



 PASS
SQLSATURDAY
VIRTUAL

#1000
Oregon

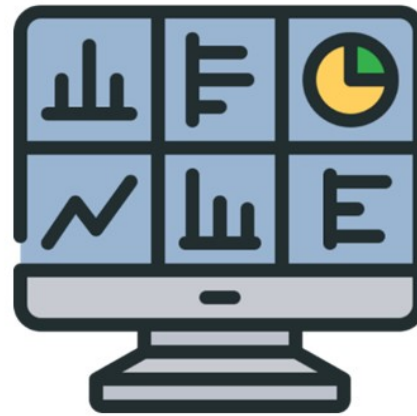
melissa



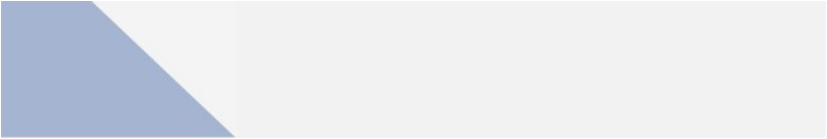


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Enhancing *User Experiences* With
Advanced Reporting Features





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- Microsoft MVP
- PBI User Group Co-Organizer – Redmond, WA
- Nickname: “The Viz Wiz”
- Specializes in teaching, consulting, and design

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Enhancing User Experiences With Advanced Reporting Features

Understanding Bookmark Capture States
Configuring and Formatting Buttons
Applying Measure Based Formatting
Implementing Report Tooltips



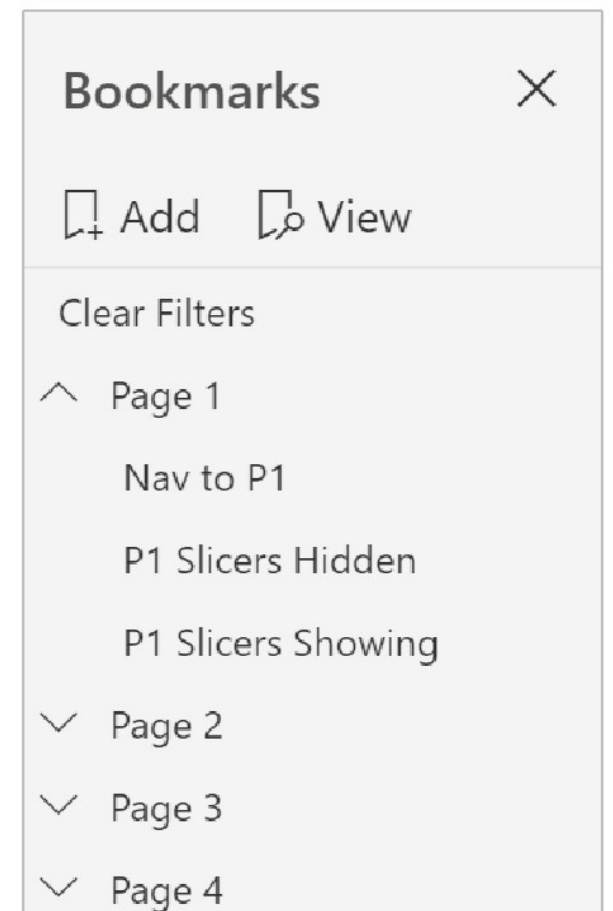
Enhancing User Experiences With Advanced Reporting Features

Understanding Bookmark Capture States
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Understanding Bookmarks

Bookmarks Introduction

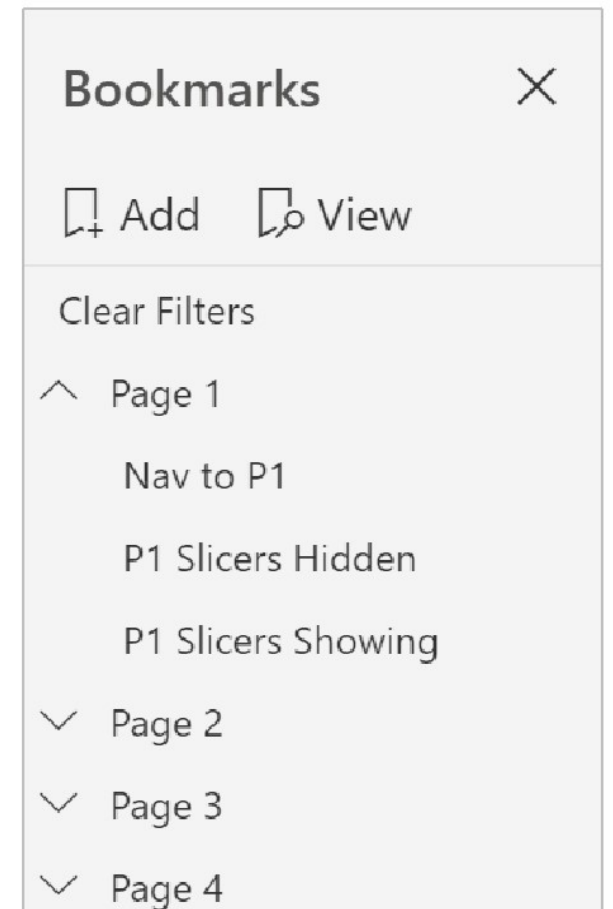
- **Bookmarks** capture the currently *configured view* of a report page at *design-time*
- **Common uses include:**
 - Map *multiple filter selections* for quick navigation
 - Dynamically *change* page visuals and objects
 - *Assign* bookmarks to *buttons* and/or *images*
- Report users can open the Bookmarks pane at *view-time*



Understanding Bookmarks

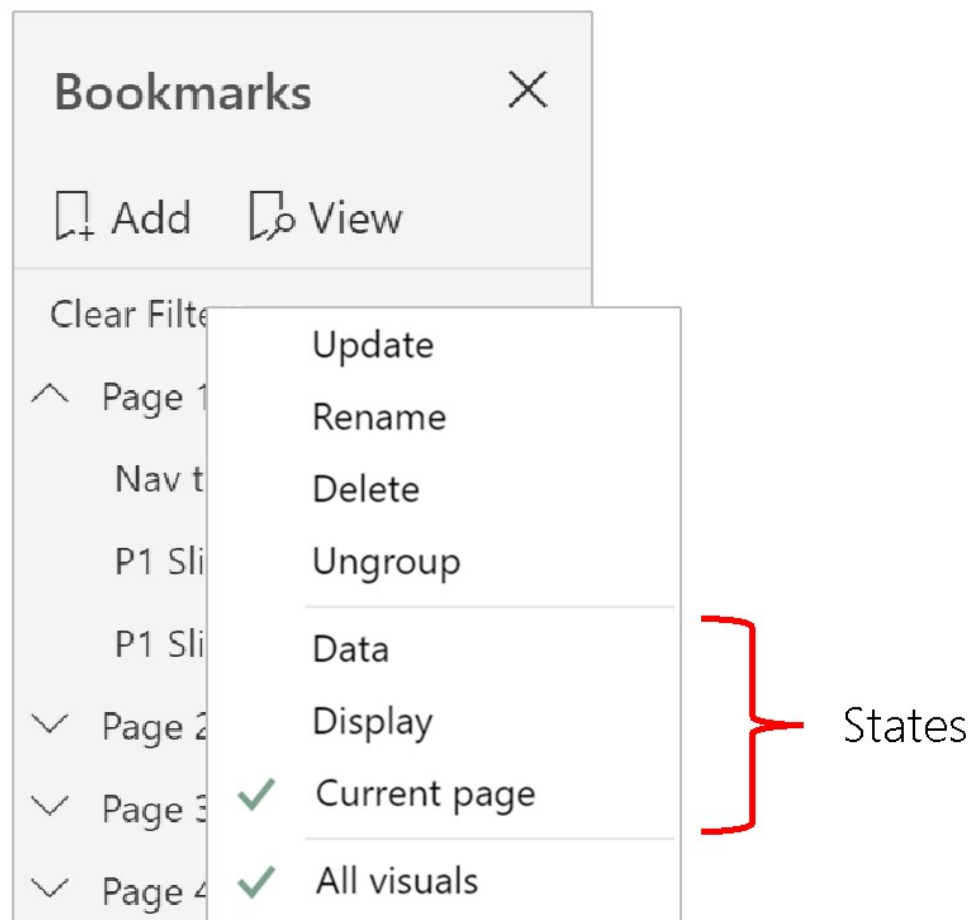
Bookmarks ► Capture States

- **Bookmarks save the following elements:**
 - Current page
 - Filters
 - Slicers (including *slicer type*)
 - Visual selection state (*cross-highlight* and *cross-filter*)
 - Sort order
 - Drill location
 - Object visibility (observed in the Selections pane)
 - Spotlight applied to an object
 - Focus applied to an object



