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| , RD Dep.  **POWER BI** |
| Advanced Reporting Concepts |

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# Row Level Security

Power BI enables you to go from data to insight to action quickly, yet you must make sure the data in your Power BI reports and dashboards is recent. Knowing how to refresh the data is often critical in delivering accurate results.

## Define roles and rules in Power BI Desktop

You can define roles and rules within Power BI Desktop. When you publish to Power BI, it also publishes the role definitions.

To define security roles, follow these steps.

1. Import data into your Power BI Desktop report or configure a DirectQuery connection. You can't define roles within Power BI Desktop for Analysis Services live connections. You need to do that within the Analysis Services model.
2. From the Modeling tab, select Manage Roles.  
   Graphical user interface, text, application

   Description automatically generated
3. From the Manage roles window, select Create.  
   Graphical user interface

   Description automatically generated
4. Under Roles, provide a name for the role.
5. Under Tables, select the table to which you want to apply a DAX rule.
6. In the Table filter DAX expression box, enter the DAX expressions. This expression returns a value of true or false. For example: [Entity ID] = “Value”.  
   Graphical user interface, text, application

   Description automatically generated

You can use username() within this expression. Be aware that username() has the format of DOMAIN\username within Power BI Desktop. Within the Power BI service and Power BI Report Server, it's in the format of the user's User Principal Name (UPN). Alternatively, you can use userprincipalname(), which always returns the user in the format of their user principal name, [username@contoso.com](mailto:username@contoso.com).

1. After you've created the DAX expression, select the checkmark above the expression box to validate the expression.  
   Graphical user interface, text, application, email

   Description automatically generated  
   In this expression box, you use commas to separate DAX function arguments even if you're using a locale that normally uses semicolon separators (e.g. French or German).
2. Select Save.

You can't assign users to a role within Power BI Desktop. You assign them in the Power BI service. You can enable dynamic security within Power BI Desktop by making use of the username() or userprincipalname() DAX functions and having the proper relationships configured.

By default, row-level security filtering uses single-directional filters, regardless of whether the relationships are set to single direction or bi-directional. You can manually enable bi-directional cross-filter with row-level security by selecting the relationship and checking the Apply security filter in both directions’ checkbox. You should check this box when you’re also implemented dynamic row-level security at the server level, where row-level security is based on username or login ID.

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## Validate the roles within Power BI Desktop

After you've created your roles, test the results of the roles within Power BI Desktop.

1. From the Modeling tab, select View as Roles.  
   Graphical user interface, application

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   The View as roles window appears, where you see the roles you've created.  
   Graphical user interface, text, application

   Description automatically generated
2. Select a role you created, and then select OK to apply that role.  
   The report renders the data relevant for that role.
3. You can also select Other user and supply a given user.  
   Graphical user interface, text, application

   Description automatically generated
4. It's best to supply the User Principal Name (UPN) as that's what the Power BI service and Power BI Report Server use.  
   Within Power BI Desktop, Other user displays different results only if you're using dynamic security based on your DAX expressions.
5. Select OK.  
   The report renders based on what that user can see.

## Manage security on your model in Power BI Service

To manage security on your data model, you will need to do the following.

1. Select the ellipse (…) for a dataset.

A picture containing graphical user interface

Description automatically generated

1. Select Security.  
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This will take you to the RLS page for you to add members to a role you created in Power BI Desktop. Only the owners of the dataset will see Security available. If the dataset is in a Group, only Administrators of the group will see the security option.  
You can only create or modify roles within Power BI Desktop.

## Working with members

### Add members

You can add a member to the role by typing in the email address, or name, of the user, security group or distribution list you want to add. You cannot add Groups created within Power BI. You can add members external to your organization.

Graphical user interface, application

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You can also see how many members part of the role by the number in parenthesis are next to the role name, or next to Members. You can remove members by selecting the X next to their name.  
Table

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### Validating the role within the Power BI service

You can validate that the role you defined is working correctly by testing the role.

