Dhiva™ 5.2.0.0 - Explore - Producer User Guide

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1 GETTING STARTED

Dhiva is a touch-enabled business intelligence tool designed for iPads, Android tablets, and PCs utilizing HTML5 compliant browsers. Specific requirements include the following:

- HTML 5.0 compliant browsers such as Safari, IE Edge, Android, Google Chrome, etc.
- A user account and password provided by a system administrator
- Internet connectivity with a minimum of 1Mbps bandwidth or more.
- Recommended desktop configuration to access the application on browser: 8 GB RAM.
- Recommended iPad configuration to access the application on browser: 2 GB RAM.
- Recommended iPhone configuration to access the application on browser: 1 GB RAM
- Recommended android phone configuration to access the application on browser: 6 GB RAM.

The remaining sections of this manual provide a brief overview of the system's features and functionality and its components.

1.1 User Modules & Personas

Based on configuration-driven requirements, user restrictions can be based on any attribute or set of attributes across dimensions – such as either Store and/or Brand restrictions. User access restrictions are defined by the System Administrator and can be changed as required and approved.

- Consumer: This is the mode for report/storyboard consumers – with functionality to change and save user-specific information – but with no report creation or modification rights. These are the majority of users who "consume" visualizations published by a "Producer".
- Producer: These are the super-users who create and publish content. These users are expected to be aware of data, analytics, and advanced customization features in the system.
- Governor: Normally, a single user who performs system configuration for each data source and related attributes, views, and KPI definitions. It is expected that such would have users SQL knowledge – and a strong understanding of the business definition for KPIs derived from the base data source.
- Admin: This is typically a technical user who provides licensing and access rights for each user and monitors usage and performance.

1.2 User Access Restrictions

The Governor sets user restrictions, and Admin can be based on any attribute or set of attributes – and license settings. A Producer may also restrict access to published reports.

1.3 Login &Forgot Password

Users can log into the system by clicking on the designated URL link and entering their assigned username and temporary password provided by the system administrator. Click on the FORGOT PASSWORD link for a new temporary password emailed to the configured email account.

General password rules are as follows:

- Passwords must be eight alpha-numeric characters or longer, with at least one capital letter, small letter, number, and at least one special character.
- The password should not match the last five passwords.

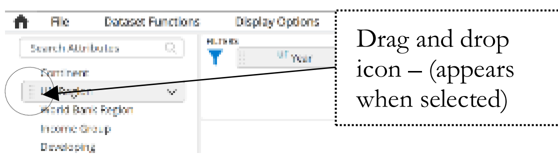
2 SYSTEM OVERVIEW

2.1 General Conventions

Several simple conventions are used consistently across the application, including the following:

- Action Buttons: are shown in either blue color – or dark grey (for math functions).

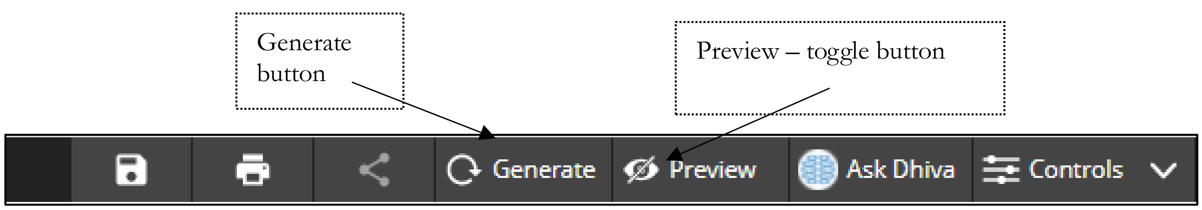
- Drag and Drop: you can drag and drop assets into existing folders – and attributes to report row, columns, and pages. The convention for showing this is as shown in the image below:



- Notes - Messages: Some actions may result in a message dialog in the top right corner of the screen from time to time (e.g., saving an asset).

- Plus/Minus Sign: An attribute value with a plus/minus (+/-) sign prefixed implies a drill-down design.

- Preview & Generate Icons: Preview can show a report or chart in "non-edit" mode or "edit" mode. Generate can be used to generate a report or storyboard after specifications are complete.



- Nested View vs. Replacement View: For hierarchies that are Replacement nature, a "bread crumb" is shown on the top left-hand side of the screen for navigation. For Nested, the only source of navigation is using +/- signs.

2.2 Key Nomenclature

The layout can be changed from the default "Tile" view to the "List" view by selecting the list icon on the data asset management (landing) page.

- Domain: This is the data space – attributes and facts – that is configured by the Governor. A Domain may include multiple data types (e.g., manufacturing and sales data), and a domain is entirely dependent on how a Governor configures the system. Sometimes all the facts may be configured as one domain, and in other cases, they may be configured as different Domains. The main issue is that visualization is conducted within a domain – unless a "Merge Report" is used, which merges reports from different Domains.

- Attributes: Attributes are fields/values that describe a fact. For example, store name, store type, equipment class, equipment description, etc., are all attributes. Attributes are used to "slice and dice" data and are defined as part of a Domain. Certain attributes, if configured, can span across different Domains and can be used in a Merge Report.

- Time Attributes: Time is a special attribute in a Domain due to the intrinsic properties of time variables. Time can be specified as "Relative" or "Absolute". A relative time attribute is a method of specifying time periods that are automatically updated. For example, specifying a report with Jan, Feb, Mar (say in the month of March) will always provide the exact data for those three months if "Absolute" is selected – even in May. However, if the Time attribute is specified as relative, then in April, the value would reflect Feb, Mar, and April (the most recent three months). Relative time is supported only for date data types and not for DateTime data types. Another difference is how Time Stamps are handled – in that such attributes have an intrinsic method of selection related to higher level inferred attributes (i.e., a time value of MM-DD-YYYY-HH-MM-SS can be specified using day or an hour or a minute or second).

- Metrics: Metrics are facts (generally numeric but could also be text) contained in a "Fact Table". The Governor configures a Metric and maybe a "raw" fact (i.e., data that is unchanged as collected) or a "derived" fact (i.e., data that is operated upon to create a new Fact). A Metric may be defined so that certain parameters are required to complete its definition (see measures below).

- Measures: Measures are the final values shown in a report. A Measure can be a Metric – provided the metric does not have any required parameters. For example, Metric Revenue % Change vs. Year Ago" is fully specified and can be used as-is. However, a Metric called "Revenue" with a parameter called "Change" where the parameter "Change" could be - % Change vs. Year Ago, % Change vs. Quarter Ago" are values that are user selected to create a Measure. Therefore, by definition, every measure is a Metrics – but not all Metrics are Measures (since some may require additional parameters to complete the definition). A Governor defines the Metrics in the system, and the user (Producer) specifies the Measures to use in a report. In the most straightforward cases, all Metrics are Measures – i.e., the Governor defines all the possible Metric combinations.

- Report Filters: These are filters that are applied to the entire report. For example, a report with a time filter value = January applies this condition to all the values used in the report. Report filters can be any attribute selected by a Producer.

- User Filters: These are "user filter" values applied after a report is generated to further slice and dice the data. For example, a report which shows Revenue by Product Category – may have Year as the User Filter. Here, the initial report would show all Years, while the user could then select a specific year – as a User Filter – to update the result for the desired year. User Filter behaves the same as Report Filters, except that it is up to the end-user to determine the value of the filter to apply.

- Report Rows, Columns, and Pages: These are report "dimensions" or locations on a report where you can place attributes and measures. A typical report has a row, columns, and possibly pages – and these are the locations for dragging the attributes and measures. Attributes can be moved across these dimensions to generate a report, and more than one attribute can be dragged on a report dimension.

- Hierarchies & Drill Down: Producers can create any hierarchy – or drill-down path – by dragging and dropping attributes. The path of drill down depends on the order of attributes. A "Nested" hierarchy is supported on a row only and allows both the parent and child to be shown at the same time. A "Replacement" hierarchy can be shown on any report dimension and shows only the level selected.

- List & Groups: An attribute, for example, a Country could have "N" values. A list is a defined sub-set of the list – say, for example, a group of countries which we can call "Developed Countries," which contains all the individual countries. On the other hand, a Group is a user-defined aggregate of a list of attribute values (i.e., a total). Groups are related to an attribute and are "derived attributes" shown with a "G" prefix in the attribute list. Producers can create and save any number of Lists and Groups for a given attribute value.

- Visualization Assets: There are two "visualization objects": (a) Data Book and (b) Storyboard. A Data Book is a report with the actual data (report) and associated visualizations (charts) that can be generated using the Data Book. A Storyboard contains one or more Dashboards (page), with each Dashboard containing one or more Data Book entities (reports or charts). This construct enables users to create and manage complex visualization objects within and across Domains in a flexible and easy to use manner.

  1) Linked Objects: An attribute or measure value can be "hyper-linked" to (a) another Data Book or Storyboard or (b) an external object. Linked objects are shown with a hyperlink and can be specified by Producers in a report or a Storyboard as required. Linked Objects open in a separate window to enable users to view the original object and the linked object simultaneously.

2.3 Type of Visualization Assets – Databooks & Storyboards

There are two basic visualization objects supported by the system – as further defined below:

- Databook: This is similar to an excel workbook, containing a single sheet of report data (as extracted from a given Domain) and one or more tabs containing visualization using the extracted data. The nature and structure of the data. A Databook can be run on-demand or scheduled or published to other users.

- Storyboard: This object is a collection of one or more dashboards – with each Dashboard containing one or more objects from one or more Databooks. A Dashboard (or a page within a Storyboard) can contain Databook objects from any number of Domains.

Aside from the above visualization assets, other minor objects include "static tiles" or objects with no data per-se, but which can be inserted to link to other internal (databooks or storyboards) or external objects (using a hyperlink). These objects can be placed anywhere on the storyboard.

3 MANAGING VISUALIZATION ASSETS

There are various types of folders used:

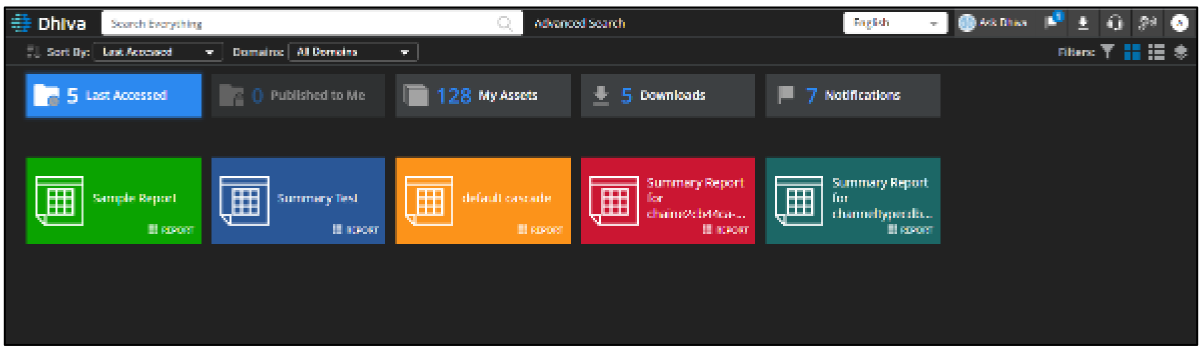
1. Root Folder – which is the base folder holding all the sub-folders and visualization assets,
2. User Folders – as specified and defined by individual users
3. Recent folder – a system generated (non-editable) folder showing the latest set of reports or storyboards,
4. Notification Folder – a system generated (non-editable) folder showing the latest set of system generated notifications.
5. Published folder – a system generated (non-editable) folder showing the list of assets published to a user.

6. Downloads folder – a system generated (non-editable) folder showing the list of exported assets downloadable to a user.
7. Recycle bin- a system-generated (non-editable) folder displaying a list of assets deleted by a user, with the option to restore them if needed

There are two ways to navigate and manage visualization assets: (a) Tile View, which is the 2. X version of the tool, (b) a new List View, which is the default method, both of which are further described below.

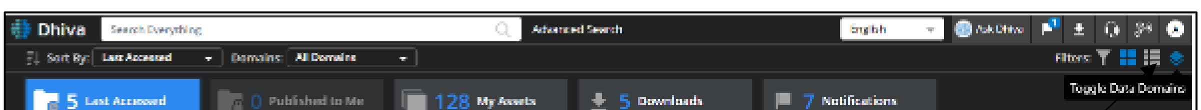
3.1 Tile Layout View

The Tile Asset View shows the objects in each folder (as opposed to all the assets at once). The layout can be changed from the default "Tile" view to the "List" view by selecting the list icon on the data asset management (landing) page.



Tile colors are randomly assigned (have no meaning), but each tile has an icon indicating the nature of the asset (folder, databook, or storyboard). To generate a databook or storyboard, users can click directly on a Tile. To move, edit, or manage the objects, users should select the List View option. This view is typically used by Consumers where there is minimal asset management need.

Data Domains panel is hidden by default in tile view. This panel visibility can be toggled by clicking on the Toggle Data Domains icon.

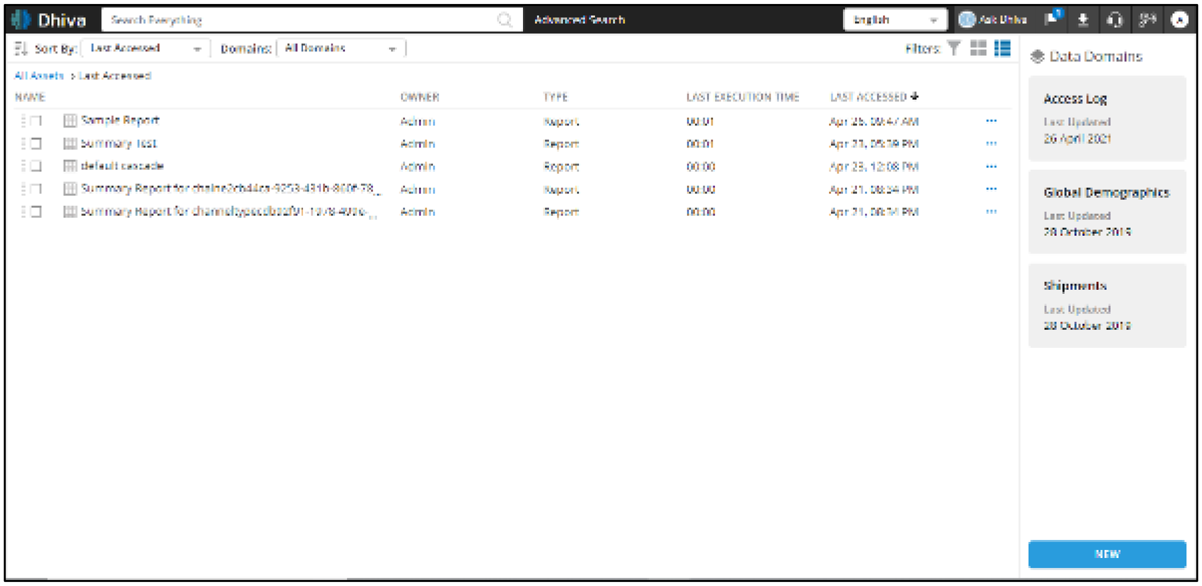


Toggle Data Domains

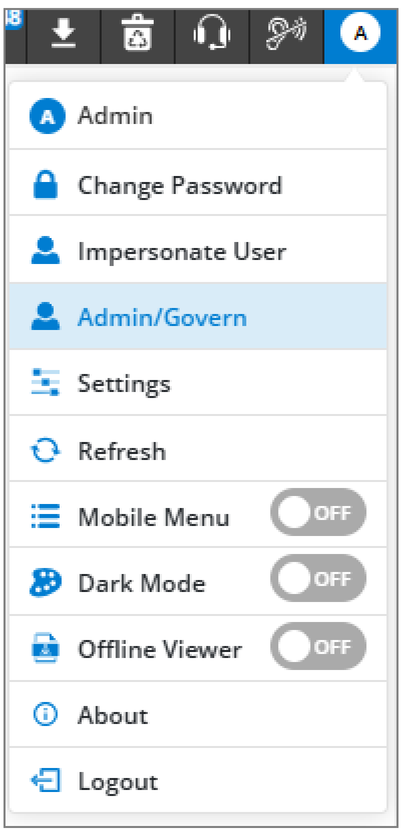
On saving, the Data Domains panel state is saved in user preferences.

3.2 List Layout View

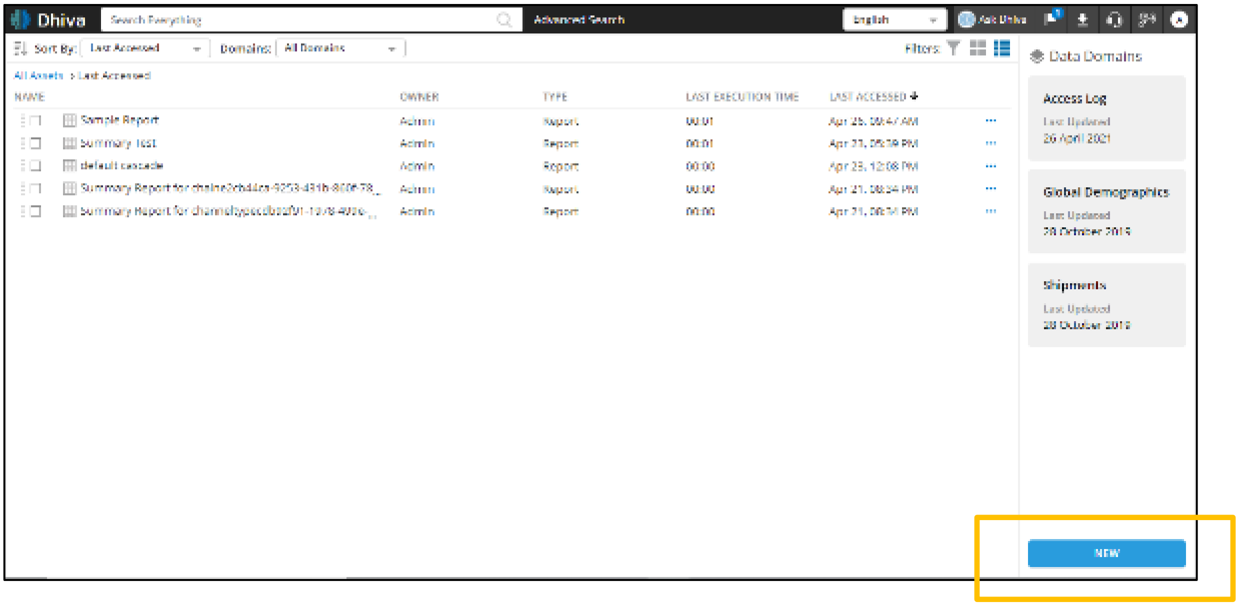
The List layout view is similar to the windows file explorer view. A user can expand the folders in this view, and it allows the user to move the assets across the folders. This view can be helpful for producers to manage and navigate.

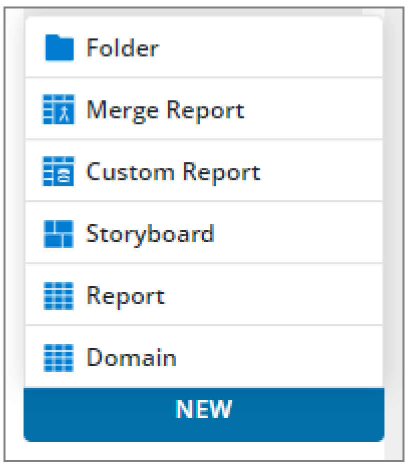


The layout can be changed from Desktop to Mobile and switched back by the Mobile Menu option available under the User Icon Drop-down.



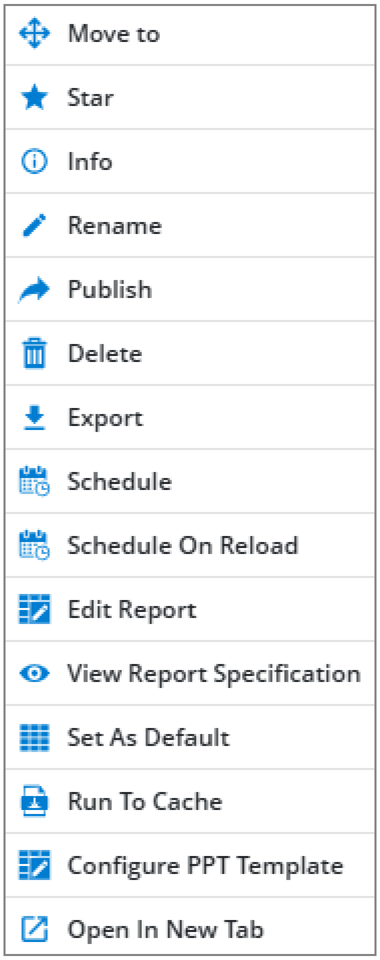
The New button at the bottom of the screen can create new Folders, Reports (Databooks), or Storyboards.

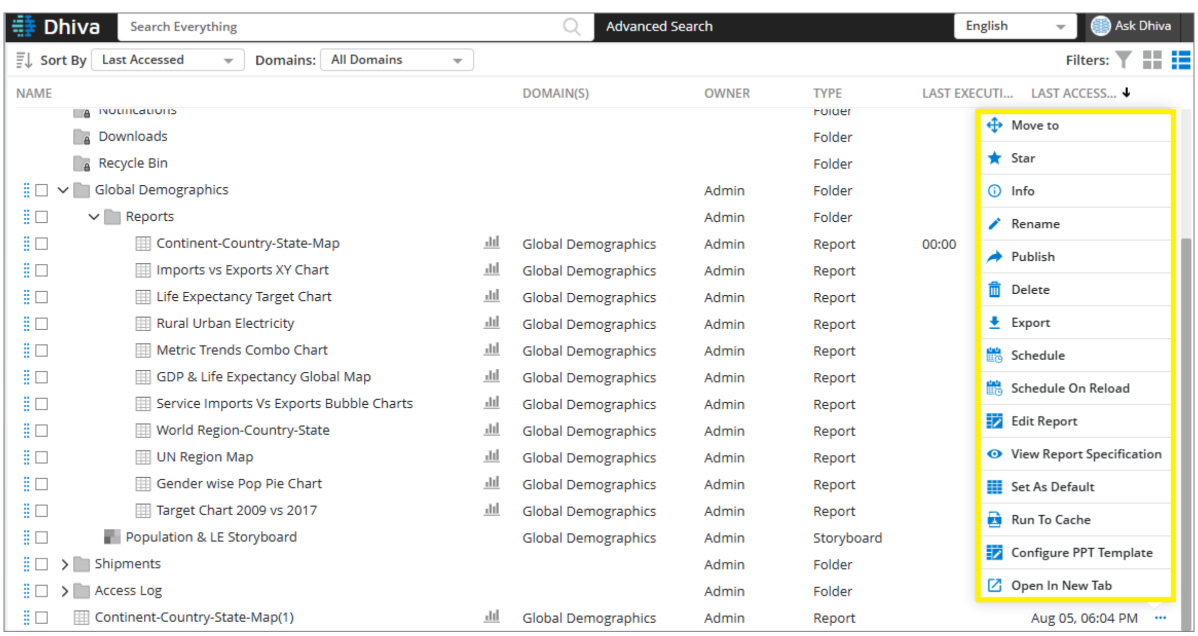




3.3 Asset Functions & Actions

There are numerous data asset functions, including Star (to tag an item as a favorite), Rename (object), Publish (object to other users), Delete, Export (generate and export), Schedule, and Edit (make changes to the object). An example of the list of options is shown in the screen below.


Move to
Star
Info
Rename
Publish
Delete
Export
Schedule
Schedule On Reload
Edit Report
View Report Specification
Set As Default
Run To Cache
Configure PPT Template
Open In New Tab

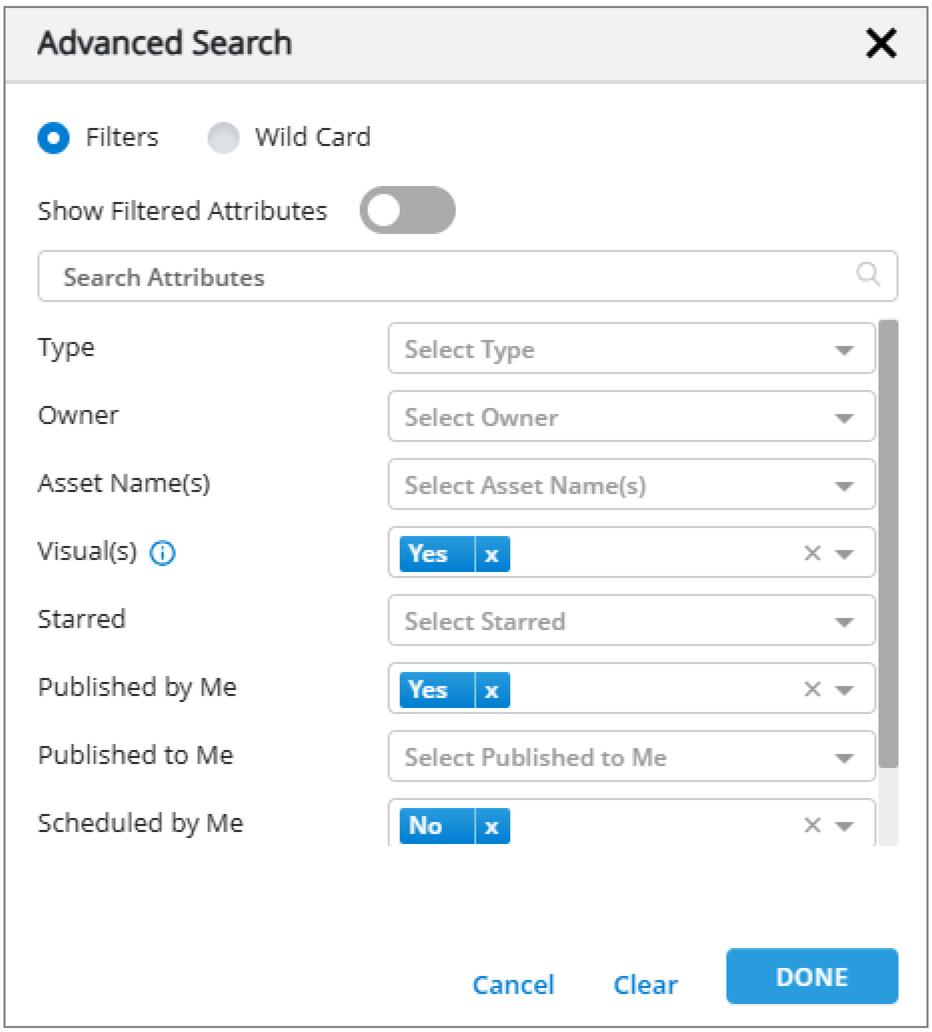

Dhiva
Search Everything
Advanced Search
English
Ask Dhiva
Sort By
Last Accessed
Domains:
All Domains
Filters:
NAME
DOMAIN(S)
OWNER
TYPE
LAST EXECUTI...
LAST ACCESS...
Downloads
Folder
Recycle Bin
Folder
Global Demographics
Admin
Folder
Reports
Admin
Folder
Continent-Country-State-Map
Global Demographics
Admin
Report
00:00
Imports vs Exports XY Chart
Global Demographics
Admin
Report
Life Expectancy Target Chart
Global Demographics
Admin
Report
Rural Urban Electricity
Global Demographics
Admin
Report
Metric Trends Combo Chart
Global Demographics
Admin
Report
GDP & Life Expectancy Global Map
Global Demographics
Admin
Report
Service Imports Vs Exports Bubble Charts
Global Demographics
Admin
Report
World Region-Country-State
Global Demographics
Admin
Report
UN Region Map
Global Demographics
Admin
Report
Gender wise Pop Pie Chart
Global Demographics
Admin
Report
Target Chart 2009 vs 2017
Global Demographics
Admin
Report
Population & LE Storyboard
Global Demographics
Admin
Storyboard
Shipments
Admin
Folder
Access Log
Admin
Folder
Continent-Country-State-Map(1)
Global Demographics
Admin
Report
Aug 05, 06:04 PM
Move to
Star
Info
Rename
Publish
Delete
Export
Schedule
Schedule On Reload
Edit Report
View Report Specification
Set As Default
Run To Cache
Configure PPT Template
Open In New Tab

A user can also drag an object into another location by pressing/holding it to the extreme left and moving it to the desired location. Multiple objects can also be moved or starred at the same time by selecting the checkbox on the left.

3.4 Additional Features

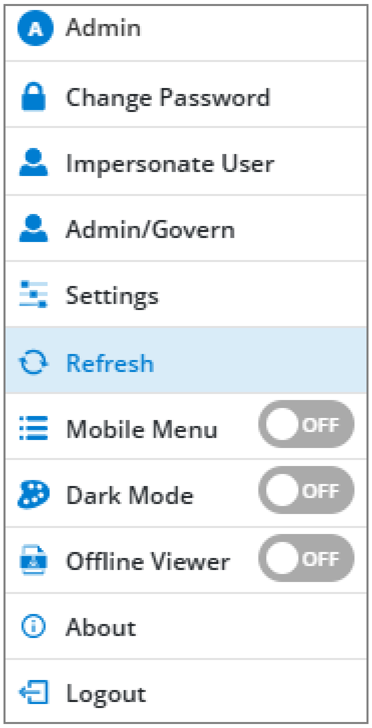
3.4.1 Advanced search options on the home page.

Advanced search now allows users to filter the assets using "Published by Me", "Published to Me", "Scheduled by Me" and "Scheduled to Me" & “Visuals” properties.



3.4.2 Refreshing data from the home page.

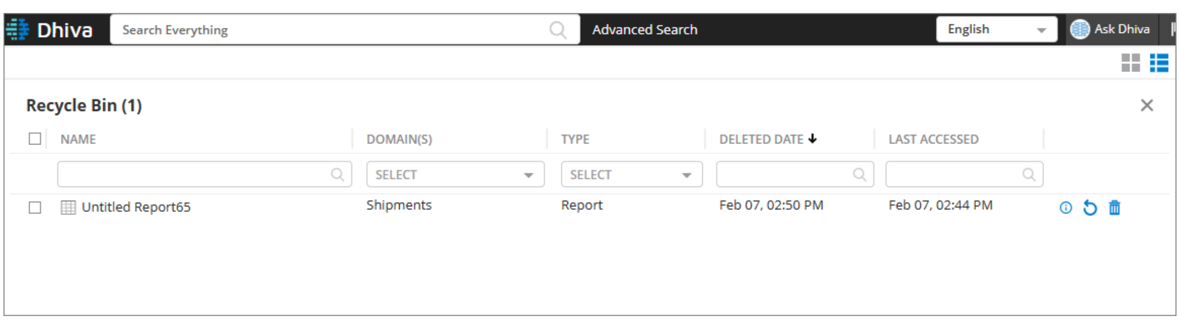
Dhiva caches some data on the client browser for performance reasons. If the user wants to refresh and get the latest data from the server manually, the user can do this from the user menu, as shown below. This action retrieves the latest asset and domain configuration from the server.



3.4.3 *Recycle Bin for restoring deleted assets*

A new "Recycle Bin" folder, like the "Downloads" folder is added to the home page.

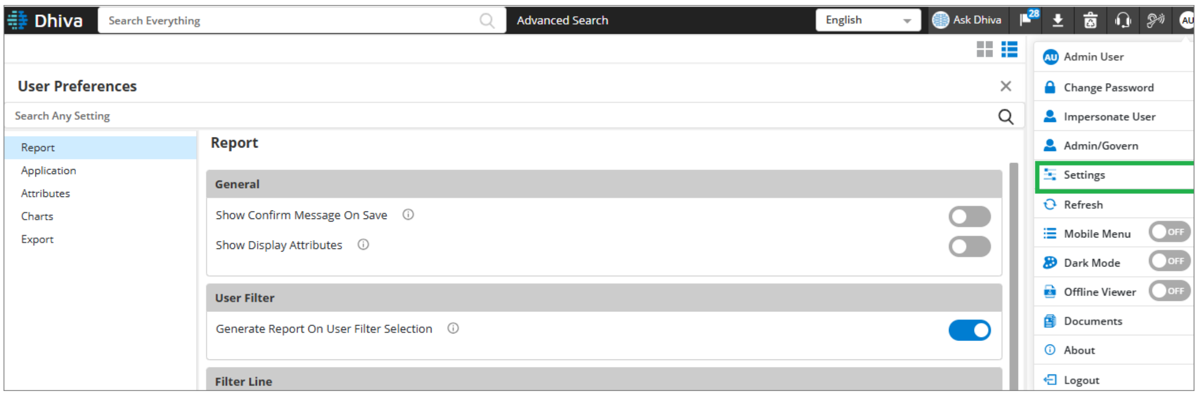
Currently, deleting an asset leads to its permanent removal. However, after this update, when the delete option is selected, a confirmation pop- up will appear, allowing the user to choose between deleting the asset or permanently removing it. If user chooses delete option (soft delete) then deleted assets will appear in the Recycle Bin.
On clicking Recycle Bin Folder or icon from home navigation bar, it will navigate to the Recycle bin tab



From the Recycle Bin tab, users can either restore assets or permanently delete them and can see asset info on selecting info icon.
Users will also have the option to select multiple assets in the Recycle Bin and perform actions like restoring or permanently deleting them or viewing their info.
The default retention period of the assets in recycle bin is set to 30 days in global settings

3.4.4 User Preferences

These settings enable the user to customize their preferences, which take precedence over the default application settings. The settings are organized into sections or areas of the app. Changes made to these settings do not require a restart of the application.



