Write-back & Planning for Power BI. Period

Power ON Visual Planner

BarChart v1.5 Documentation & Troubleshooting Guide

Contents

Introduction 3
Overview 3
Support 4
Versions 4
Prerequisites 5
Write-back Service 5
VPService visual 6
How to configure VPService visuals 7
Warning message 7
Updating from an older version of BarChart to v1.5.1 8
Tabular Model requirements 9
Limitations 10
Setup and configuration of the visual 11
Validate the write-back service 11
Setting up the basics 11
Add dimensions and measures 12
Publishing and testing the report 12
Configuration 13
WebService 13
Type 13
Connection 14
General 14
Version 14
Data Entry (settings) 14
Windows Authentication 14
DirectQuery 15
Customer 15
Domain 15
Initial Refresh 15
Commenting 16
Commenting Enabled 16
Show Comment Timestamp 16
Show Comment Username 16

Color Settings 17
Chart Options 18
Dragging Precision 18
Percent Dragging Precision 18
Chart Style 18
Legend Position 19
Percent View 20
Transparent background 21
Line Styles 21
Importance of SmartFilter helper visual 22
Performance optimization 22
Models with calculated tables and columns 23
Advanced configuration 23
Troubleshooting 24
Network Error 25
The visual is not working in Power BI Desktop or the settings are not shown. 26
Save Failed 26
Wrong figures were saved 27

Introduction

This document describes Power ON's **write-back** capable tool: **BarChart** The product is a custom visual developed for Microsoft's Power BI, that enhances the user experience by enabling end users to make permanent changes on data – aka write-back – by targeting measures, DAX expressions. On the following pages you will see a **detailed** overview of the BarChart, you will learn how to use it in your reports together with some common use-case implementations, how to configure it properly and what are the pitfalls you might encounter and how to overcome them. ú

Audience

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

Contact us

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

Overview

Power ON's BarChart let users make changes on figures that are the results of DAX expressions defined aggregations. In traditional dimensional modelling, these aggregations are calculated on fact tables and the context of the calculation is defined by the dimensions that are in relationship with the fact table. BarChart makes updating the result of your measures possible.

BarChart offers the following built-in features and components:

- Writing back values to the underlying data source
- Making changes on figures by using drag and drop on data points
- Changing the ratio of data points while keeping the total values
- Creating comments on data points

It is worth to describe in high level **how write-back works** for Tabular models. Depending on your data source (SSAS In-Memory, SSAS Direct Query or SQL only) Power ON's write-back service performs the following operations:

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

Support

Check out **Power ON's Knowledge Base** articles at: https://support.poweronbi.com under Visual Planning for common use cases, tips, troubleshooting tools.