1. Select More options (...) next to the role.
2. Select Test data as role

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You will then see reports that are available for this role. Dashboards are not presented in this view. In the blue bar above, you will see what is being applied.

Graphical user interface, application

Description automatically generated

You can choose to view data as a specific person, or you can select a combination of available roles to validate they are working.

To return to normal viewing, select Back to Row-Level Security.

## Using the username() or userprincipalname() DAX function

You can take advantage of the DAX functions username() or userprincipalname() within your dataset. You can use them within expressions in Power BI Desktop. When you publish your model, it will be used within the Power BI service.

Within Power BI Desktop, username() will return a user in the format of DOMAIN\User and userprincipalname() will return a user in the format of user@contoso.com.

Within the Power BI service, username() and userprincipalname() will both return the user's User Principal Name (UPN). This looks similar to an email address.

## Using RLS with workspaces in Power BI

If you publish your Power BI Desktop report to a workspace within the Power BI service, the roles will be applied to read-only members. You will need to indicate that members can only view Power BI content within the workspace settings.

If you have configured the workspace so that members have edit permissions, the RLS roles will not be applied to them. Users will be able to see all of the data.

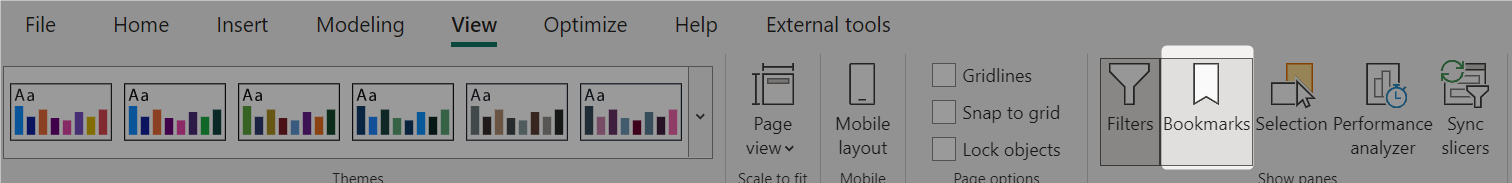
Graphical user interface

Description automatically generated with low confidence

# Using Bookmarks to Improve User Experience

You can use the Bookmarks, Buttons, and Selections features in Power BI Desktop to make your report more compelling, interactive, and simpler for users to navigate.

**Bookmarks** - Capture the currently configured view of a report page so you can quickly return to that view later. You can use bookmarks for different reasons. For example, you can use them to keep track of your own progress when creating reports. You can also use them to build a PowerPoint-like presentation that goes through the bookmarks in order, thereby telling a story with your report.



With bookmarks in Power BI Desktop, you capture the currently configured view of a report page, including filtering and the state of visuals. Later, you can go back to that state by selecting the saved bookmark.

You can also create a collection of bookmarks, arrange them in the order you want, and later step through each bookmark in a presentation to highlight a series of insights, or the story you want to tell with your visuals and reports.

Graphical user interface, application

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There are many uses for bookmarking. For example, you can use bookmarks to keep track of your own progress in creating reports (bookmarks are easy to add, delete, and rename) and you can create bookmarks to build a PowerPoint-like presentation that steps through bookmarks in order, thereby telling a story with your report.

When you create a bookmark, the following elements are saved with the bookmark:

* The current page
* Filters
* Slicers, including slicer type (for example, dropdown or list) and slicer state
* Visual selection state (such as cross-highlight filters)
* Sort order
* Drill location
* Visibility of an object (by using the **Selection** pane)
* The focus or **Spotlight** modes of any visible object

Configure a report page as you want it to appear in the bookmark. After your report page and visuals are arranged how you want them, select Add from the Bookmarks pane to add a bookmark.

Graphical user interface, application

Description automatically generated

Power BI Desktop creates a bookmark and gives it a generic name. You can easily Rename, Delete, or Update a bookmark by selecting the ellipsis next to the bookmark's name, then selecting an action from the menu that appears.