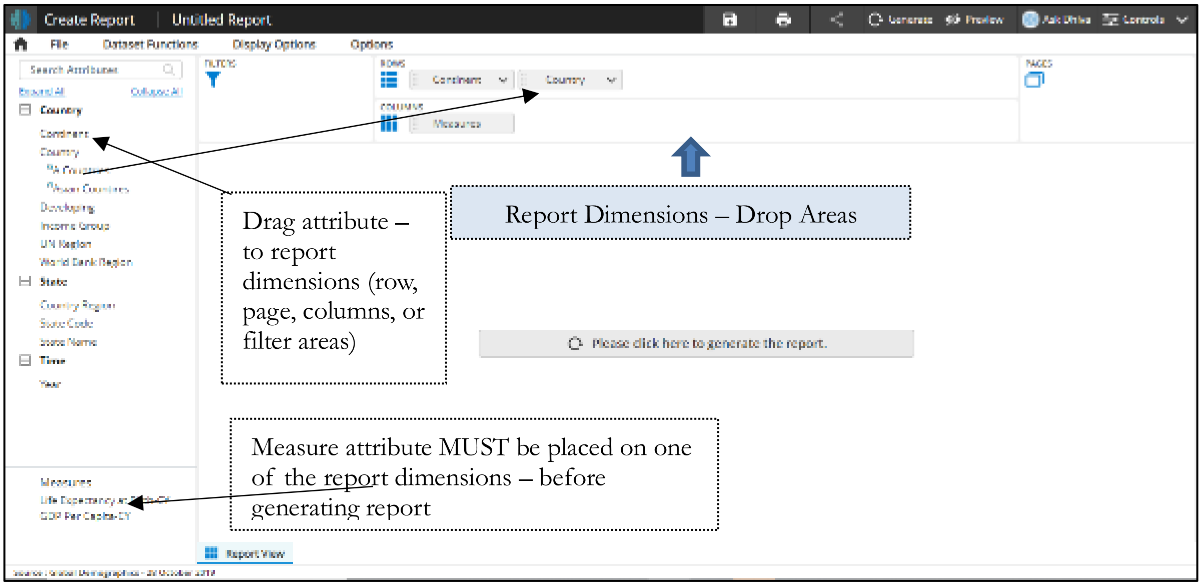
4 CREATING A NEW REPORT – DATABOOK

4.1 Overview

A Databook is a set of visualizations derived from a single data report (pulled from one or more databases). A Databook contains the report data and all associated visuals, one per worksheet or tab. A new Databook can be created by selecting the domain block on the Data Asset page – or by selecting the "New" icon on the same page. A report definition involves selecting the attributes in a domain and placing them on a "three-dimensional grid" of Rows, Columns, and Pages.

4.2 Report Specification

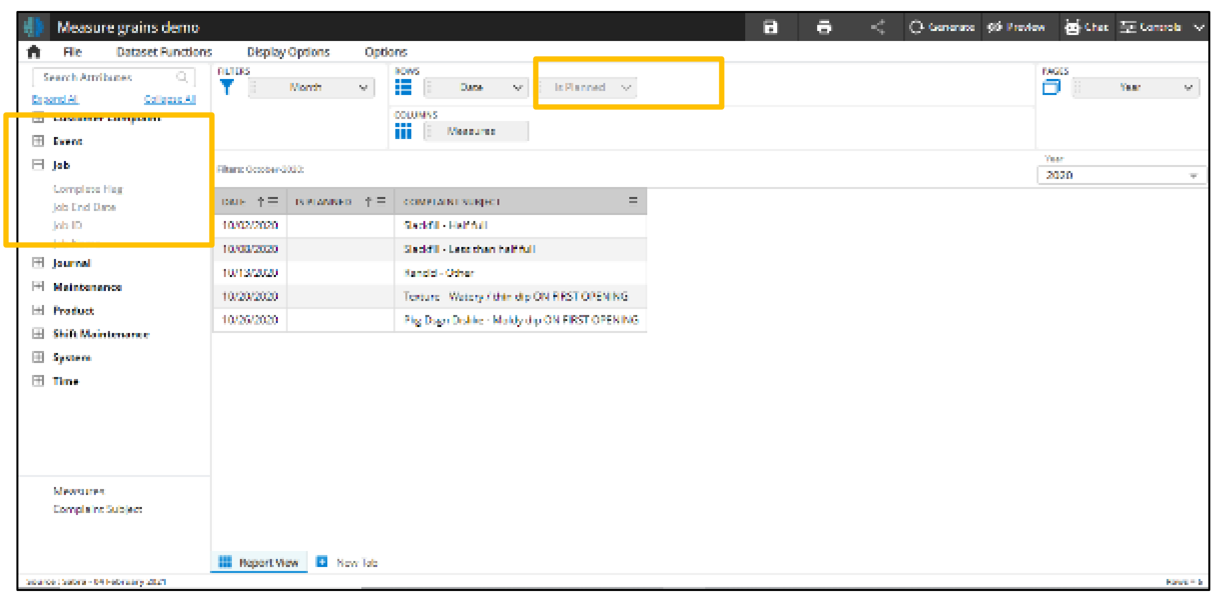
Any attributes on the left panel can be dragged onto the Row, Columns, Page, and Filter areas– report dimensions on the top. Multiple items can be placed in each dimension. Also, report-level filter variables can be dragged into the filter area. One or more measures must be specified on one of the report dimensions. When complete, the user should press the "generate" button on the top menu bar.



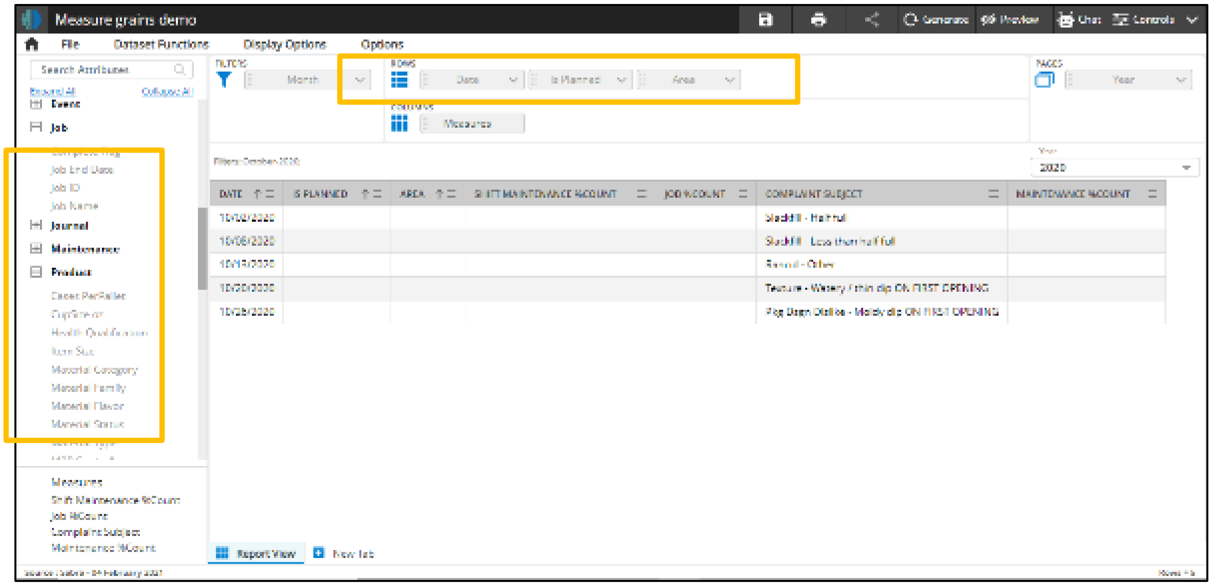
Depending on the configuration, a default set of attributes may already be placed on the report dimensions. Users can remove it by holding the attribute and moving it back to the attribute panel. Once the report specification is, the complete user needs to press the "gray bar in the center" – or the "Generate" icon on the top black bar.

This feature provides a visual clue to produce on the appropriateness of usage of attributes for chosen measures. Relevant attributes are enabled, and others are visually greyed out based on the added/removed/modified measures to the report.

In the below example, when Complaint Subject Measure is added, Is Planned attribute is greyed out.



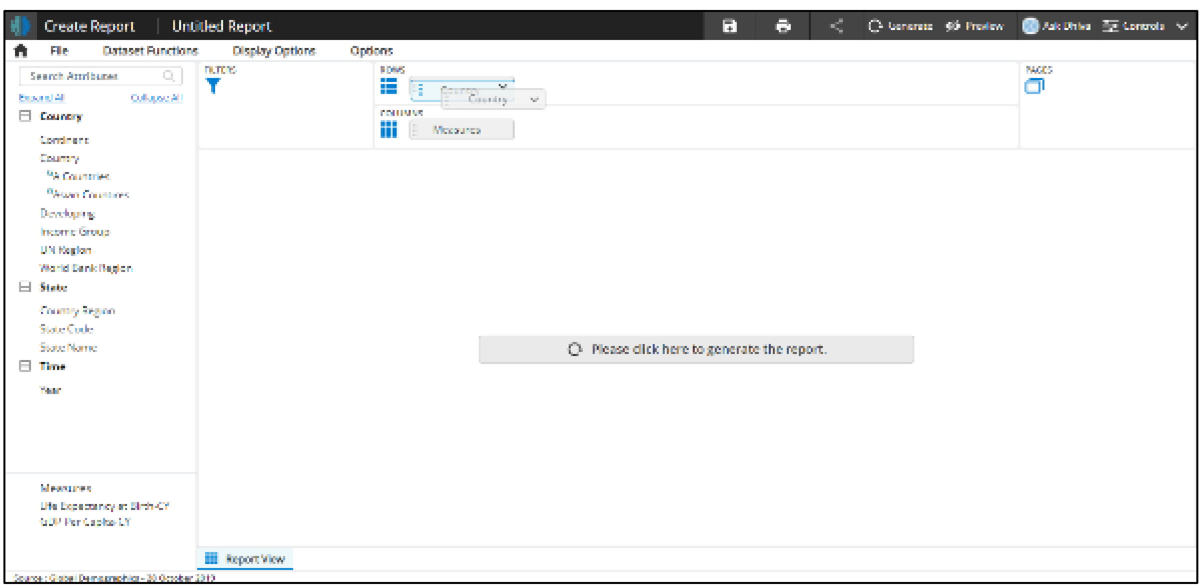
Now let us add a few more measures and attributes. We observe that other attributes are greyed based on the measures added.



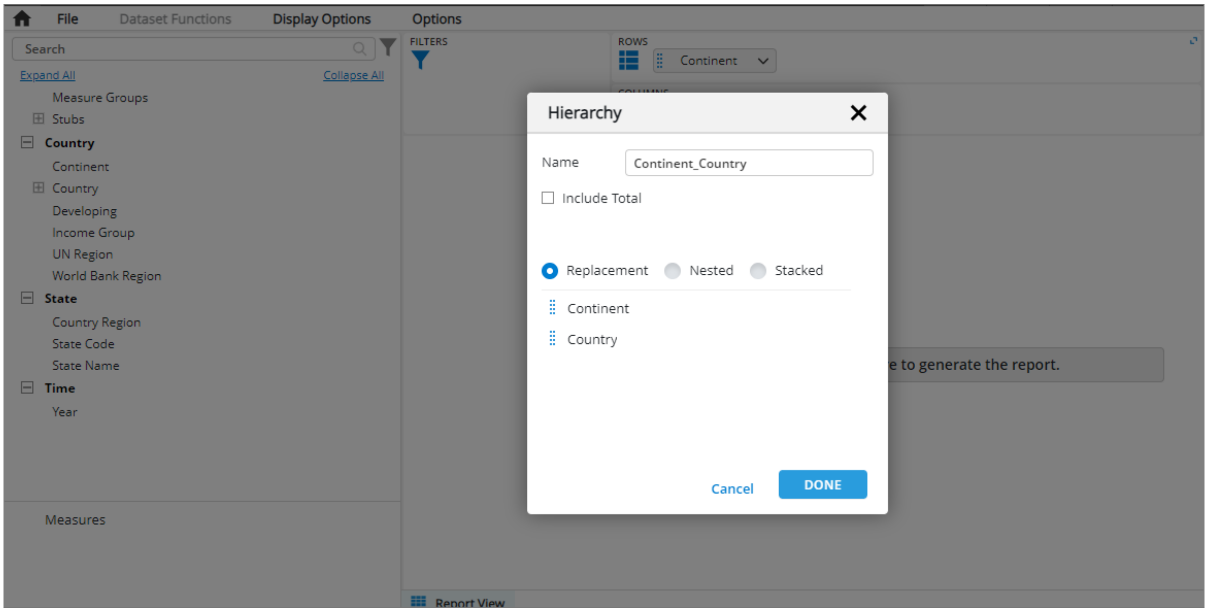
NOTE: Metrics used to create Measures are configured by the Governor – and may require the specification of additional parameters. See the "Advanced Metric" specification section for more details.

4.2.1 Creating a Hierarchy

To create a hierarchy, drag the child attribute on top of the existing parent attribute in the report dimension (Country is dragged on top of the Continent below). When the attributes are aligned, you notice the "parent" attribute background turns blue, as shown below.



After you drop your child attribute, the following screen pops up:



Here there are several options to specify:

1. Name – you can name this hierarchy in the text entry field above (or leave as the default name shown as Continent_Country

2. Include Total – you may choose to have a top-level "Total" line included – so the hierarchy would be Total – Continent – Country. The default is no total.

3. You can choose the type of hierarchy to be created: (a) Nested wherein parent and child totals are shown simultaneously, or (b) Replacement hierarchy, which enables a drill-down to child level only. Note the following:

   a. Only one Nested Hierarchy is supported on Rows only. There is no restriction for the location or number of Replacement hierarchies.

   b. There are **significant visualization restrictions** with the Nested Hierarchy (due to the nature of data, this is better for pure reports). Replacement hierarchies are more suitable for visualizations.

4. You can choose to reorder the attributes in your hierarchy by dragging the "dotted pad" to the left of each attribute.

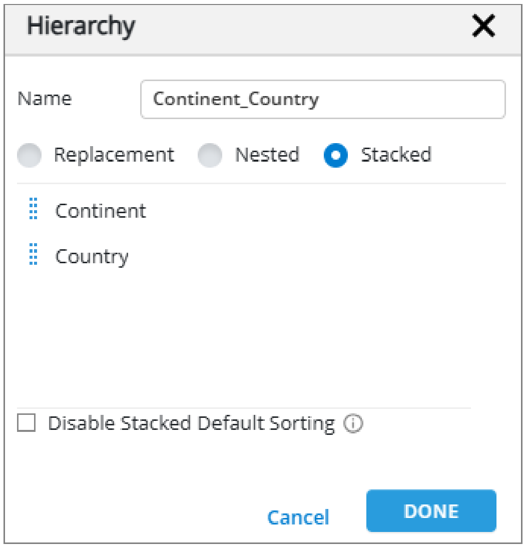
Hierarchies are powerful constructs that can be created on the fly. Caution must be exercised when using hierarchies with a large number of "child" values, especially in the case of Nested hierarchies.

4.2.2 Stacked Hierarchy

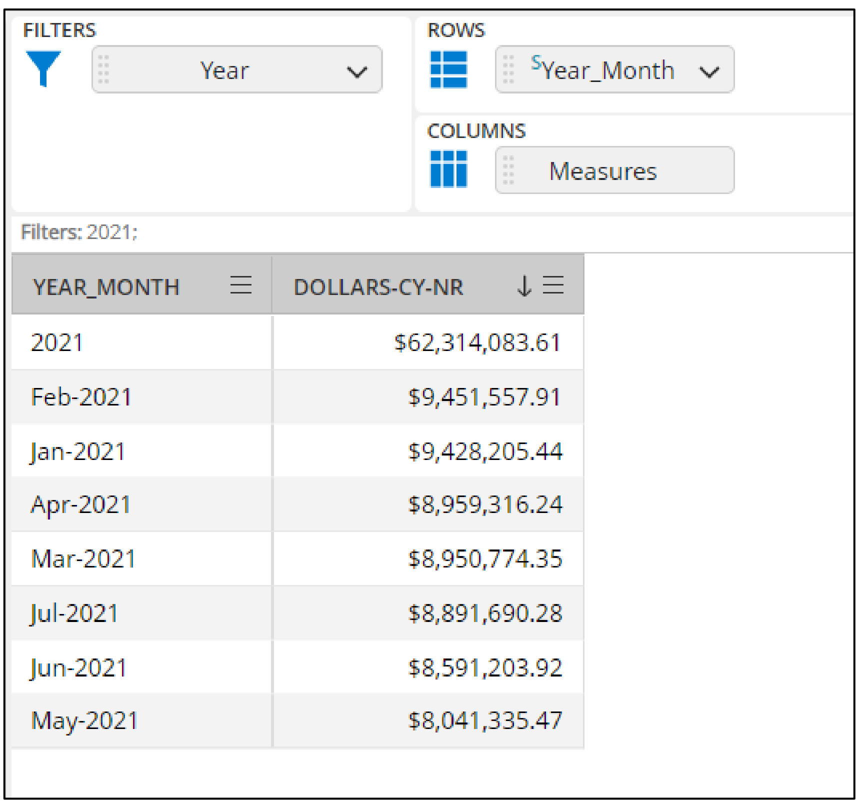
This feature is useful when we want to create a report where the attributes are stacked or custom grouping is needed for different attributes to be displayed in the same column. In some cases, we will have to evaluate the output of the conditional list to include them in the report.

4.2.3 Creating a Simple Stacked Hierarchy

Creating a hierarchy in Dhiva is similar to how we create a nested or replacement hierarchy. The following images show the creation of stacked hierarchy and the report's output.



Following is the output of the report. To keep it simple, we have filtered the report to the Year 2021.

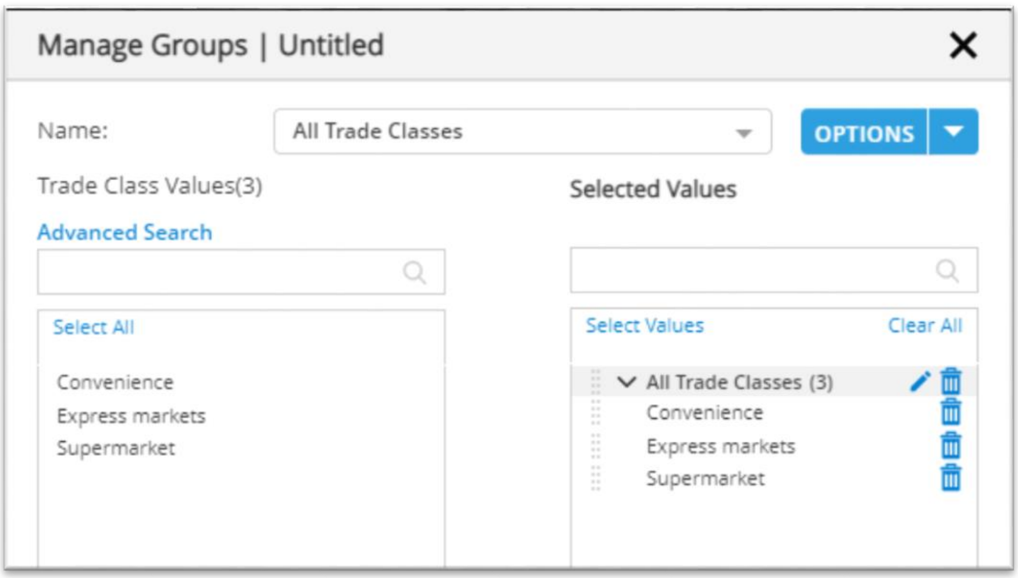


Following are some key items about the staked hierarchy

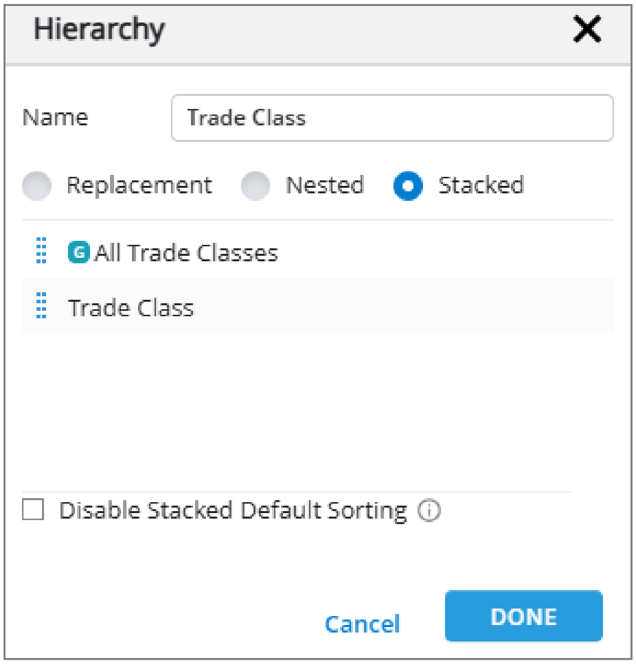
- We can include any number of attributes in a stacked hierarchy similar to a nested or replacement hierarchy. The recommendation is to keep it to a minimal number of attributes as stacked hierarchies increase the number of backend requests to fetch the data and combine the results.
- Stacked hierarchies can be created on rows, columns, and pages.
- Multiple stack hierarchies can be created in rows, columns, and pages similar to replacement hierarchies.

4.2.4 Using Groups in the Stacked Hierarchy

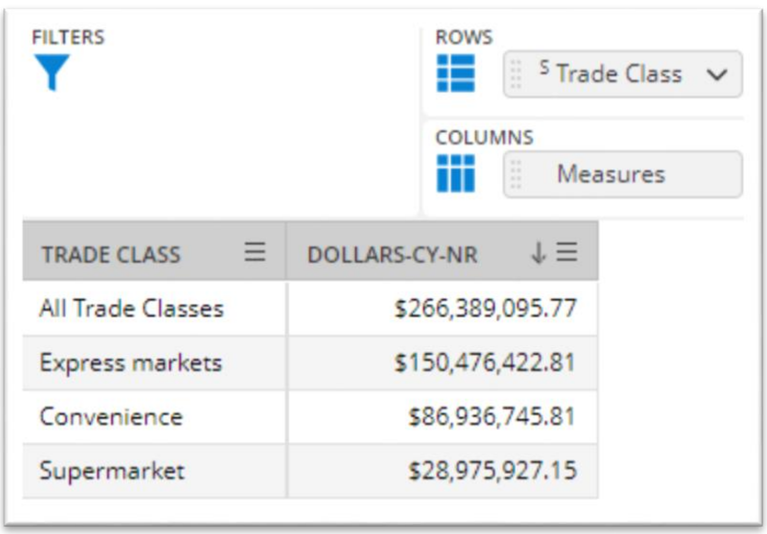
Groups can be used in a stacked hierarchy, similar to attributes. The following is an example of creating a stacked hierarchy with an attribute and group combination.



Here is an example of using this group and trade class attribute to look at the report at the total and individual trade class levels.



Following is the output of the report.

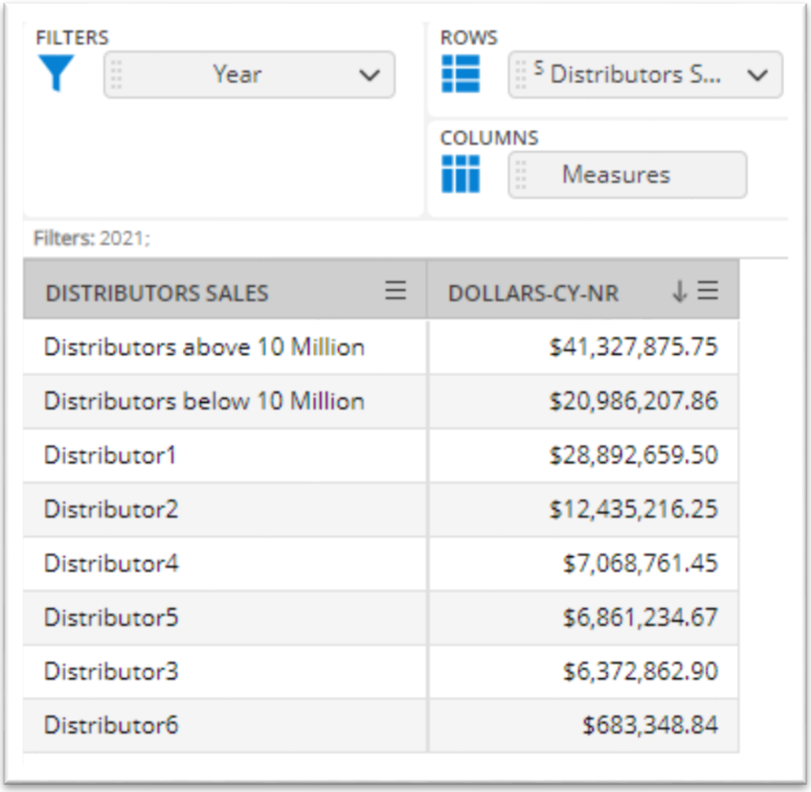


Following are some key items about groups in the staked hierarchy.

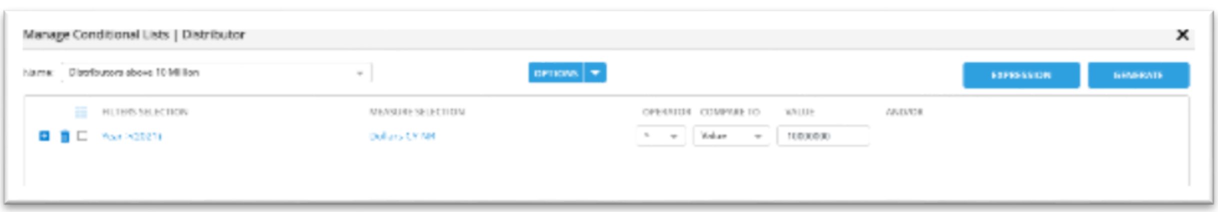
- Multiple groups can be used in stacked hierarchies.
- Groups created without conditional lists as sources are always static.

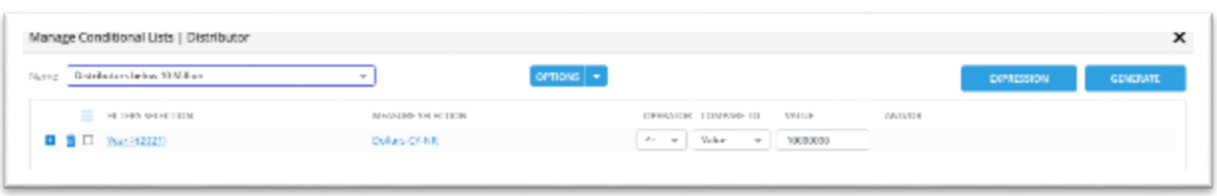
4.2.5 Using Groups based on Conditional Lists

Groups based on conditional lists allow us to create more dynamic reports and report results depend on the evaluation of the conditional list every time the report is executed. Let's take an example of a report where data could change over time based on the conditional list evaluation.

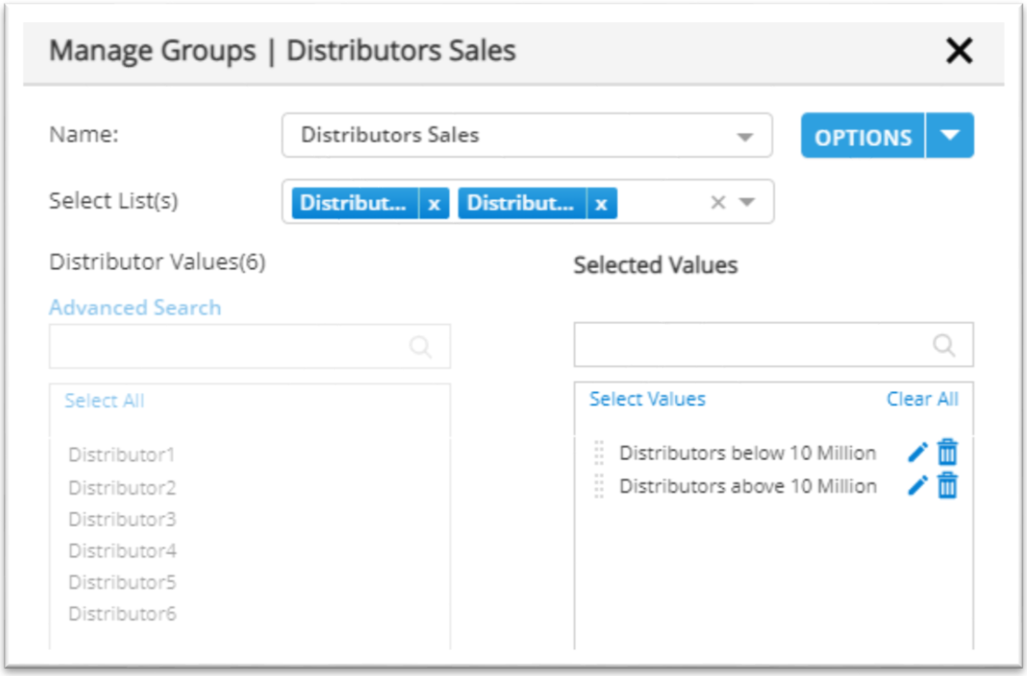


To create such a report, we need to create groups based on conditional lists. In this case, we have two conditional lists.

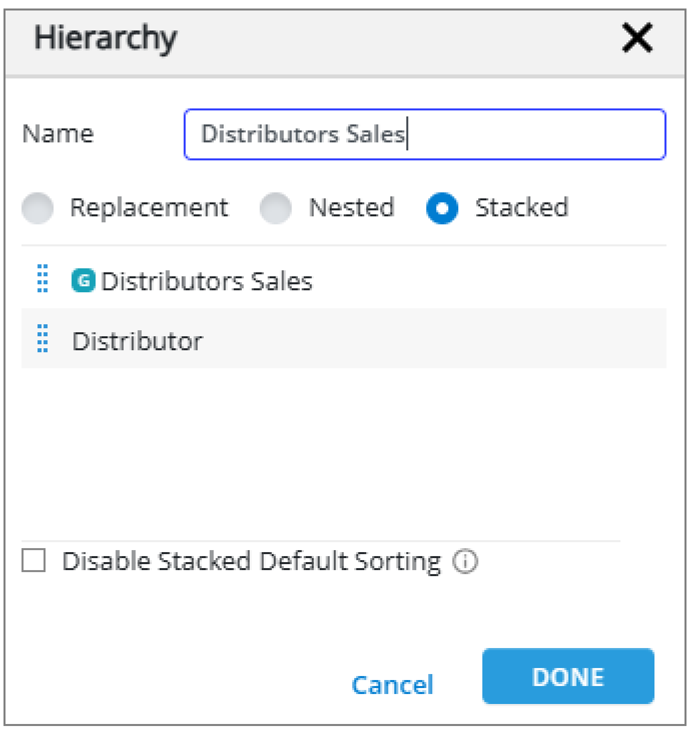




The next step is to create a group based on these two conditional lists

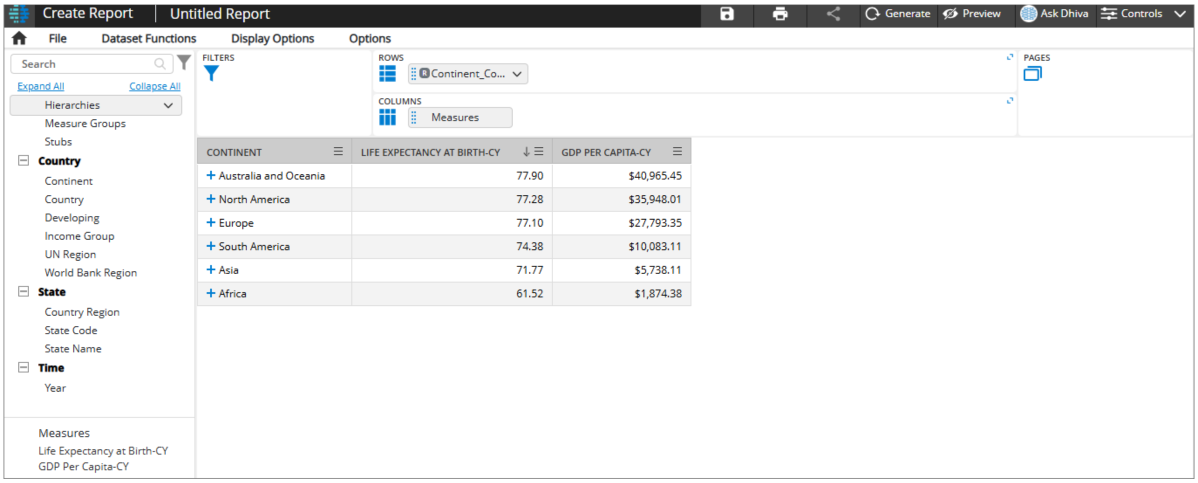


The final step is to create a stacked hierarchy with the group and distributor attribute to get the desired output.

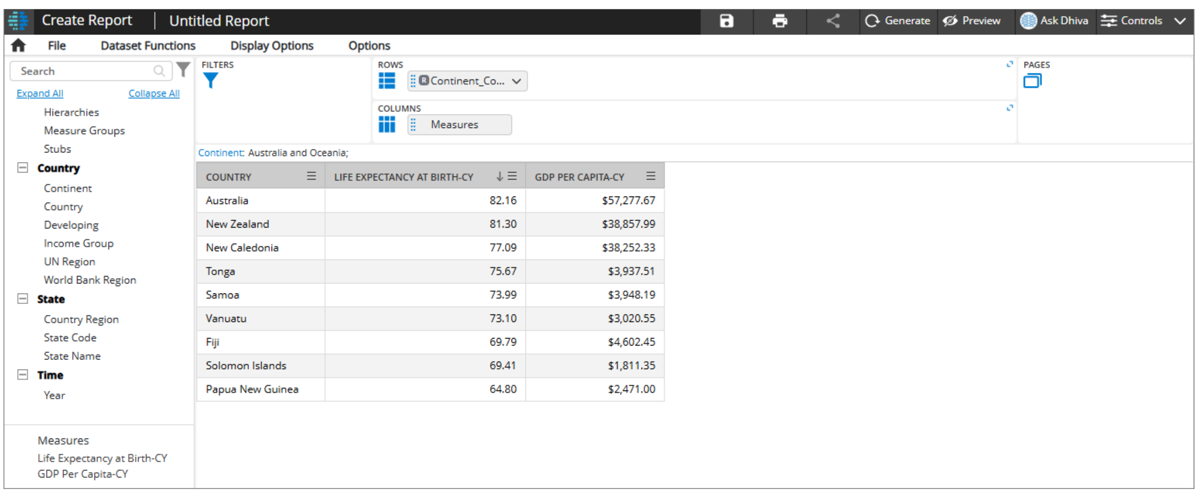


4.2.6 Navigating Hierarchies

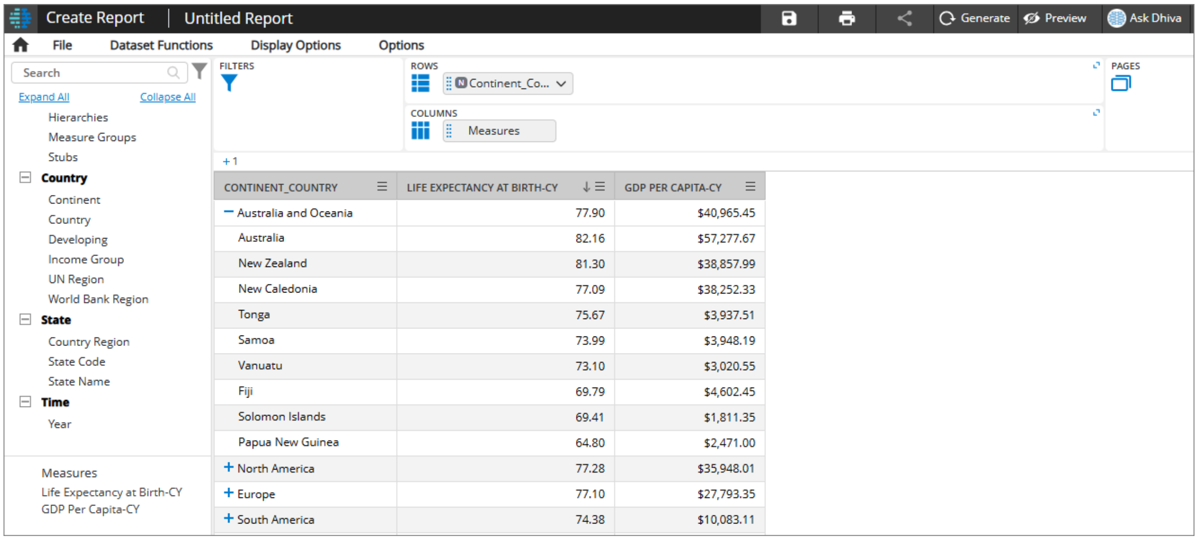
Both types of hierarchies would result in a report of the form shown below – with a "+" sign indicating drill-down.