Understanding Bookmarks

Bookmarks ► Settings

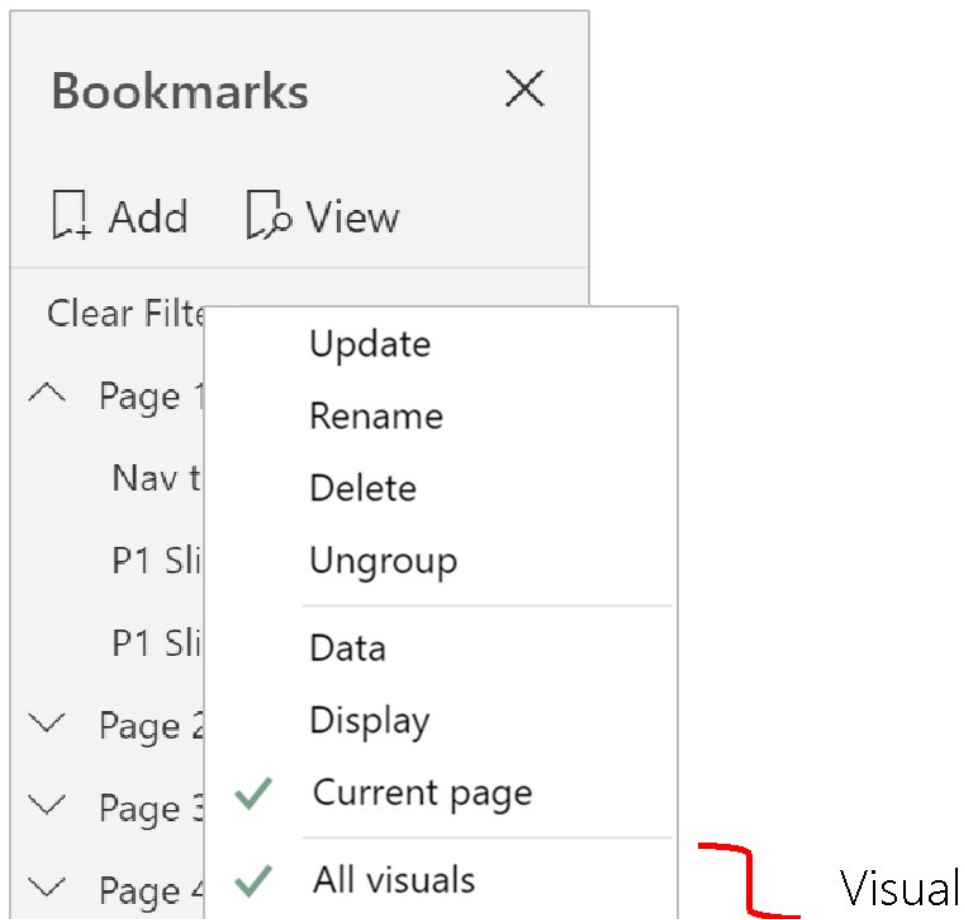


- State capture can *include/exclude*:
 - **Data**: Filters and slicers
 - **Display**: Visibility, spotlight, focus
 - **Current page**: Current page

Selected visuals

Understanding Bookmarks

Bookmarks ► Settings



- State capture can *include/exclude*:
 - **Data**: Filters and slicers
 - **Display**: Visibility, spotlight, focus
 - **Current page**: Current page
- State capture can apply to:
 - All visuals
 - Selected visuals

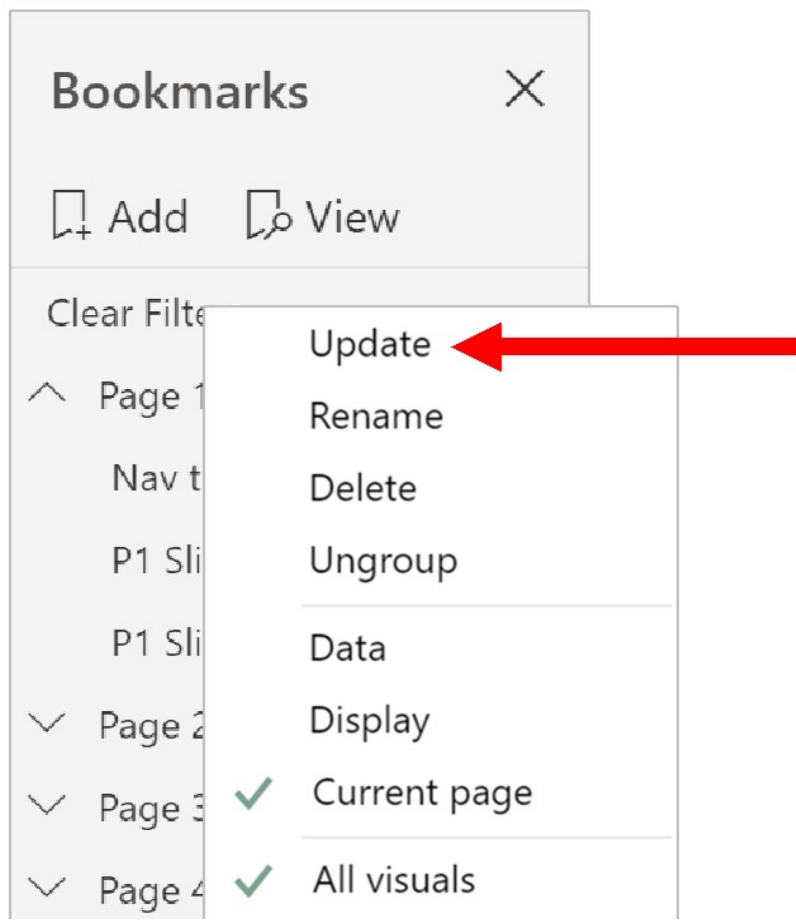
Selected visuals



selection

Understanding Bookmarks

Bookmarks ► Settings

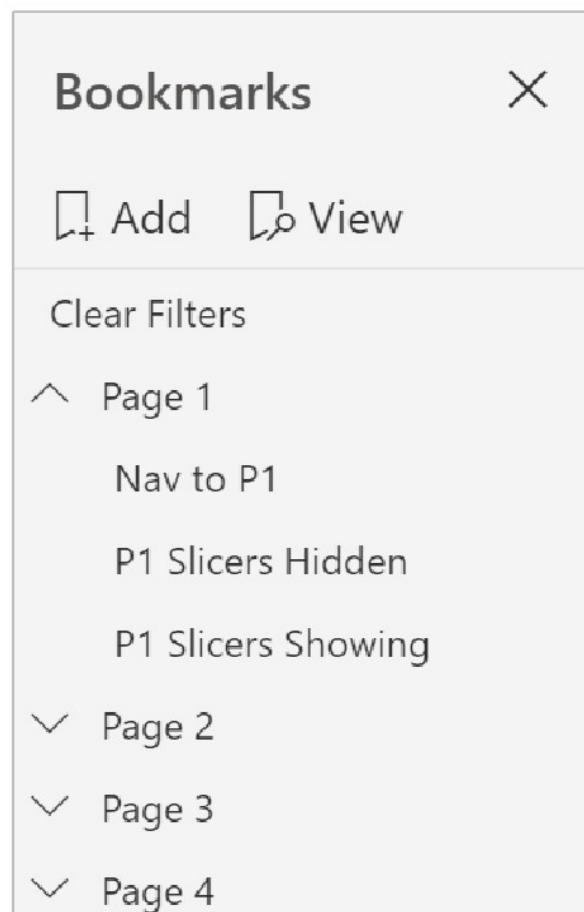


- State capture can *include/exclude*:
 - **Data**: Filters and slicers
 - **Display**: Visibility, spotlight, focus
 - **Current page**: Current page
- State capture can apply to:
 - All visuals
 - Selected visuals
- Select **Update** to re-capture state