Graphical user interface, application

Description automatically generated

After you've created a bookmark, display it by selecting it in the Bookmarks pane.

You can also select whether each bookmark will apply Data properties, such as filters and slicers; Display properties, such as spotlight and its visibility; and Current page changes, which present the page that was visible when the bookmark was added. These capabilities are useful when you use bookmarks to switch between report views or selections of visuals, in which case you'd likely want to turn off data properties, so that filters aren't reset when users switch views by selecting a bookmark.

To make such changes, select the ellipsis next to the bookmark's name, then select or unselect the checkmarks next to Data, Display, and other controls.

As you create bookmarks, you might find that the order in which you create them is different from the order you'd like to present to your audience. No problem, you can easily rearrange the order of bookmarks.

* In the Bookmarks pane, drag-and-drop bookmarks to change their order.

The yellow bar between bookmarks designates where the dragged bookmark will be placed.

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## Bookmarks as a slide show

When you have a collection of bookmarks you would like to present, in order, you can select View from the Bookmarks pane to begin a slideshow.

When in View mode, there are some features to notice.

Chart

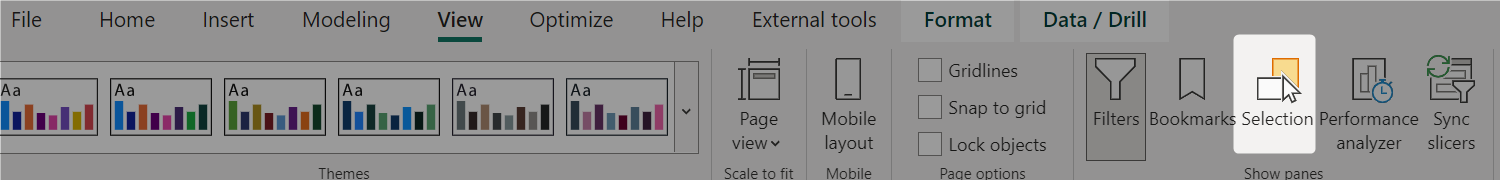
Description automatically generated with medium confidence

1. The name of the bookmark appears in the bookmark title bar, which appears at the bottom of the canvas.
2. The bookmark title bar has arrows that let you move to the next or previous bookmark.
3. You can exit View mode by selecting Exit from the Bookmarks pane or by selecting the X on the bookmark title bar.

## Visibility: Using the Selection pane

**Selections** - Allow you to determine what items in the report are visible and what items are hidden. Selections are used alongside bookmarks and buttons.

Related to the Bookmarks pane, the Selection pane provides a list of all objects on the current page and allows you to select an object and specify whether it's visible.



In the Selection pane, you select an object and toggle whether the object is currently visible by selecting the eye icon to the right of the object.

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When you add a bookmark, the visibility status of each object is also saved, based on its setting in the Selection pane.

It's important to note that slicers continue to filter a report page, regardless of whether they're visible. As such, you can create many different bookmarks, with different slicer settings, and make a single report page appear different (and highlight different insights) in various bookmarks.

**Tab order**

To help keyboard users navigate your report in an order that matches the way that visual users would, you can set the tab order.

To set the tab order, select the View tab in the ribbon and then select Selection Pane. On the Selection pane that displays, use the arrow buttons to move the objects to the correct order, or select an object with your mouse and drag it into the position that you want in the list.

To hide an object from the tab order, select the number next to that object. For example, it's best to hide decorative shapes and images that you have in your report.

## Bookmarks for shapes and images

You can also link shapes and images to bookmarks. With this feature, when you select an object, it shows the bookmark associated with that object. This feature can be especially useful when you work with buttons.

To assign a bookmark to an object:

1. Select the object in the report canvas. Then, from the Format Shape pane that appears, turn the Action slider to On.
2. Expand the Action section. Under Type, select Bookmark.
3. Under Bookmarks, select a bookmark.

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Description automatically generated with medium confidence

There are all sorts of interesting things you can do with object-linked bookmarking. You can create a visual table of contents on your report page, or you can provide different views (such as visual types) of the same information.