For the Replacement hierarchy, clicking on the "+" sign will drill down with replacement (shown below for North America) – showing all children of the parent. **A "bread-crumb" line appears on a line above for navigating back up to the top level.** This is a key navigation difference.

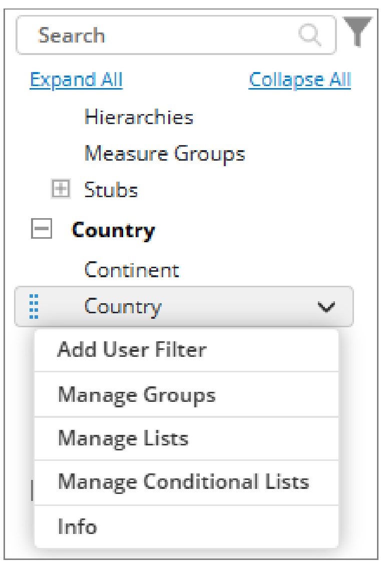


For Nested hierarchy, clicking on the "+" sign will drill down with the parents and children all visible at the same time. **To navigate back up, users must select the "-" sign next to the parent.**

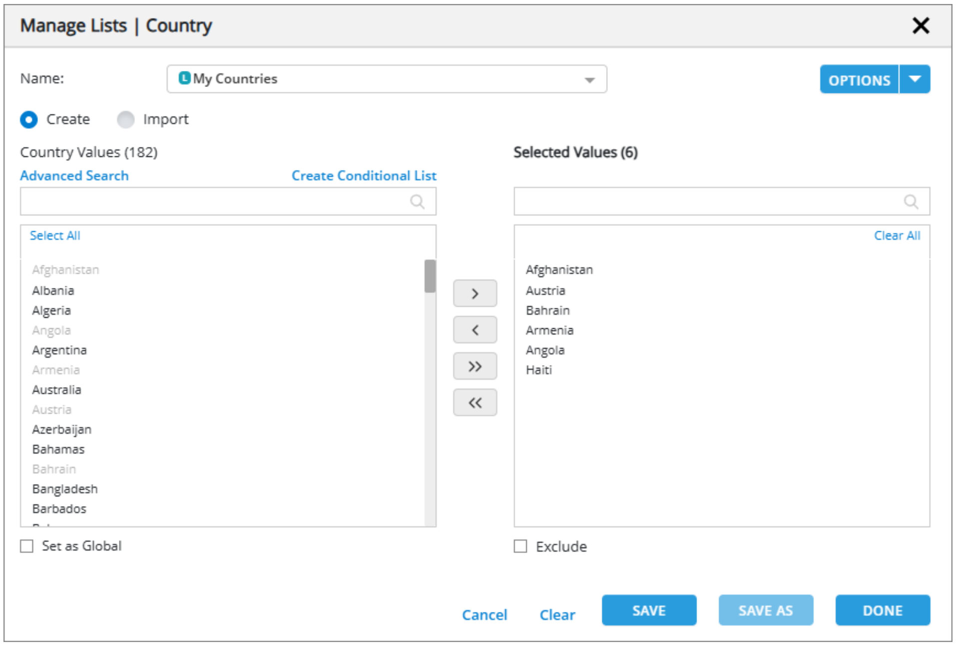


4.2.7 *Creating Lists*

List creation can be enabled by selecting the attribute on the Attribute Panel to the left – and selecting the Manage Lists option. Lists can only be created in the Attribute panel.

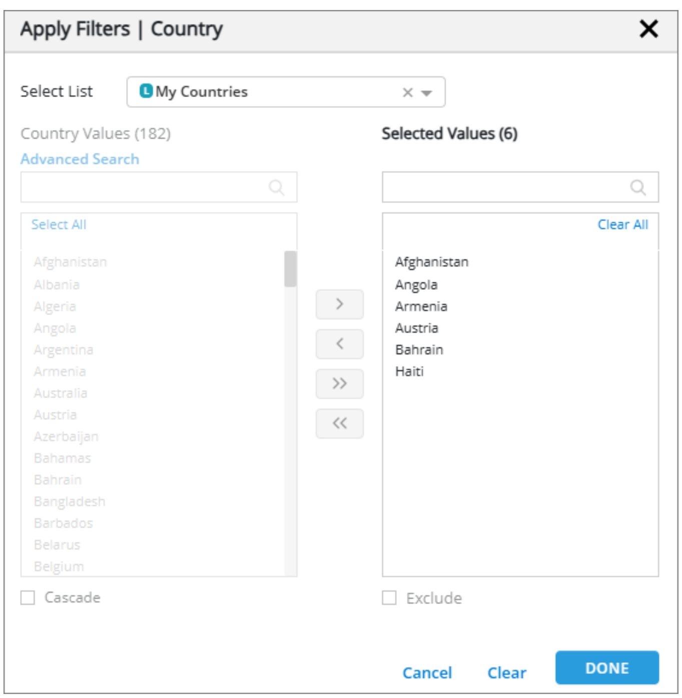


When Manage List is selected for an attribute, the list of values is displayed in the Selection Panel as shown.

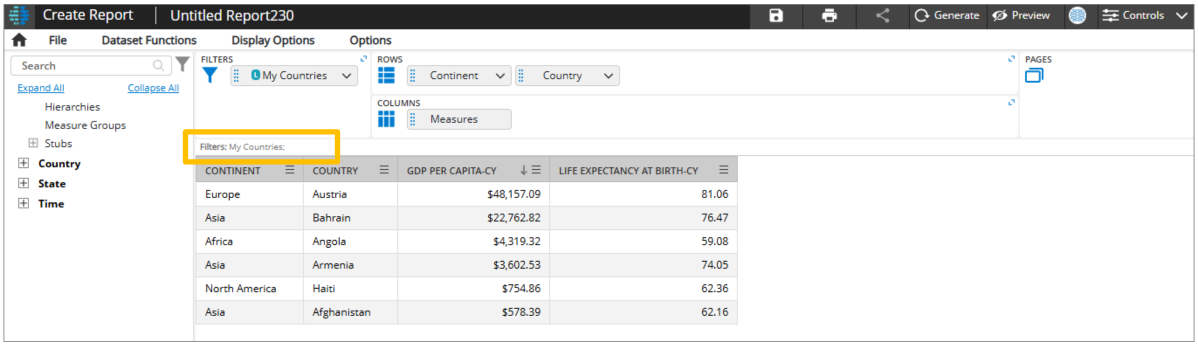


Items can be selected from the Left box of the Selection Panel and moved to the right using the right arrow keys. Simple search or Advanced Search can be used to sub-set the items to select from the selection list.

Once a list is complete – users can save the list (with the name provided) and create new lists or edit existing lists for the attributes using the Options button on the top right hand corner.



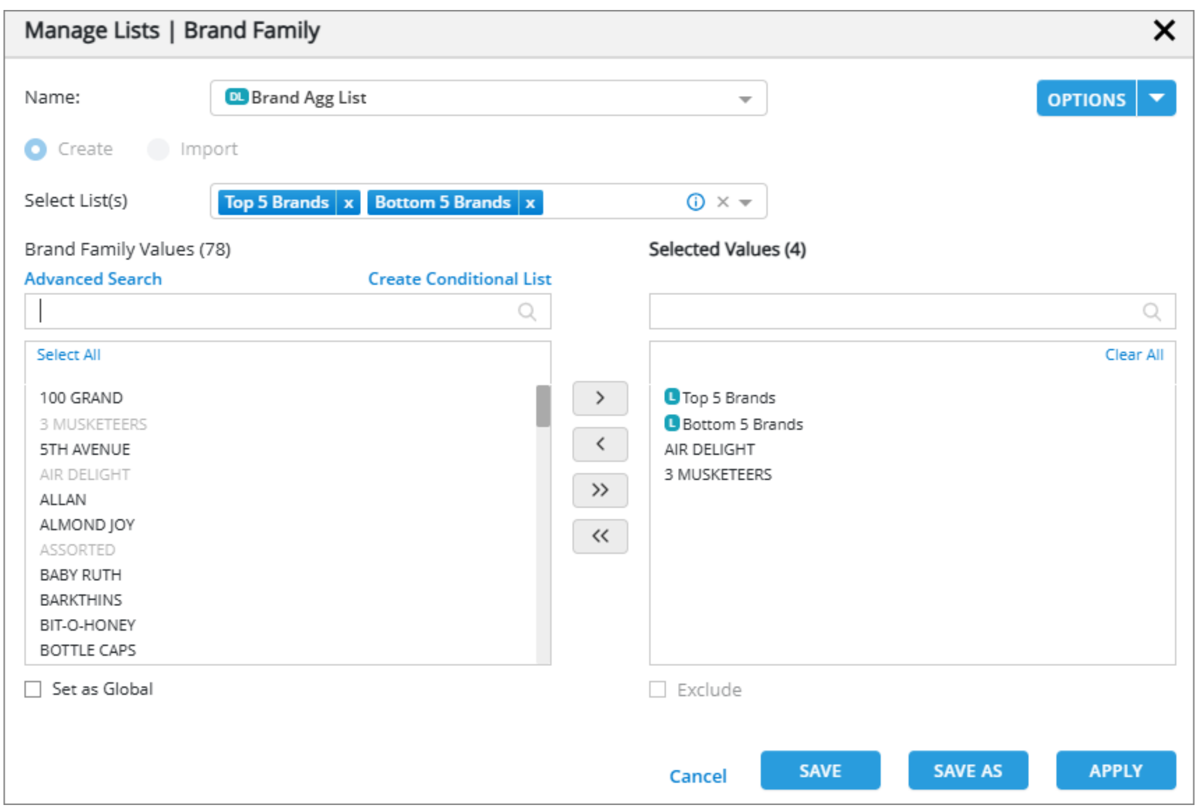
Once a List is created, you can apply the list anywhere on the report dimensional areas – by dragging the attribute and selecting the drop-down box and selecting the list. In the example below, the list called "My Countries" is applied as a report filter – and this ensures only the countries in the list are shown in the report.



4.2.8 Creating Compound Lists

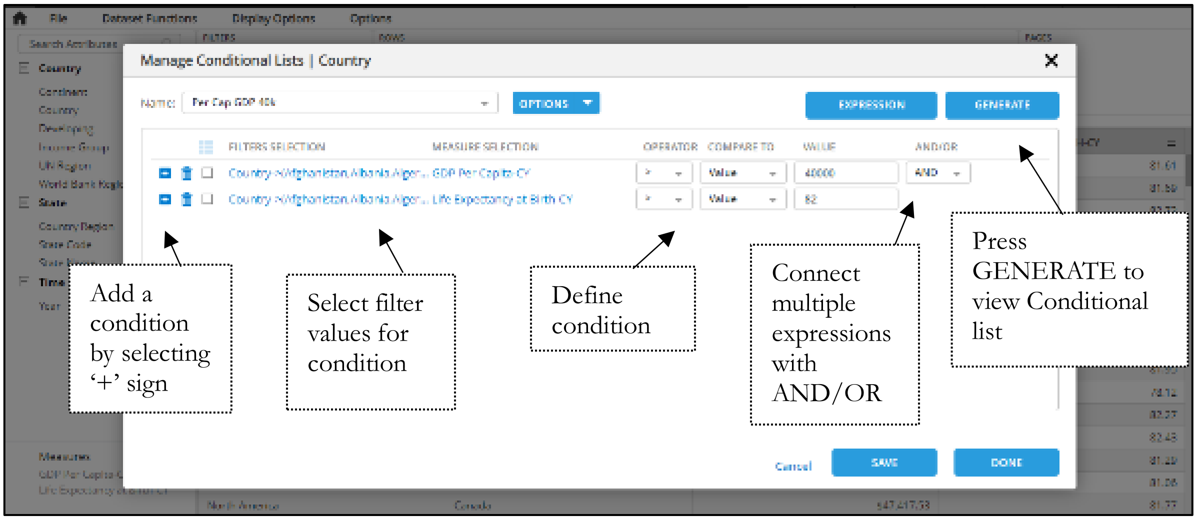
Users can create lists that combine other lists, similar to how groups are created. This allows for more flexible and dynamic list management. In the manage list popup, user can select and apply multiple lists directly.

On selecting the existing lists from the Select list dropdown, the selected lists are added directly to the right-hand side of the popup as values. The list values are disabled in the left panel however the left panel is still enabled for selecting other than list values. The right selections panel will show the list names within the dropdown. Exclude and relative checkboxes will be unselected and disabled.



4.2.9 Creating Conditional Lists

Conditional lists are lists of the item created by specifying conditions in expression form. Conditional list creation is enabled similar to the List creation method (by selecting an attribute in the Attribute Panel).

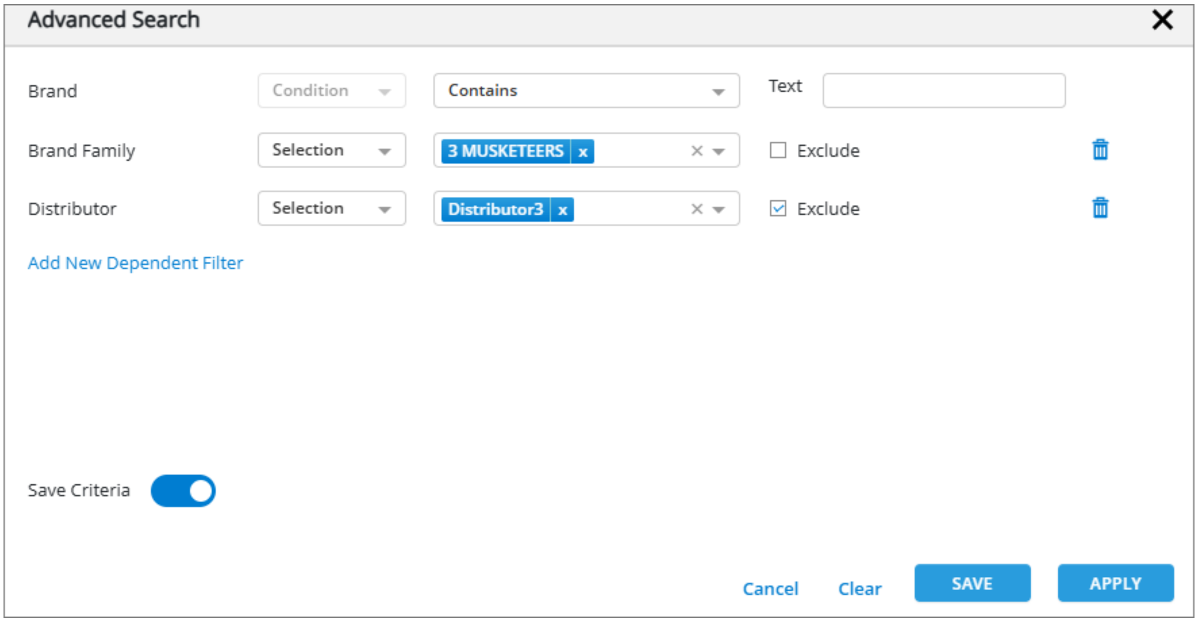


In the above example – Filter Selection shows that for all the selected countries – for the selected measure, GDP needs to be greater than 40K, and Life Expectancy needs to be greater than 80. The list can be viewed by selecting the Generate button on the top right hand screen. The options button can be used to add a new conditional list or edit existing ones.

4.2.10 Creating Search Lists

These lists are dynamic in nature. The list values are obtained by applying filters on other attributes by including/excluding attribute values. The search list itself can be dynamic or static. The static list created using this approach means that the criteria would not be evaluated again. It will be evaluated only during the creation of the list and then on it would remain as a static list of value.

Open the advanced search popup from the relevant section in the application. You will see the UI as shown below



On opening the advanced search popup

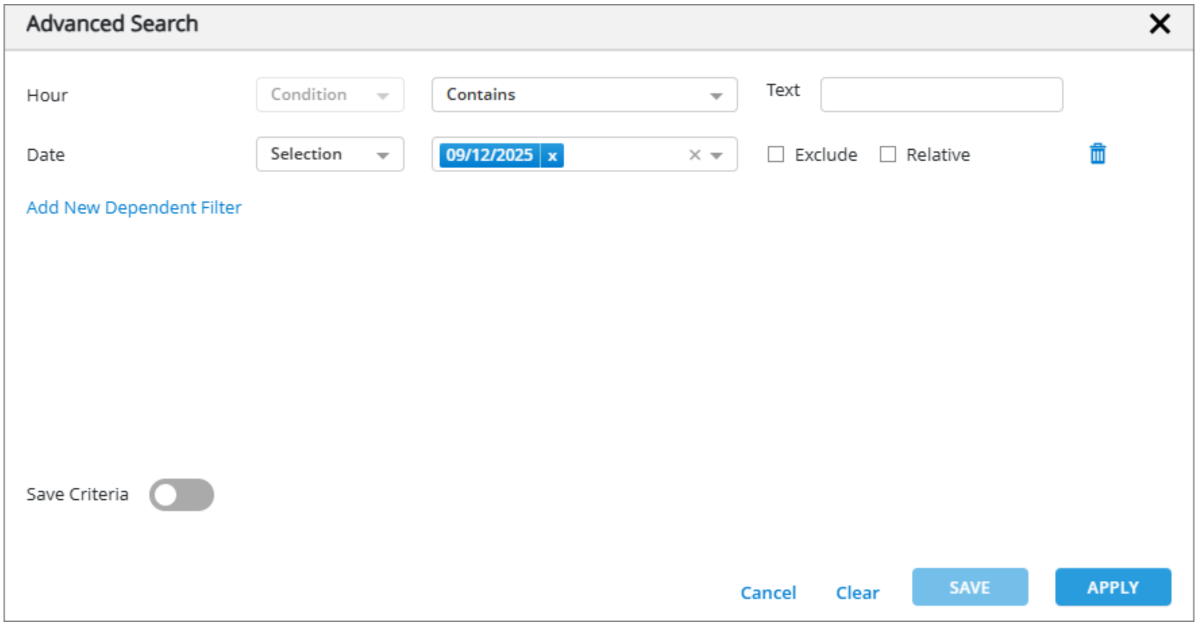
- The first row corresponds to the attribute whose advanced search is opened, with 'Condition' set by default.
- The condition options are available in a dropdown next to the condition field.
- Enter criteria in the user input fields shown at the end

Adding and Deleting Filters

- To add new dependent filters, click on the 'Add New Dependent Filter' link.
- Select the desired attribute from the dropdown to add a new row.
- Use the 'Delete' icon to remove a filter (note: the delete option is not available for the first row).

Exclude and Relative Options

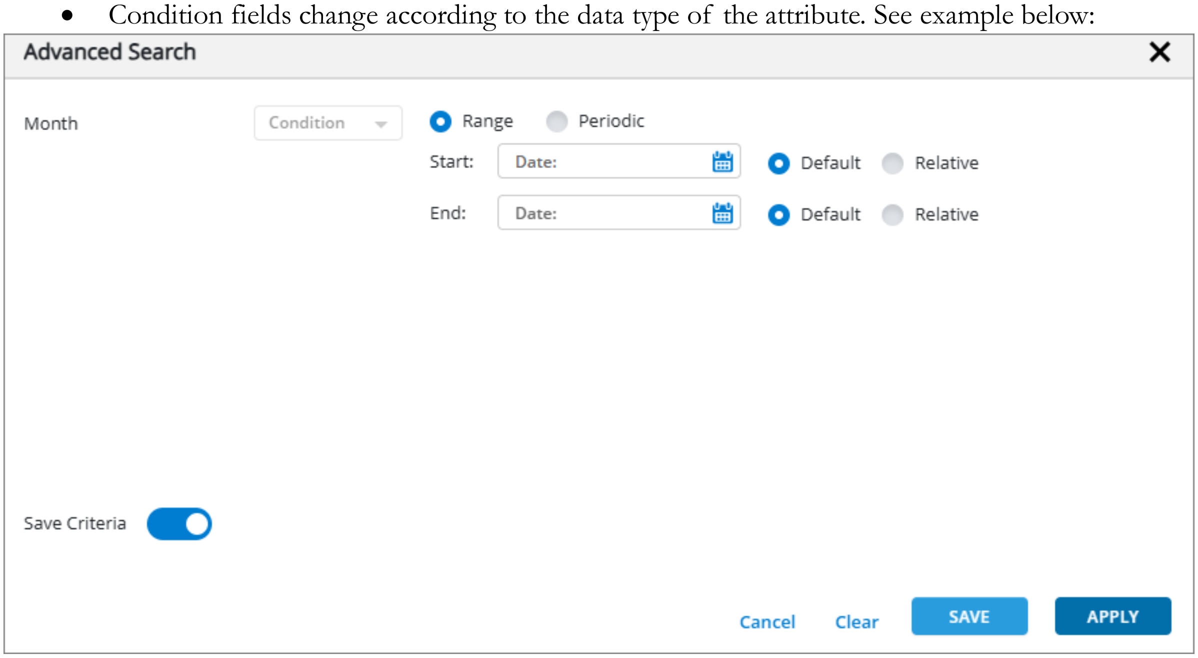
- 'Exclude' and 'Relative' are two checkboxes



- Select 'Exclude' to exclude the values from the search criteria.
- The 'Relative' option is available only for time attributes.

Data Type-Specific Condition Fields

- Condition fields change according to the data type of the attribute. See example below:



Saving Criteria

- Fields will auto-populate when the advanced search is opened.
- Click 'Clear' to remove all rows except the first, and clear all values.
- Click 'Done' to close the popup.

Error Validation

- Error validation is performed on dependent attributes if added.
- If dependent attributes are added, values must be entered. Otherwise, delete the dependent filter.
- For the first row, error validation is done only when default values are changed.

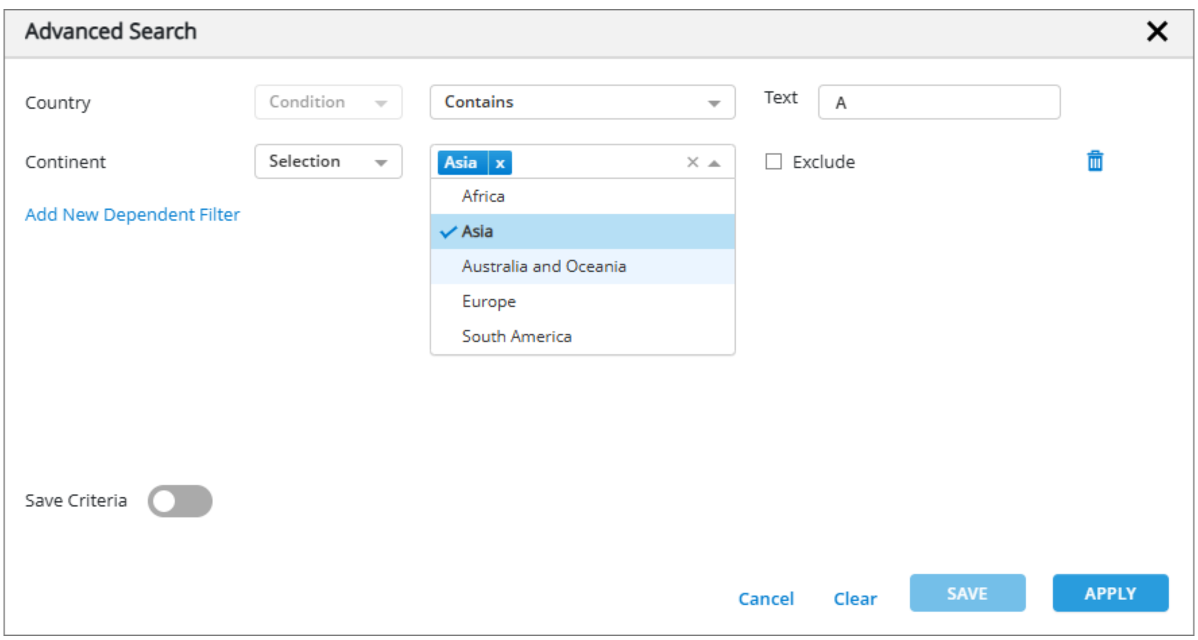
Time Attributes

- Only a single time attribute is displayed in the advanced search screen.
- The dependent filters link is not shown for time attributes.

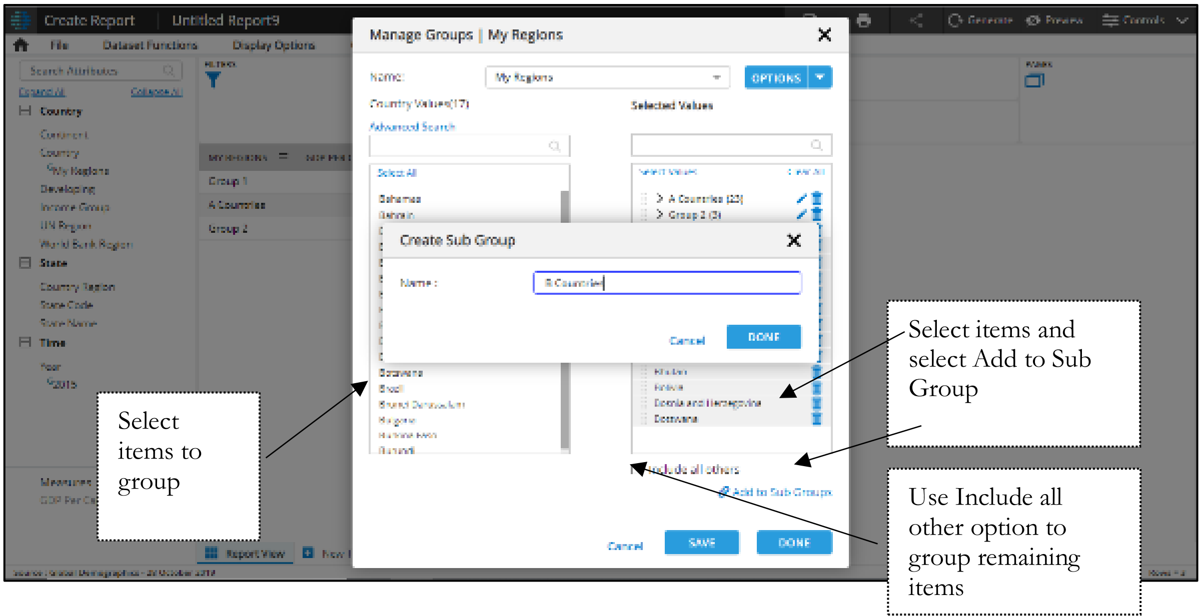
4.2.11 Creating Groups

Create Groups allows creating a "virtual" attribute that has used specified defined groups of values for a selected attribute. To create a new grouped attributed variable, select the attribute in the Attribute Panel, and select Manage Groups.

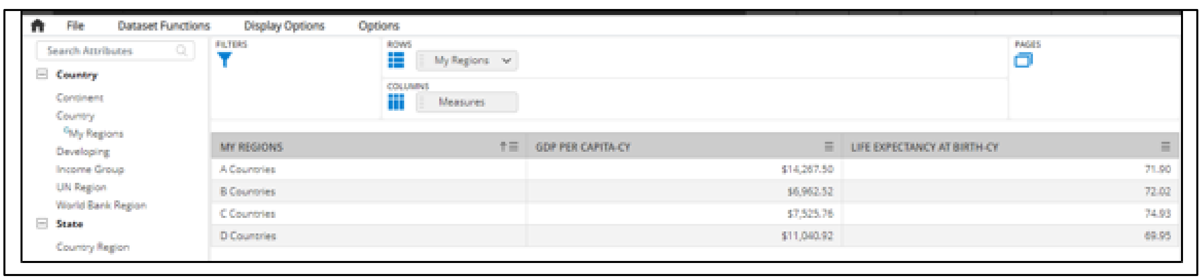
Using the left side of the Selection Panel, items can be moved to the right panel – and a sub-group can be created by selecting the "Add to Sub Groups" button at the bottom. Users can create any number of groups – and "overlapping" groups (i.e., an item can be used more than once). Users can use advanced search to filter required values using the Filters check box or wild card option as shown below.



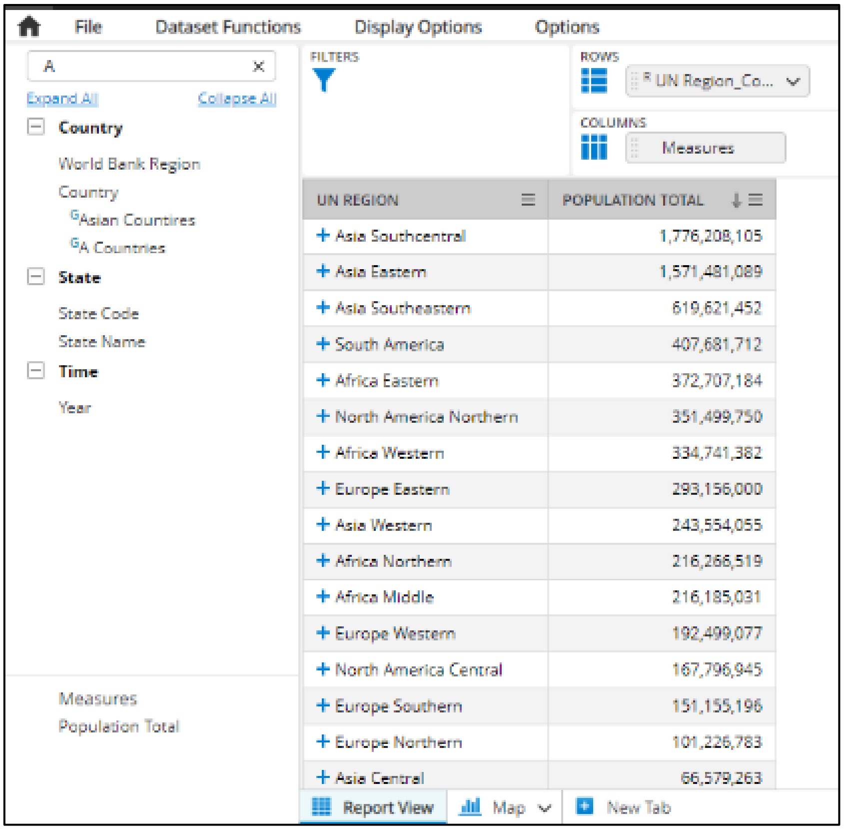
Include "All Others" option at the bottom combines all **unique** "ungrouped" items in the right side list into an "All Other" category.



Running a report with a Grouped variable – like my Regions as shown below, results in data for the specified groups.

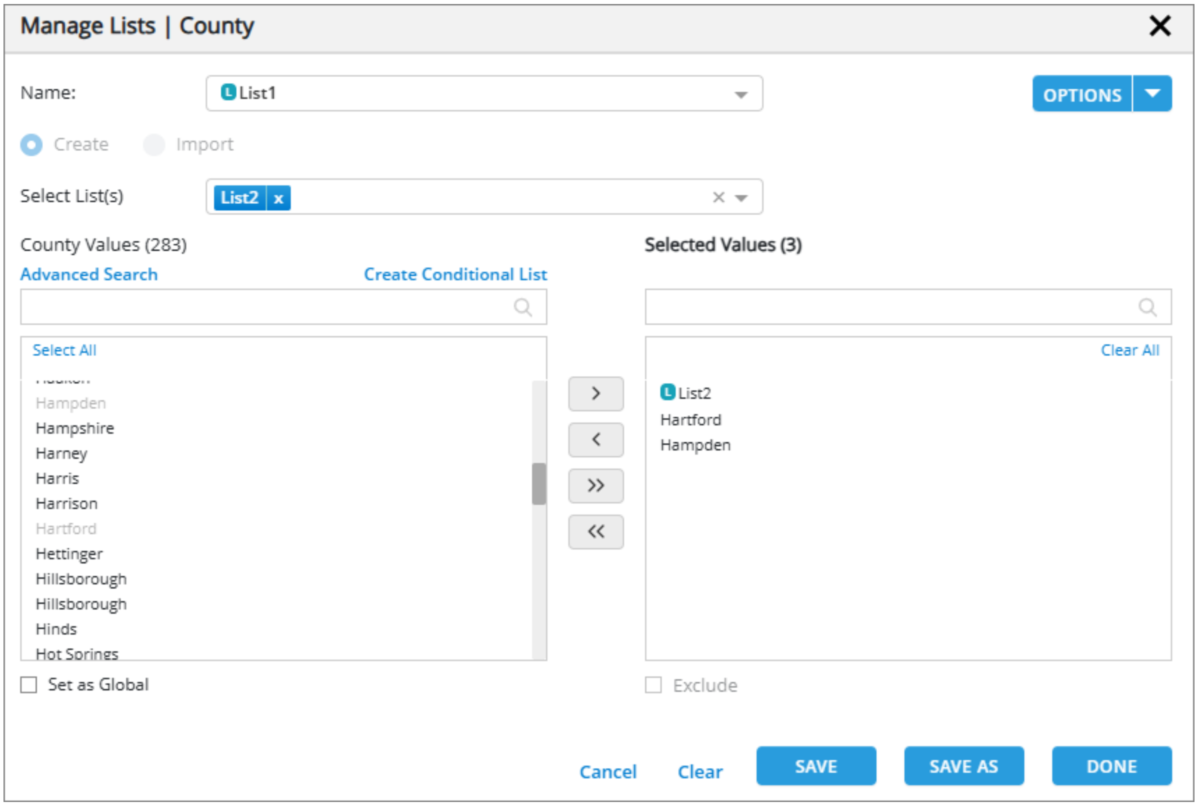


We can use the Search Attributes component to search any attribute. Search results include groups also.



