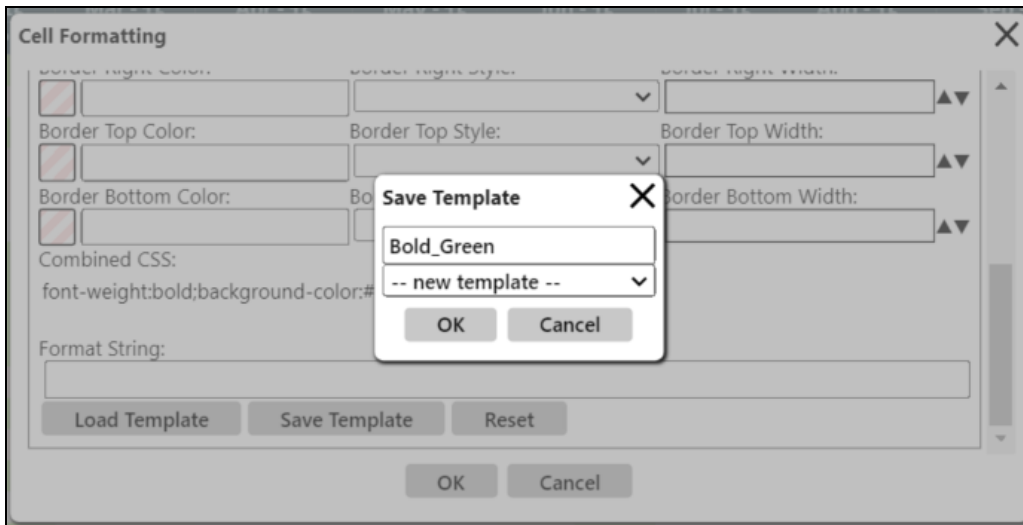
1. Open your DEMx related report in Power BI Desktop
2. Set the following styles:

786	1,032,051	88,630
235	1,8	13
511	3,7	Cell Formatting ;1
076	2,539,620	7,603,958

- a. Select the DEMx visual
- b. Right click on a cell à '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.
- e. Scroll down to the bottom of the window and save your settings as a template. Click on [Save Template], then OK button.



- f.
- 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:

```

1 StylingMeasure =
2 IF(
3     [Price_E] > 1.5,
4     "Bold_Green"
5 )
6 // Bold_Italics_Comic
7 // Italic_Courier
8 // Bold_Green
    
```

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

ShortMonth		Jan - 15			Total			Feb - 15			Mar - 15			April - 15			
BrandName	Product Name	Qty	Prc_E	StylingMeasure	Qty	Price_E	StylingMeasure	Qty	Prc_E	StylingMeasure	Qty	Prc_E	StylingMeasure	Qty	Price_E	StylingMeasure	
APPLE	Bpple o.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	17,419	
	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_Green	2,903
	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	Bold_Green	17,419
	Apple o.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_Green	52,257
	Apple o.5l bottle3	84,698	3.49	Bold_Green	1,187,400	1.45	Bold_Green	113,660	1.41	Bold_Green	22,918	1.90	Bold_Green	4,449	0.94	Bold_Green	17,419
	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	Bold_Green	107,417
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	Bold_Green	132,255	1.56	Bold_Green	197,870
	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	Bold_Green	132,255	3.60	Bold_Green	197,870
	Total	356,818	3.85	Bold_Green	5,646,618	2.41	Bold_Green	768,362	2.89	Bold_Green	799,164	1.09	Bold_Green	264,510	2.58	Bold_Green	395,739
ORANGE	Orange o.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_Green	129,346	
	Orange o.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	Bold_Green	77,919
	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_Green	207,265
TONIC	Tonic o.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	Bold_Green	194,700	1.13	Bold_Green	630,008
	Tonic o.5l	29,664	3.45	Bold_Green	2,512,856	2.35	Bold_Green	331,809	3.51	Bold_Green	142,712	1.04	Bold_Green	194,700	1.57	Bold_Green	422,105
	Total	195,784	2.96	Bold_Green	5,374,790	2.02	Bold_Green	524,258	3.01	Bold_Green	570,849	0.90	Bold_Green	389,400	1.35	Bold_Green	1,052,113
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_Green	1,762,535