When you're in editing mode, press Ctrl and select the link to follow it. When you're not in editing mode, select the object to follow the link

## Bookmark groups

Beginning with the August 2018 release of Power BI Desktop, you can create and use bookmark groups. A bookmark group is a collection of bookmarks that you specify, which can be shown and organized as a group.

To create a bookmark group:

1. Press Ctrl and select the bookmarks you want to include in the group.
2. Select the ellipsis next to your selected bookmarks, and then select Group from the menu that appears.

Graphical user interface, application

Description automatically generated

Power BI Desktop automatically names the group Group 1. You can select the ellipsis next to this name, select Rename, and rename it to whatever you want.

Graphical user interface, application

Description automatically generated

As with any bookmark group, expanding the bookmark group's name only expands or collapses the group of bookmarks, and doesn't represent a bookmark by itself.

When you use the View feature of bookmarks, the following details apply:

* If the selected bookmark is in a group when you select View from bookmarks, only the bookmarks in that group are shown in the viewing session.
* If the selected bookmark isn't in a group or is on the top level (such as the name of a bookmark group), then all bookmarks for the entire report are played, including bookmarks in any group.

To ungroup bookmarks:

1. Select any bookmark in a group and select the ellipsis.
2. Select Ungroup from the menu that appears.

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Selecting Ungroup for any bookmark from a group removes all bookmarks from the group; it deletes the group, but not the bookmarks themselves.

To remove a single bookmark from a group:

1. Ungroup any member from that group, which deletes the entire grouping.
2. Select the members you want in the new group by pressing Ctrl and selecting each bookmark, then and select Group again.

# Using Buttons to Improve User Experience

You can use the Bookmarks, Buttons, and Selections features in Power BI Desktop to make your report more compelling, interactive, and simpler for users to navigate.

• Buttons - Create a more interactive experience for the report users. With the addition of buttons that have assigned actions, your report behaves similar to an app, where users can hover, select, and interact more with the content.

Using buttons in Power BI lets you create reports that behave similar to apps, and thereby, create an engaging environment so users can hover, click, and further interact with Power BI content. You can add buttons to reports in Power BI Desktop and in the Power BI service. When you share your reports in the Power BI service, they provide an app-like experience for your users.

## Create buttons in reports

To create a button in Power BI Desktop, on the Insert ribbon, select Buttons and a drop-down menu appears, where you can select the button you want from a collection of options, as shown in the following image.

Graphical user interface, application

Description automatically generated

When you select the button on the report canvas, the **Visualizations** pane shows you the many ways you can customize the button to fit your requirements. For example, you can turn **Button Text** on or off by toggling the slider in that card of the **Visualizations** pane. You can also change the button icon, the button fill, the title, and the action that's taken when users select the button in a report, among other properties.

Graphical user interface, application

Description automatically generated

## Set button properties when idle, hovered over, or selected

Buttons in Power BI have three states: default (how they appear when not hovered over or selected), when hovered over, or when selected (often referred to as being clicked). Many of the cards in the Visualizations pane can be modified individually based on those three states, providing plenty of flexibility for customizing your buttons.

The following cards in the Visualizations pane let you adjust formatting or behavior of a button based on its three states:

* Button Text
* Icon
* Outline
* Fill

To select how the button should appear for each state, expand one of those cards and select the drop-down that appears at the top of the card. In the following image, you see the Icon card expanded, with the drop-down selected to show the three states.

Graphical user interface

Description automatically generated

## Select the action for a button

You can select which action is taken when a user selects a button in Power BI. You can access the options for button actions from the Action card in the Visualizations pane.

Graphical user interface, application

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You can try or test the buttons you create for your report by using CTRL+CLICK on the button you want to use.

The options for the button action types are as follows, some of which are explained in more detail in the subsequent sections.

• **Back** - Returns the user to the previous page of the report. This option is useful for drillthrough pages or pages that are accessed from one main page.