4.2.12 Creating Groups/Lists using existing lists

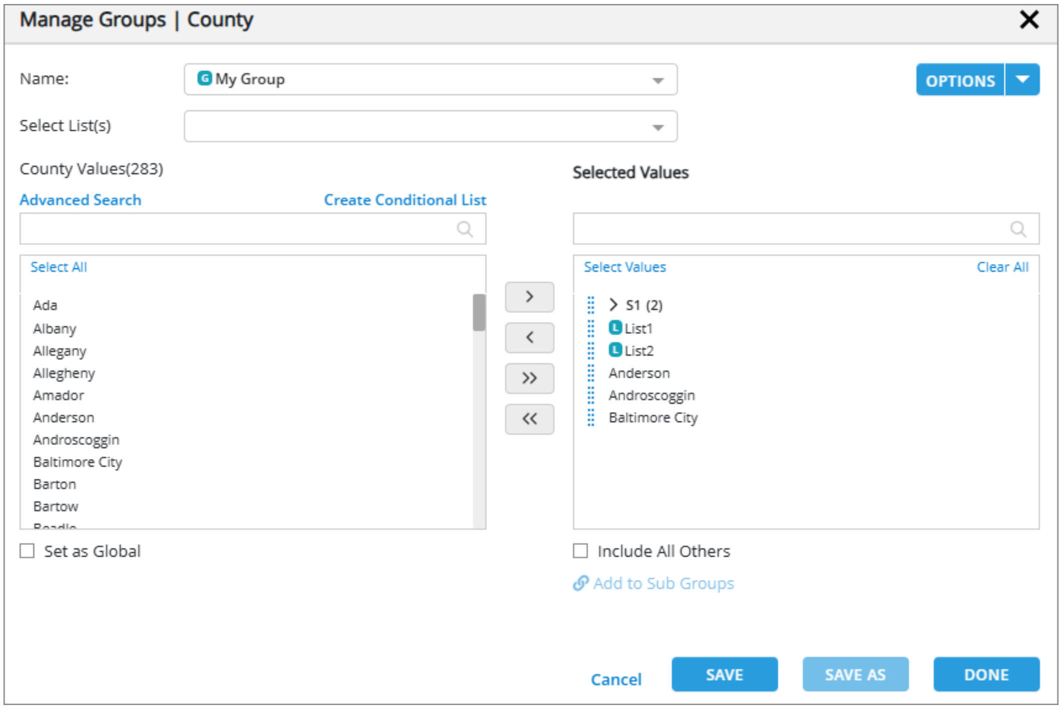
While creating groups/lists, the user can select the existing list on that attribute. Selected list is added to the right panel and selection is removed from the Select List dropdown in case of groups. Users can select multiple lists, and all the lists are shown in the right panel. Users can select attribute values from this left panel and move to the right panel to create groups/subgroups (lists).



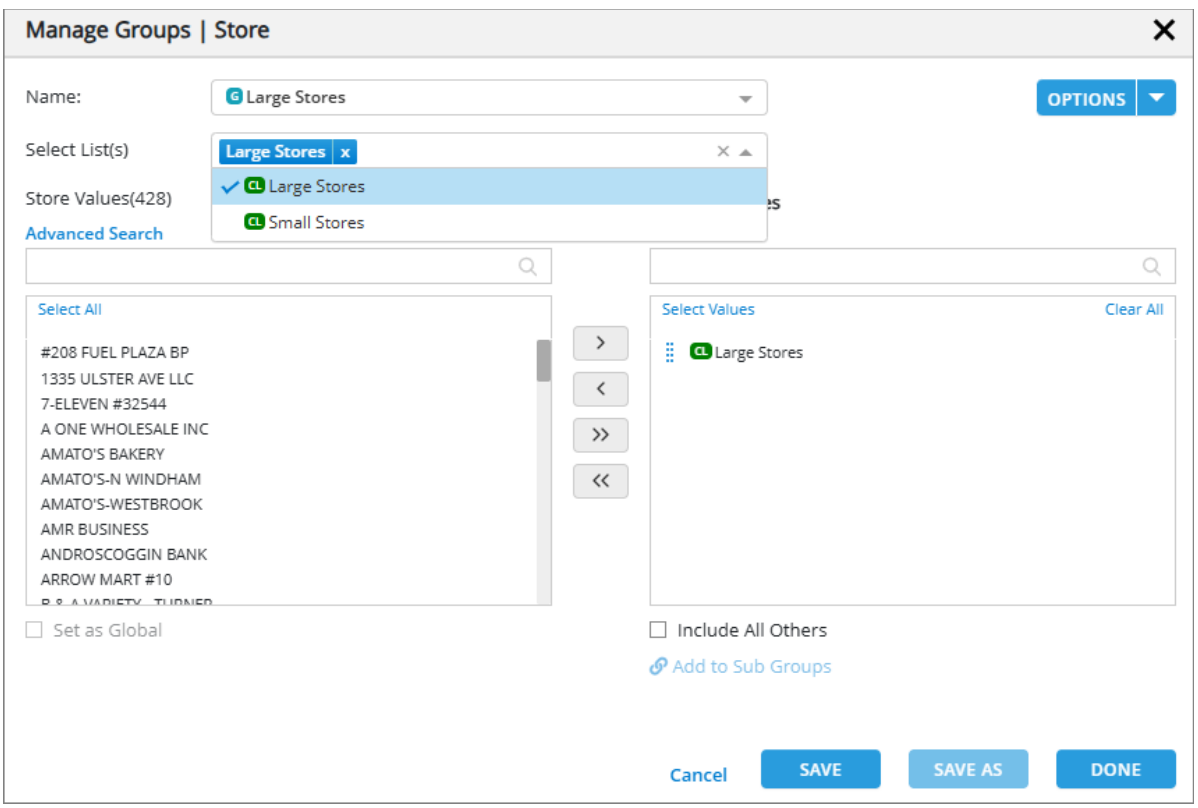
4.2.13 Dynamic Groups

A group is a special attribute created on top of an existing attribute. It is always associated with a governor-configured attribute and cannot be standalone. The group contains the subset of values of the corresponding attribute. We may choose to create a simple subset of attribute values or even group these subsets into something called subgroups.

A group's values are always static and do not change if the original attribute values change over a period of time. A dynamic group can be created to always consider the updated data by evaluating the group every time. A dynamic group is created by associating the group with one or more lists. Please refer to the section on how the list is created. As the group is associated with a list its values change based on the list definition. We can use both static and conditional lists to create a dynamic group. When a dynamic group is used in the report, the associated list is evaluated and used as group values. All these are transparent to the user.
To create a dynamic group, click on the attribute and select "Manage Group." A drop-down with all lists is shown if the selected attribute has any list. Next, select one value from the Select List drop-down. The selected list is automatically added to the right panel, as shown below.

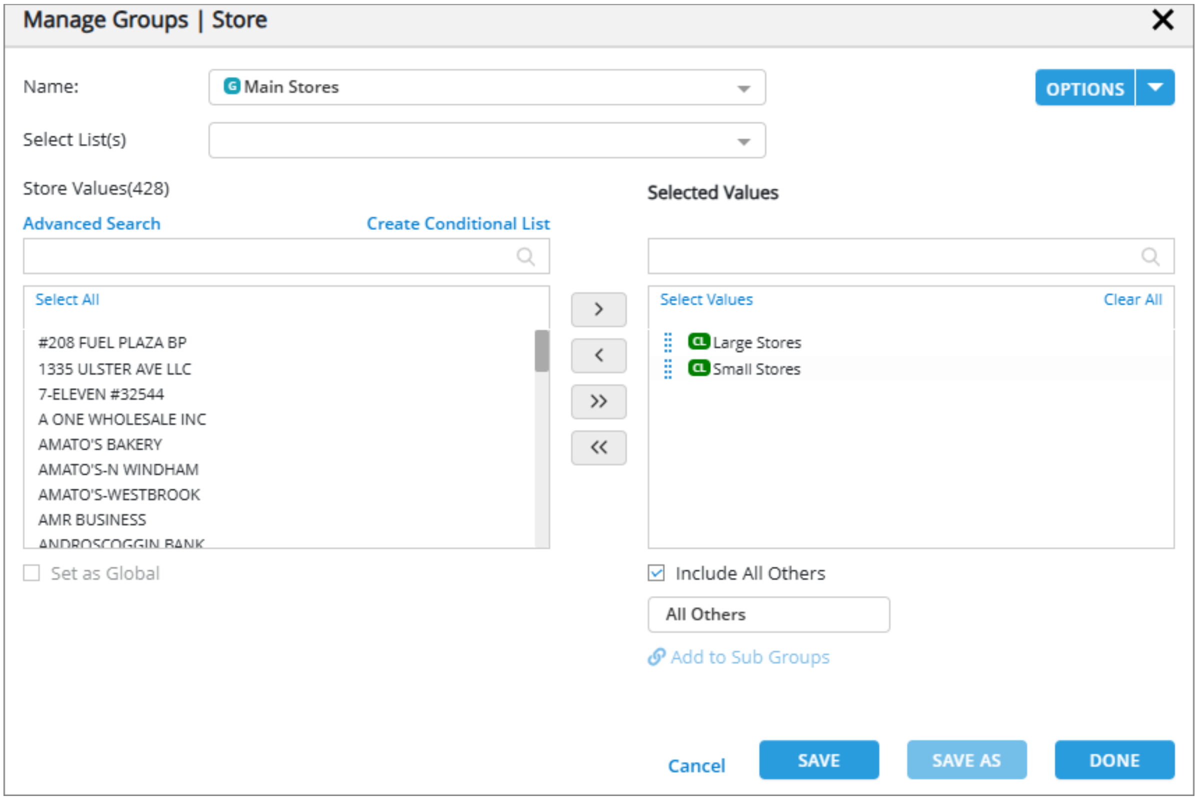


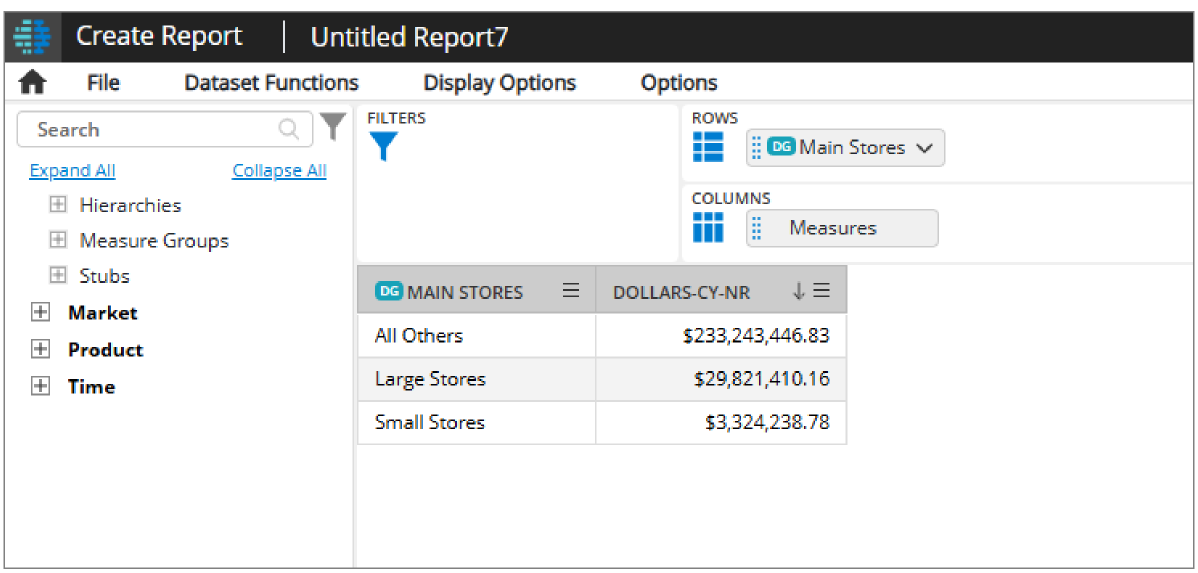
4.2.14 *Creation of Dynamic group*



The "Include All Others" checkbox is enabled. Here we are associating an existing list with a group definition. For example, the "Large Stores" subgroup created on the right would contain all the selected list values. If the selected list is a conditional list, then the values would depend on the evaluation of that conditional list.

We can see the group created on more than one list and All Others and how the result is shown when such a group is used in the report. We can see exactly three values based on the group definition. The values of each list used are aggregated and shown in the report.





These dynamic groups can be used in filters and User filters. They would be treated as any group currently used in the Filter/user filter. If the aggregate group were created, the subgroup would be shown as a value to filter. The user can filter on individual values if individual values are selected while creating the group.

A dynamic group attribute is denoted with super script "DG" which helps in easy differentiation between a normal attribute and a group attribute.

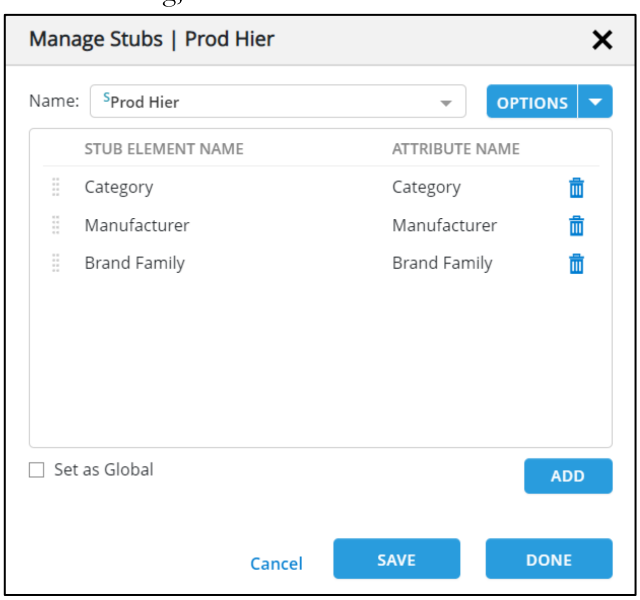
4.2.15 Stub

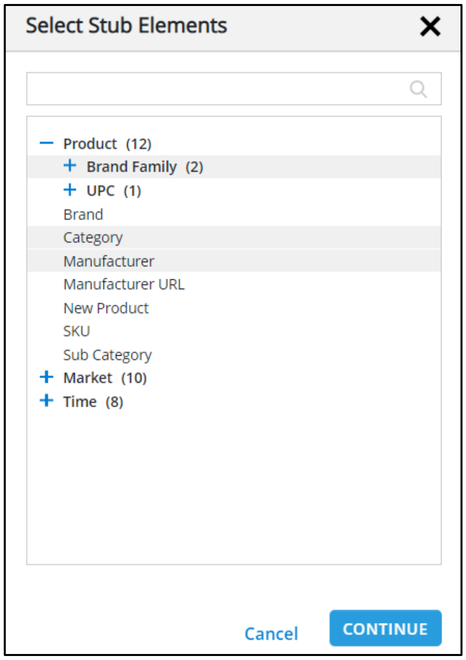
A stub is a combination of attributes, lists (static, dynamic, and conditional lists), and groups (static and dynamic groups), similar to a stacked hierarchy.

- A stub can be private or global and can be used as a user filter.
- When utilized as a user filter, a stub presents all the user accessible stubs in the dropdown
- Producers, governors, and admins have the ability to create stubs.
- Producers are limited to creating private stubs.
- Governors and admin users can create and make stubs global.
- Unlike a stacked hierarchy, a stub is independent of a report.

Creating a stub

- From the left panel click on "Stubs" and Select Manage Stub.
- A popup would be opened to manage or create a new stub.
- Provide appropriate name for the stub
- By clicking on "Add" button we can add two or more attributes/groups/list to be part of that stub.
- On saving, this would now be available under the "Stubs" attribute.





Accessing Stubs

- All private and global stubs are displayed in the left pane of the report view.
- Users can drag the stubs to report sections - rows, columns, and pages.

Stub as User Filter

- The stubs folder can be added as a User Filter, which would appear as a dropdown with created stub names as values (private and global stub names).
- The stubs folder can be added as a User Filter only when a stub is already present in RCP.
- If the stub is removed from RCP after both the stub and User Filter are added, the User Filter would also get removed.
- When a user selects a stub name from the dropdown that stub will replace the stub which is present in the RCP, and the selected stub values would be shown.
- Users can select and restrict the dropdown values for the stub as a User Filter.
- When a global stub is used as a User Filter and the report is published, the selected value in the global stub is retained for other users viewing the published report.
- Report links do not carry over the stub User Filter to other reports

4.2.16 Creating System-Level Groups, Lists:

Governor or Admin users can create system-level groups and lists that are accessible to all users. Producers can create their own Lists and Groups but these can't be published to all users.

Lists and Groups:

- These can only be edited by the owner.
- They are shown explicitly under each Attribute.
- These can be dragged to all report format sections.

- These can be used as User Filters.
- These can be used in a stacked mode and in a hierarchy.
- When creating them, the user chose them to be either static or dynamic.

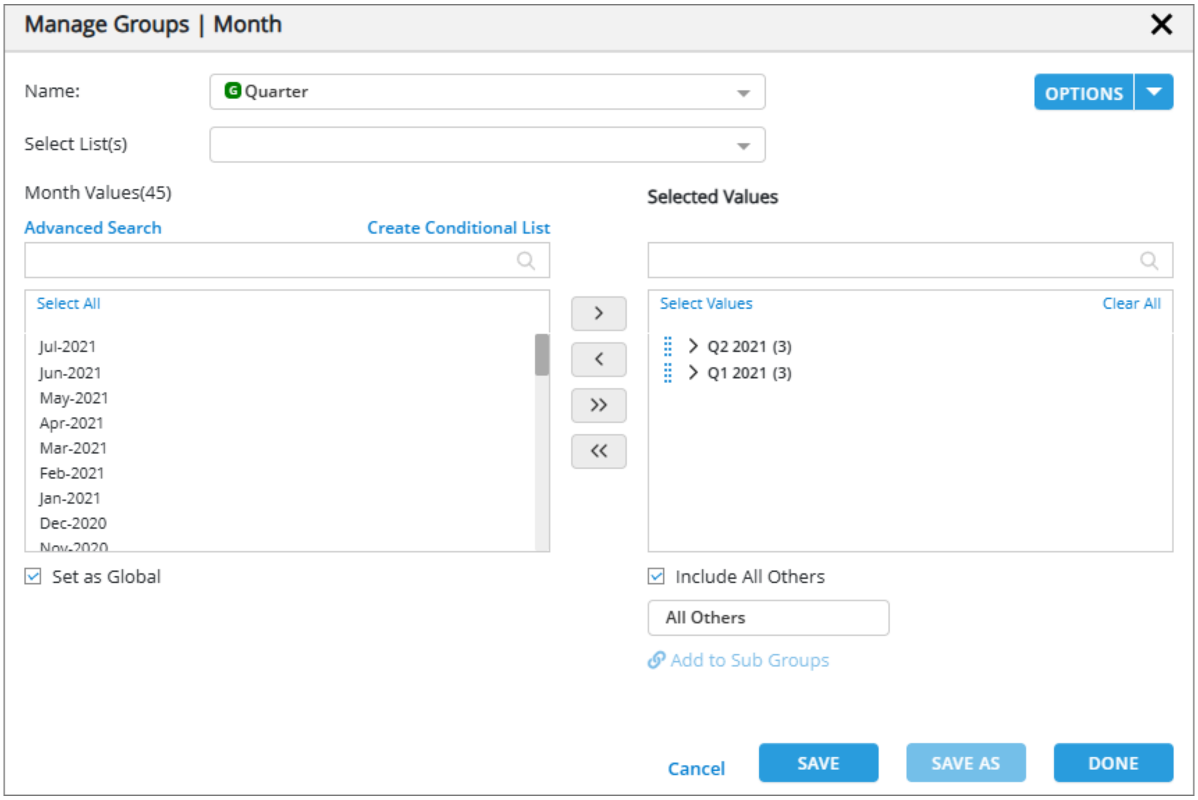
Global Groups:

A global group is accessible to all users. Governor users can create global groups. The following are points about global groups.

- Producers can use global groups in their reports.
- Consumers can only view the definition of the group.
- Only the owner of the group can modify the group.
- Similar to private groups, all global groups will appear under the respective attribute.
- When a global group is used in a report, the group is not copied or created. Instead, the reference of the group is used, so any modifications to the global group will impact all reports where the group is used.
- This also applies when a variant of a report is created.

Creating a Global Group:

- The creation of a global group is similar to creating a private group.
- The group definition screen now has the option to set a group as a private group or as a global group.
- This option is only available to governors or admin users. Producers cannot create global groups.
- A global group cannot be published to selected users.



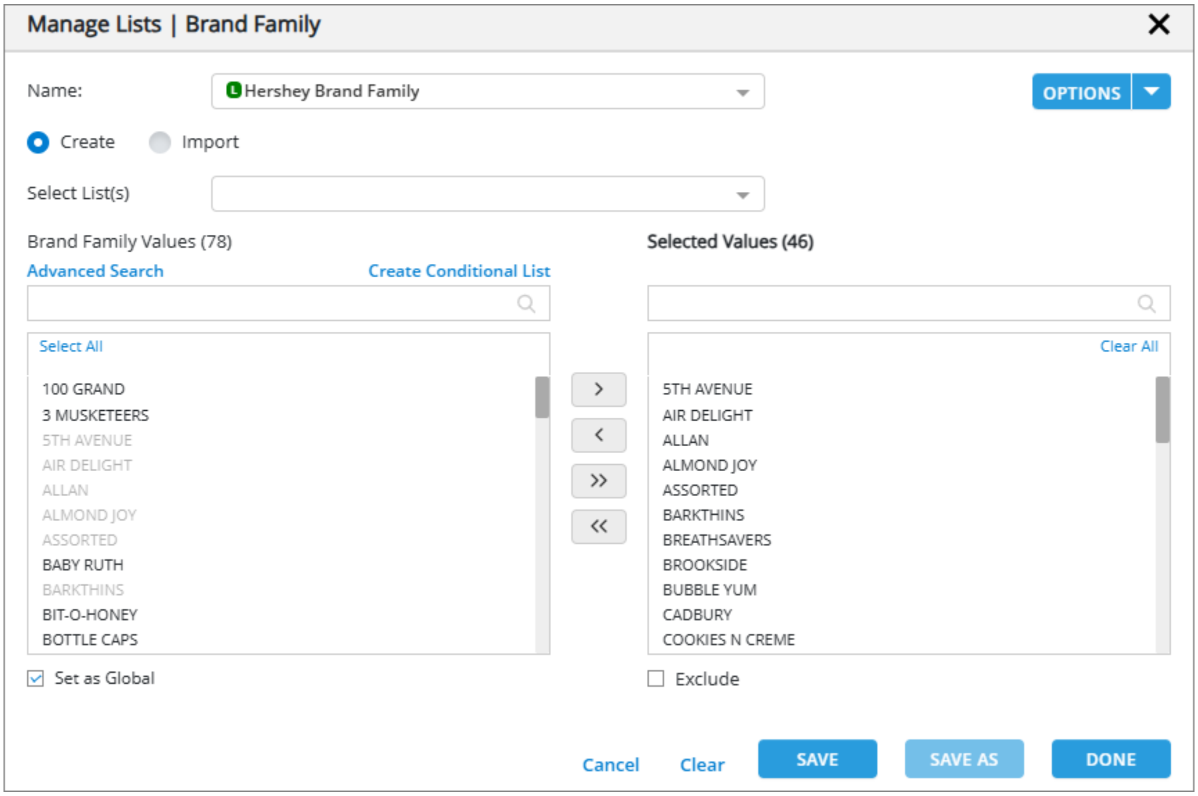
Lists:

Similar to global groups, global lists can be created by Admin and Governor Users.

- A global list is accessible to all users.
- Producers can use global lists in their reports.
- Consumers can only view the definition of the list.
- Only the owner of the list can modify the list.
- Similar to private lists, all global lists will appear under the attribute.
- When a global list is used in a report, the list is not copied or created. Instead, the reference of the list is used, so any modifications to the global list will impact all reports that have used the list, including variants of reports.

Creating a Global List:

- The creation of a global list is similar to creating a private list.
- The list definition screen now has the option to set a list as a private list or as a global list.
- This option is only available to governors or admin users.
- A list now can be used as an attribute in a report.
- Like a group or attribute, a user can drag a list to the report's rows, pages, or columns section.
- A global list can be static, dynamic, or conditional.

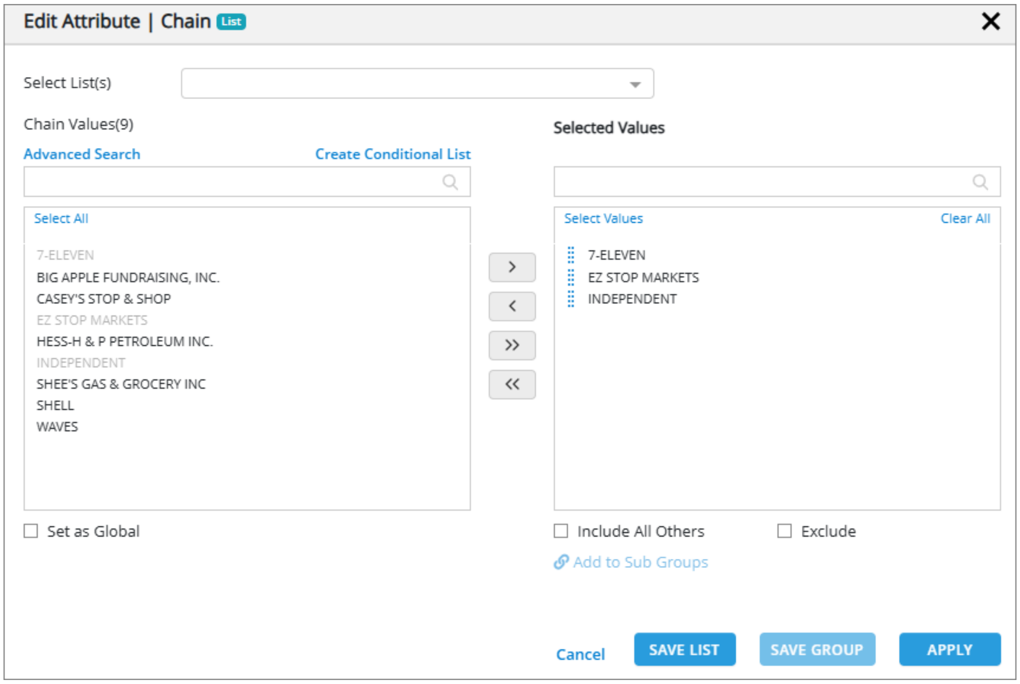


4.2.17 *Simplification of Lists and Groups*

This feature provides enhanced flexibility for managing attribute lists, and groups directly within the report. This allows users to perform quick ad hoc customizations without navigating to the left panel.

Editing an Attribute in Rows/Columns/Pages

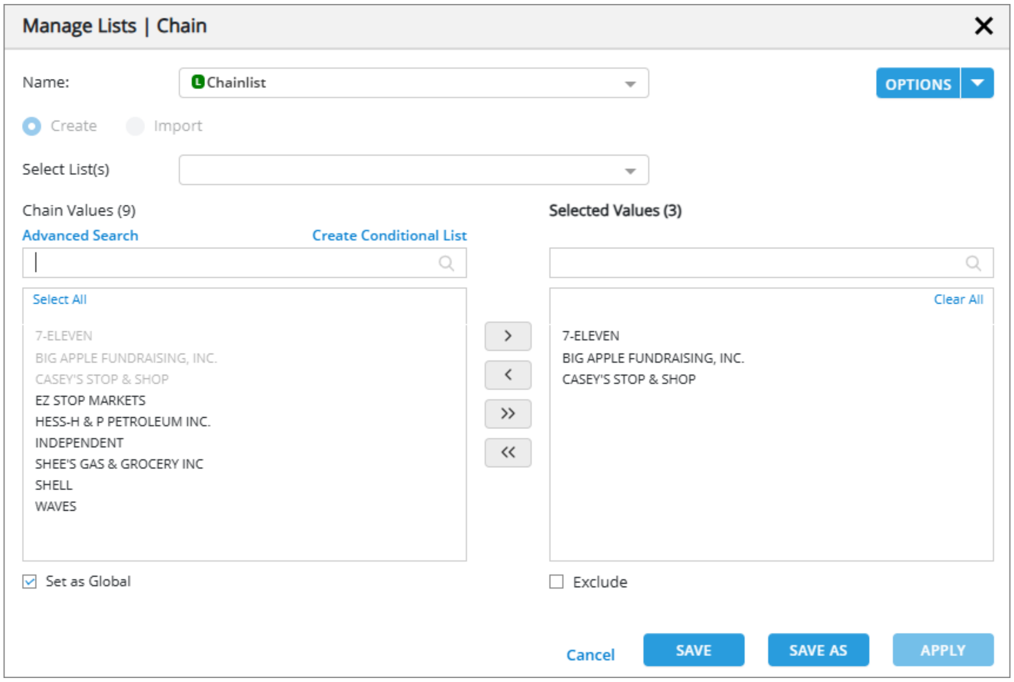
- The new Edit option for attributes allows users to create lists or groups directly from the RCP, offering flexibility to create both report-specific and permanent lists/groups.
- From the below popup, the user can create a list or group on-the-fly which then replaces the attribute in RCP.



- Apply option allows the user to create a report specific list/group and these are confined to the current report. These lists/groups are distinguished with gray colored super script.
- User can choose to click SAVE LIST or SAVE GROUP options to create permanent list or group, which are displayed in the left side attribute panel and can be reused across other reports.
- There are two states of creation i.e. list creation state & group creation state
- The default state is the list creation state, and it supports disabling attribute values on the LHS if they are already present in the RHS (including static values and also the values part of lists).
- The state changes to group creation if at least one sub-group is created, or Include All Others is selected.
- Various options and footer buttons in the popup are enabled/disabled dynamically based on the current state (list or group creation).
- The "Select Lists" dropdown displays existing lists created for the attribute. When one or more lists are selected the items appear on the RHS pane as list items and the selections are cleared once the dropdown is closed.
- Set as Global option is supported only when user creates a permanent list/group
- Edit option is supported even from the Edit hierarchy popup.
- The "Link to List" option has been removed from the Manage Lists and Manage Groups workflows; however, the Link to List behavior is still supported with the new workflow.

Editing a list in Rows/Columns/Pages

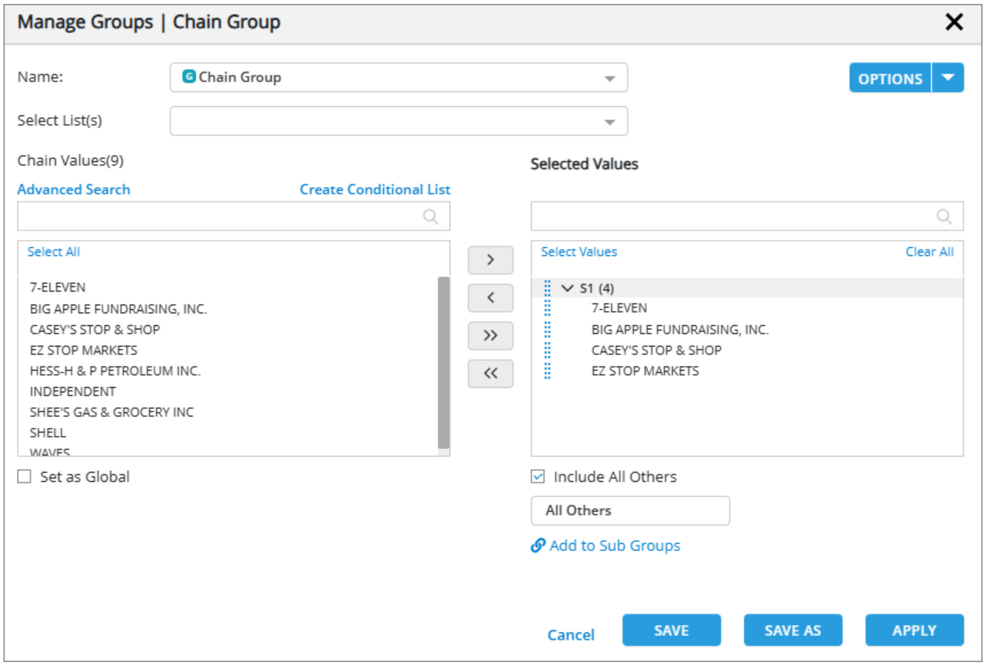
- Users can now edit an existing list directly from the RCP. The list may be either report-specific or a permanent list.



- Editing from the RCP is aligned with the Manage Lists option in the left attribute panel, enabling consistent behavior.
- Attribute values in the left panel will continue to be disabled if they are already present in the right panel. This applies to static root values or values from lists (temporary, conditional, etc.)
- On the RHS panel, static attribute values have a Delete option at the item level.
- For the Lists on the RHS it has options such as Edit (modify definition), Delete, and Show Values (view attribute values in a popup).
- For report-specific list, SAVE AS is not supported.
- When advanced search is applied by clicking "Save and Apply Criteria" toggle option the previous behavior of disabling right or left panels and navigation buttons is no longer supported. Instead, the right panel displays a temporary list item instead of the criteria results.
- Dynamic lists saved with advanced search criteria in earlier versions will now appear as a single temporary list item on the right panel, using the same name as the actual list. This way it allows the user more flexibility to add more lists or values on RHS rather than just limiting it to single criteria.

Editing a group in Rows/Columns/Pages

- Users can now edit an existing group directly from the RCP. The group may be either report-specific or a permanent group.