5. Enable StylingMeasure as Formatting Measure property à 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.

ShortMonth		Jan - 15		Feb - 15		Mar - 15		Apr - 15		May - 15		Jun - 15		Jul - 15		Aug - 15	
BrandName	Product 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 o.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 o.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 o.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 o.5l can	13,044	1.93	21,849	1.91	35,572	1.88	31,557	1.86	105	1.85	58,358	2.38	78	1.85	38,970	1.85
	Orange o.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	61,166	1.58	67,050	1.57	227	1.55	58,716	2.11	137	1.56	74,645	1.55
TONIC	Tonic o.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 o.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	336,336	2.08	727	1.45	440,060	1.45

6. An additional, empty property appears with this setting, called StylingMeasure Target Measure Display Name.

7. What you give in here, for that measure (Quantity_E; Price_E) the setting will be valid.

8. With Quantity_E:

FormattingMeasure Target Measure Display Name

Save		Discard		Goal Seek		Reload Data		Refresh Comments									
Comment:																	
ShortMonth		Jan - 15		Feb - 15		Mar - 15		Apr - 15		May - 15		Jun - 15		Jul - 15		Aug - 15	
BrandName	Product 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	2.56	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	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

9. With Price_E:

Formatting Measure Target Measure Display Name

Save		Discard		Goal Seek		Reload Data		Refresh Comments									
Comment:																	
ShortMonth		Jan - 15		Feb - 15		Mar - 15		Apr - 15		May - 15		Jun - 15		Jul - 15		Aug - 15	
BrandName	Product 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	2.56	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	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

10. 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		Jun - 15		Jun - 15	
Qty	Price_E	Qty	Price_E	Qty	Price_E
20 392	2,23	20 392	2,23	20 392	2,23
33 766	1,89	33 766	1,89	33 766	1,89
38 112	2,34	38 112	2,34	38 112	2,34
69 899	1,28	710	1,28	710000	1,28
63 329	1,91	63 329	1,91	63 329	1,91
225 497	1,93	156 309	1,93	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.: 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
200 000	3,00
600 000	2,00

Dynamic Totals

Quantity_E Dynam.

Quantity_E Aggregation ...

Quantity_E Weight Meas...

Dynamic Spread

Measure Name 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.](#))

Cascade Spreads to Lowest Level

This setting in **Data Entry** enables dynamic spreading at the lowest granularity; the total values propagating down to the lowest level. When you modify a yearly figure, the change automatically spreads to the month level. If this setting is disabled, spreading occurs only at the total level.

Fix Totals

Measure Name 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%.

Quantity_E Fix Totals

Row

After enabling Qty Fix Totals:

Jun -15		
E	Qty	Price E
52	20 392	2,23
57	33 766	1,89
70	38 112	2,34
93	69 899	1,28
99	63 329	1,91
10	225 497	1,93

à

Jun -15		
E	Qty	Price E
52	23 973	2,23
57	39 697	1,89
70	5200	2,34
93	82 175	1,28
99	74 452	1,91
10	225 497	1,93

Highlight

Highlight Font Color

Highlight Background Color

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.

Jun - 15		
	Qty	Price_E
2	20 392	2,23
7	33 766	1,89
1	38 112	2,34
8	69 899	1,28
9	63 329	1,91
0	225 497	1,93
3	1 842	2,11
4	21 216	2,25
9	23 058	2,18
5	53 814	
6	704	1,73
5	54 518	
8	44 609	1,55
7	49 263	2,16
5	93 872	1,86
5	896 946	2,00

BrandName	ShortMonth	Jan - 15	
	Product Name	Qty	Prc_E
- APPLE	Apple 2.5l (KEG)	11 078	1,74
	Apple 1l bottle	22 156	1,41
	Apple 0.5l cann	29 449	1,77
	Apple 0.5l bottle3	2 609	0,98
	Apple 0.5l KEG	88 624	1,45
	Total	153 915	1,47
	CO2A	55 390	1,69

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.