• **Bookmark** - Presents the report page that's associated with a bookmark that is defined for the current report.

• **Drill through** - Brings the user to a drillthrough page that is filtered to their selection, without using bookmarks.

• **Page navigation** - Brings the user to a different page within the report, also without using bookmarks, which is an effective way to create a navigation experience for your report users. This type of button is discussed later in this module.

• **Q&A** - Opens a Q&A Explorer window, where users can enter questions to quickly find the information that they are looking for and specify the type of visual that they want to see the information displayed in. This option can be useful if you want to save space in the report but still offer Q&A functionality to the user.

• **Web URL** - Opens a website in a new browser window. For example, you might want to give users quick access to your organization's website or intranet from within a report.

# Creating tooltips based on report pages

You can create visually rich report tooltips that appear when you hover over visuals, based on report pages you create in Power BI Desktop. By creating a report page that serves as your tooltip, your custom tooltips can include visuals, images, and any other collection of items you create in the report page.

Graphical user interface, application, PowerPoint

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You can create as many tooltip pages as you want. Each tooltip page can be associated with one or more fields in your report, so that when you hover over a visual that includes the selected field, the tooltip you created on your tooltip page appears when you hover over the visual, filtered by the datapoint over which your mouse is hovering.

There are all sorts of interesting things you can do with report tooltips. Let's take a look at how to create tooltips and what you must do to configure them.

## Create a report tooltip page

To get started, create a new report page by clicking the + button, found along the bottom of the Power BI Desktop canvas, in the page tabs area. The button is located beside the last page in the report.

Graphical user interface, text, application

Description automatically generated

Your tooltip can be any size, but keep in mind that tooltips hover over the report canvas, so you might want to keep them reasonably small. In the Format pane in the Page Size card, you can see a new page size template called Tooltip. This provides a report page canvas size that's ready for your tooltip.

Graphical user interface, application

Description automatically generated

By default, Power BI Desktop fits your report canvas to the available space on the page. Often that's good, but not in the case of tooltips. To get a better sense and view of what your tooltip will look like when you're done, you can change the Page View to actual size.

To do that, select the View tab from the ribbon. From there, select Page View > Actual Size, as shown in the following image.

Graphical user interface, application, Word

Description automatically generated

You can also name the report page, so its purpose is clear. Just select the Page Information card in the Format pane, then type the name into the Name field you find there. In the following image the tooltip report name is Tooltip 1, but feel free to name yours something more inspired.

A screenshot of a computer

Description automatically generated with medium confidence

From there, you can create whatever visuals you would like to show up in your tooltip. In the following image, there are two cards and one clustered bar chart on the tooltip page, along with a background color for the page itself, and backgrounds for each of the visuals, to give it the look we wanted.

Graphical user interface, application, table

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## Configure your tooltip report page

Once you have the tooltip report page created, you need to configure the page in order for Power BI Desktop to register it as a tooltip, and to ensure it appears in over the right visuals.

To begin with, you need to turn the Tooltip slider to On, in the Page Information card, to make the page a tooltip.

Graphical user interface, application

Description automatically generated

## Manually setting a report tooltip

In addition to creating a tooltip that automatically appears when hovering over a visual that contains the specified field, you can manually set a tooltip.

Any visual that supports report tooltips now has a Tooltip card in its Formatting pane.

To set a tooltip manually, select the visual for which you want to specify the manual tooltip, then in the Visualizations pane, select the Format section and expand the Tooltip card.

Graphical user interface, application

Description automatically generated

Then, in the Page dropdown, select the tooltip page you want to use for the selected visual. Note that only report pages that are specified as Tooltip pages show up in the dialog.

Graphical user interface, chart

Description automatically generated

Being able to manually set a tooltip has many uses. You can set a blank page for a tooltip, and thereby override the default Power BI tooltip selection. Another use is when you don't want the tooltip that is automatically selected by Power BI to be the tooltip. For example, if you have a visual that includes two fields, and both of those fields have an associated tooltip, Power BI selects only one to show. You might not want that to be the case, so you could manually select which tooltip should be displayed.