Selected visuals

Understanding Bookmarks

Bookmarks ► Settings



- State capture can *include/exclude*:
 - **Data**: Filters and slicers
 - **Display**: Visibility, spotlight, focus
 - **Current page**: Current page
- State capture can apply to:
 - All visuals
 - Selected visuals
- Select **Update** to re-capture state
- Bookmarks can also be organized by named **Groups**

Understanding Bookmarks

Bookmarks ► Selection Pane

- The **Selection** pane is a list all objects on a report page – configurations include:
 - *Order* of objects
 - *Visibility* of objects
- **Common uses include:**
 - Order visuals so *visual headers* and other *visual pop-ups* don't display behind other visuals
 - Toggle *object visibility* to use with bookmarks
- Report users can open the pane at *view-time*

It is a recommended practice to

Selection X

Layer order Tab order

▲ ▼ Show Hide

Visible → HC Logo (Visible)

Last Refresh Date (Visible)

Report Title (Visible)

Page Views Sparkline (Visible)

Page Views (Visible)

Unique Page Views (Visible)

Hidden → Monthly Average Daily ... (Hidden)

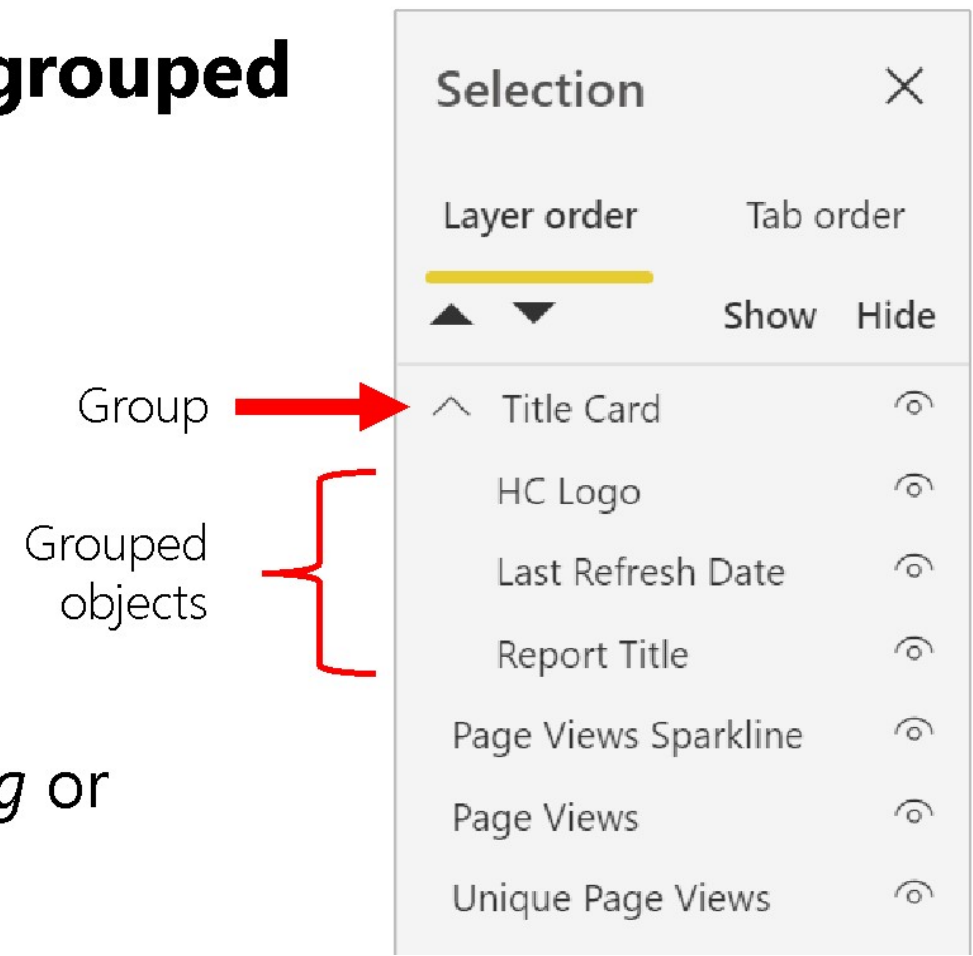
give each object a *unique name*

Unique Page Views Spa... 

Understanding Bookmarks

Bookmarks ► Selection Pane ► Groups

- Objects in the selection pane can also be **grouped**
- **Grouped objects:**
 - Behave similarly to groups in other *Microsoft Office* tools (e.g. PowerPoint)
 - Can be *moved together* as a single unit
 - Have *background color* and *transparency* settings
- **Common uses:**
 - Group similar objects together for easier *moving* or *copying-and-pasting*
 - *Organizing* the selection pane





Demonstration

One

Understanding Bookmarks

- Exercise 1 – Utilizing the Data Capture State
- Exercise 2 – Utilizing the Display Capture State
- Exercise 3 – Discussing the Current Page Capture State



Questions?



References

- What are Bookmarks?
 - <https://docs.microsoft.com/power-bi/consumer/>
- Create Bookmarks to Share Insights and Tell Stories
 - <https://docs.microsoft.com/power-bi/create-reports/desktop-bookmarks>
- HC Video Playlist – Bookmarks
 - <https://www.youtube.com/playlist?list=PLzN99cpDw6oAl3EzU77Dhcrs6r0gU-uuz>



Enhancing User Experiences With Advanced Reporting Features

Understanding Bookmark Capture States
Configuring and Formatting Buttons
Applying Measure Based Formatting
Implementing Report Tooltips

Configuring and Formatting Buttons

Button Introduction

- **Buttons** add functionality to reports that behave *similar to apps* – allowing users to *hover, click, interact* with objects
- *Four button states* can be individually formatted to create a *rich user experience*:
 - **Idle** – State when *inactive*
 - **Hover** – State during *mouse hover*
 - **Selected** – State during *mouse click*
 - **Disabled** – State for *page or drillthrough navigation*
- **Assignable actions include:**
 - Back¹
 - Web URL
 - Bookmark
 - Page navigation



Buttons

- ← Left arrow
- Right arrow
- ↶ Reset
- ↶ Back
- ⓘ Information
- ❓ Help
- 💬 Q&A
- 🔖 Bookmark

1: Navigates back to the

- Q&A

- Drillthrough navigation

previous report page

Blank



Demonstration

One

Configuring and Formatting Buttons

- Exercise 1 – Creating Interactive Buttons
- Exercise 2 – Assigning Page Navigation Actions
- Exercise 3 – Assigning Drillthrough Navigation Actions
- Exercise 4 – Applying Images to Buttons



Questions?