ShortMonth	Feb - 15	Mar - 15	Apr - 15	May - 15	Jun - 15	Jul - 15	Aug - 15	Sep - 15	Oct - 15	Nov - 15	Dec - 15	Total													
BrandName	Qty	Price_E	Qty	Price_E	Qty	Price_E	Qty	Price_E	Qty	Price_E	Qty	Price_E													
- APPLE	Apple 2.5l (KEG)	8 889	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
	Apple 1l bottle	1 037	1,40	201	1,38	48 718	1,38	18 800	1,37	33 766	1,89	19 034	1,37	98 361	1,37	20 503	1,37	15 500	1,38	33 366	1,40	38 589	1,37	341 361	1,40

Jul - 15		
	Qty	Price_E
8	12 601	1,61
9	19 034	1,37
4	19 162	1,70
8	34 057	0,93
1	31 729	1,38
8	116 584	1,40
1	11 074	1,53
5	11 245	1,63
8	22 319	1,58
5	25 175	1,85
8	18 856	1,26
8	44 031	1,56
5	23 265	1,13
5	27 862	1,57
5	51 127	1,35
5	234 061	1,45

Spread Highlight

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

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.

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 Product Name	Jan - 15		Feb - 15		Mar - 15		Apr - 15		May - 15		Jun - 15		Jul - 15		Aug - 15		Sep - 15		Oct - 15		Nov - 15		Dec - 15	
		Qty	Price	Qty	Price	Qty	Price	Qty	Price	Qty	Price	Qty	Price	Qty	Price	Qty	Price	Qty	Price	Qty	Price	Qty	Price	Qty	Price
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	1,68
	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	1,38
	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	1,73
	Apple 0.5l bottles	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	0,95
	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	1,43
	Total	153 915	1,47	92 457	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	1,44

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

Save Changes Label

Save

Discard Changes Label

Discard Changes Label

Discard

Save Comment Label

Save Comment Label

Save Comment

Set Goal Seek Label

Set Goal Seek Label

Goal Seek

Reload Data Label

Reload Data Label

Reload Data

Refresh Comments Label

Refresh Comments Label

Refresh Comments

Fetch More Label

Fetch More Label

Fetch More

Reset Filters Label

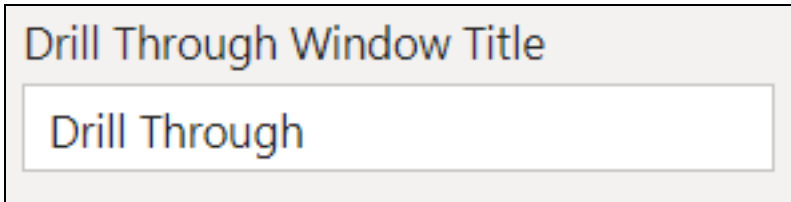
Reset Filters Label

Reset Filters

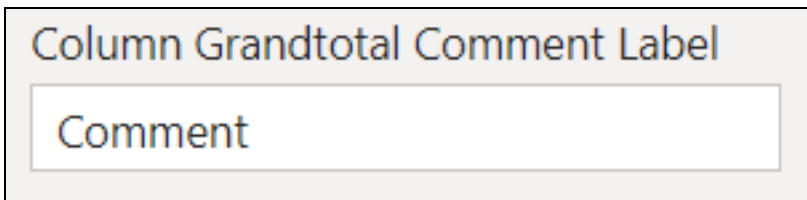
Show All Label



Drill Through Window Title



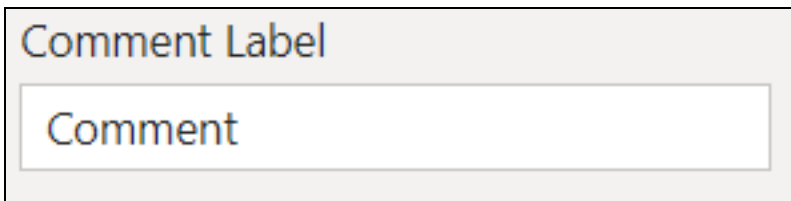
Column Grandtotal Comment Label



Totals Label

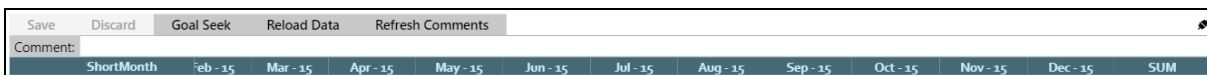


Comment Label



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:



Comment:		
PRODUCTS		Apr - 15
		Qty Price
-	APPLE Apple 2.5l (KEG)	32 437
	Apple 1l bottle	48 831

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:

The screenshot shows a data grid with columns for months from Jan-15 to Dec-15 and a Total column. The grid contains data for various brands and products. On the right side, there is a 'Filters' sidebar with a search bar and two settings: 'Outline color' (set to a dark blue) and 'Outline weight' (set to 5).

BrandName	Product Name / 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	Total
APPLE	Apple 0.5l bottle	1 310	1 079 970	4 456 139	3 841 934	3 925 982	8 134 774	4 585 300	3 933 894	3 401 337	4 747 661	5 526 645	5 020 183	48 65
	Apple 0.5l can	954 473	724 476	771 040	2 373 613	144 145	3 320 079	2 226 317	2 102 730	2 046 290	2 320 885	2 308 642	2 570 251	21 87
	Cola 0.5l bottle	2 234 363	1 437 898	2 914 103	3 120 815	3 553 632	6 134 844	3 412 967	3 983 963	3 193 445	5 133 404	4 678 791	3 846 664	43 64
	Cola KEG 30l something	3 872 480	932 130	4 924 780	1 195 782	1 583 658	402 434	1 604 728	1 475 404	3 384 944	1 857 535	1 972 968	1 644 362	24 85
	Whisky 25l	583 964	922 256	1 634 108	2 480 503	1 397 059	2 461 063	1 516 286	1 427 569	1 212 490	1 762 153	1 741 691	1 595 551	18 73
Total	7 646 590	5 096 730	14 700 170	13 012 648	10 604 476	20 453 193	13 345 598	12 923 559	13 238 506	15 821 638	16 228 737	14 685 011	115 75	
COLA	Cola 0.5l can	1 100 748	889 505	2 048 721	2 474 507	3 618 061	5 986 021	3 191 365	3 093 619	2 217 726	3 189 010	5 147 127	3 099 851	36 05
	Total	593 596	480 627	917 395	1 078 713	1 137 002	1 991 283	1 173 738	1 172 257	1 286 159	1 534 598	1 540 924	1 425 915	14 33
ORANGE	Cola DAVID 20l	1 578 521	704 493	1 672 587	2 367 274	2 594 167	3 026 083	1 924 777	2 504 166	1 306 455	1 108 399	2 634 562	2 744 557	24 16
	Total	2 172 117	1 185 120	2 589 982	3 445 987	3 731 169	5 017 366	3 098 515	3 676 424	2 592 613	2 642 998	4 175 485	4 170 472	38 49
TONIC	Orange 0.5l asdfasd	1 141 353	973 161	2 070 738	2 147 195	2 418 014	4 488 673	2 159 325	2 373 905	1 878 244	2 624 092	2 756 141	3 080 823	28 11
	Tonic 0.5l bottle	1 352 373	796 308	2 222 411	1 829 522	2 027 257	4 234 056	2 547 692	3 938 523	2 313 635	2 796 862	3 048 865	2 447 896	29 55
	Tonic 0.5l can	1 430 174	1 054 568	2 590 957	2 545 629	3 313 298	5 191 684	3 231 116	2 994 855	3 795 319	3 590 829	5 069 844	3 828 489	38 63
Total	3 923 899	2 824 037	6 883 715	6 522 346	7 758 560	13 914 413	7 938 133	9 307 284	7 987 198	9 011 784	10 874 851	9 357 207	96 30	
Total	14 843 355	9 995 393	26 222 588	25 455 488	25 712 275	45 370 993	27 573 610	29 000 885	26 036 043	30 665 429	36 426 200	31 312 541	328 61	

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

The screenshot shows the same data grid as above. The 'Filters' sidebar on the right has 'Vertical grid' checked, 'Vertical grid color' set to a dark blue, and 'Vertical grid weight' set to 3.