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

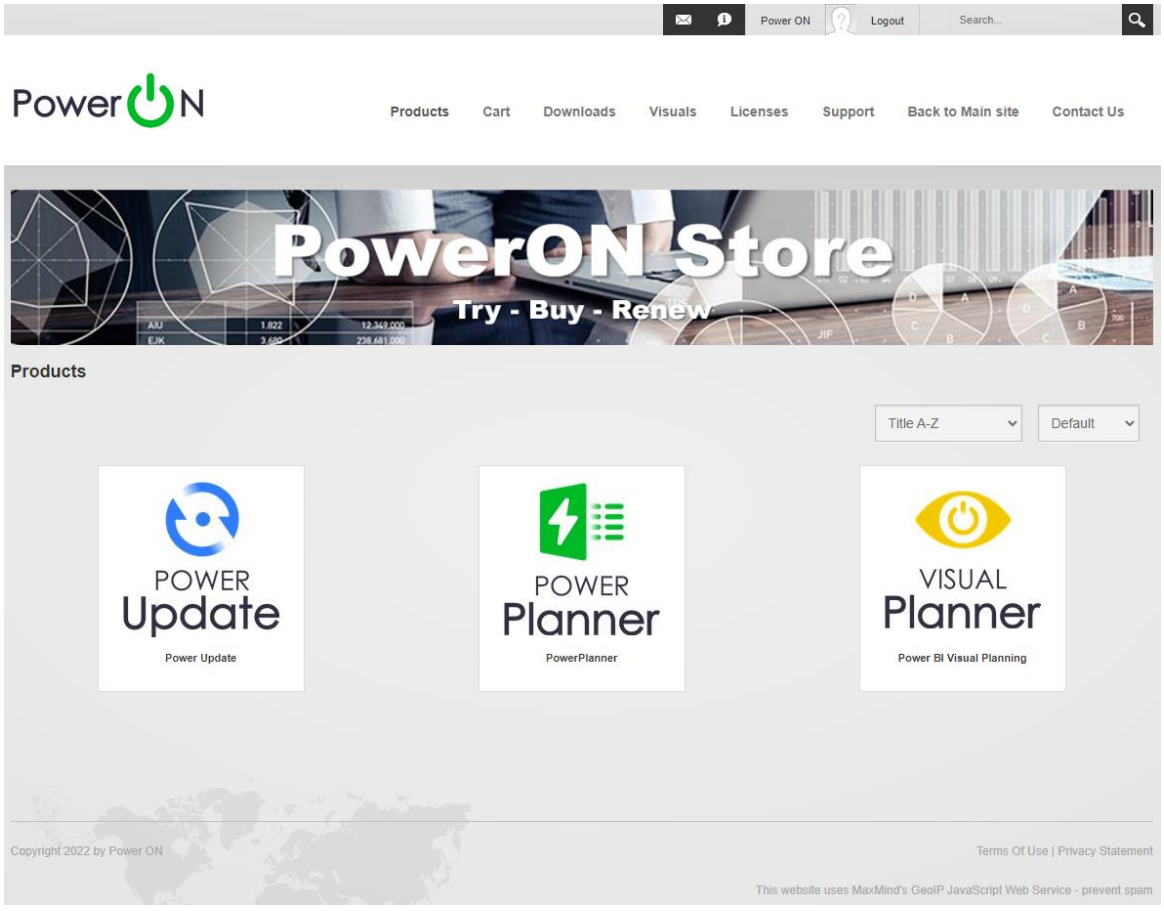
Versions

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

The most recent visual is **barChart v1.5.1.pbiviz**.

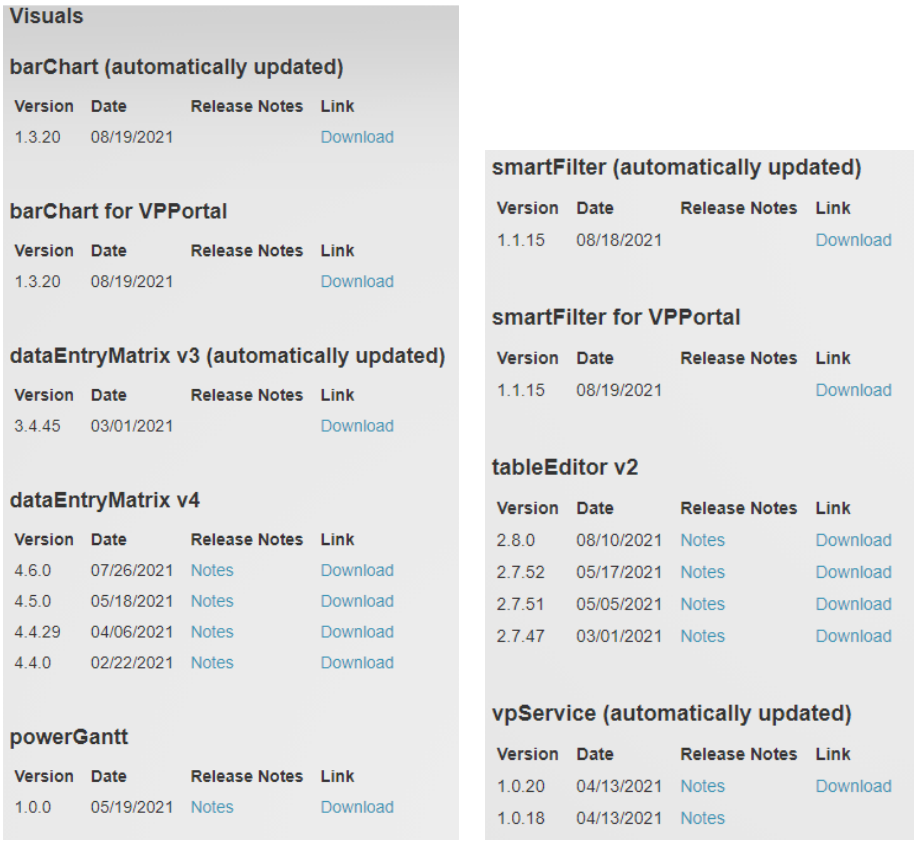
How can you download the different versions?

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



3. Click on **Visuals**

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



Visuals

barChart (automatically updated)

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

barChart for VPPortal

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

dataEntryMatrix v3 (automatically updated)

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

dataEntryMatrix v4

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

powerGantt

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

smartFilter (automatically updated)

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

smartFilter for VPPortal

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

tableEditor v2

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

vpService (automatically updated)

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

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

Prerequisites

Write-back Service

You must have a working and **configured write-back service** (PPWebService) installed in your environment. If that is set, in order to build a report, you first must **import the BarChart pbiviz** file into your Power BI Desktop instance. The visual can be found in your **installation folder under Resources\PPWebService** in the **VPDemo.zip** archive file.
Also, BarChart can be converted from other Power BI Visuals, like other custom visuals in Power BI.

Before you begin make sure that you have a properly configured write-back service (PPWebService) that is accessible from the point of the report server.