# FIELD PARAMETERS

Field parameters allow users to dynamically change the measures or dimensions being analyzed within a report. This feature can help your report readers explore and customize the analysis of the report by selecting the different measures or dimensions they're interested in.

To get started, you first need to enable the Field parameters preview feature.

1. In Power BI Desktop, go to File > Options and settings > Options > Preview features.
2. Select the Field parameters.

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Description automatically generated

## CREATING A FIELD PARAMETER

1. To create a new field parameter, go to the **Modeling tab** and select **New parameter > Fields**.

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Description automatically generated with medium confidence

1. To build the parameter, provide a name for the parameter and select the fields you want to use. In this example, see the selected dimensions: Year, Quarter, Month.

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Description automatically generated

In this dialog, you can drag to change the order of the fields or double-click any of the selected fields to change the display name.

You can also mix and match measures and dimensions within the same parameter. For example, you can use this feature to create a dynamic table, where the columns can be either measures or dimensions.

1. If you need to edit an existing field parameter, modify the **DAX** directly.

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Description automatically generated with medium confidence

## USAGE OF FIELD PARAMETERS

Field parameter can be very useful when you should switch between different columns in visuals. For example, you have geographical hierarchy and want to see distribution by Continent, Country and City on the same table. In that case you can simply create filter parameter and add it to your table.

Once you’ve created a field parameter, you can use the parameter to control the measures or dimensions used in a visual. Let’s look on the next example. We have field parameter named PRODUCTS that was created to have opportunity to change columns in matrix.

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Using slicer with this field parameter we can switch between different categories without using complex logic.

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Description automatically generated with medium confidence

You can see more interesting and useful information on an [official Microsoft site](https://learn.microsoft.com/en-us/power-bi/create-reports/power-bi-field-parameters) or using this [link](https://www.sqlbi.com/articles/fields-parameters-in-power-bi/).

# DECOMPOSITION TREE

The decomposition tree visual in Power BI lets you visualize data across multiple dimensions. It automatically aggregates data and enables drilling down into your dimensions in any order. It's also an artificial intelligence (AI) visualization, so you can ask it to find the next dimension to drill down into based on certain criteria. This tool is valuable for ad hoc exploration and conducting root cause analysis.

Using this visual you can perform intuitive root cause analysis.

1. Select the Decomposition tree from the **Visualizations** pane.

A screenshot of a computer

Description automatically generated with medium confidence

1. Select fields to be used as **dependent** and **independent** variables. For the Decomposition tree, you will need to select the field that you want to analyze which is basically the dependent variable. Let’s use Sales as **dependent** variables. **Independent** variables can help to explain dependent variable.

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1. Choose how to split the data. Once you’ve selected the fields for the visual, you will see a little plus next to it. This plus will help to build the decomposition tree by allowing you to choose how to split the data.

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1. Here you can see the result:

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You can see more interesting and useful information on an [official Microsoft site](https://learn.microsoft.com/en-us/power-bi/visuals/power-bi-visualization-decomposition-tree).

# CONDITIONAL FORMATTING

Conditional formatting in Power BI Desktop allows you to specify customized cell colors, including color gradients, that are based on field values. Additionally, you can use conditional formatting to represent cell values with data bars, KPI icons, or active web links. Conditional formatting allows you to draw attention to, or highlight, data in text or numeric fields using color, icons or data bars.

We will use table from 5th theme to describe possibilities of conditional formatting.

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To apply conditional formatting, in the values well, click the down arrow on the value you wish to format. Also you can use **Cell elements** category on **Visualizations** panel.

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## BACKGROUND COLOR

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Having chosen **background color** you then see this window which has the default Gradient chosen. You can also format by rules or by a field value (a measure or calculated column).

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Description automatically generated

The Power BI conditional formatting function will automatically detect the highest and the lowest number in each column and will apply background coloring according to the values.