Horizontal grid settings affect the borders between rows:

The screenshot shows the same data grid as above. The 'Filters' sidebar on the right has 'Horizontal grid' checked, 'Horizontal grid color' set to a dark blue, and 'Horizontal grid weight' set to 3.

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.

- If there are multiple SmartFilters with slicers in a report containing a Data Entry Matrix, not all of them may load onto the page before you modify data in the matrix. This can result in an inappropriate value being saved to the database. To avoid such issues,
 - set "SmartFilters On Page" to match the number of SmartFilters on the report page.
 - enable "Force Slicer Resend" on all SmartFilters.

Therefore, the **"Save Changes"** button is disabled until all slicers and SmartFilters are loaded onto the report page. It allows Data Entry Matrix to keep track of the number of SmartFilters.

With zero or empty value the visual behaves as in previous versions. This setting works only with the latest SmartFilter Helper visual (v21.4).

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

Save Changes		Discard Changes		Set Goal Seek		Reload
BrandName ▲	Product Name ▲ / ShortMonth	Jan - 15	Feb - 15	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.

Save Changes		Discard Changes		Set Goal Seek		Reload
BrandName ▲	Product Name ▲ / ShortMonth	Jan - 15	Feb - 15	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.

Save Changes		Discard Changes		Set Goal Seek		Reload Data	
BrandName ▲	Product 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 222ddd	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		

Save Changes		Discard Changes		Set Goal Seek		Reload Data	
BrandName ▲	Product 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 222ddd	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

,43	2 804	1
,45	43 345	1
,63	1 118	1
,78	1 082	1
,71	2 200	1
,91	59 208	1

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

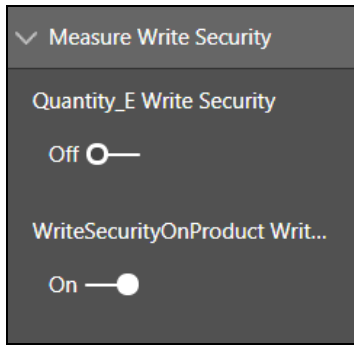
After saving, [Discard Changes] button remains alive. If you click on it, the highlight of goal-sought values disappears.

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	Product Name	Jan - 15	Feb - 15	Mar - 15	Apr - 15	May - 15	Jun - 15	Jul - 15	Aug - 15	Sep - 15	Oct - 15	Nov - 15	Dec - 15	Total
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	147 690	255 200	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	127 459	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 (""), 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.

Save		Discard	Goal Seek	Reload Data	Refresh Comments																			
Comment:																								
ShortMonth	Jan - 15	Feb - 15	Mar - 15	Apr - 15	May - 15	Jun - 15	Jul - 15	Aug - 15	Sep - 15	Oct - 15	Nov - 15													
BrandName	Product Name	Qty	Prc	E	Qty	Prc	E	Qty	Prc	E	Qty	Prc	E	Qty	Prc	E	Qty	Prc	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	12 364	1,63	11 681	1,66	14 124	1,69	23 356
	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	38 950
	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	31 170
	Apple 0.5l bottles	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	4 960
	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	56 000
	Total	82 327	1,47	92 452	1,45	23 793	1,42	170 542	1,41	74 314	1,40	325 497	1,93	362	1,40	285 320	1,40	111 667	1,41	94 836	1,42	147 187	1,45	150 900
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	22 200
	Cola 2l KEG	5 329	1,84	10 485	1,78	406	1,71	18 011	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	19 900
	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	41 800
ORANGE	Orange 0.5l can	13 044	1,93	21 849	1,91	32 501	1,86	31 557	1,86	105	1,85	53 814	1,78	78	1,85	38 970	1,85	27 424	1,86	29 044	1,88	30 984	1,91	36 000
	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	40 000
	Total	23 793	1,63	32 165	1,60	58 095	1,57	67 050	1,57	227	1,55	54 518	1,73	137	1,56	74 645	1,55	54 265	1,56	43 789	1,58	60 914	1,60	76 000
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	35 000
	Tonic 0.5l	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	103 000
	Total	63 027	1,53	198 885	1,51	141 978	1,48	393 332	1,47	78 045	1,45	396 946	1,72	727	1,45	440 060	1,45	255 869	1,46	251 003	1,48	317 464	1,50	372 000

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.