References

- Use Buttons in Power BI
 - <https://docs.microsoft.com/power-bi/create-reports/desktop-buttons>
- Create a Drillthrough Button in Power BI
 - <https://docs.microsoft.com/power-bi/create-reports/desktop-drill-through-buttons>
- HC Video Playlist – Bookmarks
 - <https://www.youtube.com/playlist?list=PLzN99cpDw6oAl3EzU77Dhcrs6r0gU-uuz>
- HC Video Playlist – Buttons
 - <https://www.youtube.com/playlist?list=PLzN99cpDw6oDi-pDQniewRXH9LnFK-5Q>



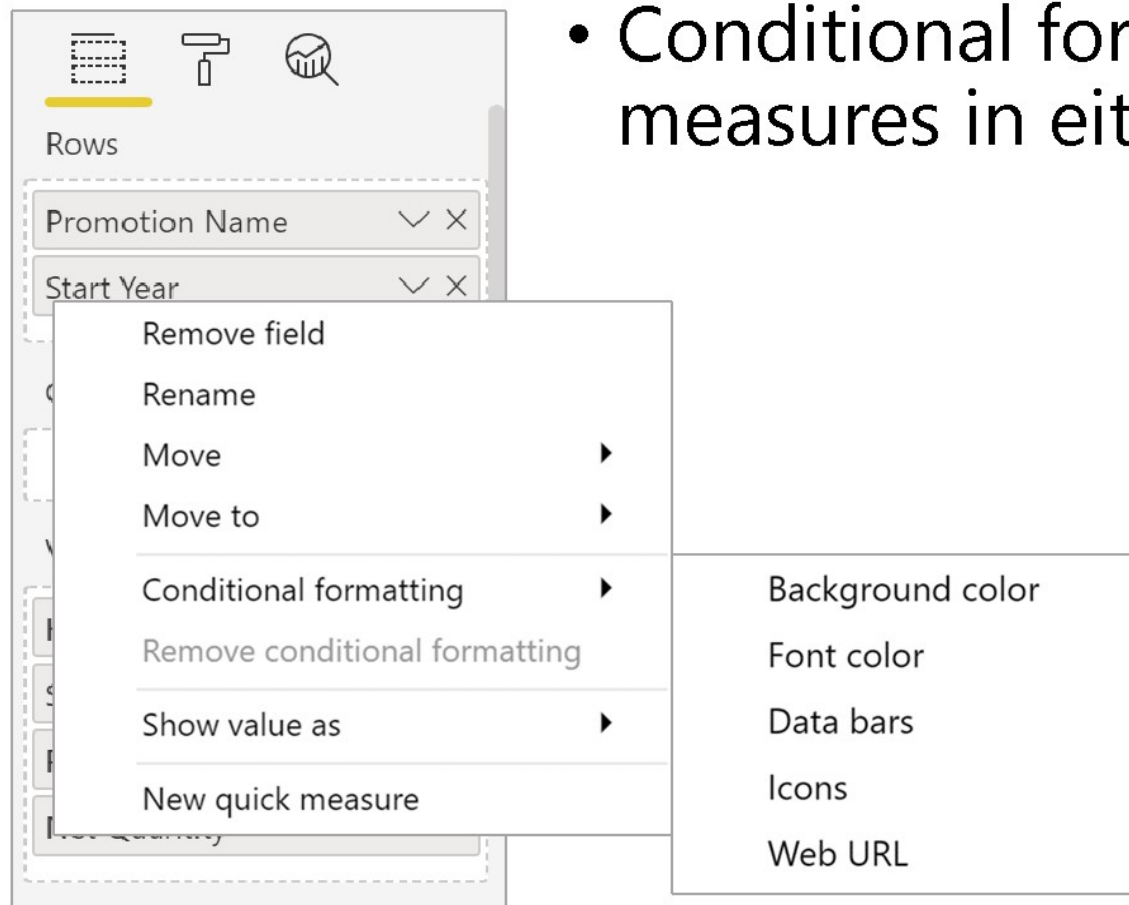
Enhancing User Experiences With Advanced Reporting Features

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Applying Measure Based Formatting

Conditional Formatting

- Conditional formatting can be applied to calculated measures in either the *table* or *matrix* visuals



The screenshot shows the 'Rows' section of the Power BI ribbon with 'Promotion Name' and 'Start Year' selected. A context menu is open over the 'Start Year' field, displaying the following options:

- Remove field
- Rename
- Move
- Move to
- Conditional formatting
- Remove conditional formatting
- Show value as
- New quick measure

The 'Conditional formatting' option is expanded to show the following choices:

- Background color
- Font color
- Data bars
- Icons
- Web URL

Page Title & Geo	Page Views	Unique Views	Searches	Bounce Rate
Havens Consulting	4,326	3,587	546	47.6%
Files & Templates — Hav...	4,270	3,424	225	72.8%
Blog / Media — Havens ...	3,464	2,921	35	73.2%
Blog Posts — Havens Co...	2,695	2,050	33	63.6%
Power BI Vs. Excel — Hav...	2,367	2,202	1,540	91.2%
Havens Consulting — Se...	1,403	1,034	0	37.9%
About Us — Havens Con...	1,226	1,049	455	47.1%
What Is Power BI? — Hav...	855	723	241	57.5%
Creating a Slicer Pop-Out...	800	679	9	80.1%
Google Analytics Report	786	710	20	80.8%

Total

29,936

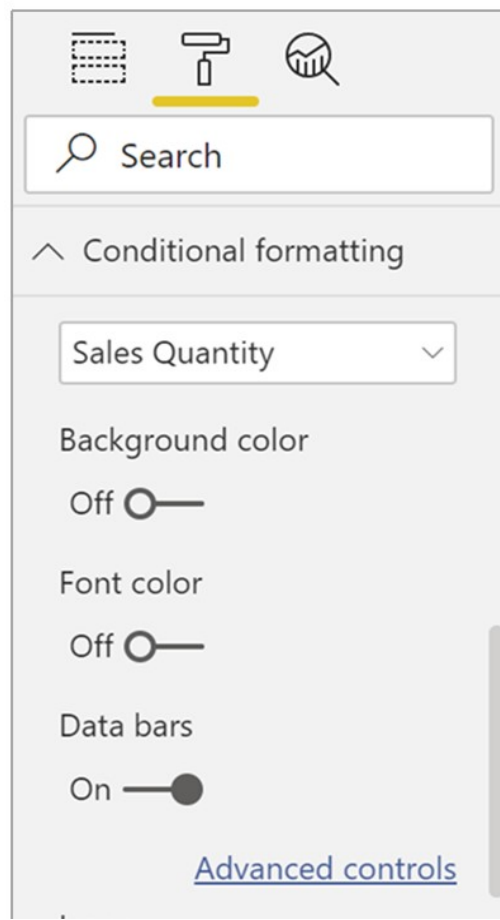
24,836

4,512

70.0%

Applying Measure Based Formatting

Conditional Formatting



- Conditional formatting can be applied to calculated measures in either the *table* or *matrix* visuals
- Settings can be accessed:
 - In the **Fields** well of the **Visualizations** pane¹
 - From the sub-menu under the Formatting pane

Icons

Off 

Applying Measure Based Formatting

Conditional Formatting ► Background and Font Colors

- **Background** and **font color** share the same *format by* settings
- Formatting logic can be based on:
 - **Color scale**
 - Applies a gradient between *min* and *max*
 - Min/Max can be set to *lowest value* or *fixed absolute value*
 - *Diverging* enables a third middle color

Background color - Sales

Format by: Color scale (dropdown) Apply to: Values only (dropdown)

Based on field: Sales (dropdown)

Default formatting: As zero (dropdown)

Minimum: Lowest value (dropdown) [Red color swatch] Enter a value (input)

Maximum: Highest value (dropdown) [Green color swatch] Enter a value (input)

Diverging

Color gradient bar: Red to Green

[Learn more](#) OK Cancel

Applying Measure Based Formatting

Conditional Formatting ► Background and Font Colors

- **Background** and **font color** share the same *format by* settings
- Formatting logic can be based on:
 - **Rules**
 - Applies colors based on one or more value ranges, each with a set color
 - Each value range starts with:
 - An **If** value condition
 - An **and** value condition
 - And a **color**

Font color - Sales

Format by: Rules Apply to: Values only

Based on field: Sales

Rules

Condition	Lower Bound	Upper Bound	Color
If value is greater than or equal to	0	33	Red
If value is greater than or equal to	33	66	Yellow
If value is greater than or equal to	66	100	Green

Learn more OK Cancel

Applying Measure Based Formatting

Conditional Formatting ► Background and Font Colors

- **Background** and **font color** share the same *format by* settings
- Formatting logic can be based on:
 - **Field value**
 - Applies colors by using a *calculated measure* or a *column* that specifies a color – either using a *text value* or a *hex code*
 - Custom logic can be created inside a calculated measure to apply the desired color

Font color - Sales

Format by: Field value

Apply to: Values only

Based on field: Top Selling Product

[Learn more](#)

OK Cancel

Field value formatting will be outside

Applying Measure Based Formatting

Conditional Formatting ► Data Bars

- **Data bars** can be set to *lowest value* or *fixed absolute value*
- **Other data Bar properties:**
 - Positive/negative bar (*color*)
 - Axis (*color*)
 - Bar direction
 - Show bar only – *hides the value*

Data bars

Format cells with bars based on their values.