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

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

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

Connections to the data sources should be configured by your IT team. Please refer to the following article in our knowledge base on how to add ones at:

https://support.poweronbi.com/portal/kb/articles/how-to-add-a-new-data-source-for-write-back

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

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

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

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

- data reader membership on the SSAS cube

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

VPService visual

The VPService is a helper visual which establishes the connection between our newest visuals and the write-back service.

The benefits of this solution:

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

The functions of VPService:

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

How to configure VPService visuals

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

Add the VPService helper visual to your Power ON visual related report.

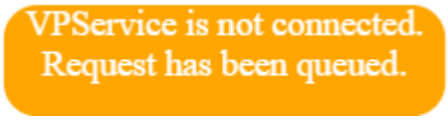
Add an arbitrary field to VPService visual, e.g.: an ID.

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

Warning message

This warning message can be seen, when

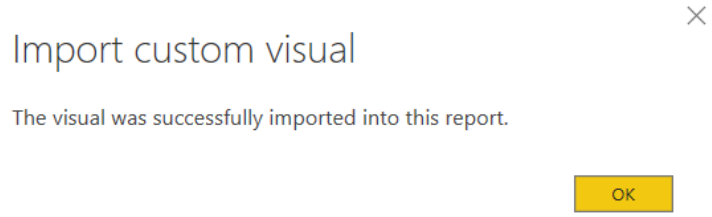
- the report is in *Edit mode*,
- the user is building the report *in PowerBI Desktop*,
- the report is in Reading View mode and the user tries to save the changes and *there is no VPService connection* OR the *URL of VPService is not exactly the same as in BarChart* (has to consider the case sensitivity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

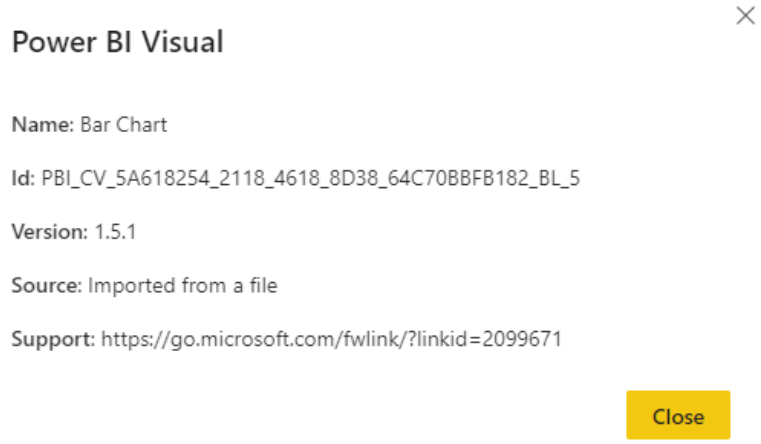
  This applies to all VPService based visuals (e.g.: version > TE v2.7.23, DEMx v4.x, PowerGantt visuals).

Updating from an older version of BarChart to v1.5.1

1. Download the newest version from the above URL.
2. Pick a BarChart related report and download its .pbix file from: [File] » 'Download the .pbix file'
3. Rename the downloaded report to keep the original version and open it in PowerBI Desktop.
4. Click on the three dots in **Visualizations** pane: ...
5. Choose [Import a visual from a file] --> [Import]
6. Find the downloaded visual file (barChart_v1.5.1.pbiviz). Most probably it has been saved into your [Downloads] folder. Click on it to be selected. After the selection its name will be seen in 'File name:', at the bottom of the pop-up window.
7. Click on [Open]
8. You will be notified about the successful import, so click on [OK].



If you go above its icon, in its ToolTip you will see the same text: Bar Chart.
If you **right click** on them and choose 'About' from the appeared menu, a pop-up window will tell you everything about the visual. This is how you can check their version number.



9. Select the BarChart visual in your report and click on that Power ON BarChart icon, which version is 1.5.1. The visual in the report becomes the newer version and all your previous settings remain the same.

Tabular Model requirements

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

The followings conditions must meet regarding your SSAS Tabular Model:

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

Limitations

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

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

Setup and configuration of the visual

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

Validate the write-back service

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

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

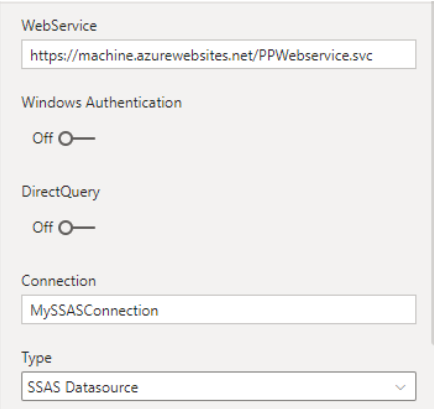
If you see the following page after the page load, then the Write-back Service is up and running.

Setting up the basics

After you launched Power BI Desktop, connected to a data source, and imported the visuals (VPService, BarChart) 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.