A picture containing text, screenshot, number, font

Description automatically generated

If you want to remove the conditional formatting that you set, select the **Values** tab on the **Visualizations** pane and right-click the value (field) that you set the formatting for. Select **Remove conditional formatting** and then select the type of formatting that you want to remove, for example All or Background color.

## FONT COLOR

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Description automatically generated

Having chosen **font color** you then see this window which has the default Gradient chosen just like for Background color. You can also format by rules or by a field value (a measure or calculated column).

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So, the result will be next.

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## DATA BARS

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**Data bars** give you a colored bar, like a bar chart. You can set colors for the positive values and the negative values, based on the maximum and minimum values in your data range.

A screenshot of a data bar

Description automatically generated with medium confidence

You can set custom min and max values if you wish. By default, the bars are 'Left to right' which means you get positive values on the right of the 'axis' and negative values to the left. The axis is a thin bar that separates the positive and negative data bars. You can turn off the data values if you wish by checking 'Show bar only', it might make things look a little neater. If you want the bars running Right to left, choose that option in the settings.

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## ICONS

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**Icons** can be displayed either by creating rules or using a field value. The configuration options are either the same, or very similar to what I've already covered.

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By default, Power BI provides you with lots of icons. But if you want to use your own, you can create a measure or calculated column that points to a web accessible icon - store the icons on a web server somewhere. You can use .ico, .png, .jpg and .gif files for the icons.

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If you want to just display an icon and not the data values, set the Icon layout to Icon only.

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## WEB URL

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Adding conditional formatting with **URL**'s creates a link to a web location. That could be more information on something, a report related to the data or whatever you want. Let's say I want to link to a web page about each city. I need to create a measure or calculate column that gives the URL to the web page/location I want to link to. X.

You can see more interesting and useful information on an [official Microsoft site](https://learn.microsoft.com/en-us/power-bi/create-reports/desktop-conditional-table-formatting).

# PARAMETERS FOR DATA SOURCE

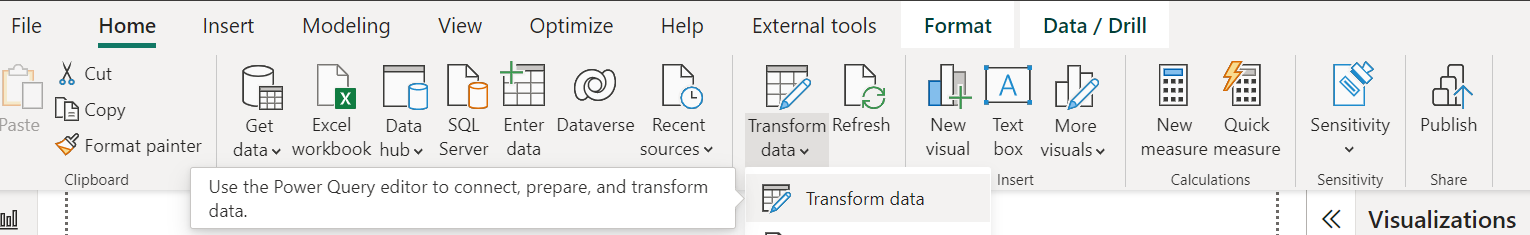
Parameters in Power Query are useful for many scenarios when you want to do something dynamic in the data transformation process. Parameters in Power Query are a useful way to change values dynamically in your Get Data and Transform process. Parameters can be used to change values without opening the Power Query (Transform Data) window in the Power BI Desktop, and they are helpful even in the Power BI Service in a way that you can change values manually without the need to open PBIX file in the Desktop and re-publish it.

Here we will look at the case when you have to switch between 2 different servers.

You have connected to a data source using Power BI. That data source can be anything (a SQL Server or Oracle database, a folder, a file, a web API address or etc). You created your Power BI report, and then published the file to the service, and now you want to change the data source of the same type. However, the new data source is exactly similar to the old one in terms of structure. So all you need to do is just change part of the source connection (the database name, or the file name, or folder path, or the API URL etc). You can do these with changing values in Power Query Editor window, but that means you need to open the file in Power BI Desktop, change the value, save and re-publish it into the service. To avoid these extra steps, you can use Parameters. Same case will be if you have Development database where your team work internally and Product database with data that is used by Product Owner.