Base value
Sales Quantity

Show bar only

Minimum: Lowest value (Lowest value)

Maximum: Highest value (Highest value)

Positive bar: [Teal color]

Negative bar: [Red color]

Bar direction: Left to right

Axis: [Black color]

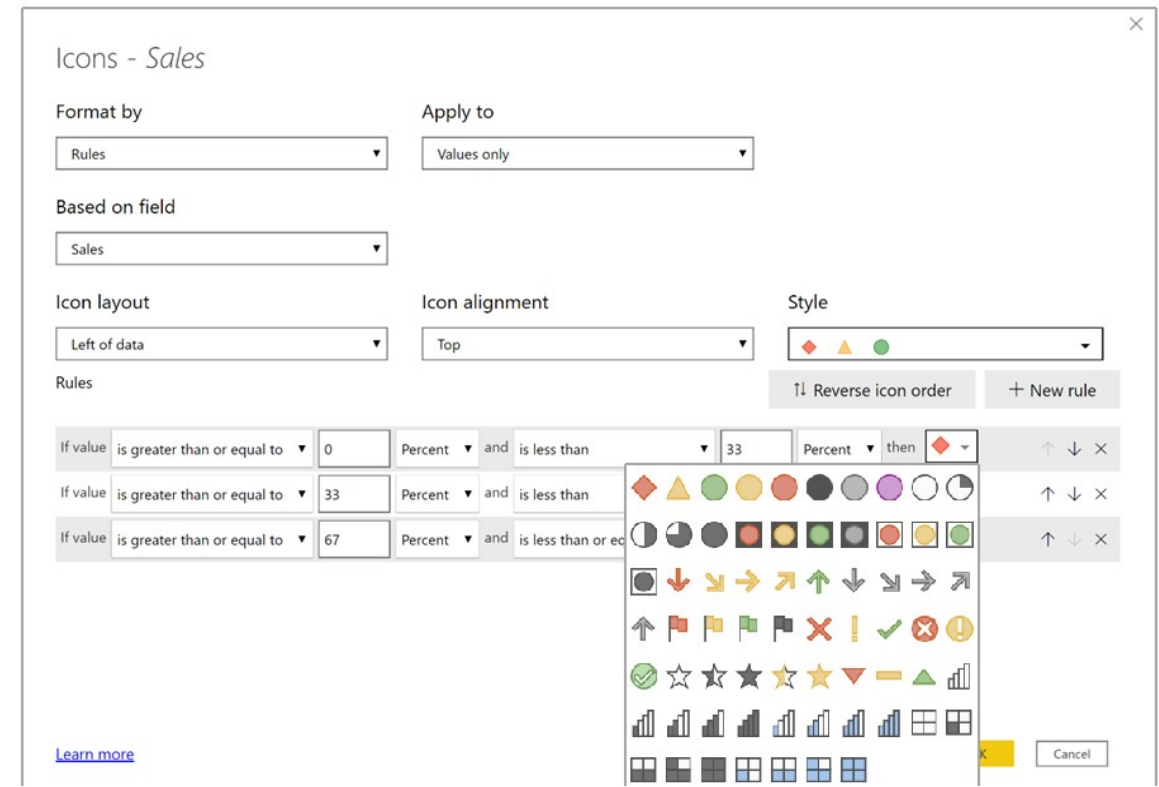
OK Cancel



Applying Measure Based Formatting

Conditional Formatting ► Icons

- **Icon sets** in Power BI are *very similar* to the ones found in *Excel*
- Formatting logic can be based on **Rules** or **Field Value**
- By default, icon rules will apply:
 - Red diamond to the *lower 33%*
 - Yellow triangle to the *middle 33%*
 - Green circle to the *upper 33%*
- *Custom* icon sets can be imported in Power BI Desktop



Applying Measure Based Formatting

Conditional Formatting ► Web URL

- **Web URLs** can be applied to fields as **active links** if there is a *column* or *measure* that contains a website URL
- Formatting logic is based on **Field value**
- When this formatting is applied to a field – *each row* is an active link to a website

Web URL - Sales

Format by: Field value

Apply to: Values only

Based on field: Selected Page

Sales Details

Country	Sales	YoY Sales	YoY Sales %	Top Selling Product
United States	\$21,814,465	\$5,470,851	33%	A. Datum Slim Di...
Regular	\$11,932,740	\$2,911,538	↓ 32%	NT Wireless Transm...
Deluxe	\$7,598,807	\$1,981,601	↓ 35%	A. Datum Super-zo...
Economy	\$2,282,918	\$577,712	↓ 34%	A. Datum Slim Digit...
Canada	\$5,313,337	\$1,196,486	29%	Contoso Wireless ...
Regular	\$2,985,745	\$700,125	↓ 31%	A. Datum Bridge Di...

Deluxe	\$1,710,997	\$358,646	↓ 27%	Contoso Wireless N...
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Applying Measure Based Formatting

Conditional Formatting ► Subtotals and Totals

- Conditional formatting can also be applied to the *subtotals* and *totals* in *matrix tables*
- **Thresholds** and **ranges** must be set manually when applied¹

Font color - Sales

Format by: Rules

Apply to: Values and totals

Based on field: Sales

Rules

1 Reverse color order + New rule

If value is greater than or equal to 0 Number and is less than 500 Number then [Red]

If value is greater than or equal to 500 Number and is less than 5000 Number then [Yellow]

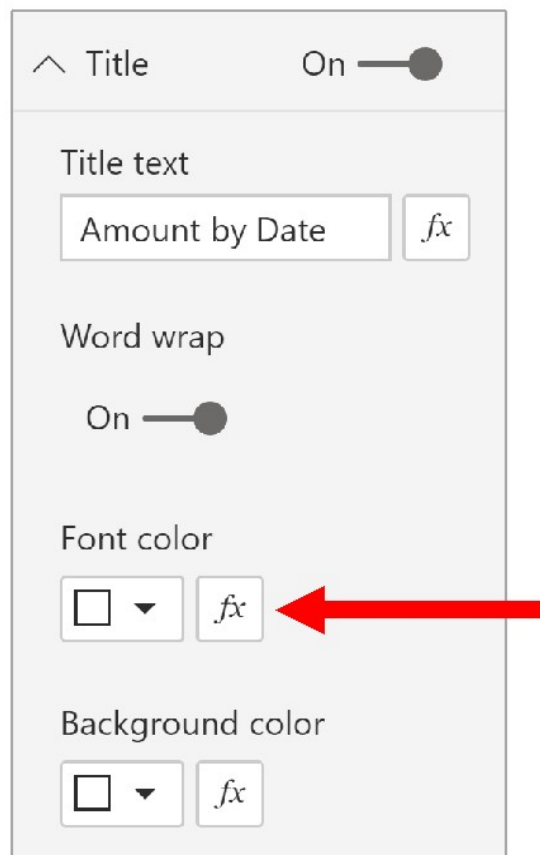
Country	Sales	YoY Sales	YoY Sales %	Top Selling Product
United States	\$21,814,465	\$5,470,851	→ 33%	A. Datum Slim Di...
Regular	\$11,932,740	\$2,911,538	↓ 32%	NT Wireless Transm...
Deluxe	\$7,598,807	\$1,981,601	→ 35%	A. Datum Super-zo...
Economy	\$2,282,918	\$577,712	→ 34%	A. Datum Slim Digit...
Canada	\$5,313,337	\$1,196,486	↓ 29%	Contoso Wireless ...
Regular	\$2,985,745	\$700,125	↓ 31%	A. Datum Bridge Di...