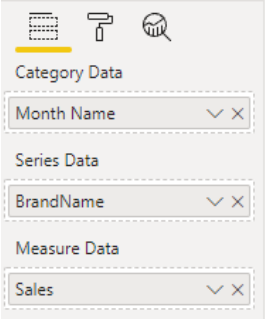
The configuration options will appear in the Format section of the Visualizations **after** you dropped the first column into the **BarChart** visual. You must complete the following steps in order to have a working report element for the write-back functionality.



Starting with [BarChart], you must set the **WebService**, **Connection** and **Type** properties (see referring chapters) to make the write-back service working.

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

Last but not least please make sure you use the chart properly, meaning adding measure(s) to the Measure Data and dimensions to Category Data (and Series Data). A chart supports multiple measures or one measure with one series dimension. Dimensions are usually text or date(time) type of values, the measures are numeric values.



Add dimensions and measures

Simply add some fields into the Category Data and Series Data sections of the visual and add a write-back compatible measure.

Publishing and testing the report

When you finished with your report, publish it to either your on-premises Power BI Report server, or to PowerBI.com. The **write-back will work** reliable **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 BarChart visual.

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

Configuration

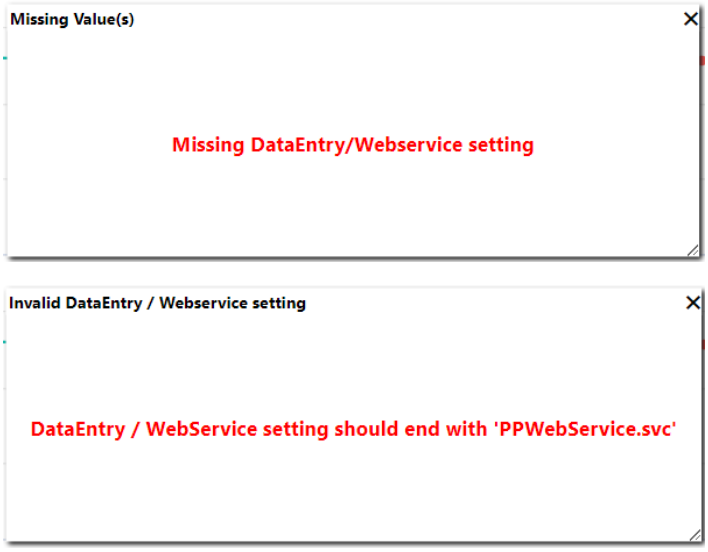
This chapter contains the configurations regarding the connectivity with the write-back service.

WebService

Here you must set the write-back service URL which should point to the hosting machine – or app service – where it was installed. Typical URL is:
http(s)://WEBSERVICE_COMPUTER_NAME/PPWebservice/PPWebservice.svc

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

In case of missing or incorrect Web service URL, an error message pops up during the first write-back operation:



Type

This option is referring to the connection type that the write-back service will use. The setting is required.

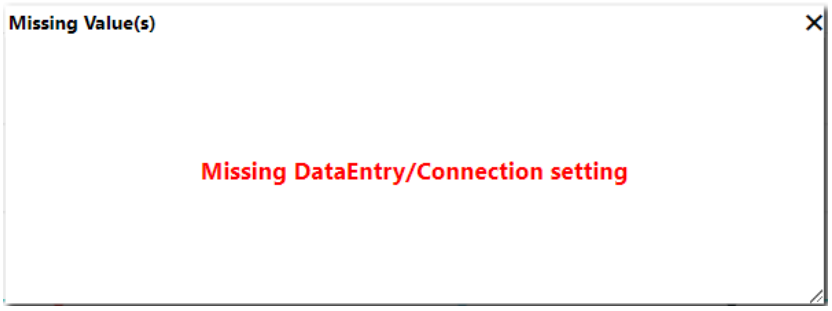
- *SQL*: Set the connection string directly in the Connection property (leave the connection blank if using the default "**SQLConnection**" in set **in the web.config** of the write-back service)
- *SQL Datasource*: The connection is set in the PPWebService web.config and you will have to refer it by its name in the Connection property. Note: without an SSAS semantic model on top of your SQL database, SQL connections are only supported, if the relationships defined in your PowerBI report exists in your database with foreign key constraints, and only simple measures are used.
- *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.

In case of missing Connection, an error message pops up during the first writeback operation:



General

Version

It provides the version number of the current visual.

Data Entry (settings)

Windows Authentication

If you are in an on-premises environment using Power BI Report Server and Windows Authentication is turned on in the IIS for the write-back service 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 case of Gateway by 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 possible to use impersonation, and it is **necessary to be turned on** if **Windows Authentication** is set in **IIS** for the write-back service.

DirectQuery

Legacy option, the type of the SSAS model (if present) is determined automatically and will be removed in future releases.