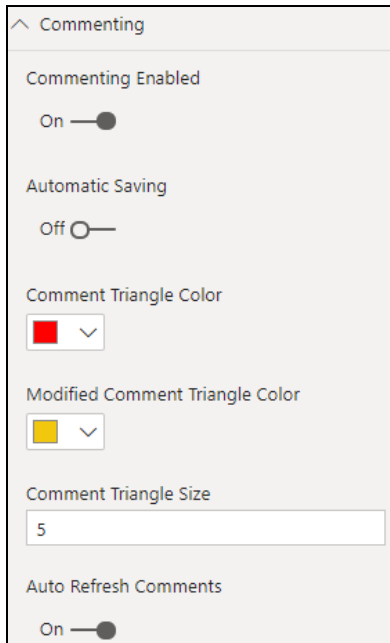
A comment record contains:

- 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.



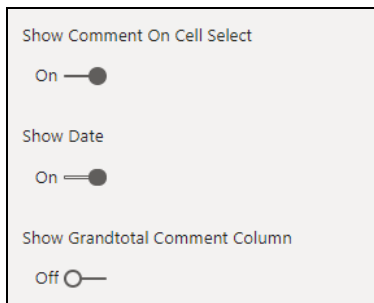
Automatic Saving: If it is enabled, comments are automatically saved after changes. If you start typing into the comment input field and stop typing or leave the selected cell, the comment is saved automatically.

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.

Comment:		ShortMonth	Apr -15	May -15	Jun -15	Jul -15	Aug -15	Sep -15	Oct -15	Nov -15	Dec -15	Total	Comment								
BrandName	Product Name	Qty	Price_E	Qty	Price_E	Qty	Price_E	Qty	Price_E	Qty	Price_E	Qty	Price_E								
APPLE	Bpple o.5l KEG	38	1,40	86 400	8,57	45 780	2,48	85 332	1,38	70 014	1,39	175 524	1,40	95 731	1,41	197 400	1,43	230 846	1,39	1 399 583	2,42
	Apple 2.5l (KEG)	93	1,64	14 400	4,18	15 260	2,89	60 132	1,61	44 248	1,61	59 678	1,63	95 731	1,66	197 400	1,69	155 296	1,62	909 237	2,35
	Apple 1l bottle	75	1,31	86 400	3,38	70 501	2,34	109 400	1,30	109 526	1,30	184 301	1,31	95 731	1,32	197 400	1,33	132 911	1,31	1 404 635	1,90
	Apple o.5l cann	50	1,72	259 200	7,29	183 120	3,03	54 700	1,70	67 022	1,70	175 524	1,71	95 731	1,73	197 400	1,75	139 906	1,71	1 392 746	2,69
	Apple o.5l bottles	56	0,94	86 400	2,40	45 780	1,65	54 700	0,93	98 756	0,93	596 783	0,94	95 731	0,94	197 400	0,96	151 099	0,93	1 405 411	1,45
	Total	70	1,40	532 800	5,17	360 441	2,48	364 264	1,39	389 566	1,39	1 191 811	1,40	478 655	1,41	987 000	1,43	810 058	1,39	6 511 612	2,16
COLA	Cola 3l KEG	17	1,56	378 288	3,96	288 378	4,65	28 829	1,53	283 784	1,52	337 837	1,54	434 339	1,57	277 350	1,62	1 772	1,54	3 310 802	2,25
	Cola 2l KEG	17	3,60	378 288	4,25	883 783	4,95	28 829	1,63	283 784	1,63	337 837	1,65	434 339	1,69	277 350	1,75	1 772	1,65	3 725 026	2,58
	Total	34	2,58	756 575	4,10	1 172 162	4,80	57 657	1,58	567 567	1,57	675 675	1,60	868 678	1,63	554 700	1,69	3 543	1,59	7 035 828	2,41
ORANGE	Orange o.5l can	30	1,86	109 200	4,78	90 800	1,73	312 441	1,85	44 789	1,85	206 278	1,86	77 924	1,88	111 244	1,91	239 000	1,86	1 210 326	1,91
	Orange o.5l bottle	30	1,27	109 200	3,24	74 890	2,10	312 441	1,26	52 100	1,26	206 278	1,27	77 924	1,28	111 244	1,29	239 000	1,27	1 292 527	708,93
	Total	60	1,57	218 400	4,01	74 890	1,93	624 882	1,56	96 889	1,55	412 556	1,56	155 847	1,58	222 488	1,60	478 000	1,56	2 502 853	1,91
TONIC	Tonic o.5l bottle	73	1,13	228 273	2,90	294 870	3,76	177 177	1,13	177 178	1,13	161 000	1,13	176 727	1,13	368 741	1,13	47 100	1,13	2 270 066	625,93
	Tonic o.5l	73	1,57	228 273	4,04	294 870	5,24	44 294	1,57	177 455	1,57	161 000	1,57	176 727	1,57	47 200	1,58	378 378	1,57	1 751 103	870,40
	Total	146	1,35	456 546	3,47	589 740	4,50	221 471	1,35	195 173	1,35	322 000	1,35	353 453	1,35	415 941	1,35	425 478	1,35	4 021 169	748,16
Total		70	1,64	1 964 321	4,45	2 197 238	4,80	1 268 274	1,44	1 249 195	1,44	2 602 042	1,45	1 856 633	1,47	2 180 129	1,49	1 717 079	1,45	10 071 462	1,91