1: Only numbers be applied – not percentages

Deluxe	\$1,710,997	\$358,646	↓ 27%	Contoso Wireless N...
--------	-------------	-----------	-------	-----------------------

Applying Measure Based Formatting

Conditional Formatting ► Other Applications



- **Measure Based Formatting** can also be applied to other visual and object **attributes**
 - Attributes where this formatting can be applied are *indicated* with an *fx* button next to it
- Two *primary types* of formatting are available:
 - **Color** – Logic is based on: *Color scale, Rules, or Field value*
 - **Text** – Logic is based on: *Field value*¹

1: Creates a dynamic text string that can be

changed during refresh or filter selection



Demonstration

Three

Applying Measure Based Formatting

- Exercise 1 – Applying Background/Font Color Formatting
- Exercise 2 – Applying Data Bar Formatting
- Exercise 3 – Applying Web URL Formatting
- Exercise 4 – Understanding Other Applications



Questions?



References

- Use Conditional Formatting in Tables
 - <https://docs.microsoft.com/power-bi/desktop-conditional-table-formatting>
- Tips and Tricks for Formatting in Power BI
 - <https://docs.microsoft.com/power-bi/visuals/service-tips-and-tricks-for-color-formatting>
- HC Video Playlist – Conditional Formatting
 - https://www.youtube.com/playlist?list=PLzN99cpDw6oCYtf0aftU8dAyXfdWpQb_j



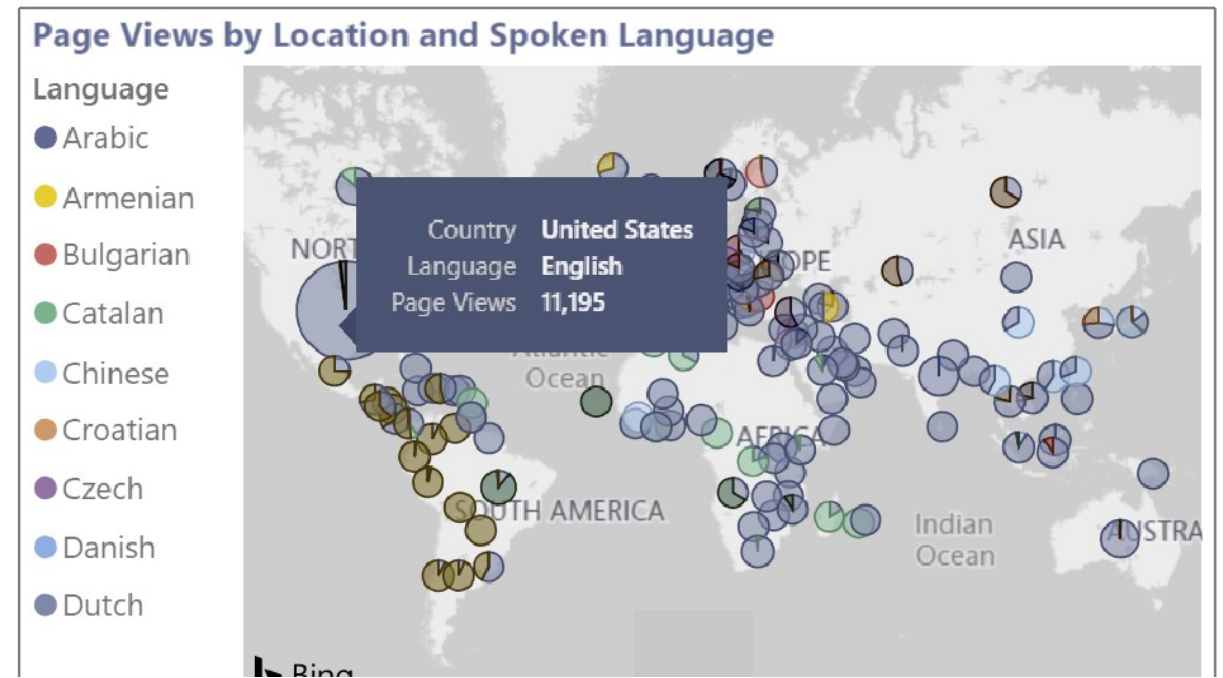
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Implementing Report Tooltips

Tooltips Introduction

- **Tooltips** are an elegant way of providing more *contextual information* and *detail* to data points on a visual
- By default, tooltips displays the data point's *value* and *category*¹
- Fields may be *added* to the tooltips well to provide *additional data points*



1: tooltips can also be *disabled* for specific visuals



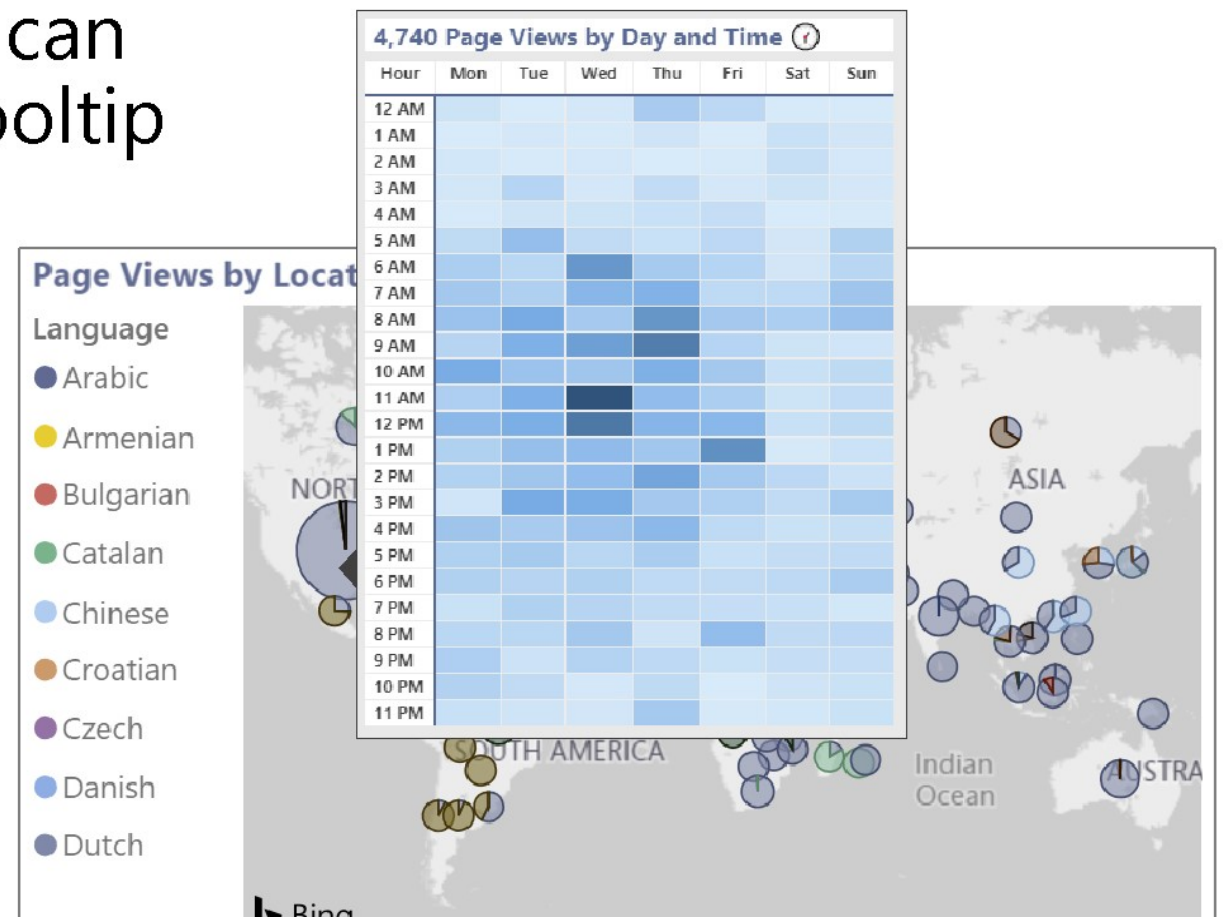
Bing

Implementing Report Tooltips

Tooltips ► Report Tooltips

- Additionally, **report tooltip pages** can be created to display visuals as a tooltip
- **Tooltip pages:**
 - Can be set to any height or width
 - Can include any visual or object
 - Cannot be interacted with inside the tooltip¹