Customer

Customer name provided by us along with the License server license key. If already specified in the web.config file (generally, you don't have to set this at it is done by the setup), **leave blank. If you are sharing one webservice between multiple license keys, specify here the customer key you want to use.**

Domain

Set it to one of the following. Generally, 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 Active Directory 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

Initial Refresh

Only affects how the data is retrieved when the visual is first rendered on the report page. If turned off the matrix will use the PowerBI cache –if available – to retrieve data. If turned on, the matrix will reach out to the SSAS model to fetch the most up to date data. The background is that PowerBI caches cell data for faster report rendering. It is mostly utilized when you have multiple report pages, and you navigate between them. Therefore, by default the BarChart has this setting enabled, so that when the visual rendered it will always connect to the underlying SSAS model to get data, and it will not use the cache. This is for concurrent workloads, as it might happen that after you made changes someone else also did, and if you navigated away and back, you might not see the change that was committed by the other user.

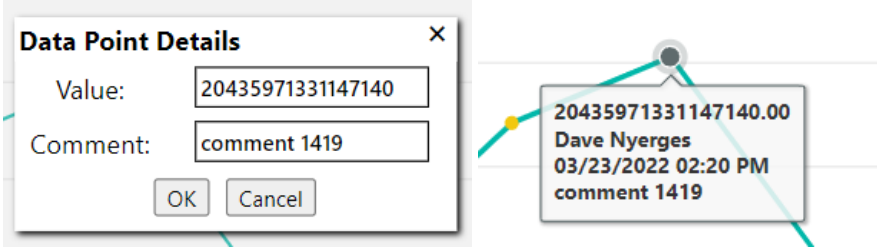
Commenting

Commenting Enabled

Turning ON this property gives the possibility to users to add comments to each data point.

Double clicking on a point brings up a small window where you can edit the value and the corresponding comment. To save the data and comment, press the [Save changes] button.

Hover on a data point the comment will be shown in the tooltip.



To refresh the comments on the visual press the [Reload Data] button on the top ribbon of the visual.

The commenting feature of Barchart can work together with a DEMx visual. Comments written on the Barchart will be visible on the same dimension total members on DEMx and vice versa. (Saved in the same comments table, with the same JSON structure)

Show Comment Timestamp

By default, it is turned ON. Turning OFF removes the timestamp from the data point's tooltip.

Show Comment Username

By default, it is turned ON. Turning OFF removes the username from the data point's tooltip.

Color Settings

Chart style is set to *Line Chart*:

Every measure on the chart will be appearing under the [Color settings] and you can change their line colors with the regarding Color picker. If you have only one measure it will change only the color of the line but if there are multiple ones it effects the data points as well. When you have only one measure on the chart you can change the color of the data points by the values of Category Data (X axis).

Chart style is set to *Bar Chart*:

You can set the color of each bar by the values of Category Data or by measures if you have multiple ones. When you have only one measure and changing its color, it will affect only the color of the legend.

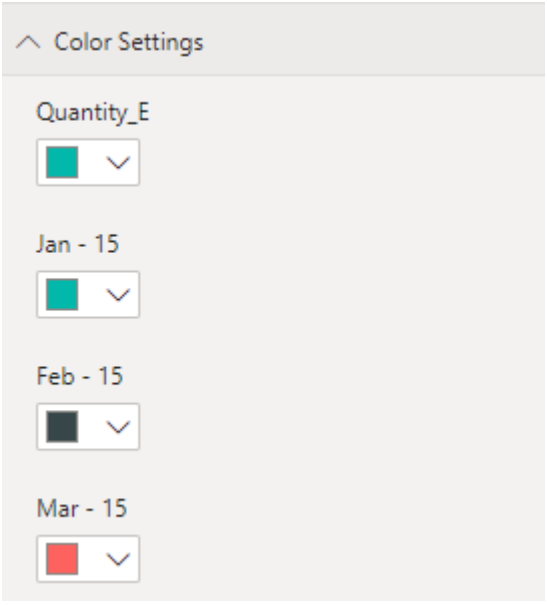


Chart Options

Dragging Precision

Only available when the **Percent View** property is turned OFF. With this property, you can change the accuracy of moving a data point. Recommended to set it manually based on the scale of your Y axis.

Pay attention on the value that you give as a **Dragging Precision**, because moving the data points, the value of the measure can be the multiple of the **Dragging Precision** only. It is not a step size.

E.g.: you have a data point where the value is 1.75 and this property is set to 3. When you try to change the value 1.75, it can jump only to 0, 3, 6, 9... etc. You will not get values like 4.75, 7.45 etc. (if you want to get these values you should apply a smaller **Dragging Precision**)

Percent Dragging Precision

Only available when the **Percent View** property is turned ON. With this property, you can change the accuracy of moving a data point. The value of this field is in percentage, e.g.: 10 equals to 10%, 0.1 equals to 0.1%.