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 VPCConnection 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>

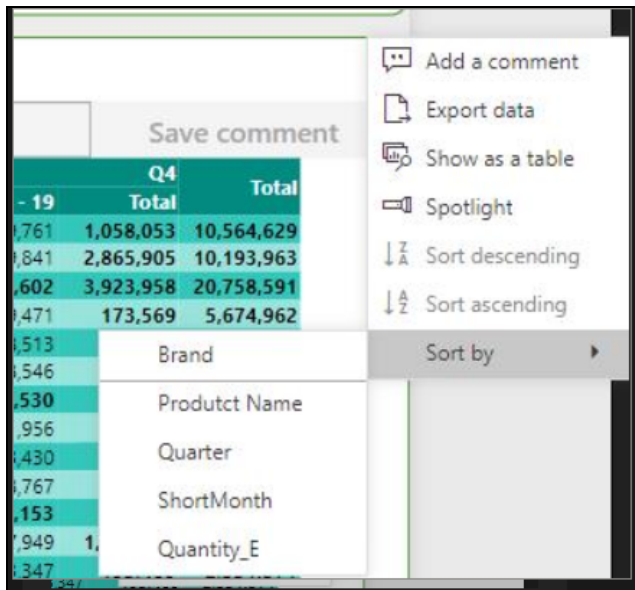
Models with Calculated Tables and Columns

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:

1. ChangeDate - time of change
2. ChangedBy - name of the user who committed the change
3. Tuple - the cell's tuple or coordinate
4. OldValue - original value of the cell
5. 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
```

Data Entry Matrix Troubleshooting Guide

This topic explains how to diagnose and fix the following common problems that can occur when working with the Data Entry Matrix visual.



Note: To review all cases, log in to <https://help.insightsoftware.com/> and access the Power ON Knowledge Base articles. For further assistance, you can also submit a ticket through this support portal.

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: [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:

- [How to update the service manually - Azure Cloud](#)
- [How to update the service manually - On Premises](#)

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: [Troubleshooting IIS Windows Authentication with Kerberos](#)

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: [Clear Power BI Desktop 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://help.insightsoftware.com/>