1: Elements such as *slicers*, *hierarchy controls*,



drillthrough, etc. cannot be clicked

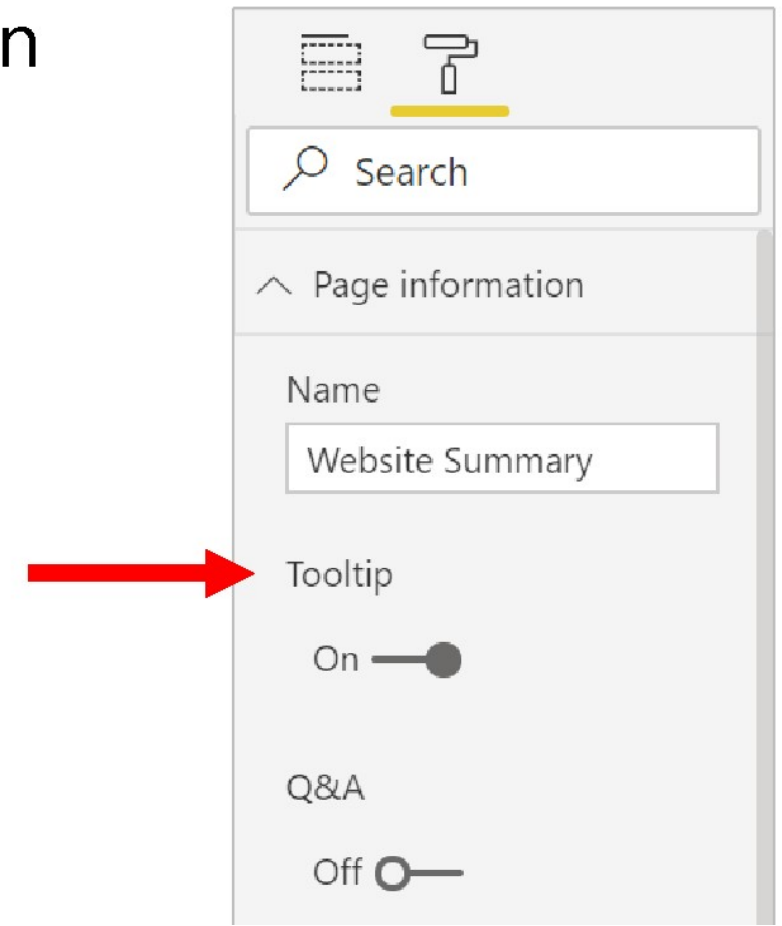


 Bing

Implementing Report Tooltips

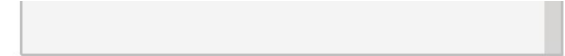
Tooltips ► Report Tooltips ► Configuration

- Configurations for report tooltips are accessed in the *format pane* for the *report page*¹
- **Report tooltip settings:**
 - **Tooltip** (*toggle*) – enables this page to be used as a tooltip by other page visuals



1: Page formatting is only accessible if

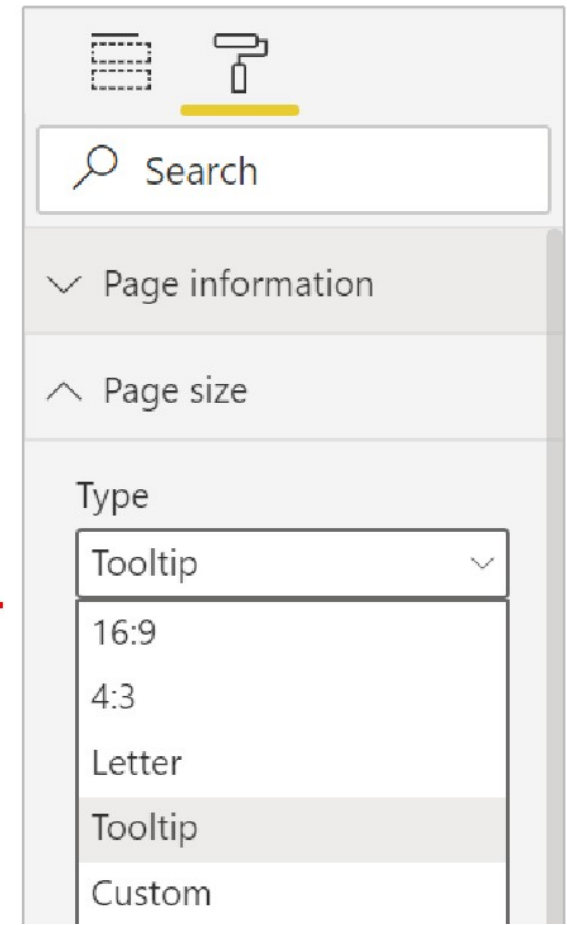
there is not an active page visual selected



Implementing Report Tooltips

Tooltips ► Report Tooltips ► Configuration

- Configurations for report tooltips are accessed in the *format pane* for the *report page*¹
- **Report tooltip settings:**
 - **Tooltip** (*toggle*) – enables this page to be used as a tooltip by other page visuals
 - **Page size** – configuration of the pixel size and width, common configurations include:
 - *Tooltip* – 320 x 240 pixels
 - *Custom* – User defined pixel width and height