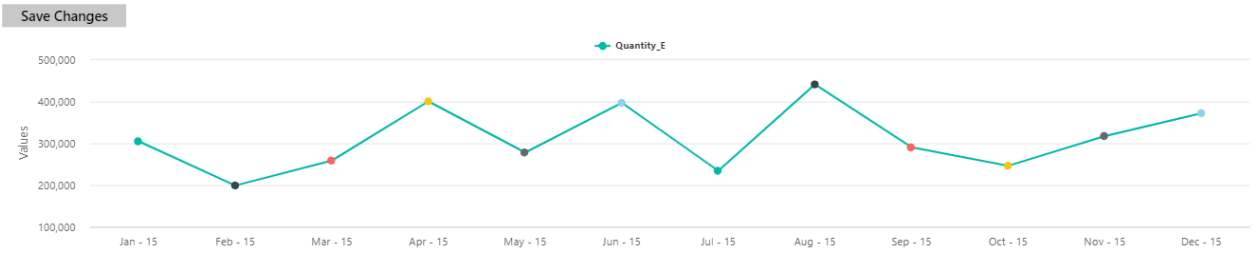
In this case it is also not a step size, works like the normal **Dragging Precision**.

Chart Style

You can switch the style of the chart between *Line chart* and *Bar chart* views.

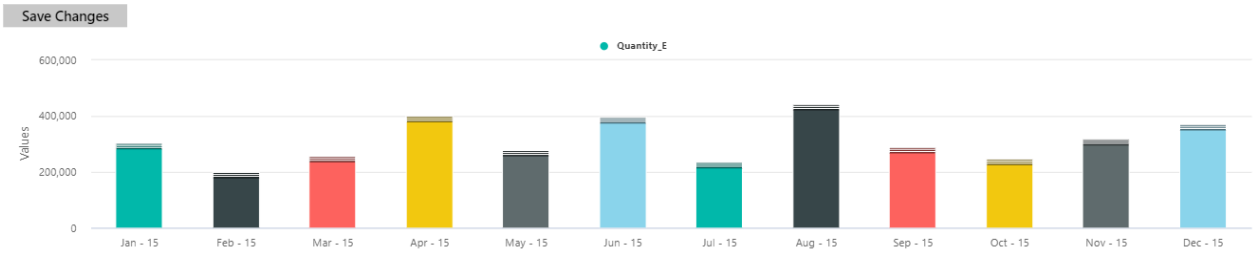
Line chart:

You can drag the data points and change their values by moving them.



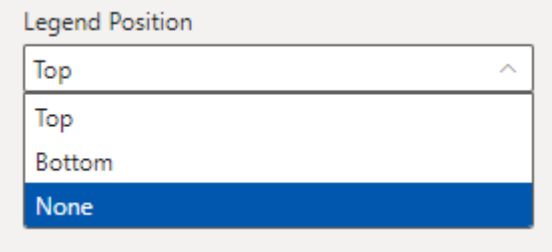
Bar chart:

You can drag the small black rectangle at the end of each bar to change the values.

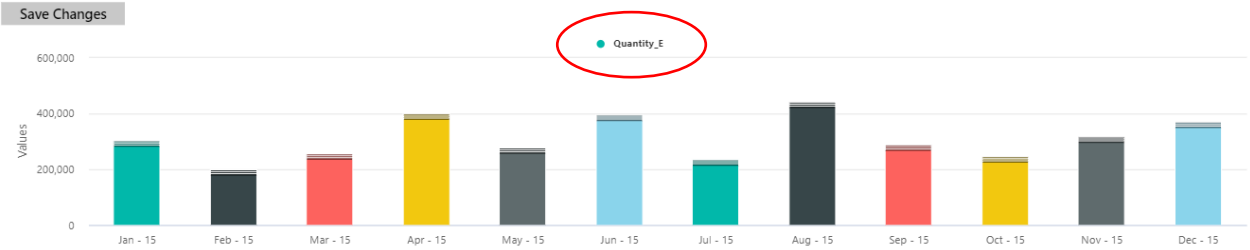


Legend Position

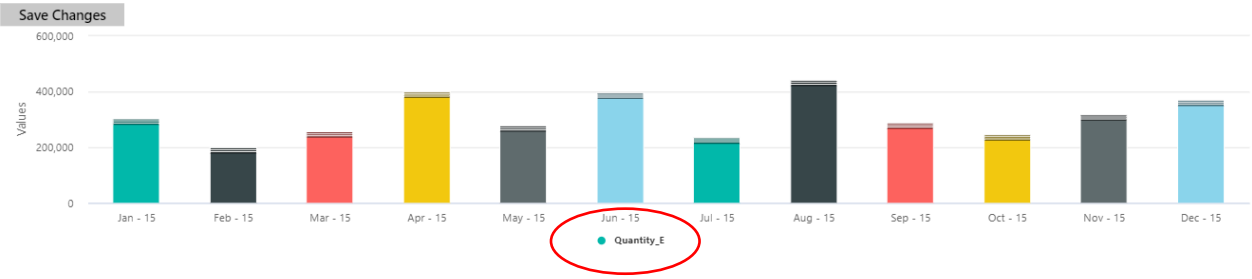
You can change the position of the displayed measures' legends.