In this chapter we will see how to create easy way to switch between those two data sources.

Firstly, you should go to Transform Data and open Power Query Editor



And then go to **Manage Parameters** > **New parameter:**

A screenshot of a computer

Description automatically generated

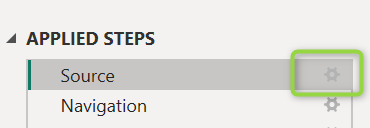
Then you can change Parameter name, data type and even add different variations of Server name to parameter if you know them from the beginning.

A screenshot of a computer

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Then you should connect Parameters to your data source – in **Power Query Editor** in **Applied steps** click on **Source** settings:



A screenshot of a computer

Description automatically generated with low confidence

A screenshot of a computer

Description automatically generated with medium confidence

After that you need to apply all changes A close up of a sign

Description automatically generated with low confidence and publish report to the server. Here in Schedule refresh settings A screenshot of a computer

Description automatically generated with low confidence you can change Parameters:

A screenshot of a computer

Description automatically generated with medium confidence

You can see more interesting and useful information on an [official Microsoft site](https://learn.microsoft.com/en-us/power-query/power-query-query-parameters).

# Chiclets\*

Buttons based on bookmarks are very powerful. However, they have a large drawback. Bookmarks are very sensitive to changes, and if you have something added or replaced, each of your bookmarks needs to be updated.

Fortunately, there is an alternative way how to make buttons that can switch between visuals and stay flexible. This can be achieved using a Custom Visual called Chiclet Slicer.

Graphical user interface, text, application

Description automatically generated

Let’s suppose we need to switch between three similar visuals depending on what user needs to analyze: quantity, sales or shipment amount across months.

To achieve this:

* Create a measure for each KPI.
* Create a new table with the names of your category. You can use Enter data functionality in Power BI - “Enter Data” button which is in the ribbon. This table doesn’t need to be joined to the other ones in your model. This type of tables is called island tables.  
  Graphical user interface, table

  Description automatically generated
* Create one more measure. It will be used to switch between three types of values.

Chiclet = SWITCH(SELECTEDVALUE('KPI'[KPI]),

"Quantity", [Order Quantity],  
 "Sales", [Sales Amount],  
 "Shipment", [ShipmentSum])

* Create a visual - let it be a line chart in our example. Add a chiclet slicer next to it and use the field from the table you’ve just created as a source for the slicer.

Graphical user interface, chart, application, line chart

Description automatically generated

# USEFUL LINKS

RLS topic - [official Microsoft site](https://learn.microsoft.com/en-us/power-bi/enterprise/service-admin-rls).

Bookmarks topic - [official Microsoft site](https://learn.microsoft.com/en-us/power-bi/create-reports/desktop-bookmarks?tabs=powerbi-desktop).

Buttons topic - [official Microsoft site](https://learn.microsoft.com/en-us/power-bi/create-reports/desktop-buttons?tabs=powerbi-desktop).

Tooltips topic - [official Microsoft site](https://learn.microsoft.com/en-us/power-bi/create-reports/desktop-tooltips?tabs=powerbi-desktop).

Field parameters topic - [official Microsoft site](https://learn.microsoft.com/en-us/power-bi/create-reports/power-bi-field-parameters) and [SQLBI](https://www.sqlbi.com/articles/fields-parameters-in-power-bi/).

Decomposition tree topic - [official Microsoft site](https://learn.microsoft.com/en-us/power-bi/visuals/power-bi-visualization-decomposition-tree).

Conditional formatting topic - [official Microsoft site](https://learn.microsoft.com/en-us/power-bi/create-reports/desktop-conditional-table-formatting).

Parameters topic - [official Microsoft site](https://learn.microsoft.com/en-us/power-query/power-query-query-parameters).