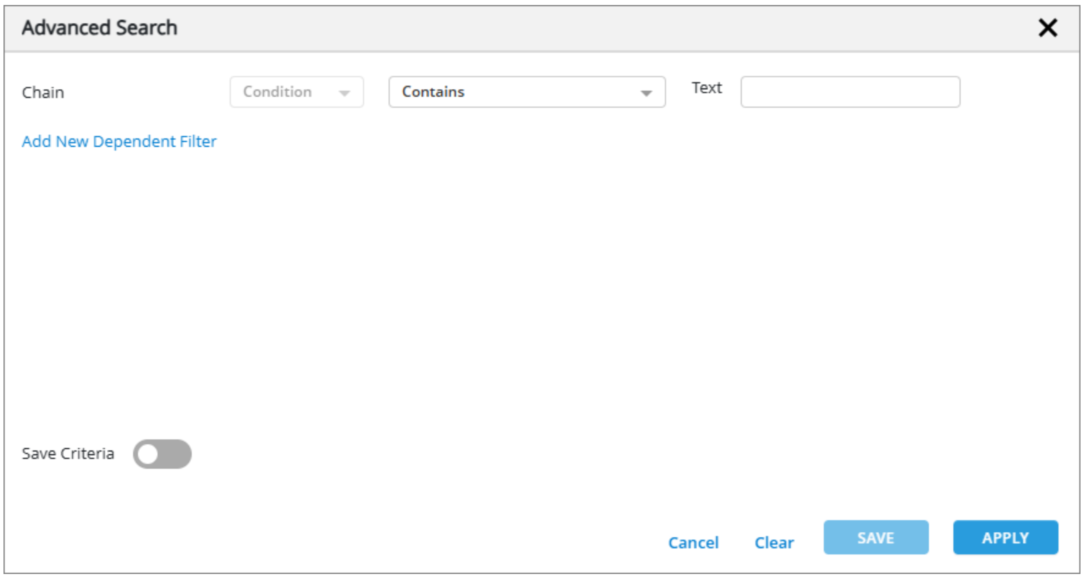


- Editing from the RCP is aligned with the Manage Groups option in the left attribute panel, enabling consistent behavior.
- The 'Add to Sub Groups' option allows user to create a subgroup in the root by selecting any combination of attribute values and/or lists (temporary, advanced, existing, conditional, etc.).
- After creation, a subgroup can be renamed, deleted, or expanded inline to display all their constituents, which may include both static attribute values and multiple lists.
- For the List on the right panel have options to Edit (modify definition), Delete, and Show attribute values in a popup
- In the right panel, only one subgroup can be selected at once, retaining the existing behavior.

Advanced Search in List & Group

- This option can be used in the creation of lists as well as groups.
- When the user clicks on the "Advanced Search" link, it opens the regular advanced search popup. A toggle option to on or off "Save Criteria" is available in the popup; it is turned off by default except for Date attribute.
- When the Save Criteria toggle option is off SAVE button is disabled, but APPLY button is enabled.

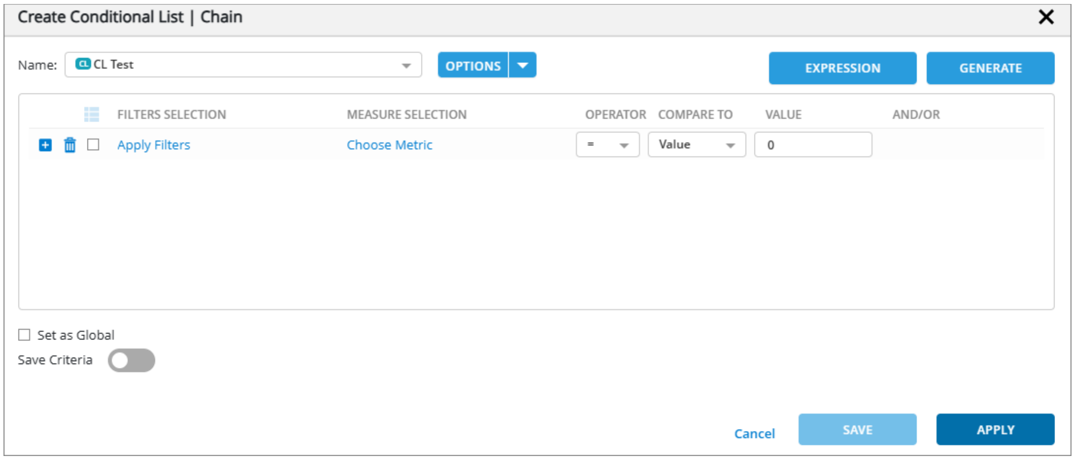
- If the user selects criteria and clicks "APPLY," the popup closes. It evaluates the criteria and displays the resultant attribute values on the left panel. The advanced search criteria applied by the user are not retained and will be cleared once the popup is closed. Users can reset to show all values in the LHS panel by clicking Reset hyper link in the top right corner of the same LHS panel.



- When the "Save Criteria" toggle option is on, both SAVE and APPLY buttons are enabled
- If the user selects criteria and clicks "SAVE," a dynamic list is created which is then displayed in the root of the right panel with the specified name and also in the left-hand side attribute panel.
- Users can edit these lists by clicking the edit icon at the list level in the right panel, opening the same advanced search popup with pre-populated criteria. They can then choose to SAVE, SAVE AS, or APPLY.
- If the user selects criteria and clicks "APPLY," it just creates a temporary list. The list item appears in the root of the RHS panel with the specified name. Temporary advanced criteria lists are accessible only from the right panel.
- Users can edit these criteria, similarly, modifying them and choosing to SAVE or APPLY. Clicking SAVE would convert a temporary list to a permanent list but clicking APPLY would just override the same temporary list with the modifications.

Conditional List Creation in List & Group

- A new hyperlink option displayed above the LHS pane, allowing users to create a new conditional list on-the-fly and use it in the RHS pane in the creation of lists as well as groups
- When the user clicks on the "Create Conditional List" link, it opens the Manage Conditional List popup a new toggle option "Save Criteria" like the one in advanced search is added in the popup and is turned off by default.



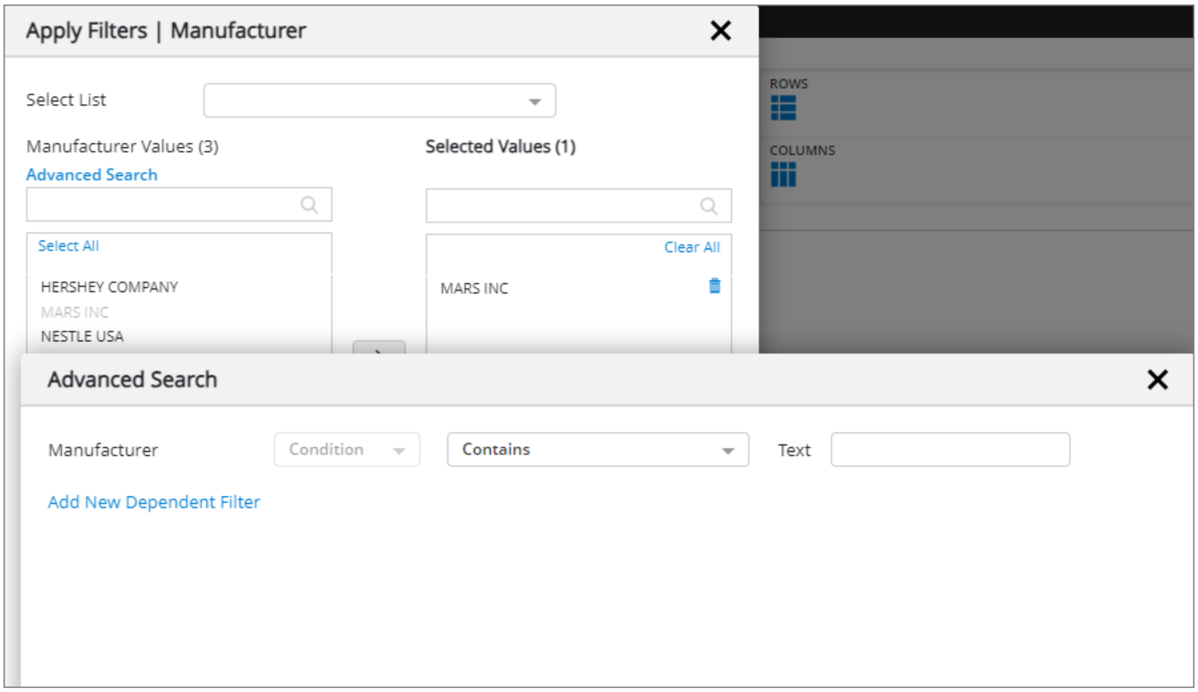
- When the "Save Criteria" toggle option is off SAVE button is disabled, but APPLY button is enabled.
- If the user selects criteria and clicks "APPLY," the popup closes. It evaluates the criteria and displays the resultant attribute values on the LHS panel. Users can reset the criteria values on the LHS panel to show all values by clicking on the Reset hyper link in the top right corner of the same LHS panel.
- When the Save Criteria toggle is on, both SAVE and APPLY buttons are enabled.
- If the user selects criteria and clicks "SAVE," a conditional list is displayed in the root of the RHS panel with the specified name and in the left-hand side attribute panel too.
- Users can edit these lists by clicking the edit icon at the list level in the RHS pane. They can then choose to SAVE, SAVE AS, or APPLY.
- If criteria are selected but the user clicks "APPLY," it creates a temporary conditional list. The list item appears in the root of the RHS panel with the specified name. Temporary lists are accessible only from the RHS pane
- Users can edit these criteria, similarly, modifying them and choosing to SAVE or APPLY. Clicking SAVE would convert a temporary list to a permanent list but clicking APPLY would just override the same temporary list with the modifications.

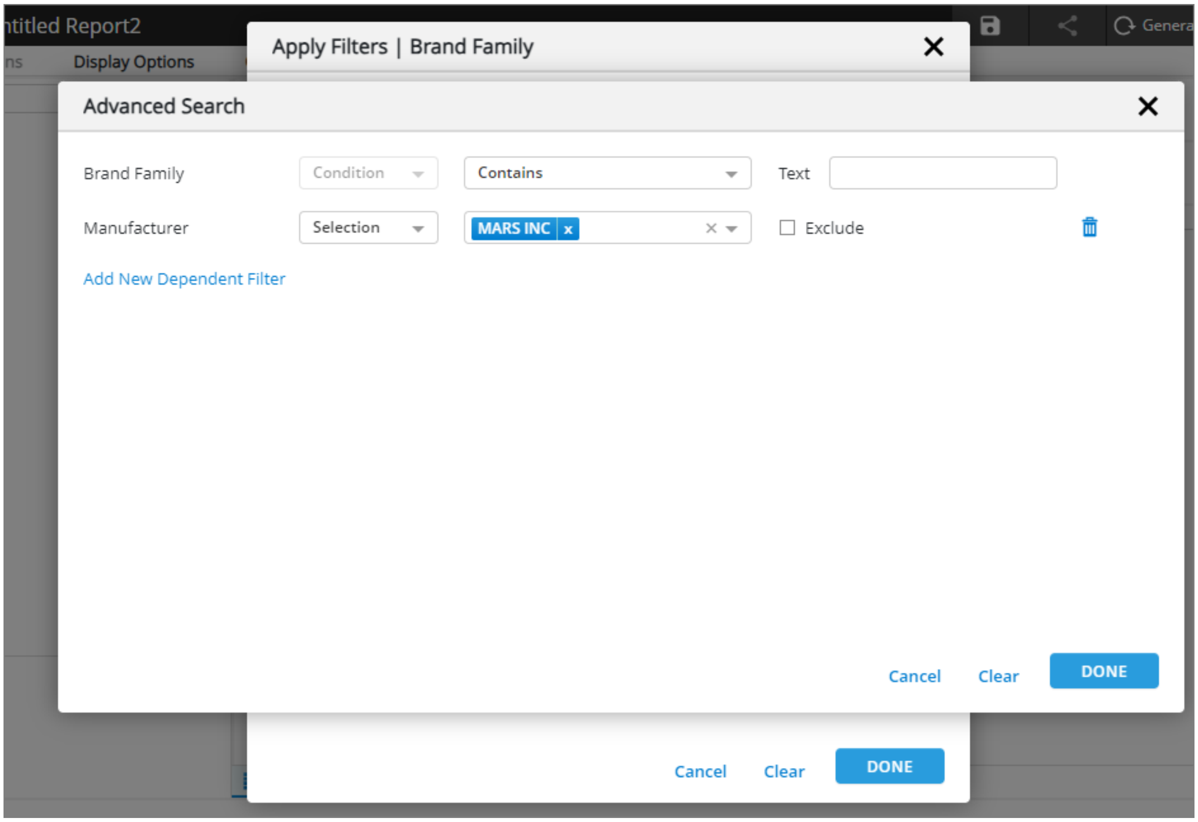
Assumptions/Limitations

- The "Edit" menu option is not supported for attributes in the filters section, meaning report-specific lists or groups cannot be applied as filters.
- Users cannot drag a report-specific list/group from RCP onto the filters section
- The "Edit" functionality is not supported for stubs and measure groups.
- The "Apply Filter" option in RCP for attribute/list/group is removed to avoid confusion on how to apply lists/groups in the report.
- In Report Link screen while configuring it is not allowed to pass any filters corresponding to report specific artifacts (lists/groups).
- In the Manage Lists, the 'Select Lists' dropdown filters out or restricts the selection of compound lists. So typically, we cannot use a compound list as part of another list creation.
- In the group creation, lists present in the root on the RHS panel are treated as aggregated values like the subgroups.

4.2.18 Filter Cascade:

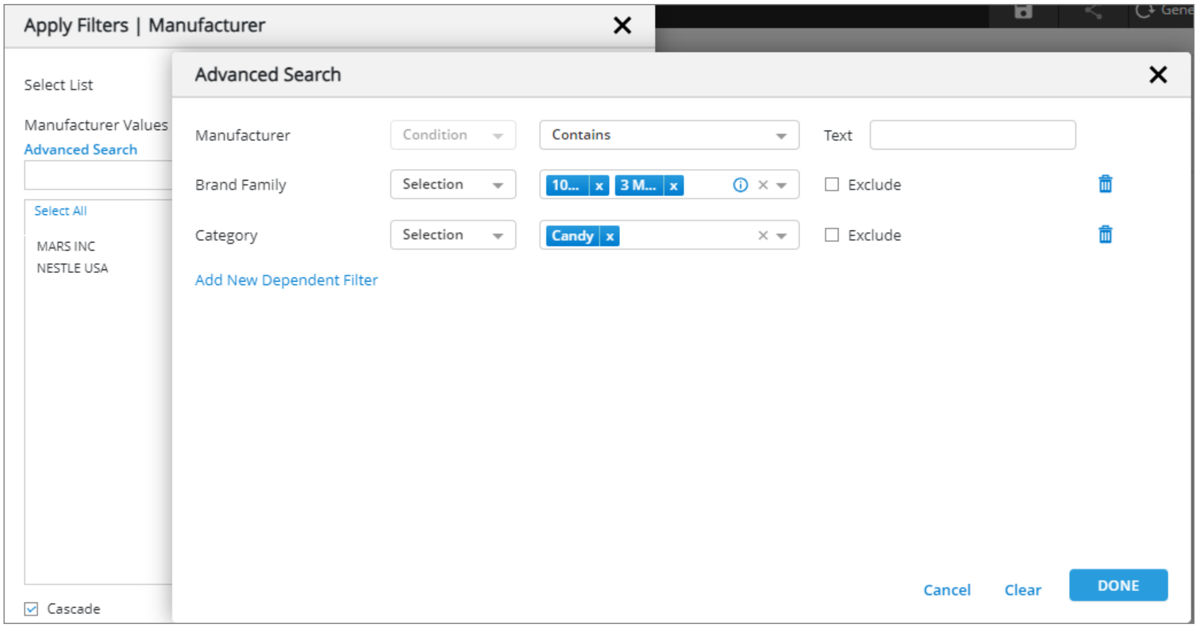
The filter cascade feature is available in the advance search dialog. By default, the 'Cascade' option is selected. With the Cascade behavior, the values in the filter popup would still be filtered based on the other filters applied even if they are not related to each other, and Advanced Search is also populated based on the same.



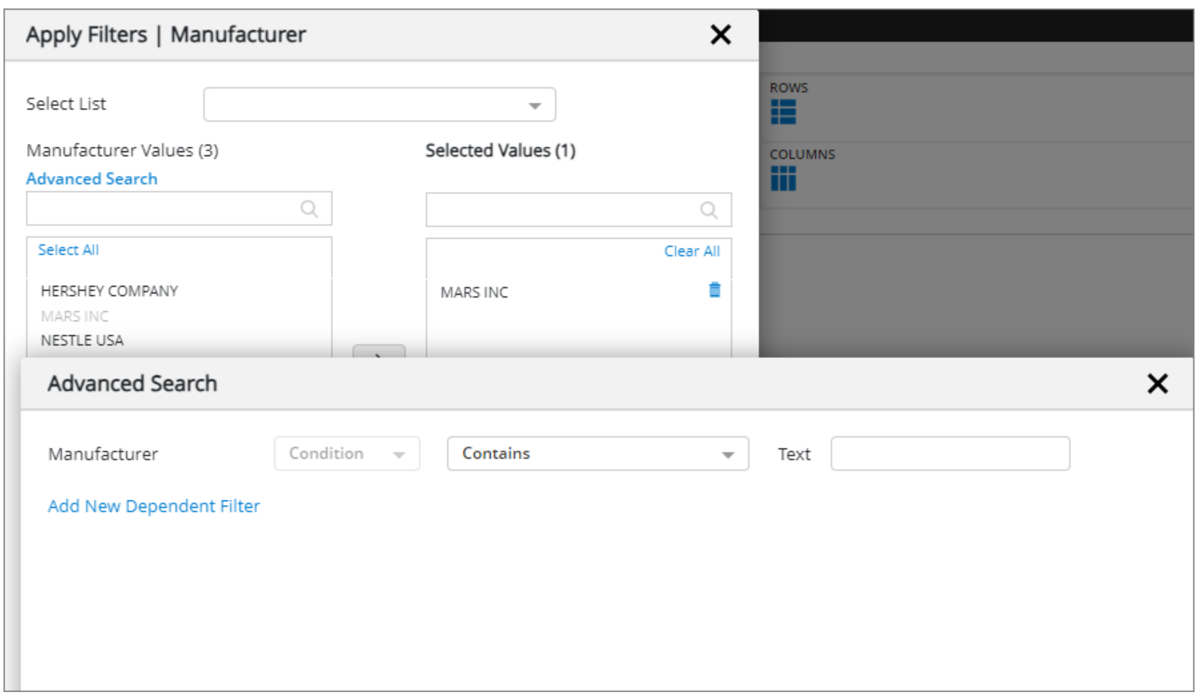


Select Manufacturer and Brand Family attribute as filters, where Manufacturer is impacted attribute for brand family. Hence, we see that by default, the values of Brand Family are filtered by Manufacturer selected values, and advanced search values are being selected.

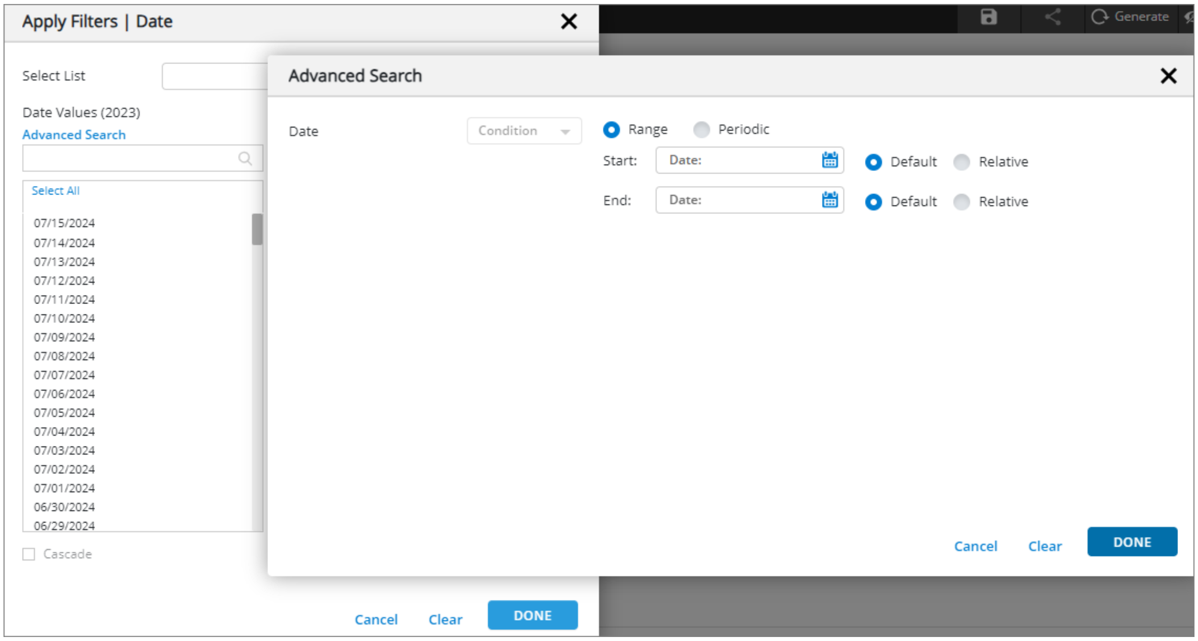
Now select the Category attribute as a filter. Here category is not related to both brand family and Manufacturer. When we open the manufacturer popup, we see that the values are filtered by the selected values of brand family and category as the cascade option is selected.



Now uncheck the 'Cascade' option. The results are reset back to original manufacturer results as both brand family and category don't impact the Manufacturer. The same is reflected in Advanced Search.



We can observe that the cascade option is disabled for the time attribute since there is no way for the user to know which filters impact the attribute results. But the values selected in the time attribute would impact other attribute filters applied.

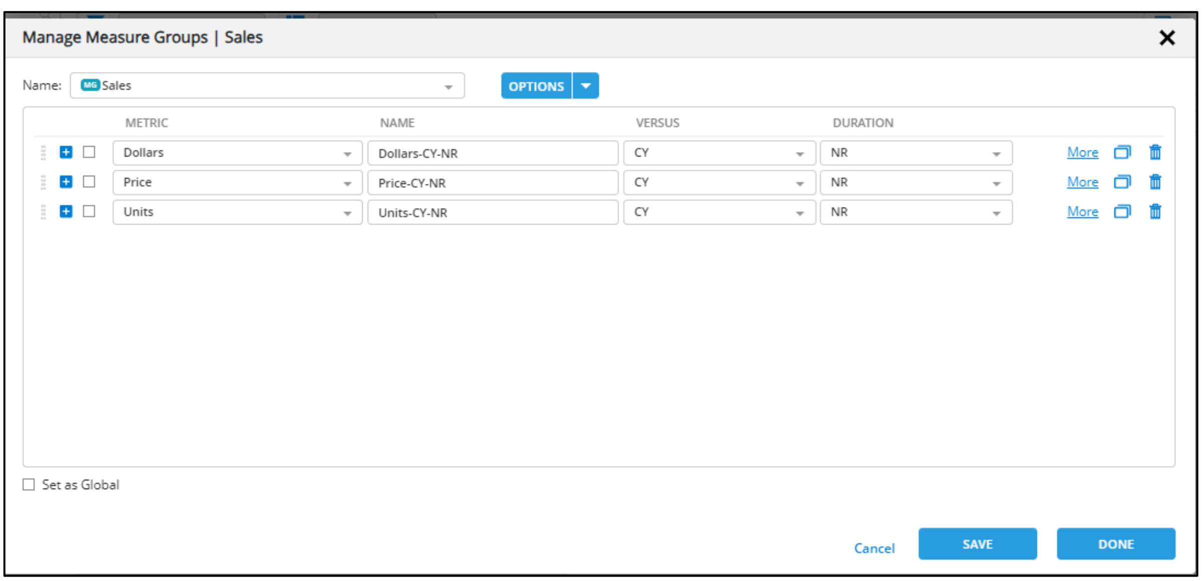


Note: There is no support for the cascade option for groups and lists.

4.2.19 Measure Group

The feature allows users to create measure groups from the Attribute List panel, similar to stubs. Users can use measure groups in place of measures in RCP and add them as User Filters. This feature enhances the organization and management of measures within the producer application.

Creating Measure Groups:



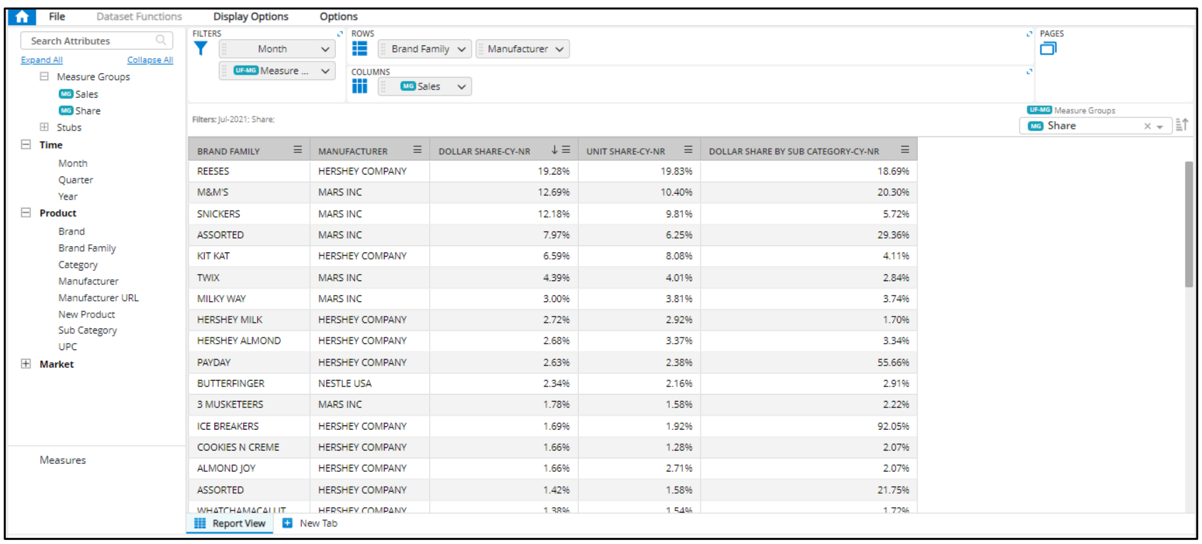
- A new folder named "Measure Groups" is added to the Attribute List panel, allowing users to manage or create measure groups.

- The "Manage" option for measure groups opens a popup similar to the one used for measure creation. Users can create, edit, or delete measure groups within this popup.
- Measure groups are created by selecting one or more KPIs, similar to the process used in the Define Measures popup.
- Users can specify KPI specifications for each measure within the group, and these specifications replace the measures in the RCP.
- Measure groups can be set as global or private.

Measure Groups in RCP:

- Measure groups can be dragged into the RCP, and the report generates KPIs based on the selections within the group.
- Users can only add either "Measure Group" or "Measures" to the RCP at a given time.
- When a measure group is placed in the RCP and published, the published group is copied as a private group for the published user during the "Save As" action on the report.

Measure Groups as User Filters:



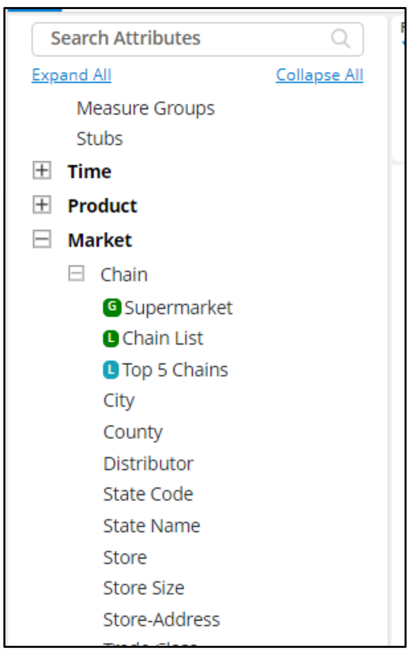
- Users can add the "Measure Groups" as user filter from the Attribute List panel.
- When the "Add as User Filter" option is selected, a dropdown appears, allowing users to choose from available measure groups. Selecting a group from the dropdown replaces the measures in the RCP with the KPIs defined within the selected group.
- The restrictions and dropdown validations for measure groups UF are similar to stubs UF.
- Measure group UF can be added only if there are "measures" or "measure group" present in the RCP.

Limitations:

- Measure groups are not supported in merge reports.
- Measure group User Filters cannot be added in merge reports or Storyboards (SB).
- User Filter Override is not supported for measure groups.
- If a Measure group User Filter is added, and a value is selected, DSF and Report links are not applicable. Existing measure links will not be applied, but attribute links will still be functional.

4.2.20 Enhanced Visual Cue for Artifacts

This feature improves the visual cues for super-scripts to enhance clarity and distinction in various scenarios.



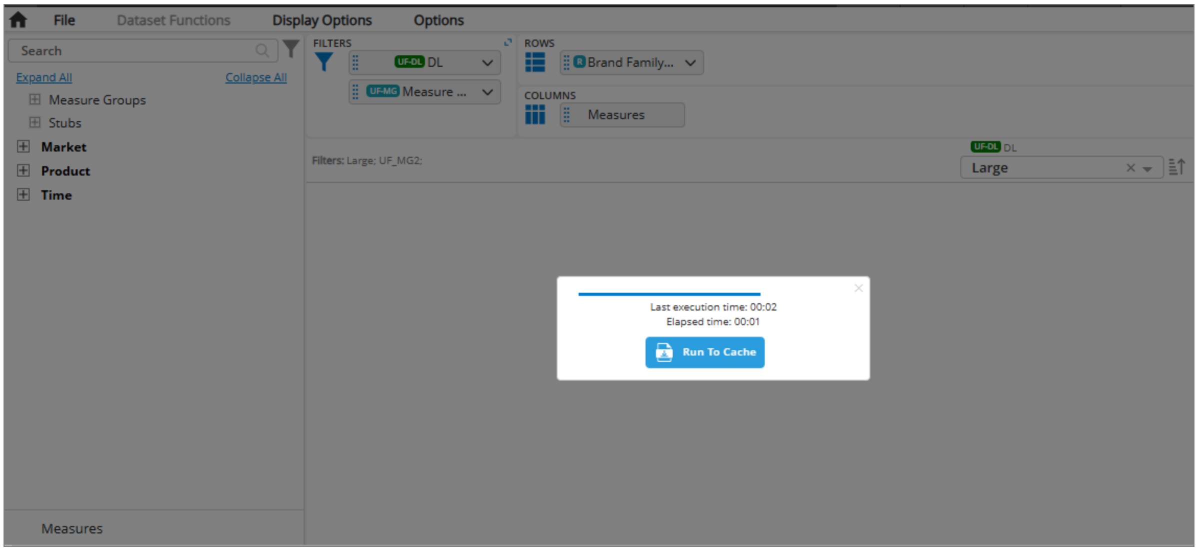
The users will notice the following changes:

- Super-scripts, which are typically represented as raised letters, will now feature a visual cue for improved visibility.
- Private artifacts will be denoted by a blue color.
- Global artifacts, whether added as User Filters or within the RCP, will be identified with a green color.
- A visual cue is provided for dynamic lists to distinguish them from static lists.

Please note that in the display specification pop-up, hierarchies in RCP will continue to use super-scripts to represent the hierarchy type for better context.

4.2.21 Redirect Actively Running Report

This feature allows to redirect an actively running report to a background process, allowing it to continue running even if user logs out or the session times out. This would function similarly to the "Run To Cache" option from the home page, but this is initiated during report execution.

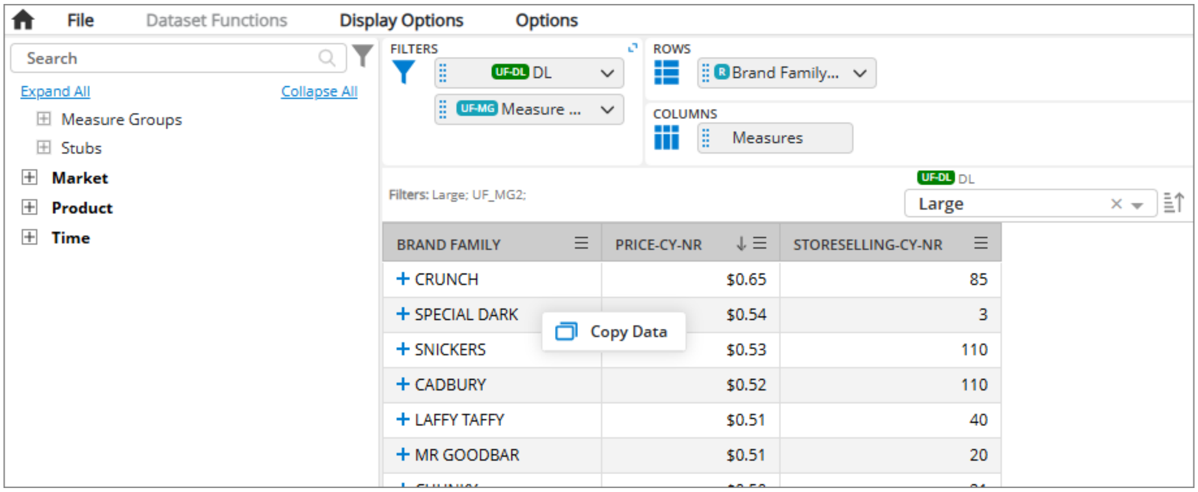


- A button will appear on the progress bar, and clicking it will trigger a background request.
- A dropdown will be available next to the criteria change message, offering the 'Run to Cache' option.
- A notification will appear when the requested file is completed. Clicking the notification will open the report in a new tab.
- All requested files will be listed on the Downloads page, where users can click to view them in a new tab.
- Users will have the option to 'Save' or 'Save As' for cached reports. Choosing 'Save' will overwrite the original file.
- The 'Run to Cache' option will not be available for new reports. The button will only be displayed after the report has been saved.

4.2.22 Copy tabular report data to clipboard

Users can copy all data from the report grid to the clipboard by right-clicking on the grid and selecting 'Copy Data.' The copied data can then be pasted into Excel.

- Users can right-click on the grid and select 'Copy Data' to copy all grid data to the clipboard.



- If a column contains multiple attributes or measures, their headers will be combined and displayed together.
- A progress bar will be displayed while the grid data is being copied. Once the process is complete, a success notification will appear.
- When copying the grid, all additional columns and rows, including those from data bars or functions, will be copied. However, formatting elements such as colors, symbols, custom headers, and custom column widths will not be included.