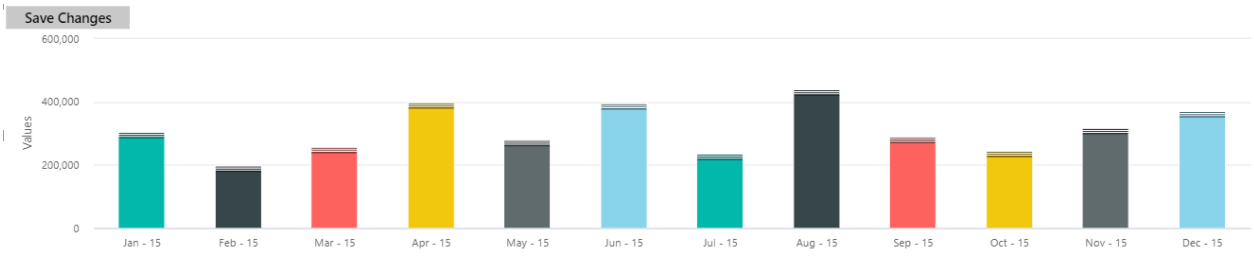
Top



Bottom



None



Percent View

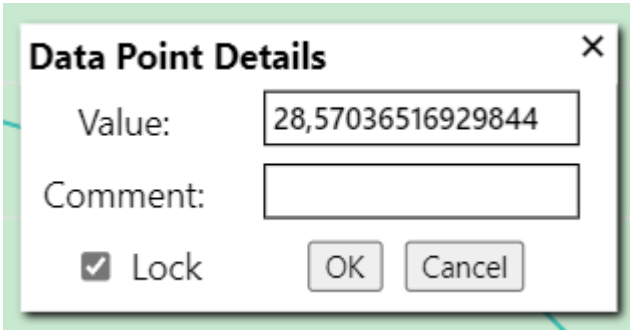
It is turned OFF (by default):

The chart is in the normal view and all data points show the exact value of the current context. By dragging a data point you can set a new value based on the setup **Dragging precision**.

Turned ON:

The data points will show the percentage ratio of the total value. Modifying one data point will affect the other ones as well by keeping the total value of the measure (e.g.: you have two data points, and their distribution is 50-50%. When you change one of them to 40% the other one will be changed to 60% automatically.).

When the BarChart is in **Percent view**, the data points can be locked. Locked points will not be affected by changing other points on the chart. To lock a data point you can use CTRL + Left click combination on it or open the context menu and check the **Lock** box. (Locked points' color become darker.)

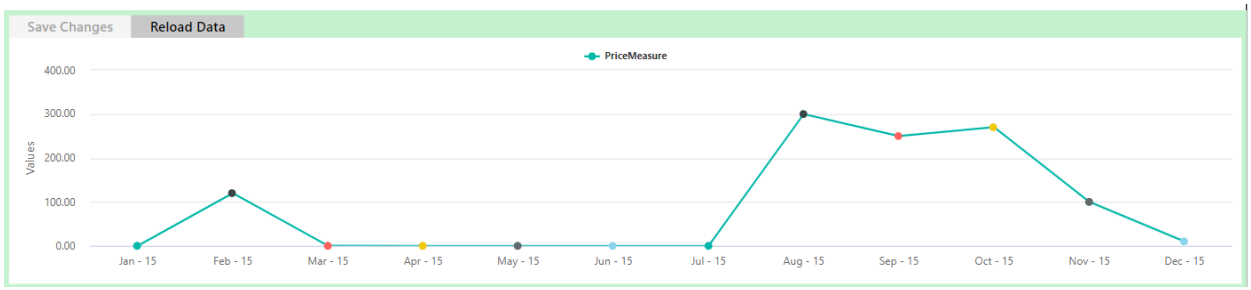


Lock function works only if **Percent View** is enabled.

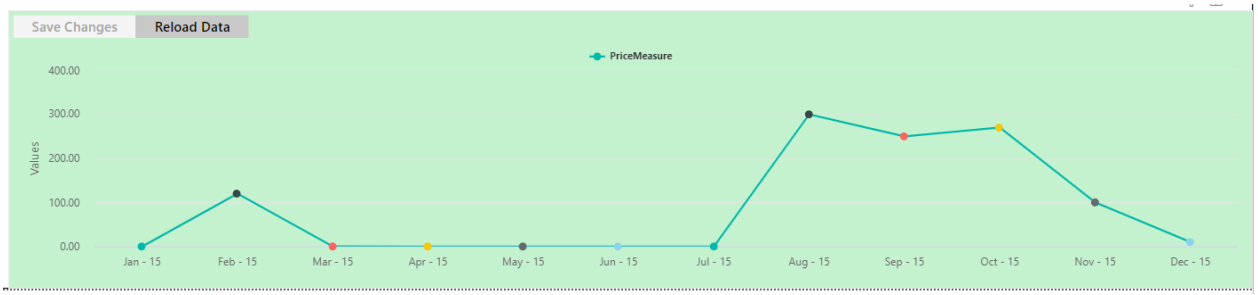
Transparent background

Turning it ON makes the chart area transparent so, its color will match with the background color of the visual.