Page sizes

1: Page formatting is only accessible if

there is not an active page visual selected

240

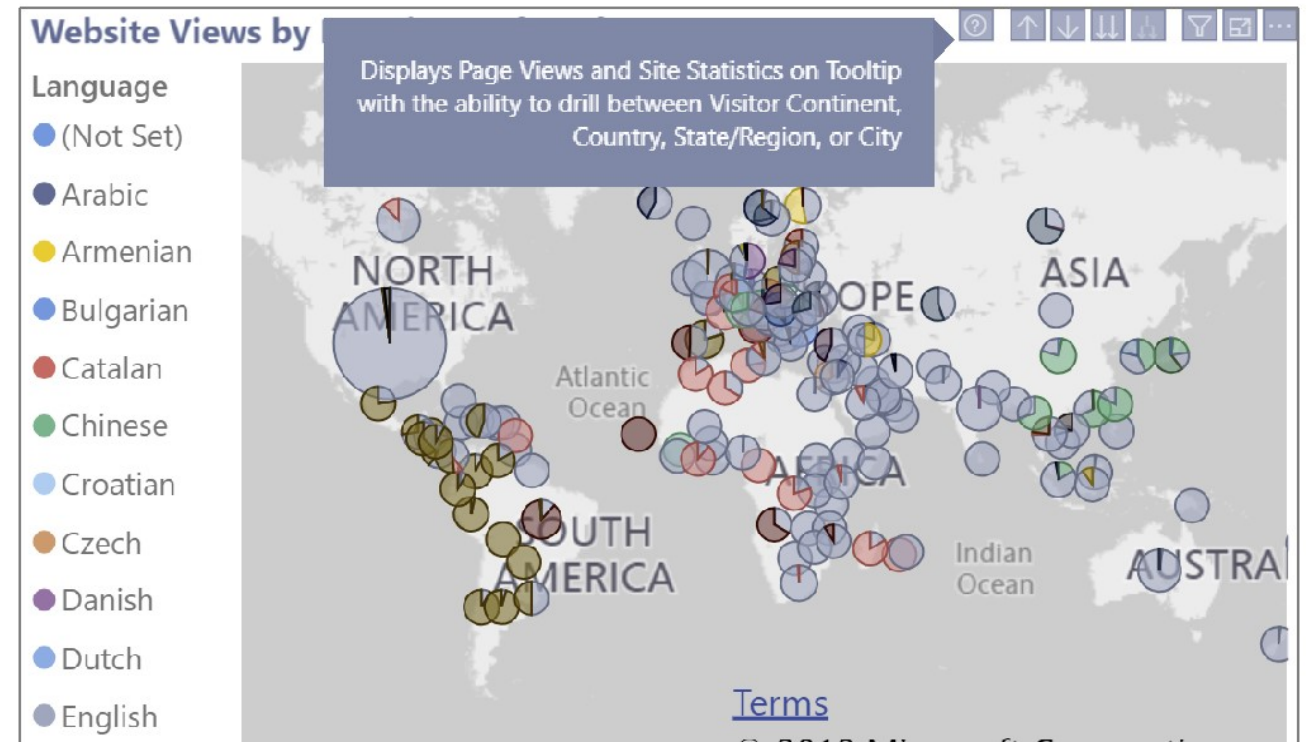


FIXES

Implementing Report Tooltips

Tooltips ► Visual Header Tooltips

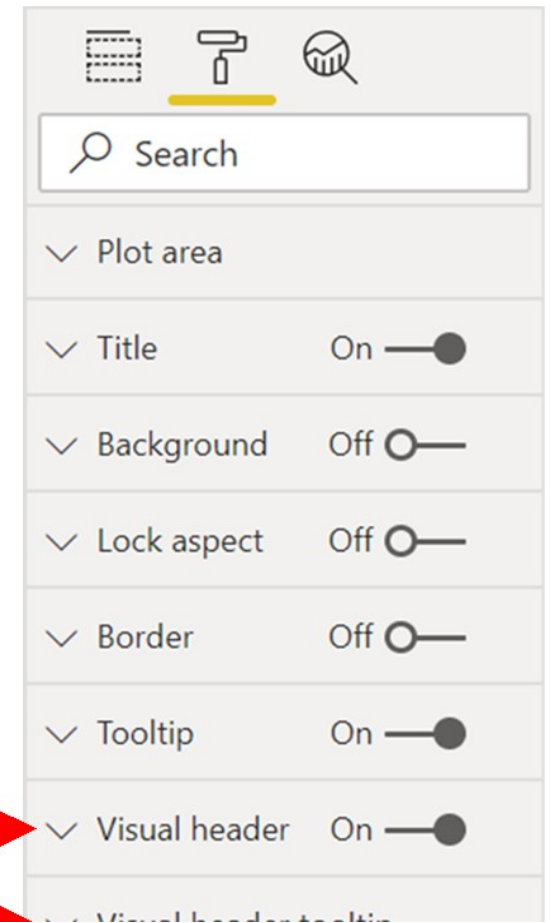
- **Tooltips** can also be created *inside* the *visual header* to display information relevant to a visual
- **Visual Header Tooltips:**
 - Can be configured to be either a *standard Tooltip* or a *Report Tooltip*
 - Can be customized for each visual



Implementing Report Tooltips

Tooltips ► Visual Header Tooltips ► Configuration

- Configurations for visual header report tooltips are accessed in the *visual header* for the *visual*
- **Visual header tooltip settings:**
 - **Visual header tooltip icon (toggle)** – enables the tooltip icon and toggles visibility of the configuration menu for the visual header tooltip



Displays when toggle is on

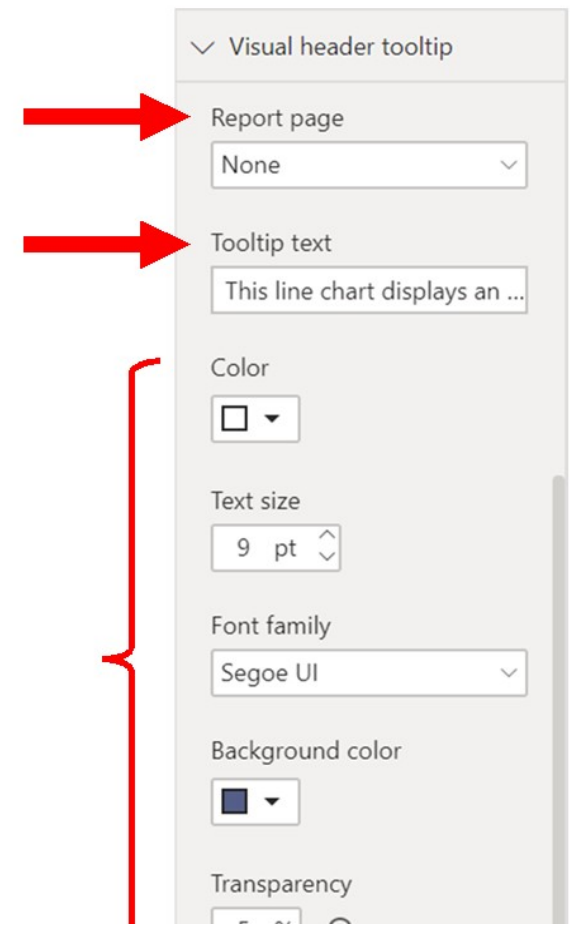


✓ visual header tooltip

Implementing Report Tooltips

Tooltips ► Visual Header Tooltips ► Configuration

- Configurations for visual header report tooltips are accessed in the *visual header* for the *visual*
- **Visual header tooltip settings:**
 - **Visual header tooltip icon** (*toggle*) – enables the tooltip icon and toggles visibility of the configuration menu for the visual header tooltip
 - **Visual header tooltip** (*menu*) – contains all configuration options, such as:
 - *Report Page* – which page to assign to tooltip (if desired)
 - *Tooltip Text* – text to display inside tooltip
 - Up to 250 characters
 - *Formatting options*



Visual header tooltip configuration menu:

- Report page: None
- Tooltip text: This line chart displays an ...
- Color: [Color selection]
- Text size: 9 pt
- Font family: Segoe UI
- Background color: [Color selection]
- Transparency: [Slider]

Red arrows point to the Report page and Tooltip text fields. A red bracket groups the Color, Text size, Font family, Background color, and Transparency options.

Formatting options

- E.g. font size, color, background, transparency





Demonstration

Four

Implementing Report Tooltips

- Exercise 1 – Configuring a Report Tooltip Page
- Exercise 2 – Adding Report Tooltips to Visuals
- Exercise 3 – Enabling Visual Header Tooltips



Questions?



Recommended Practices

- Consider the *audience* and their *needs*
- Just because a *feature exists* does not mean it has to be used in a report
- Use *conditional formatting* to draw attention to *important data*
- *Leverage tooltips* to provide additional relevant information to visuals
- Configure *bookmarks* to reduce the number of mouse clicks and mouse travel for users – enabling a more intuitive report experience



References

- Create Tooltips Based on Report Pages
 - <https://docs.microsoft.com/power-bi/desktop-tooltips>
- Extend Visuals with Report Page Tooltips
 - <https://docs.microsoft.com/power-bi/guidance/report-page-tooltips>
- HC Video Playlist – Tooltips
 - https://www.youtube.com/playlist?list=PLzN99cpDw6oAU_0U3cZhLDDBhVm6Ml5Pv

Online Resources



Presentation PDF

- <http://www.havensconsulting.net/speaking-events>



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