Limitations

- When pasting data into Excel, its default auto-formatting behavior may alter the format of values. To prevent this, the following approaches can be used:
- **Pre-format cells as Text:**
    - Select the destination cells.
    - Right-**click** on any selected cell and choose **'Format Cells'**.
    - Set **the format** to **'Text'** and click **OK**.
    - Paste the copied data."

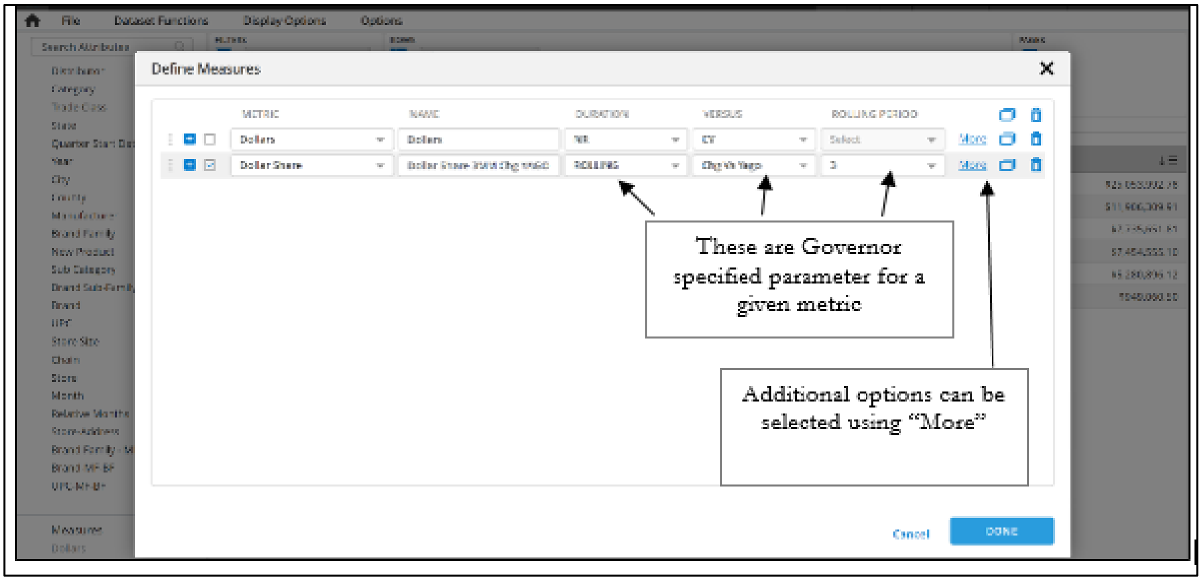
- **Paste as Text:**
    - Right-click the cell where you want to paste the data.
    - Select 'Paste Special' > 'Text'.
    - Alternatively, use the shortcut Ctrl + Alt + V, then choose 'Text' from the options.
    - Click OK to paste the data as plain text.

The effectiveness of these methods may vary depending on the Excel version

- This option is not available for reports with nested hierarchy

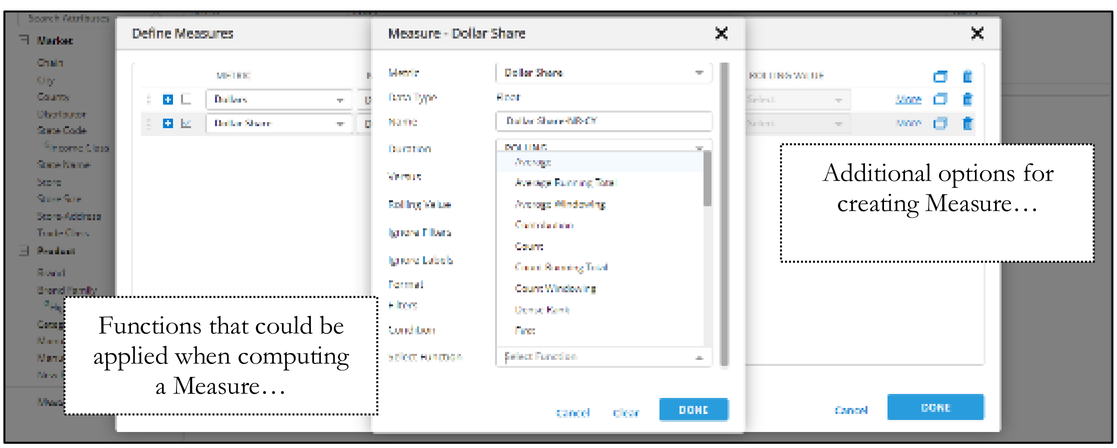
4.3 Advanced Measure Specifications

Certain Metrics can have additional parameters required as input – and/or additional functions that users could perform. An example is shown below:



In the above example, Dollar Share has parameters for Duration (NR=Not Rolling, Rolling, YTD, or QTD), Versus (Chg vs. YAGO, or % Change vs. YAGO, etc.) – and if Rolling the Rolling Period. These are parameters defined by the Governor, which the user can specify to create numerous different types of metrics on the fly. As opposed to writing SQL code or creating a measure for each variation (of which there could be hundreds), this parameterized approach provides a powerful way to create complex KPIs easily and intuitively.

In addition to measure parameters, the user can also apply many additional functions to create additional measures, as indicated in the screen below. A brief explanation follows:



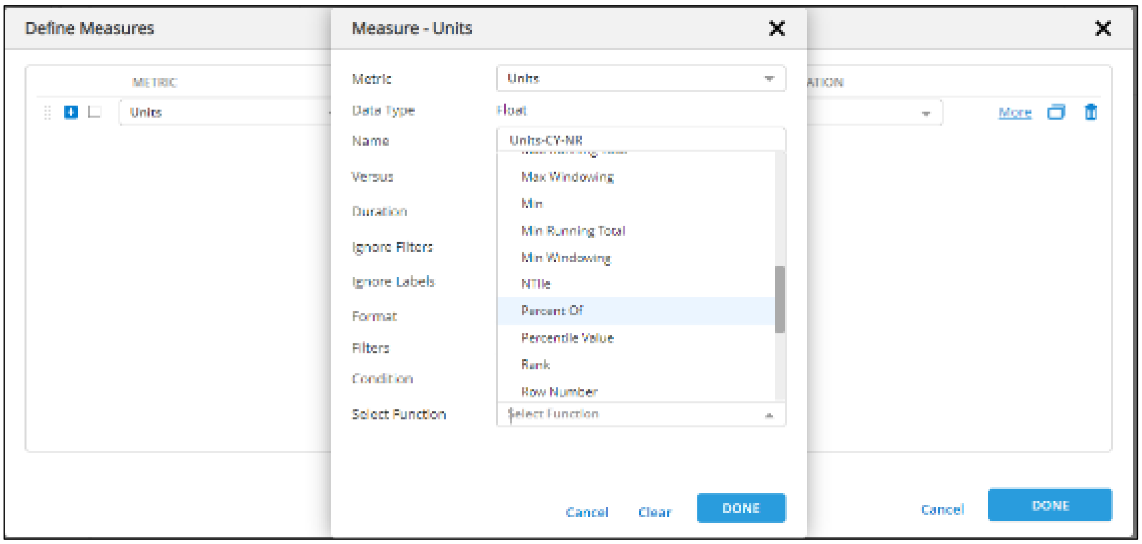
- Ignore Filters: This provides a mechanism to compute measure, ignoring certain applied filters. For example, if the user wishes to compute a Dollar Share but to ignore a "category" filter, then this could be specified.

- Filters: This provides a mechanism to compute a measure with certain applied filters. For example, if the user wishes to compute a Dollar Share for Supermarkets only, then this could be specified.

- Ignore Labels: This provides a mechanism to compute a measure based on the labels in the report. For example, if Dollar share is being computed for a given sales territory – where territory and region (higher level) are labels on the report, here ignore label= territory would provide a Region level Dollar Share (so we could then have Territory Dollar Share as one measure and Region Dollar Share as another measure – for comparative purposes).

- Condition: This enables simple conditions for computing a measure.
- Function: These are functions to be applied in computing the measures. Examples include Min, Max, Average, Sum, Count, etc. Over 50+ functions are supported

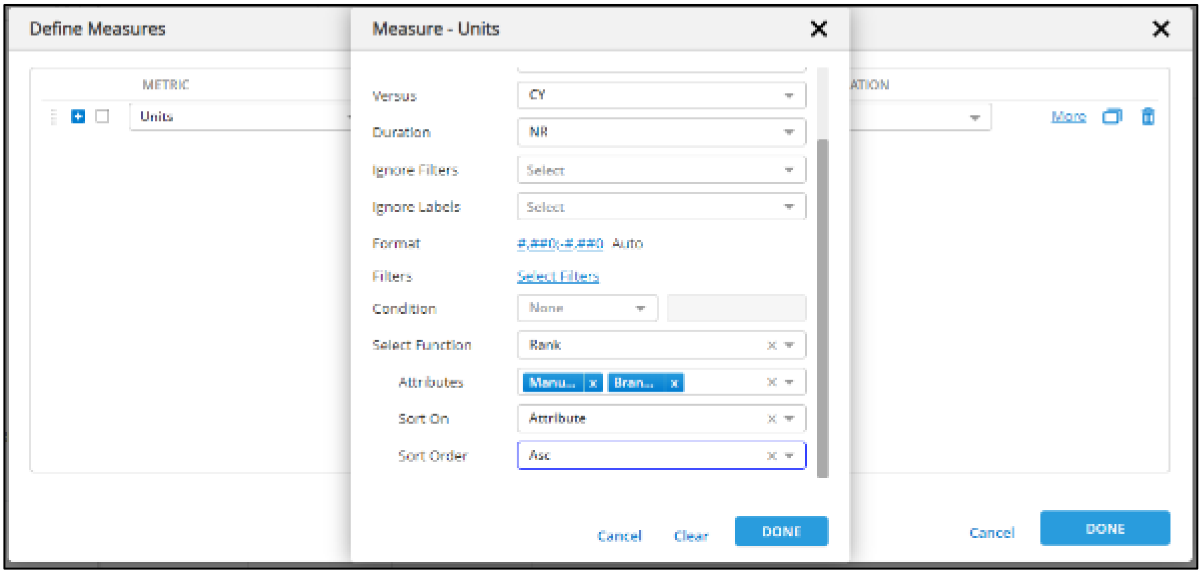
Percent Of function can be selected from UI using the Select Function drop-down.



When we create a function on a measure using more from the measure screen and select attributes for sort, the order of the attributes selected for sort will be respected. Let's consider adding Rank Function on the Units measure.

Click on the "More" option from the measure screen.

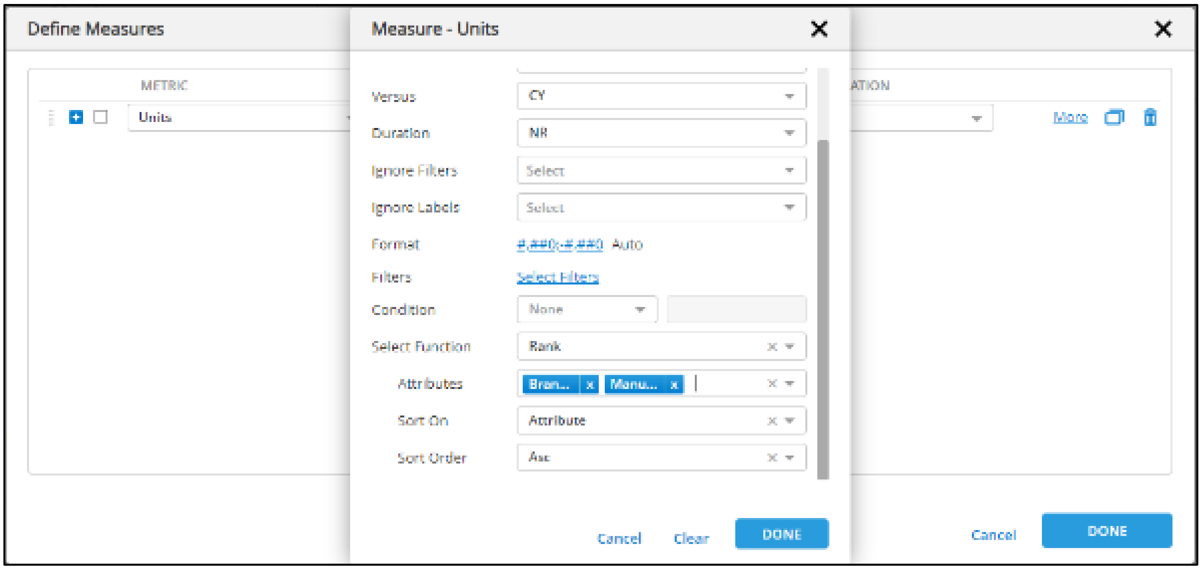
Select a Rank function from Select Function and select attributes for sort.



The order in which attributes are selected is respected while generating the report. In this example, the sort would be applied to the Manufacturer first and then to the "Brand Family".

MANUFACTURER	BRAND FAMILY	UNITS-CY-NR
MARS INC	TWIX	79
MARS INC	SNICKERS	78
MARS INC	MILKY WAY	77
MARS INC	MARS	76
MARS INC	M&M'S	75
MARS INC	DOVE	74
MARS INC	ASSORTED	73
MARS INC	3 MUSKETEERS	72
NESTLE USA	WONKA	71
NESTLE USA	SWEETARTS	70
NESTLE USA	SPREE	69
NESTLE USA	SNO-CAPS	68
NESTLE USA	SKINNY COW	67
NESTLE USA	SHOCKERS	66
NESTLE USA	RUNTS	65
NESTLE USA	RAISINETS	64

Change the order in which attributes are selected. Select Brand Family first and Manufacturer next and click on 'Done' and Generate the report.

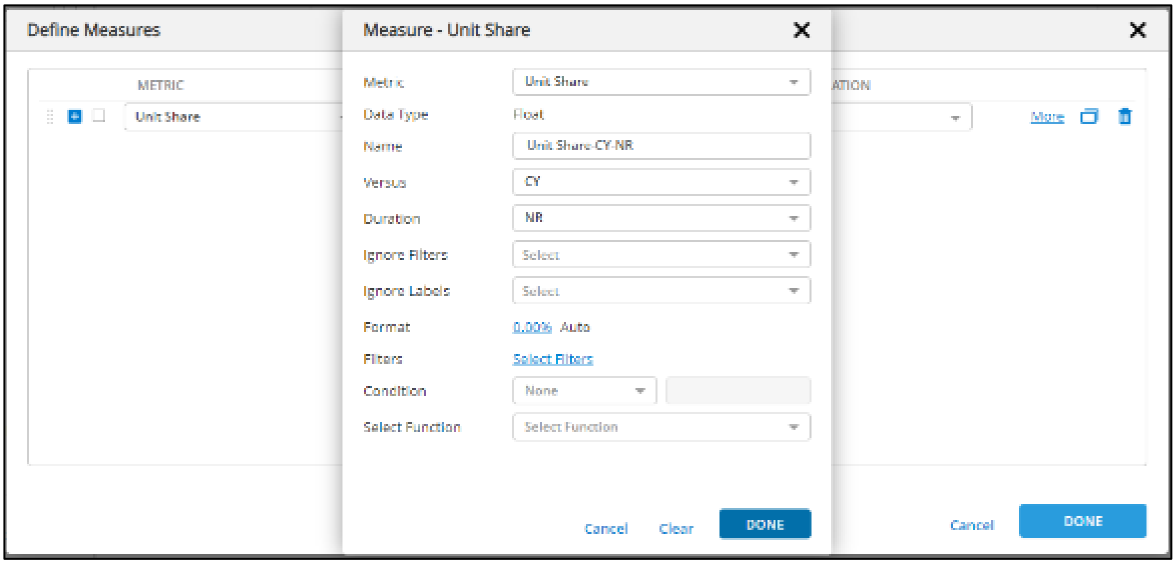


Now, sort is applied on Brand family first and Manufacturer next.

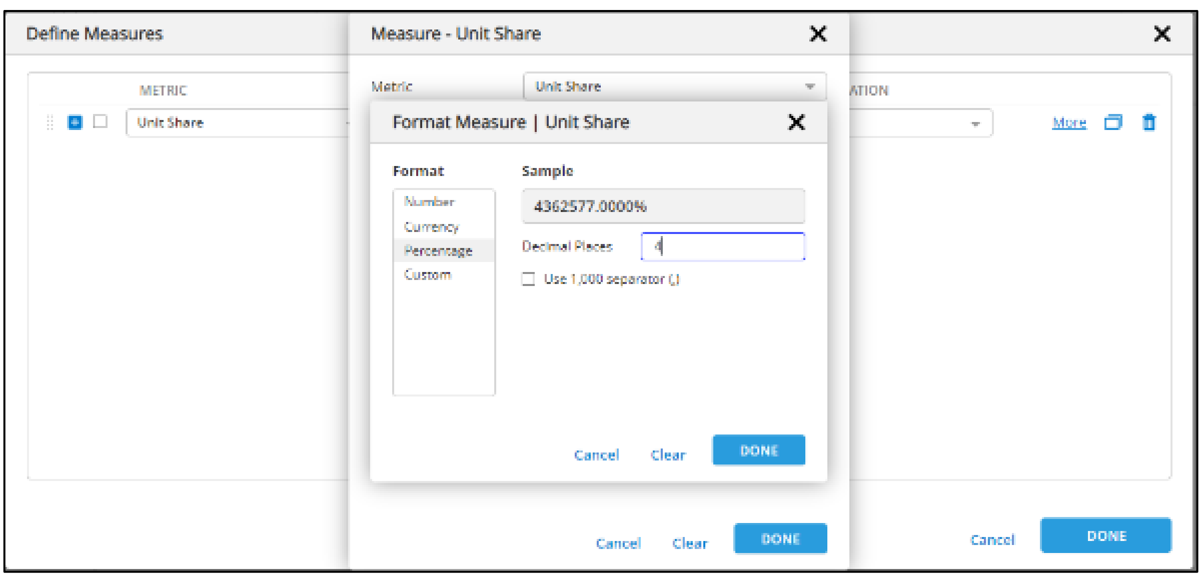
MANUFACTURER	BRAND FAMILY	UNITS-CY-NR
HERSHEY COMPANY	ZERO	79
HERSHEY COMPANY	ZAGNUT	78
HERSHEY COMPANY	YORK	77
NESTLE USA	WONKA	76
HERSHEY COMPANY	WHOPPERS	75
HERSHEY COMPANY	WHATCHAMACALLIT	74
HERSHEY COMPANY	UNKNOWN	73
HERSHEY COMPANY	TWIZZLERS	72
MARS INC	TWIX	71
HERSHEY COMPANY	TAKE 5	70
HERSHEY COMPANY	SYMPHONY	69
NESTLE USA	SWEETARTS	68
NESTLE USA	SPREE	67
HERSHEY COMPANY	SPECIAL DARK	66
NESTLE USA	SNO-CAPS	65
MARS INC	SNICKERS	64

Metric format to refer Governor defined format by default

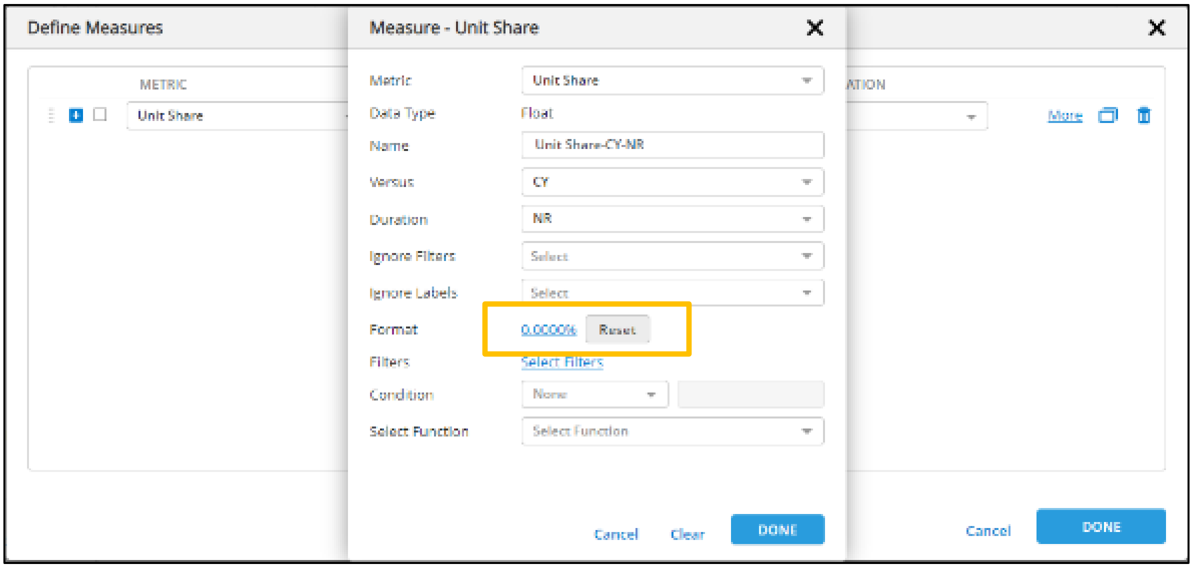
The producer can either use Governor defined measure format or a custom format while defining a measure in the report. Auto is the default mode and refers to the Governor's definition of measure. Any change in the measure definition by Governor will reflect in the report.

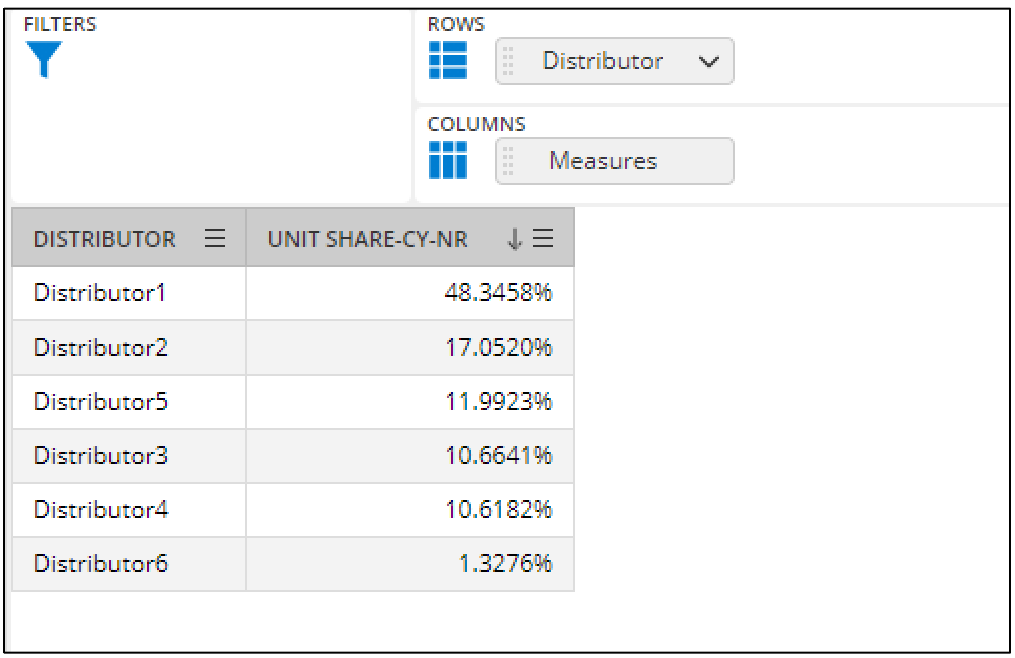


When the user changes the definition of the measure format defined by the Governor, the Reset option is provided to set the format back to default. Say the user changes the decimal precision to 4 and click on "Done."



Now user can see the 'Reset' option besides the format section. Clicking on it reverts the custom format done by the user and updates to the measure format defined by the Governor.





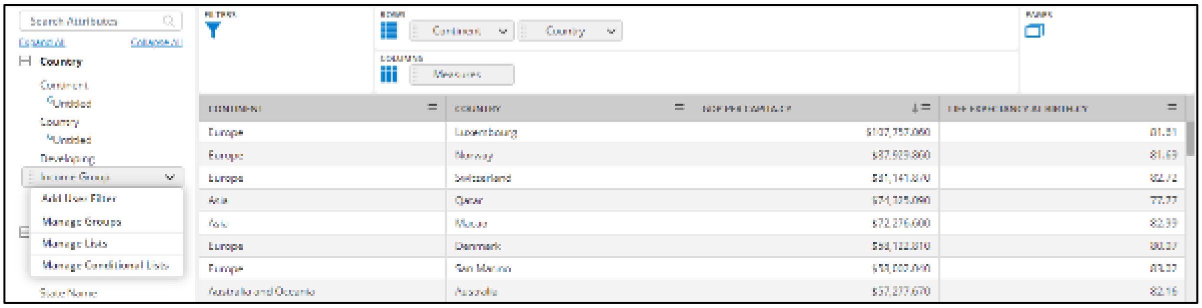
On saving changes, any change by the Governor will not reflect in the report. For all the existing reports, the measure format is treated as a custom format.

The creation of measures is a powerful construct that enables the formulation of complex KPIs without any knowledge of SQL programming. If additional metrics/measures are required – the Governor can create any SQL-driven measure required and expose the same.

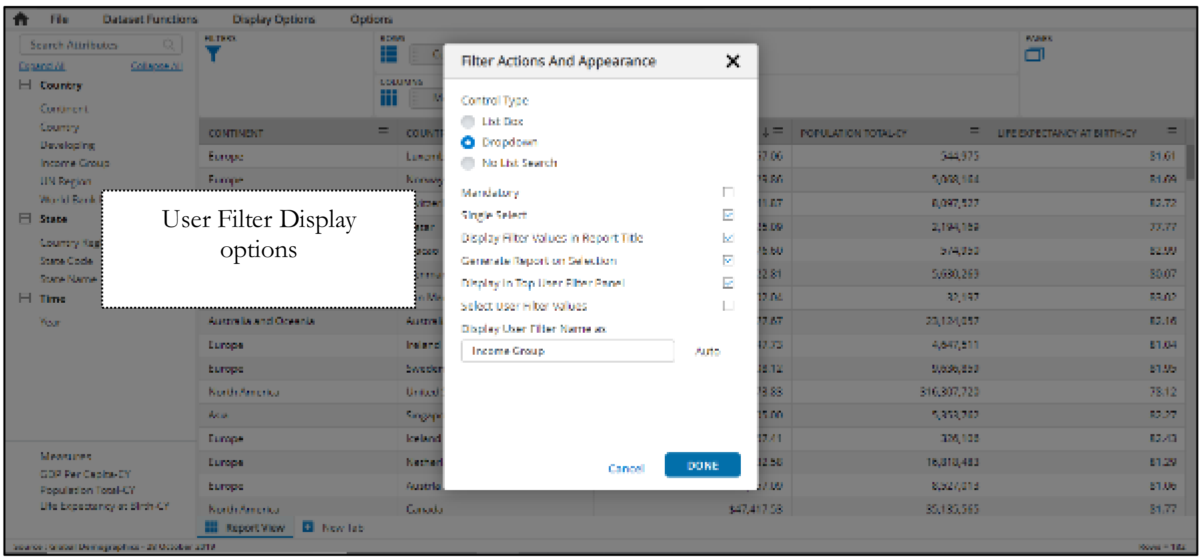
4.4 Applying User Filters

User Filters (shown as UF on the screen) are specified filters that can be applied to "slice and dice" the data. Unlike Report Filters, which are applied before running a report, a UF can be applied as required after running a report.

User Filters can be applied by selecting the user filter attribute from the left Attribute Panel (similar to List, Group functions).



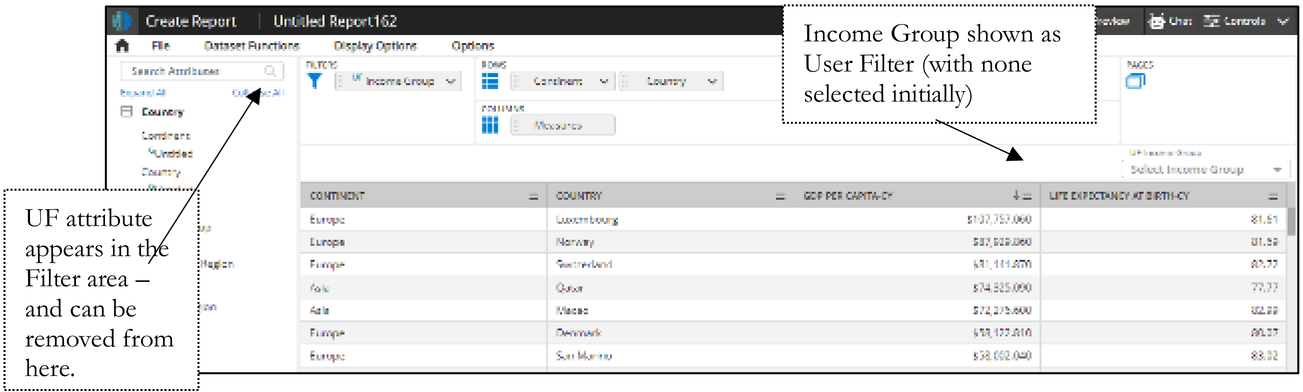
When a UF attribute is selected, the following screen is shown with pre-selected default values.



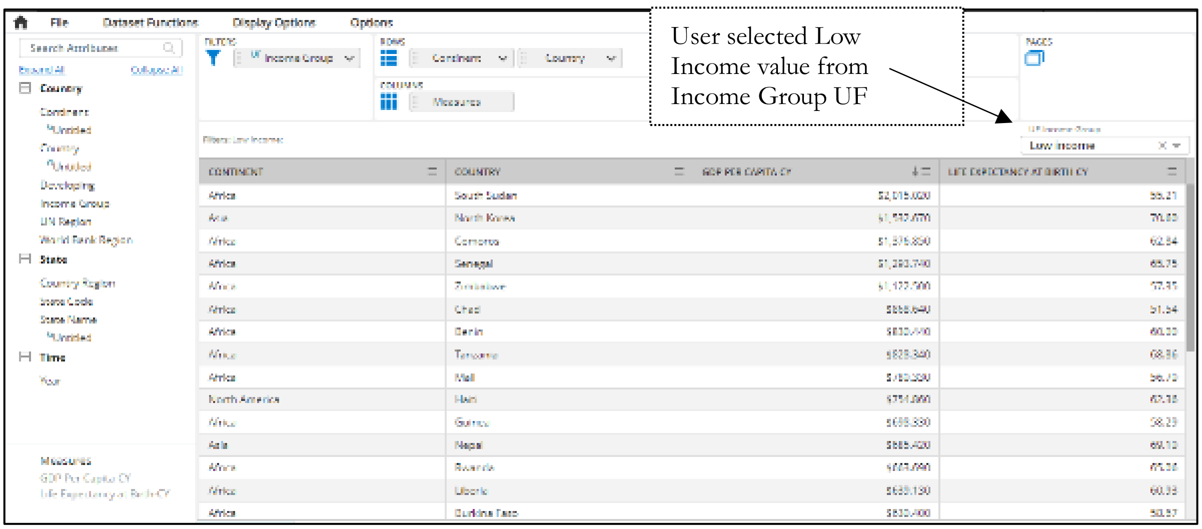
Control Type: This is the type of UF control to show the user: (a) List Box (fully open list), (b) Drop-down Box, or (c) No List Search Box.

- Mandatory: Whether a selection is mandatory or not. If mandatory, then the report is not generated until the user selects a filter value. Users can save and publish the report or storyboard without selecting a mandatory user filter value.
- Single Select: Whether the list is a single select only – versus multiple selection option. Display Filter Value in Report Title: Whether to display the selected value(s) in the Report title.
- Generate Report on Selection: Whether to generate the report on completion of selection (if there are multiple UF values), this can be unchecked, in which case the user should press the Generate button to run the report.
- Display in Top User Filter Panel: Whether to display the UF in the top Filter – Page Panel – or only in the Control Panel. Large lists (List box) options are ideal only in the Control panel.

Select User Filter Values: Whether to use a sub-set of the UF attribute values – in which case a sub-set of user filter values to display can be selected. The generated report is shown below – with the User Filter (Income Group) shown above the report. The initial report does not apply any UF filter value – and so all values are considered by default.



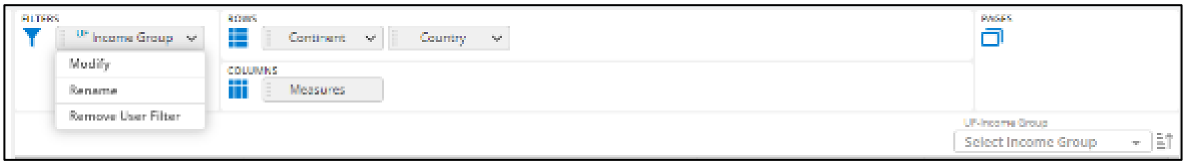
The report shown below shows the updated filter of counties with Income Group= Low Income, the single select UF value applied.



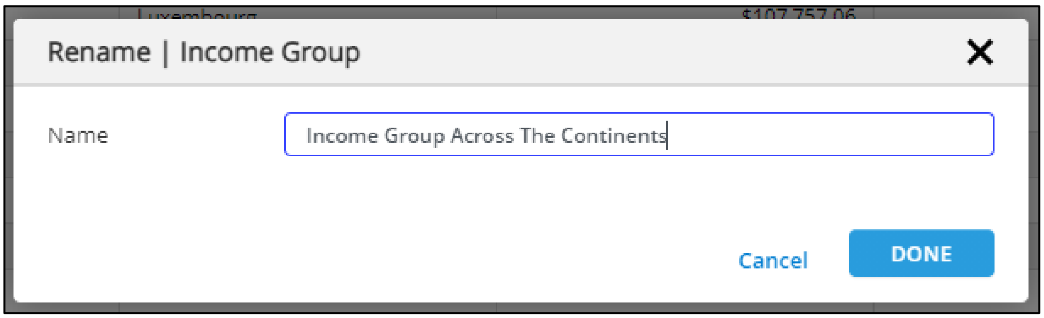
The user filter list box control type also enables multiple selections using the "shift" key.