OFF

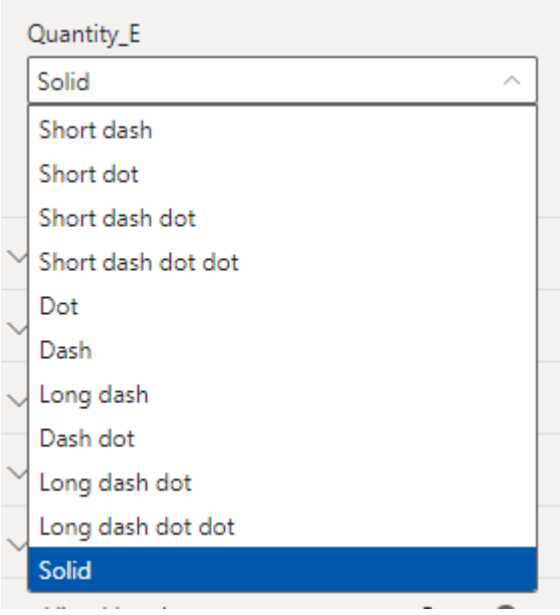


ON



Line Styles

Only available when the Chart style is set to Line Chart. You can change the line style of any measure or series element by selecting one from the dropdown menu.



Importance of SmartFilter helper visual

It is a general functionality in PowerBI 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 write-back 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 BarChart 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 both the field that is used in a slicer and a field used in your BarChart category or series data collection are originated from the same dimension (table), you do not need to use SmartFilter – as the field in the category or series data is deterministic.
- If the field of the slicer can be found in BarChart you do not need to use SmartFilter.
- If you use a field that is not used in your BarChart and originated from a different dimension, put a SmartFilter in your report with the same field. Example: you have a slicer on Customer Group Name, but the customer table is not used at all in the BarChart, add a SmartFilter helper visual to your report and place the same field in it – in this case the Customer Group Name
- If you have more slicers which fields are originated from the same table, put a SmartFilter in your report and use the lowest granularity field in it. Example: you have slicers on Size and Brand which are both columns of the Product table, add a SmartFilter helper to your report and put the ProductId in it.

Performance optimization

In 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, walk throughs 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 do a model metadata check before saving changes, and if it finds such structures will prohibit the process. If you are certain that you are not trying to write-back on measures that are using calculated columns, and you are not using calculated tables in your chart (neither on category nor series), also these objects are not used in any kind of filters (slicers, visual level filters, etc.), you can turn off this strict checking by using Advanced Configurations.

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 that in which data source should it look for this setting table. The way to do it is to add the write-back – 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 other schema then dbo at the moment. Be aware, that the [Value] column is an 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 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 OFF checking in case of you have calculated tables, relationships by default the service will prohibit the operation. If you turn this OFF, the operation will not be blocked. Be careful that you will not use unsupported objects during the write-back (for example you do not use calculated column as a row / column member in your matrix or as slicers, etc.)
2. Enable tracing: if you enable this a Trace.Txt file be created in the folder at the location of the webservice which will log all operations during write-back.

3. Save write-back history: if you enable this, a dbo.WriteBackHistory table will be created in your database (in case of multiple data sources, it will use the connection with the WriteBack tag) that will contain the following information for each cell modification:
    a. ChangeDate – time of change
    b. ChangedBy – username who committed the change
    c. Tuple – the cell's tuple or coordinate
    d. OldValue – original value of the cell
    e. NewValue the updated value of the cell

For point 1:

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

For point 2:

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

For point 3:

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

Troubleshooting

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

Network Error

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

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

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

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

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

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

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

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

If you are using Power BI Reporting Services on-premises, make sure that the report server URL and the web service URL format matches. Either both must reference the machine name or the full 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 settings.

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 appearing log-in popups. Please refer to the following article and contact your internal IT team: https://support.poweronbi.com/portal/kb/articles/configure-iis-for-kerberos-authentication

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

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

Cause: Generally, there can be two reasons for this:

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

Solution: Free up memory on your computer by closing other applications. For clearing the Power BI Desktop cache, please refer to the article in our Knowledge Base at:

https://support.poweronbi.com/portal/kb/articles/power-bi-desktop-clear-cache

Save Failed

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

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: Write-back 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, etc.
- You have a logic error in your DAX measure formula

Solution:

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

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

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