- Display User Filter Name As:

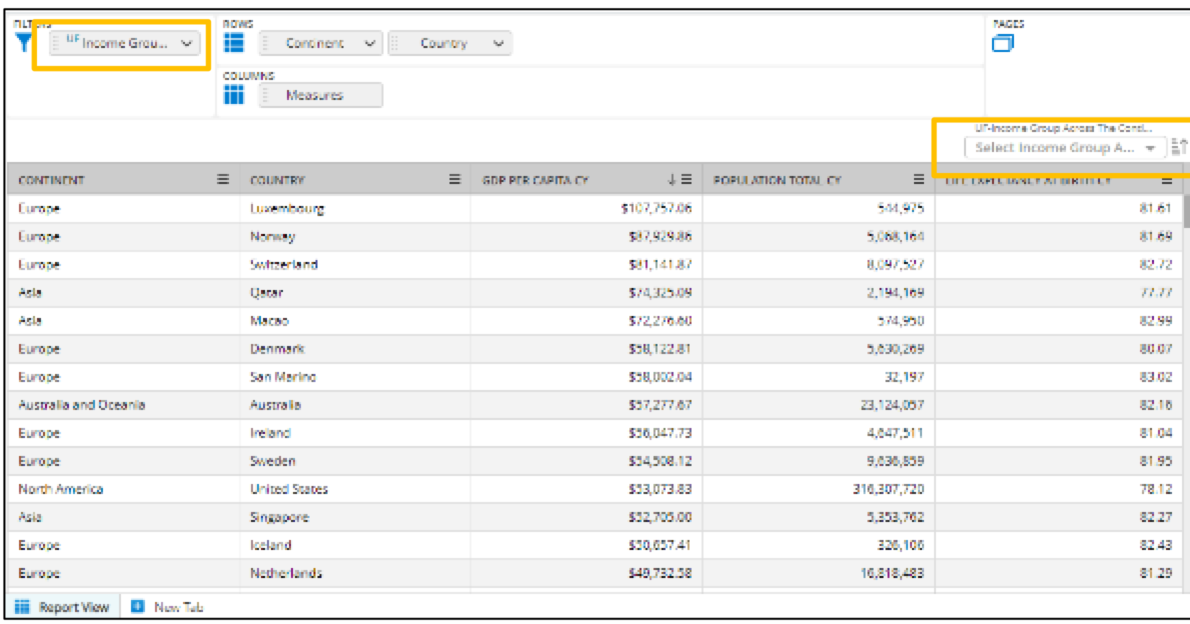
  Renaming the user filter can be done by providing the required name in the input box beside this option. Users can also use the "Rename" option from the UF context menu.



  On Clicking on Rename, the user can enter the required name for the User Filter.

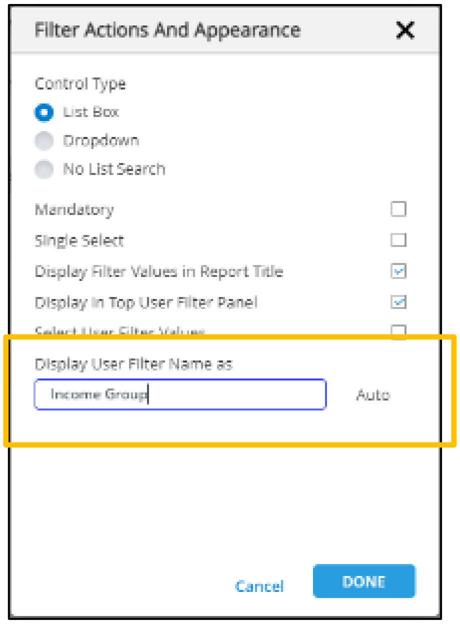


  On clicking on "Done," the User filter will be renamed with the entered value.

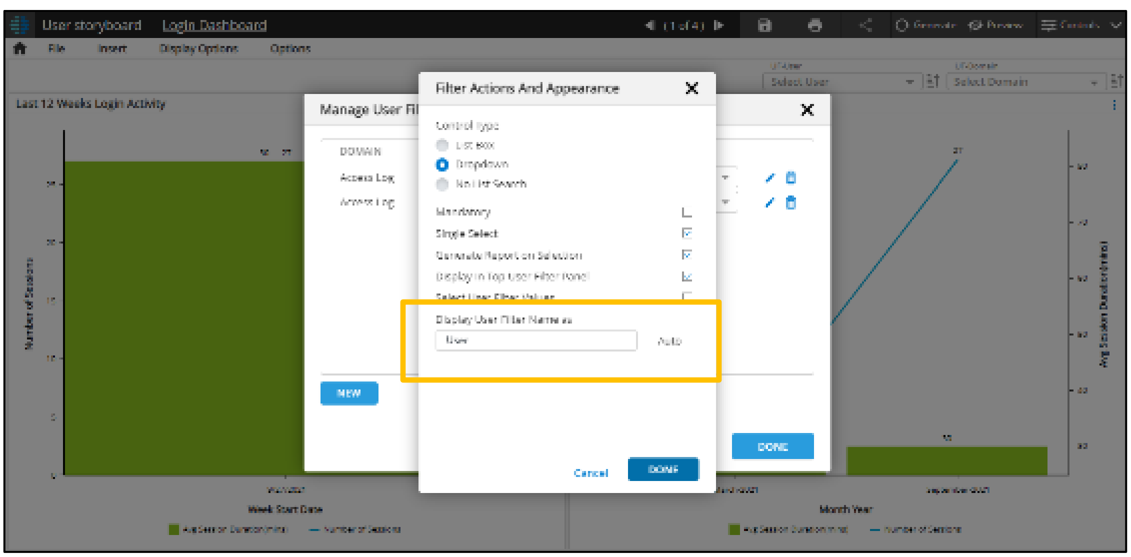


We can also rename the UF from the definition or Modify option.

When a UF is added, we see the below dialog:

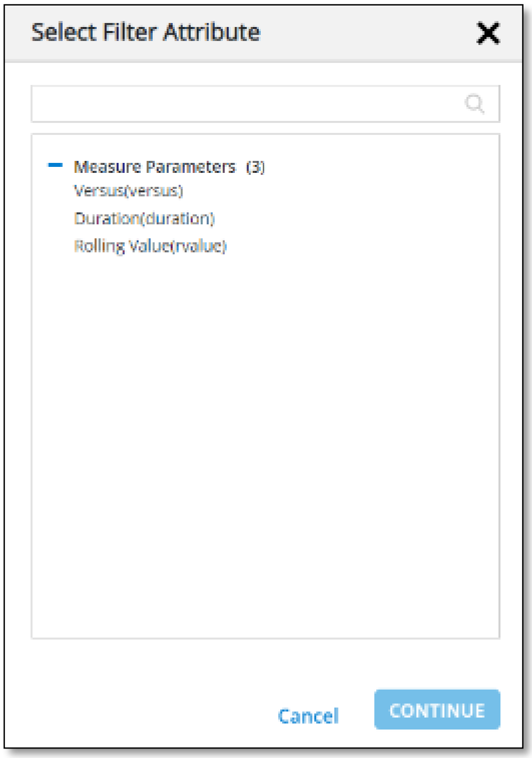


This feature is applicable for merge reports and storyboards also. Options->Manage User Filters->Edit

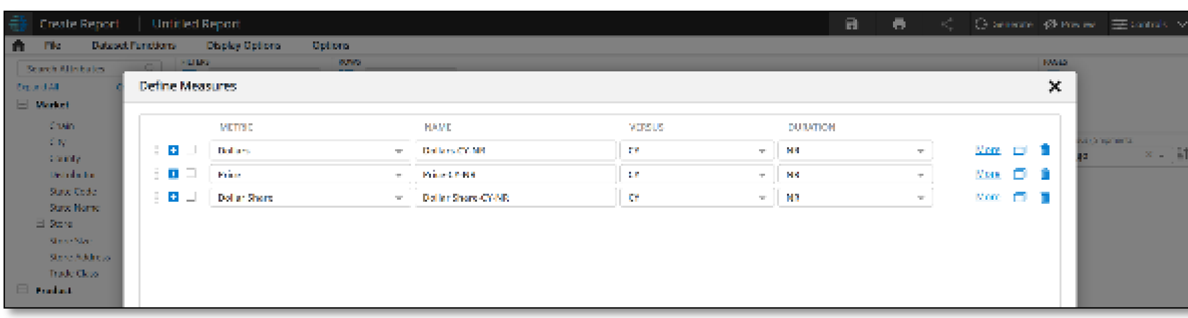


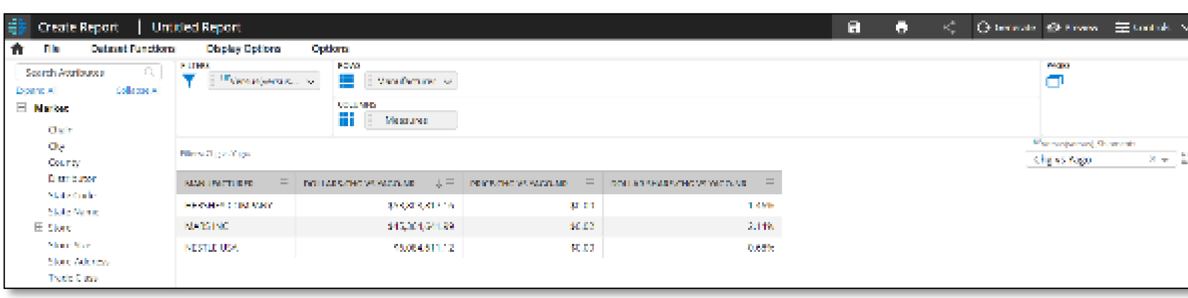
4.4.1 *Metric Parameter as User Filter*

The metric parameters can be added, just like an attribute as a user filter. To add a metric parameter as a user filter, click "Measures" in the left panel of the report's main view. Next, click the "Add user Filter" option to add a measure parameter as a filter. Selecting this option would list all the parameters available in the domain. Since the parameter description can be the same for multiple parameters in some cases, the parameter key is also shown in parentheses. Selecting a parameter and clicking on "Continue" navigates to the filter configuration screen, similar to attribute filter configuration. Users can then restrict the values or apply the parameter as a user filter.



The user would have selected some parameters as part of the metric definition. If the parameter used as a user filter applies to any of the metrics, then the metric would be computed using that user filter parameter. The original parameter defined would be overwritten. Dhiva also tries to adjust the column's name if the user does not change the default names. The image below shows that the metric is defined using the default parameters overridden by the user filter.





Wherever the parameter user filter is shown, it is appended with the domain name to identify the parameter domain when parameters are used in a storyboard with multiple domains. Like the attribute user filter, a parameter user filter is passed to a linked asset. If the parameter is applicable to the target asset, then the target asset would utilize this passed parameter during metric computation. The only difference between attribute and parameter user filters is that when the target asset does not have any filter similar to the passed filter, it is added as a normal filter instead of a user filter. But in the case of a parameter user filter, it will always be added as a user filter. Apart from this, there is no difference between an attribute user filter and a parameter user filter behavior.

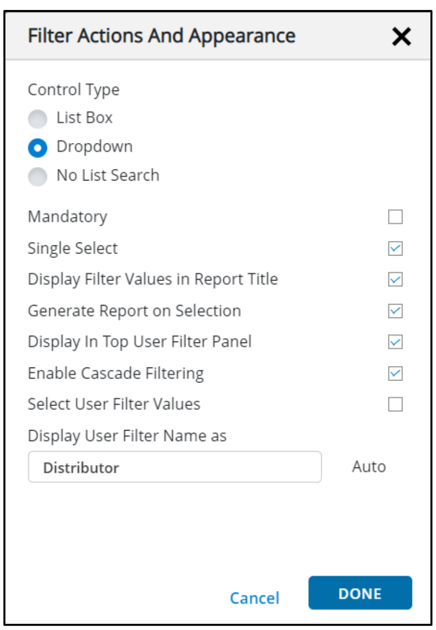
4.4.2 User Filter Cascading

The application now allows for filter cascading at the User Filter (UF) level, providing users with more flexibility and customization in filtering data. Similar to the cascade option available at the filter level, this functionality allows users to define cascading behavior for User Filters.

Here are the key details of this feature:

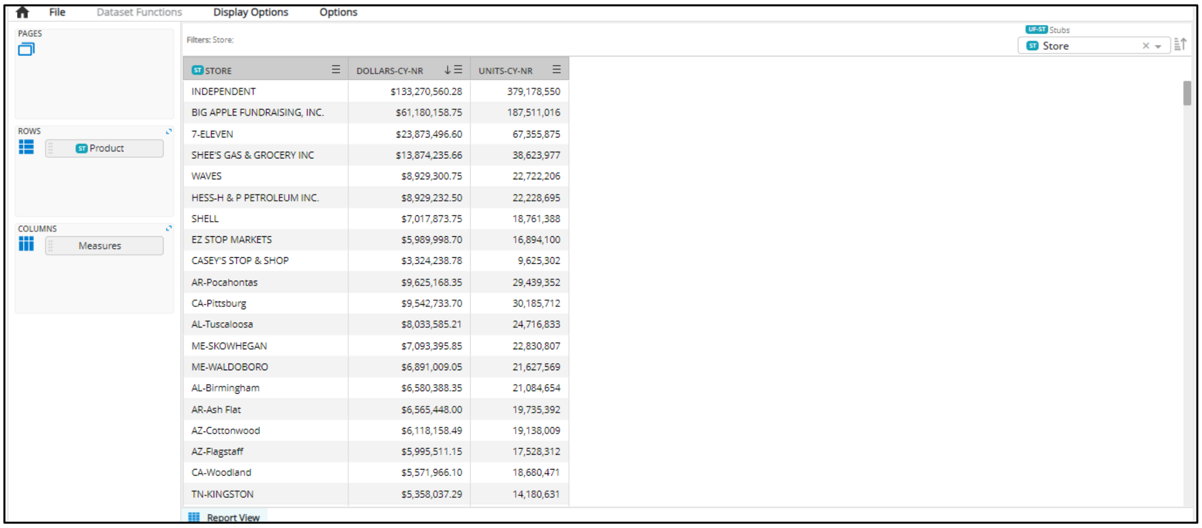
- When defining a User Filter, users can choose to cascade the current User Filter based on other User Filters.
- If the cascade option is checked for a User Filter, it will be evaluated whenever any other User Filter value is changed.
- By default, the cascade option is checked.
- For dependent attributes, the User Filter values are now filtered based on Report Filters and other User Filters, even when the cascade option is not selected.

To set the cascade behavior for User Filters, users can access the User Filter definition screen where this option will be available. The default behavior is set to true, meaning that the current User Filter values will be evaluated depending on other User Filters applied.



4.4.3 User Filter on Stubs/Measure Groups in Published Report

This ensures that the published users can access the measure groups/stubs info of the owner.



1. When a report with Measure Groups or Stubs UF is published to another user, and the global group is selected, the published user can see all private and global measure groups/stubs in the UF dropdown. This is because the report is still open in the owner's context, allowing the published user to select private groups of the owner and execute the report.

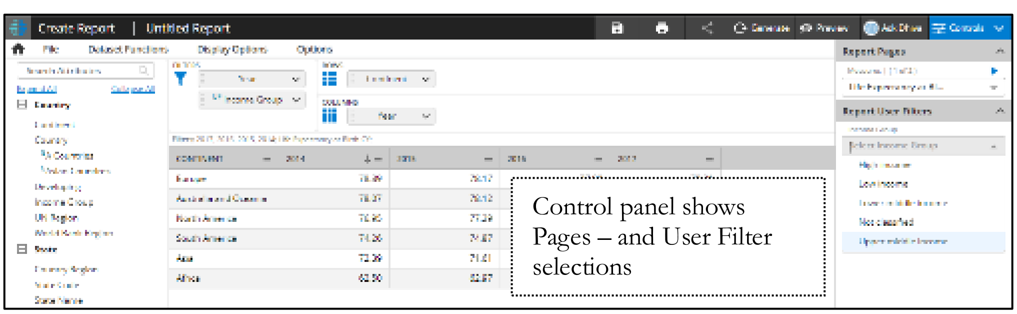
2. If the published user performs a "Save As" action on the report with a global group selected in UF, the selection is retained, as it's a global group accessible to the published user. The dropdown values will now display the private groups of the published user.

3. When a private group is selected, and "Save As" is performed, the selection is retained, but since the user doesn't have access to it, a popup with an appropriate message is displayed. The dropdown values will show the groups accessible to the published user.

4. After a "Save As" is performed by the published user, the stubs/measure groups in the RCP will be copied and added to the published user's stubs/measure groups.

4.5 Control Menu

The Control icon can be selected to navigate Pages in a report or chart and apply User Filters.



The above example shows the Pages in the above trended report – (showing Life Expectancy for the three income groups). Users can change pages – "play pages" – and apply user filters in the control panel.

When "playing" across pages – i.e., auto-flipping across pages – as shown below, the Country Page is being played; the top part of the screen also shows the page attribute (Country) value.

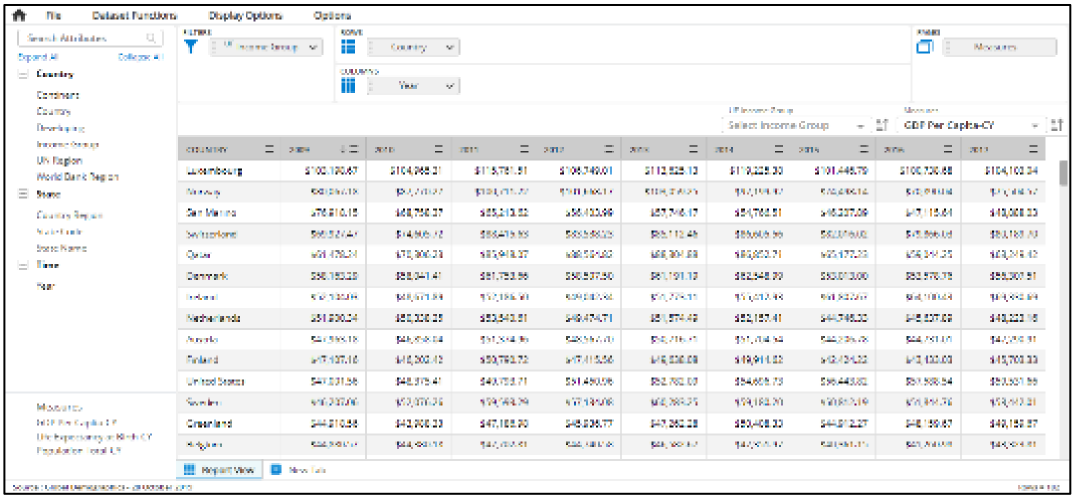
4.6 Dataset Functions

Dataset functions are post-report generation functions to (a) create new measures (computed from other measures in the report); (b) create new attribute values, (c) apply color conditions to data in the extracted report, and (d) filter (include or exclude) certain data values based on conditions. This is a powerful dimensional specification mechanism to enhance the extracted report data cube further. Dataset functions are persisted in the report data cube – and the rules are updated each time the report is generated.

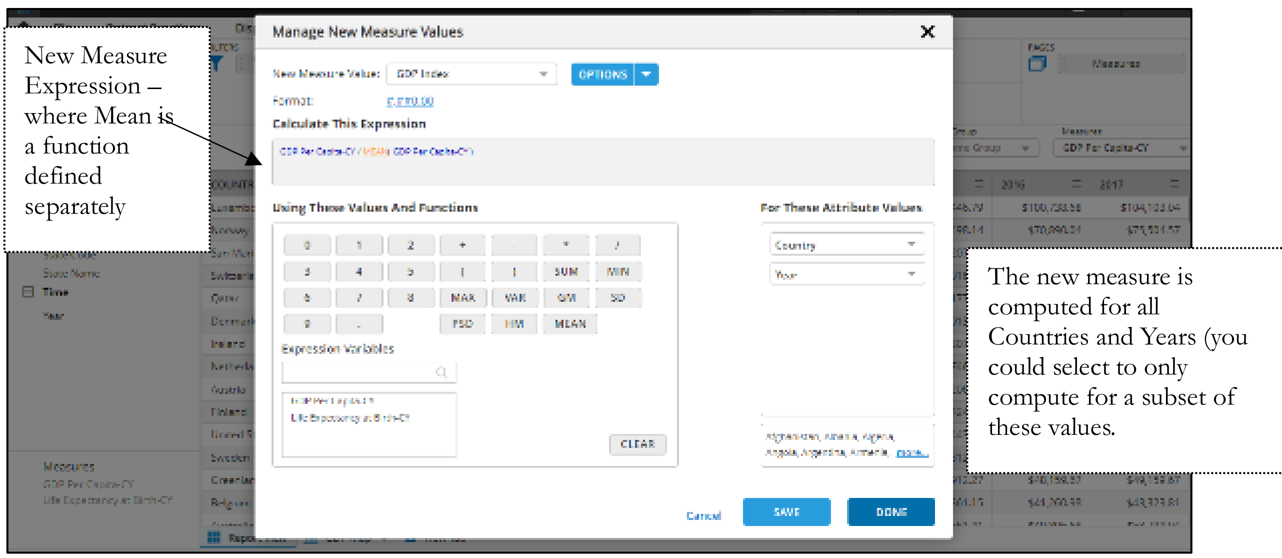
4.6.1 Creating a New Measure

This function enables users to create a New Measure based on the existing measures – across a selected set of attributes as specified.

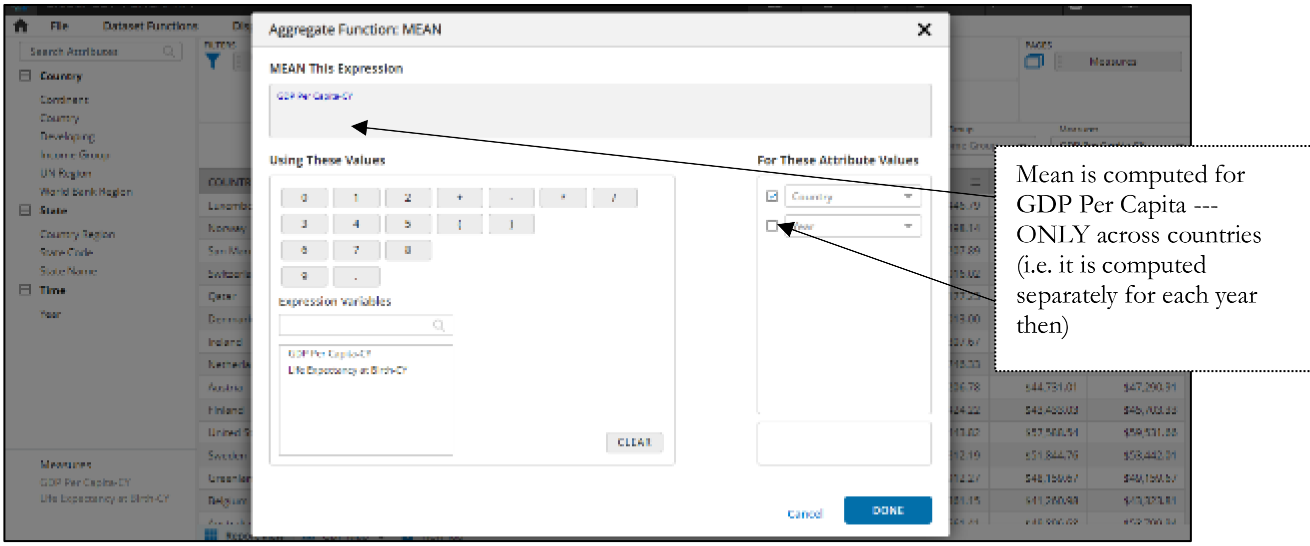
The bottom report shows country level information for GDP Per Capita by Year (on columns).



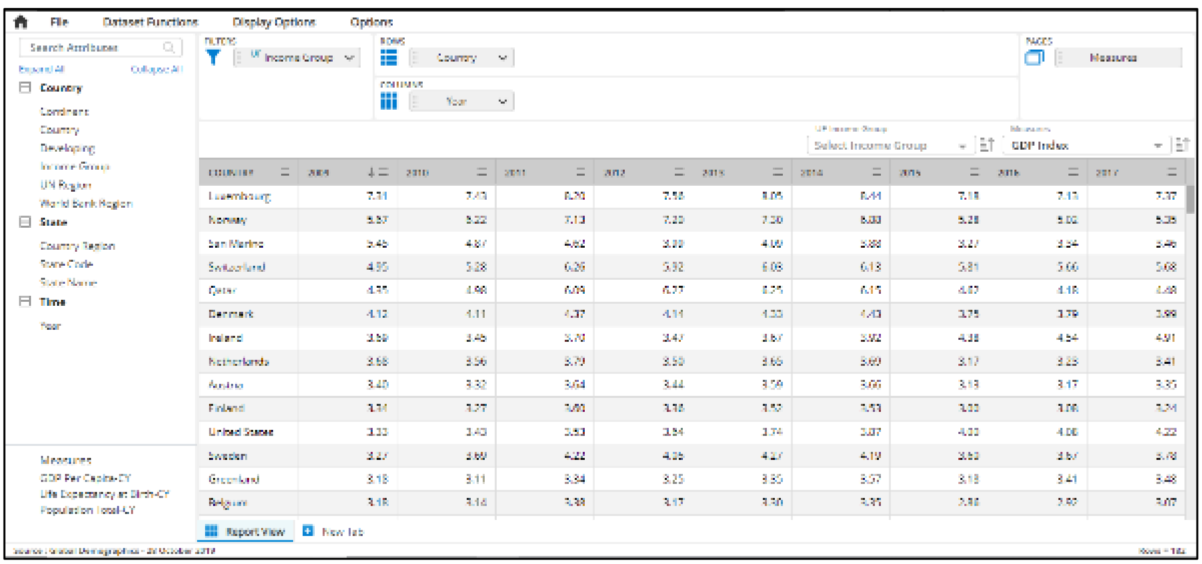
To create a new measure called GDP Index = Country GDP/ Mean (All Country GDP) for each year, we use the Add New Measure function under DSF, as shown below.



The Mean (and other functions) expression is further defined as the Mean of GDP Per Capita – across countries (only) – for each year separately. Below, if Year was also selected, the Mean would be computed across all countries and all years (a single value).

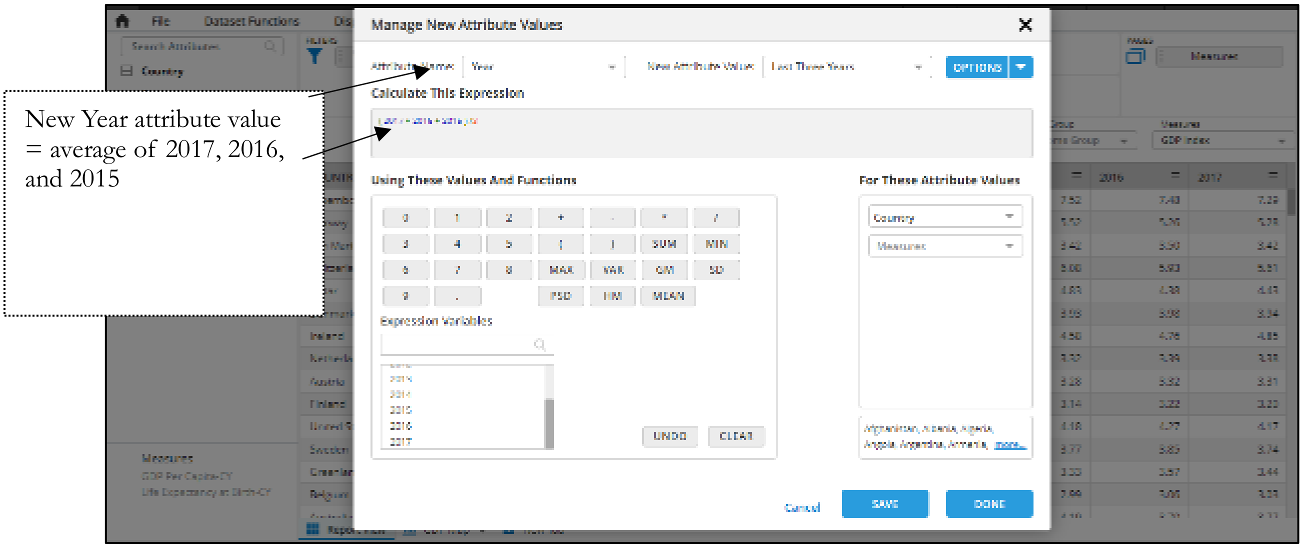


The resulting new metric GDP Index is then inserted as a new Measure into the datasheet for further operations and visualization.

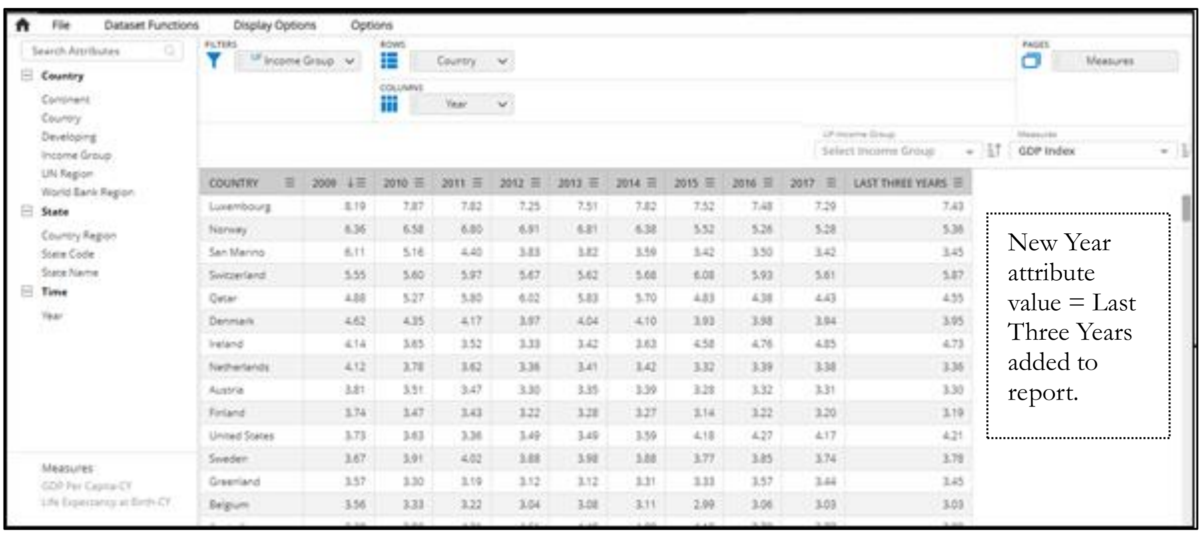


4.6.2 *Creating a New Attribute*

This function enables users to create a New Attribute value based on the existing attributes. In the previous example, if we wished to create a new Year Attribute Value = Last Three Years, we would do the following:



Once the above specification is saved, and the report is regenerated, we observe the following.

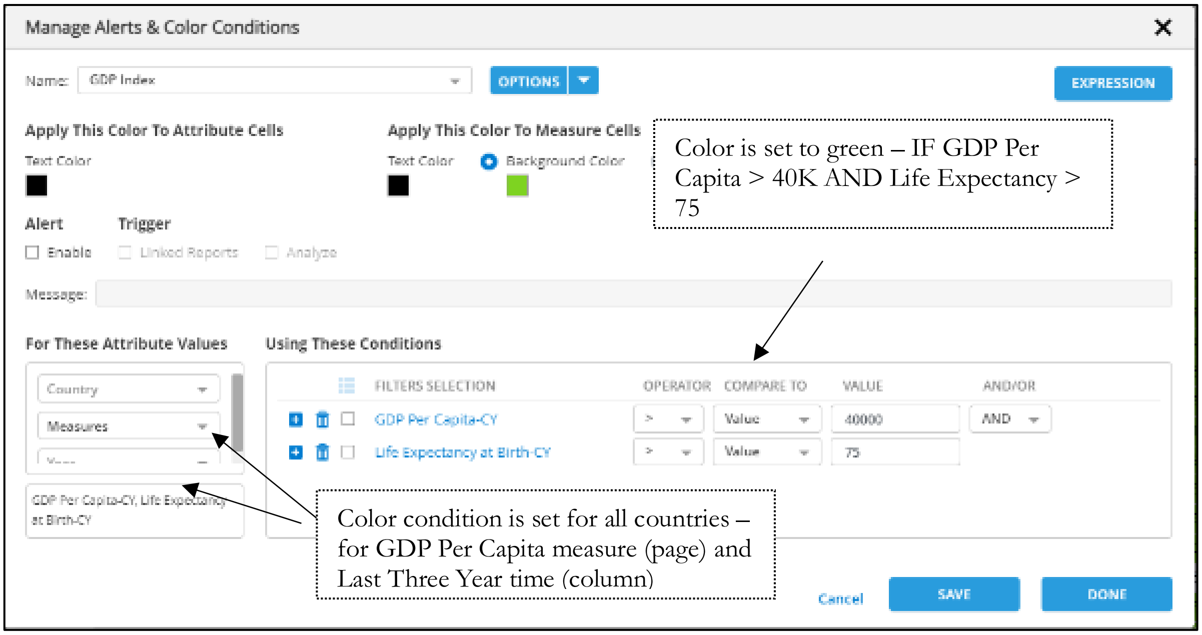


Caution: The order of operations needs to be considered before creating New Measures and New Attributes. Ideally, New Attributes need to be added before any New Measure additions. Also, the order of operations within a function (i.e., if there are multiple New Attribute creation functions), each would be applied sequentially – and therefore, once again, the order of specifying the functions should be thought thru' before creating the function).

In general, the order of operations is New Attribute Functions – (in the order defined) and then New Metric Value (in the order defined).

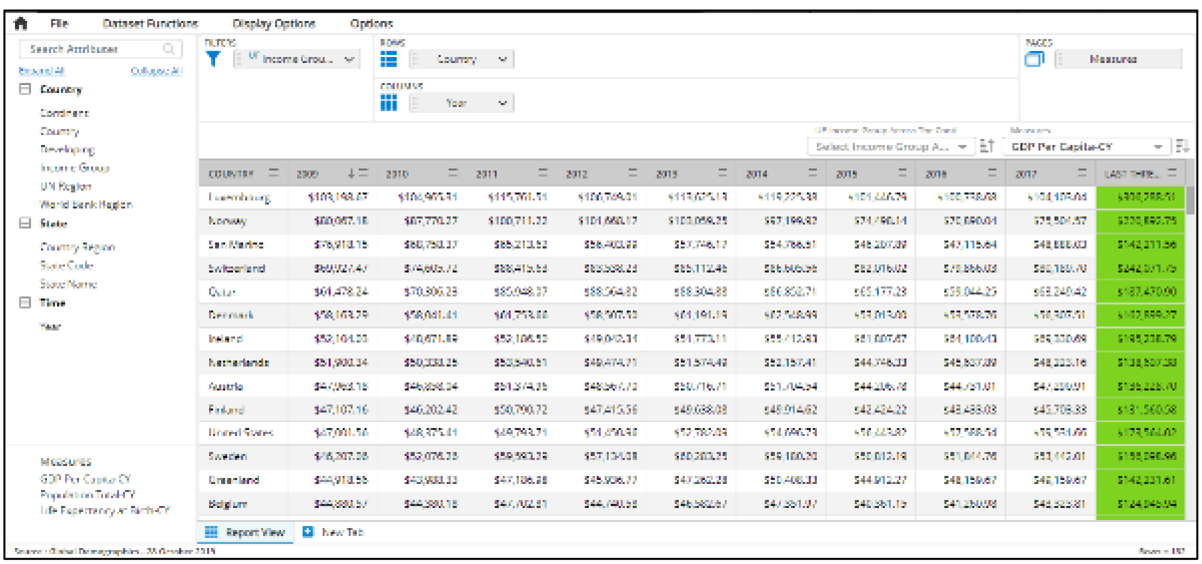
4.6.3 Creating a Color Condition

This function enables users to create conditional colors for a report. The basic options include coloring the Text by a specified color and coloring either the cell itself or a marker with a specified color. The color conditions involve specifying (a) the Attribute Values for which the condition should be applied (default would be all attribute values in the report), and (b) the specific condition that needs to be satisfied to apply the color.



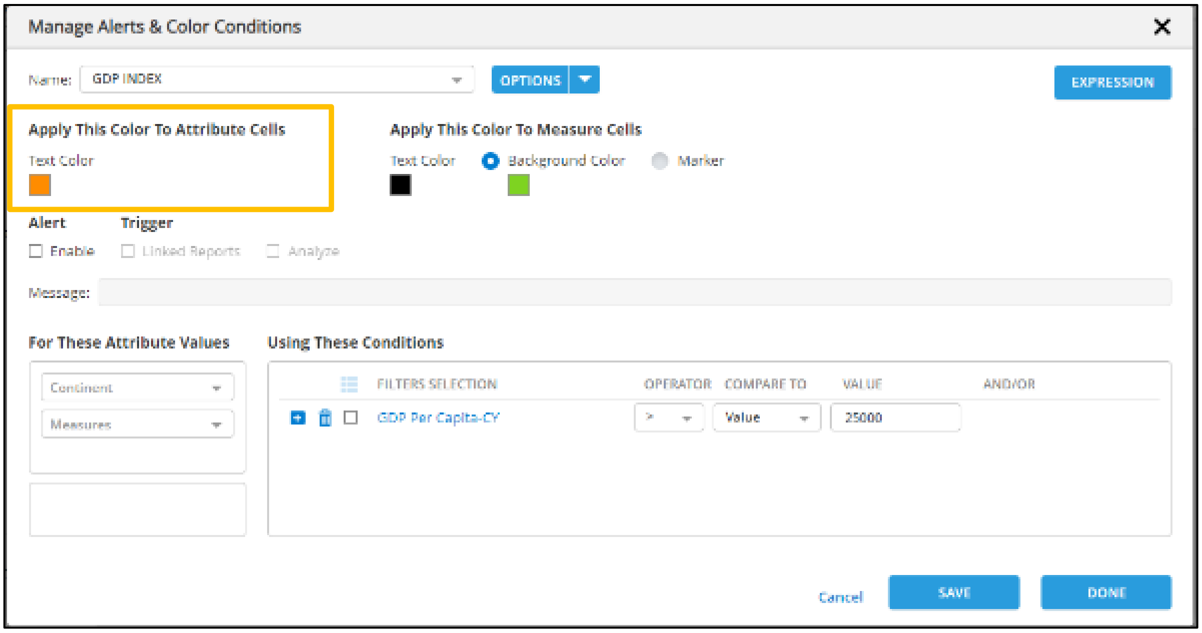
In the above chart, we have applied the cell color green to (a) GDP Per-Capita measure for the Time Attribute "Last Three Years" – by applying the conditions: GDP Per Capita > 40,000 and Life Expectancy > 75.

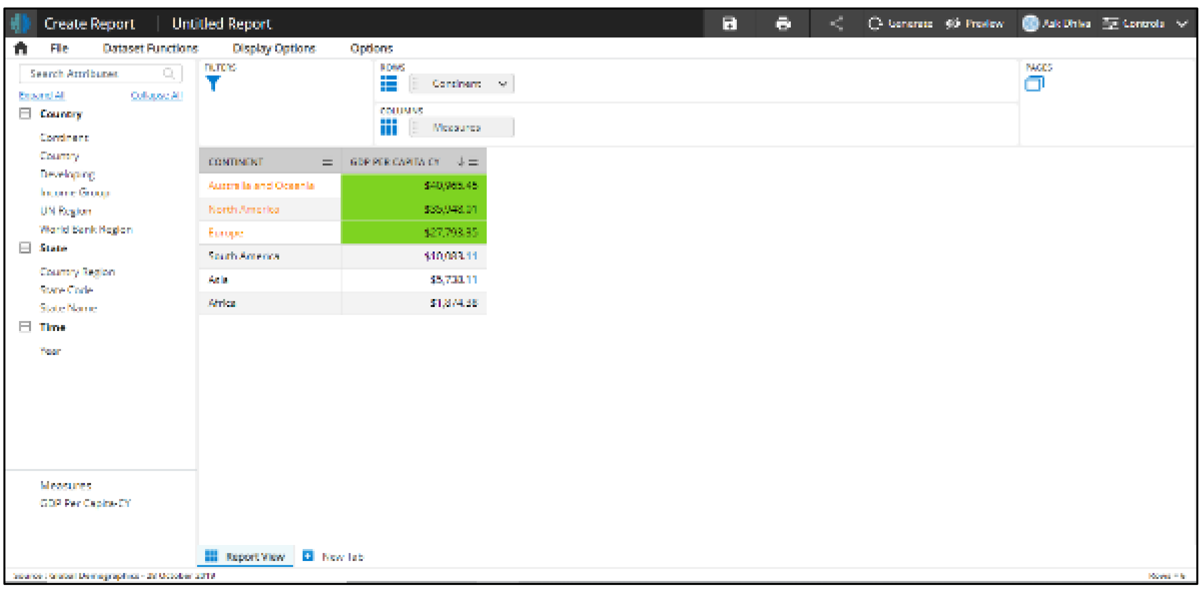
Tip: The ideal way to think about this is to view a column = (page + column) – so in the above case, to color the Last Three Year GDP Per-Capita – we selected the Measure and the Year Attribute only for coloring.



The above report now shows the results of the given color condition. Multiple conditions can be defined in the report – which is applied in sequence.

The user can now apply color to attribute cells with the "Apply This Color To Attribute Cells" option from the Manage Alerts and Color Conditions window as below:

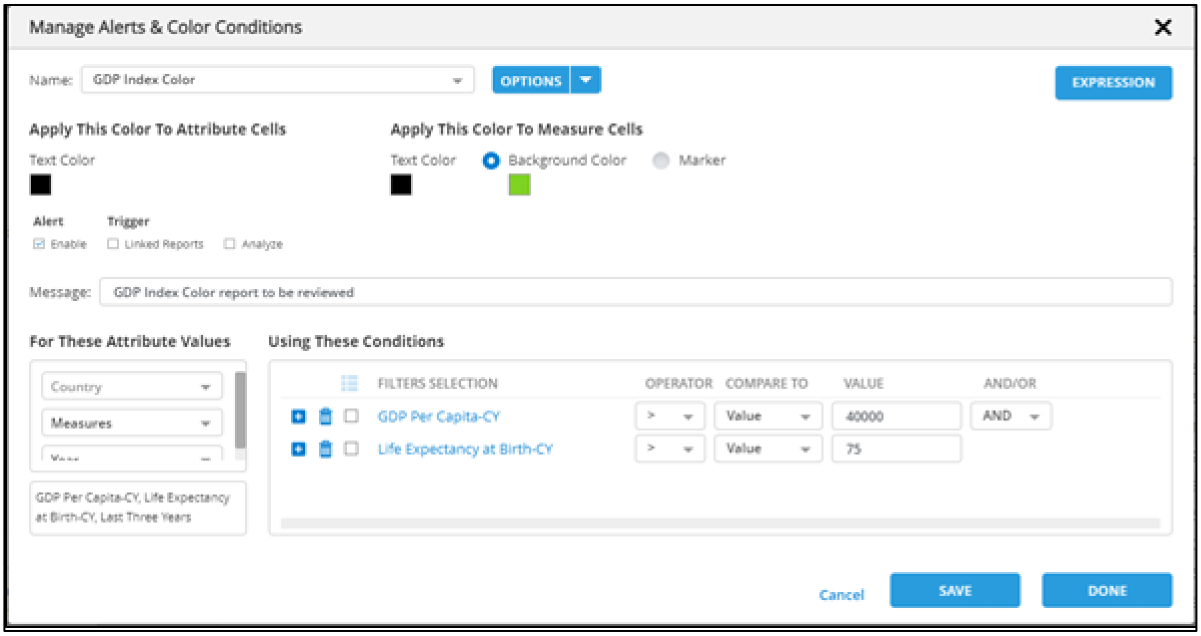




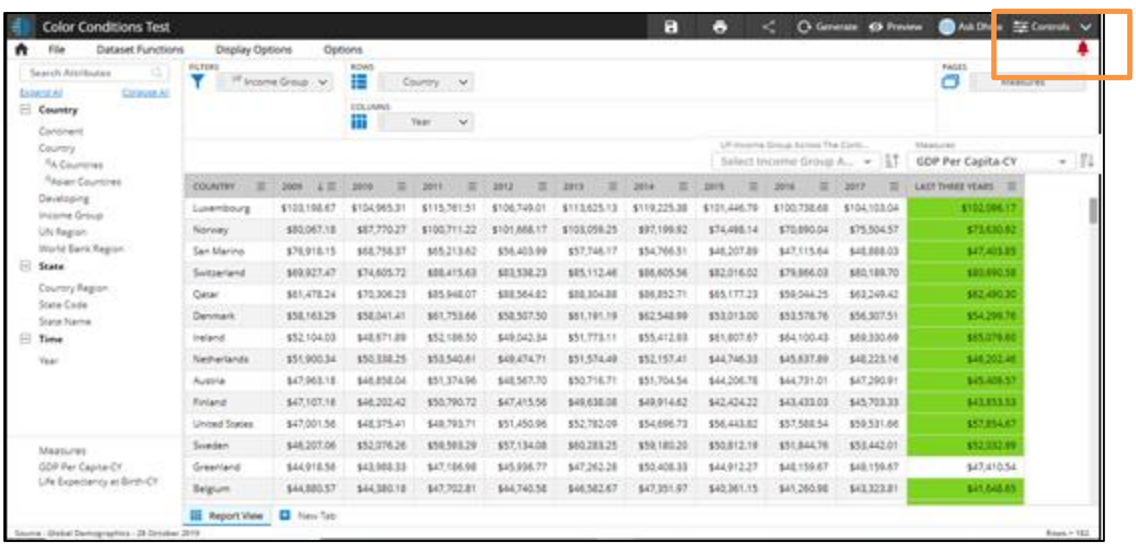
The color to attribute values is applied based on a measure condition. In some cases, there may be ambiguity, and it may not be possible to color the attribute values. For example, if conditions are defined for multiple measures

Manage Alerts

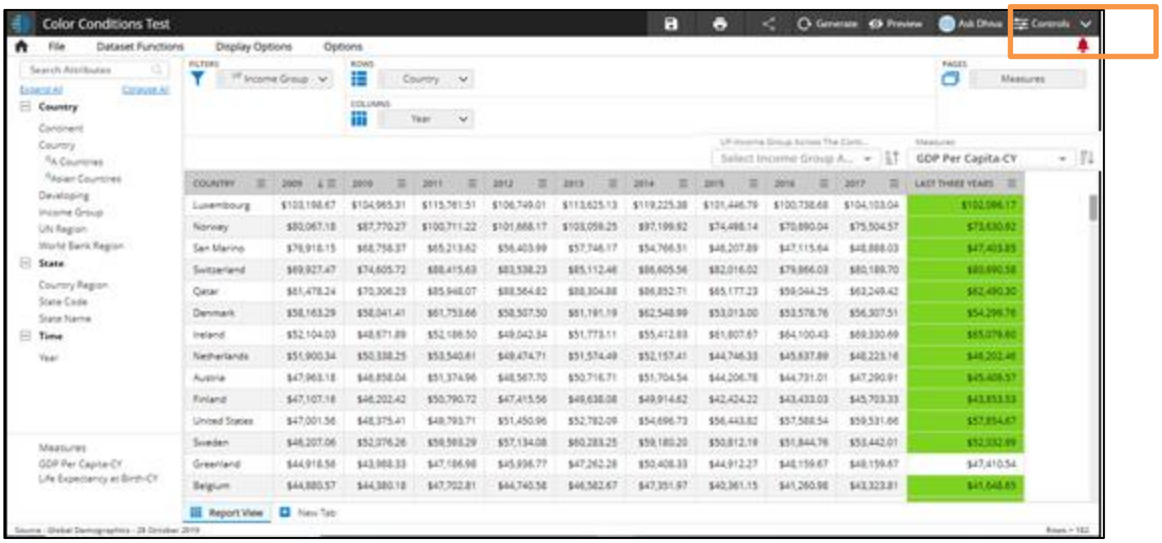
The user can now define Alert from the color conditions dialog. By checking the Enable check box from the Alert section, the user can enter an Alert message using the free form text in the Message text box.



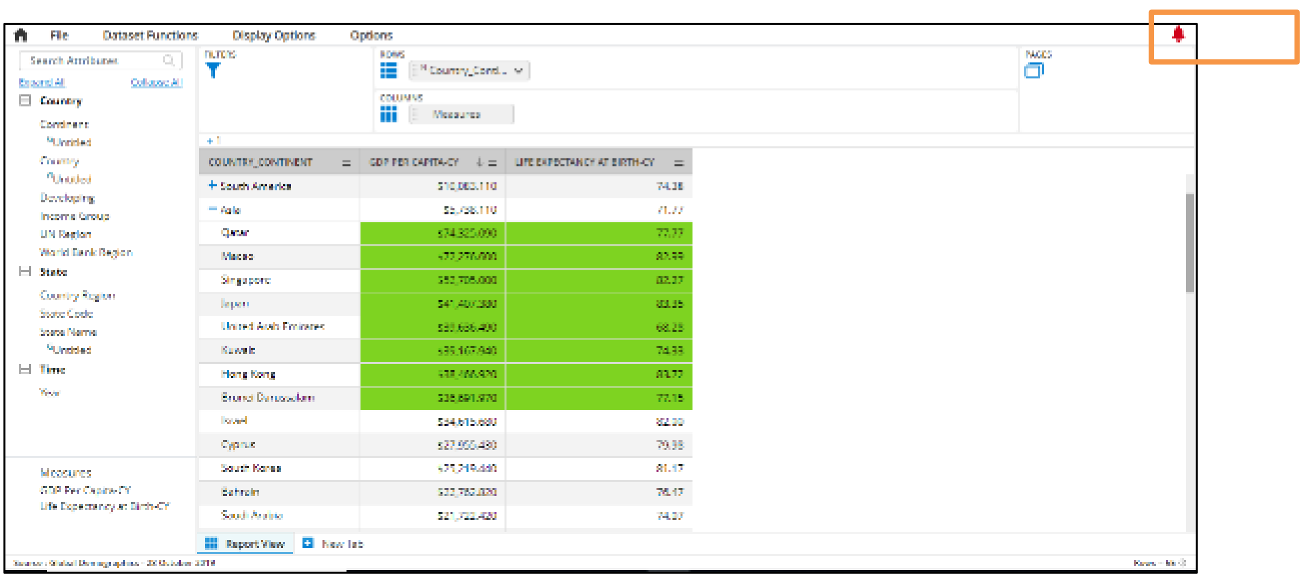
An Alert icon (grey/red Alert) is shown on the screen to the extreme right side of the screen on the "menu" bar – to indicate to the user that the report has an "Alert".



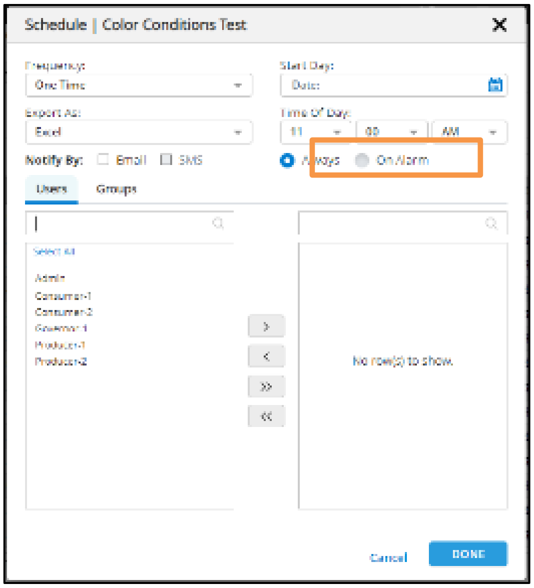
When the alert condition is satisfied for at least one cell, a red color Alert icon is displayed on the extreme right side of the menu bar.



- If at least one cell satisfies the condition in the nested hierarchy, then the red Alert is shown.
- On drilling to any level which has or doesn't have a satisfying color condition, the Alert will still be shown in red if any parent cell is already satisfied with the condition.



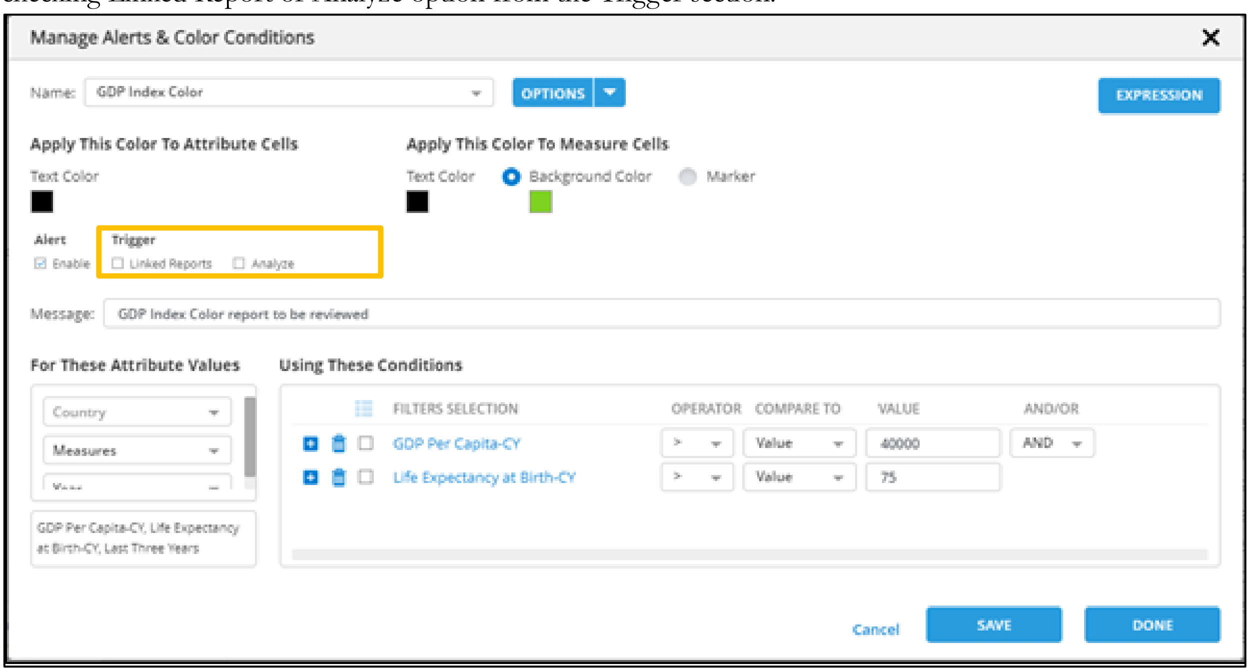
- Users can be notified via Send email/SMS. This can also be customized to be always or only when an Alert is set.



Scheduled Analysis:

When an alert is triggered, users now have an option to send the linked reports or analyze reports when the report is scheduled for export.

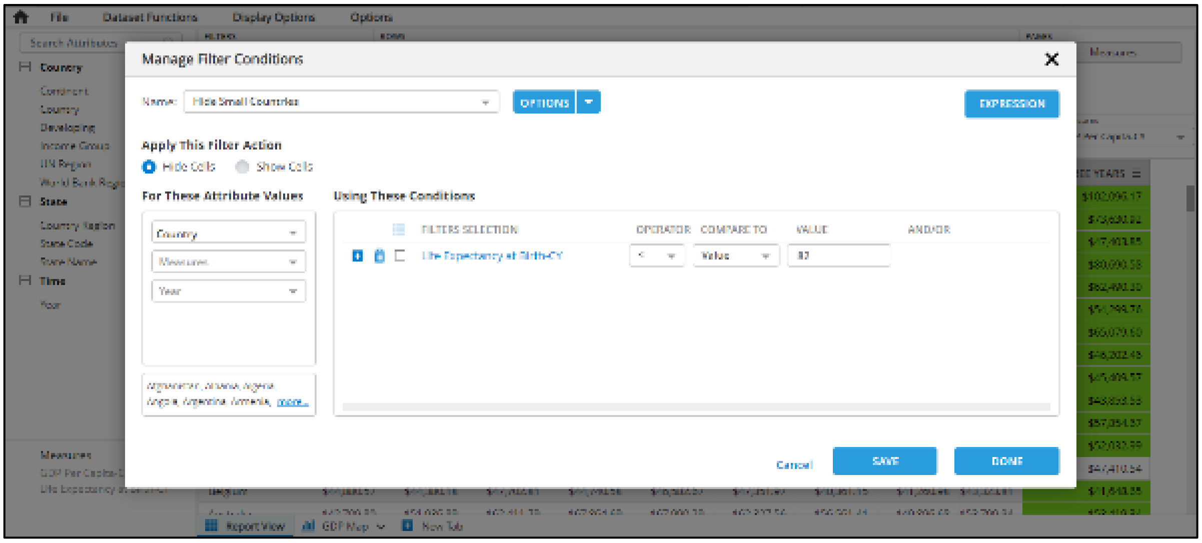
Users can choose if the linked reports or analyst reports should be shared when an alert is triggered by checking Linked Report or Analyze option from the Trigger section.



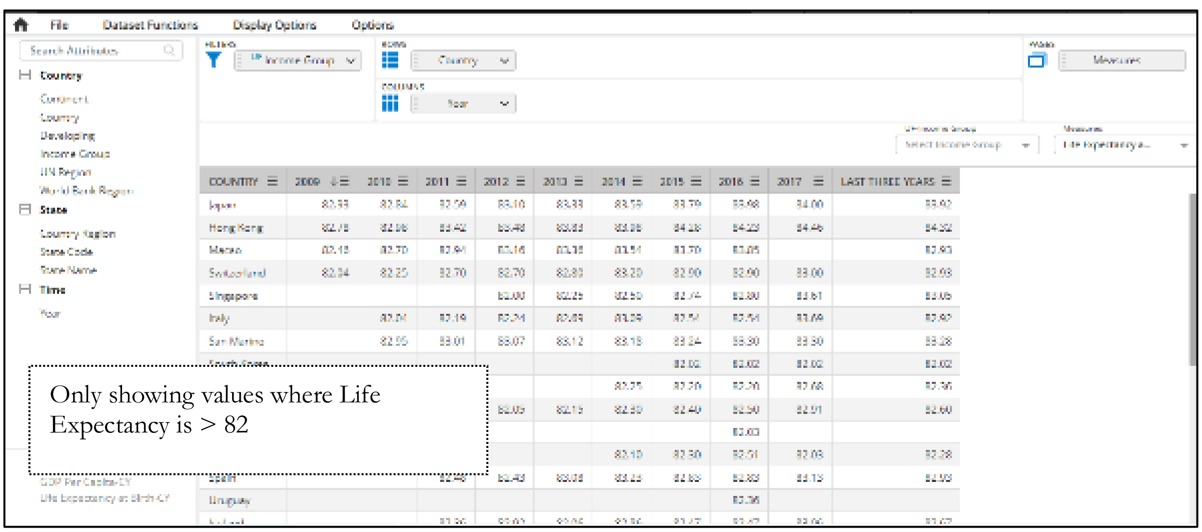
4.6.4 Creating a Filter Condition

This function enables users to create filter conditions that hide or show values in the report. The specifications for this include: (a) the attributes for which this is applied and (b) the condition used to determine whether to hide or show the cells.

Key Point: The method allows specific cells to be "hidden" (or the value blanked out). To hide an entire row or column, all attributes defining a column or row should be defined.



In the above, we have specified that for all the countries and all Years and measures – to remove cells where Life Expectancy is less than 82 years.



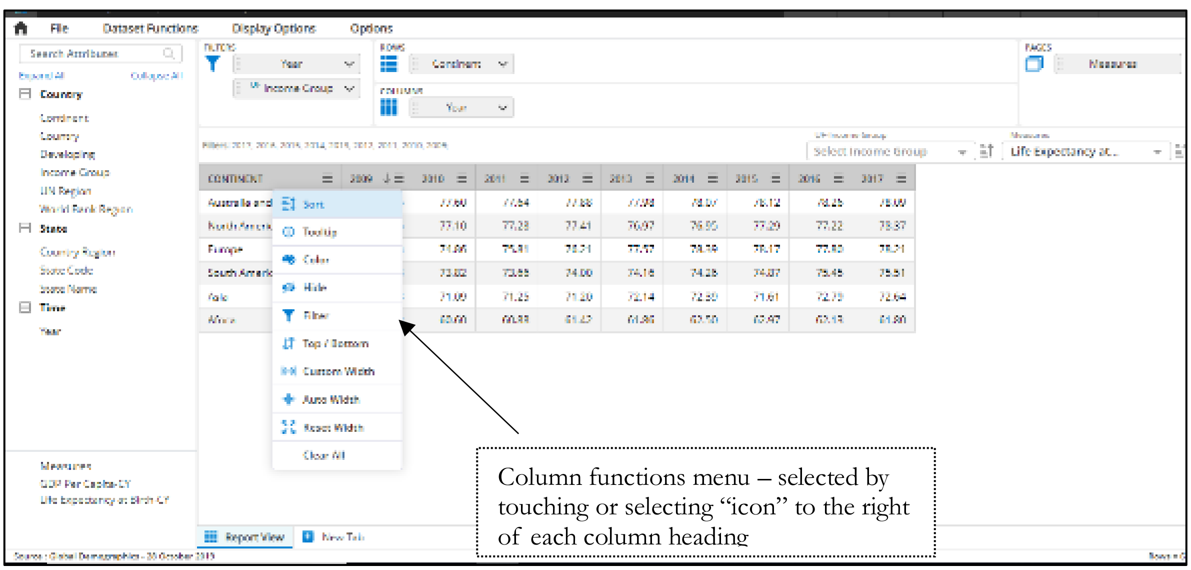
Once again, to specify the column-level operation, the user should specify (column and page attributes), whereas for row-level (row and page) and spreadsheet level user should specify (row, column, and page).

4.6.5 *Enabling DSF for reports with Stacked Hierarchy*

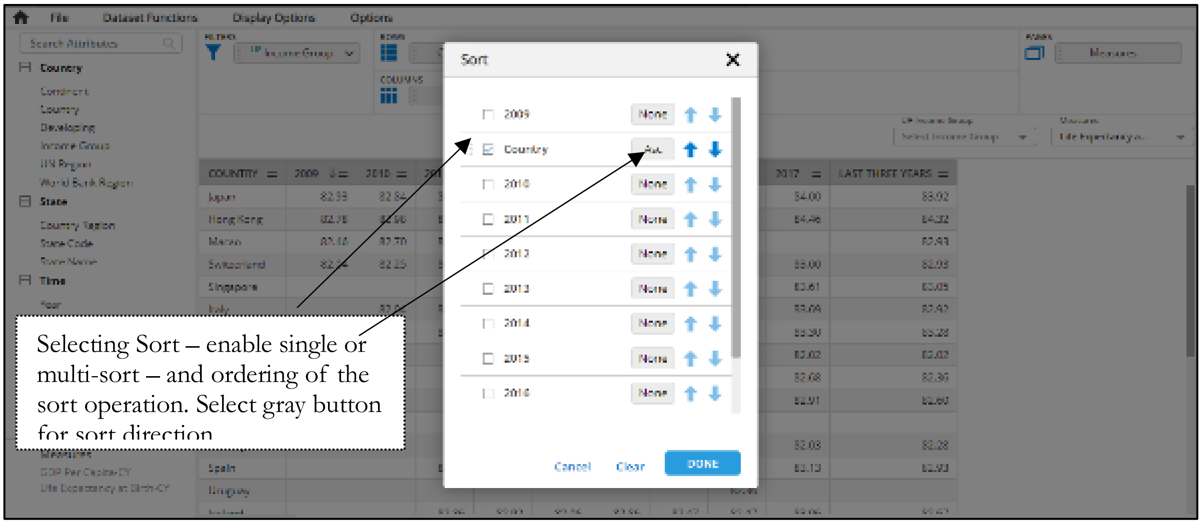
- The feature allows enabling Data Set Functions (DSF) when creating reports with stacked hierarchy, except for the "New Attribute Value" feature, enabling the use of DSF functions such as Custom Measure, Color Conditions, and Filter Conditions in reports with stacked hierarchy.
- For Color Conditions and Filter Conditions, stacked hierarchy attributes are shown as individual attributes, allowing separate condition application.
- However, all DSF functions, including report links, will have stacked hierarchy attributes disabled, preventing the sub-selection of values from the dropdown for stacked hierarchy attributes in DSF functions.
- The "New Attribute Value" feature is not supported for reports that use stacked hierarchies or stubs.

4.7 Column Functions

As the name suggests, Column functions are easy for the user (mostly consumers) to apply sort and other functions on a column basis. As the name suggests, column functions apply only at the column level – post report generation (and post dataset function). Column functions are persisted at the column level only for each page in the report.

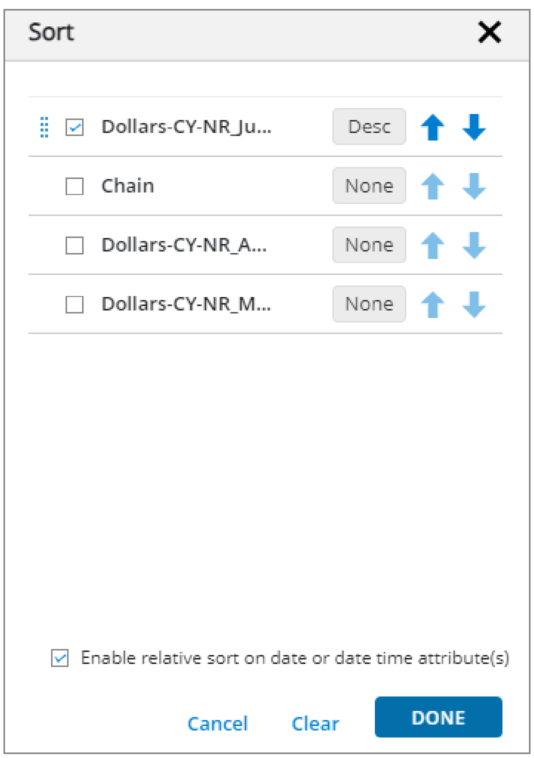


Select the sort function to apply a sort to one or more columns. Press the gray button to change the sort direction – and move the sort order using the up/down arrow or by dragging the value using the gray pad on the left.



Datetime Relative Sort

Users can sort reports based on the most recent time period when a relative attribute is present in the columns. At the bottom of the sort popup, check the box for 'Enable relative sort' if a relative attribute is placed in the columns. This option will appear even if a list or conditional list is part of the columns, provided the underlying parent attribute is a relative attribute.

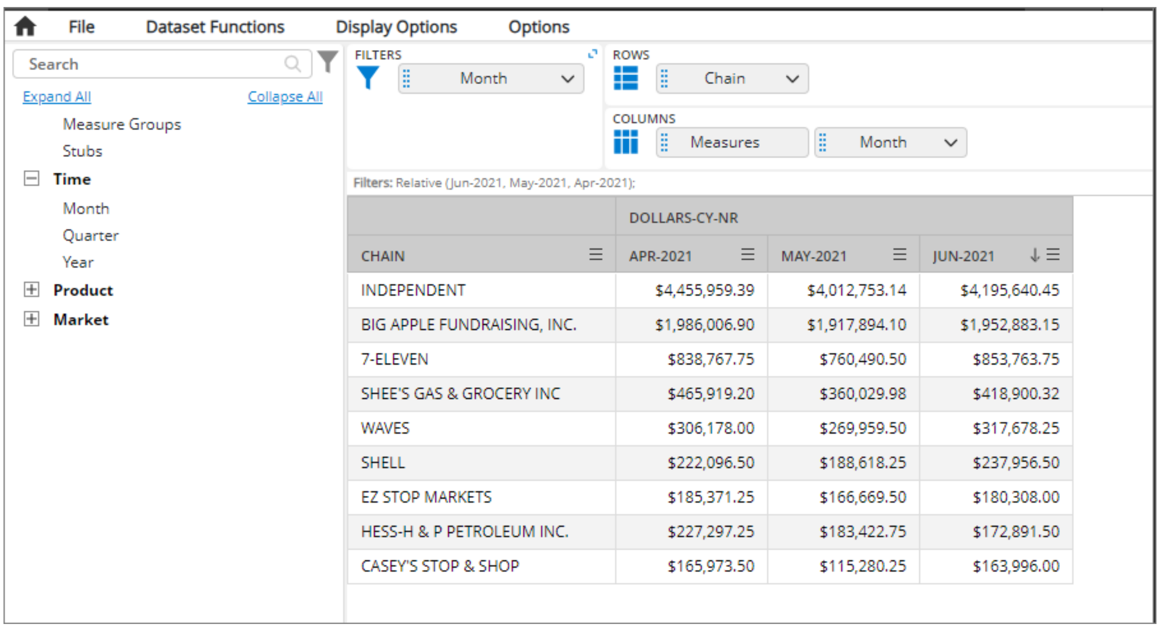


Set Up Filters:

- Place a month attribute in the filters and select values (e.g., Apr 2021, May 2021, Jun 2021) with the relative option.
- Place the month attribute in the columns.

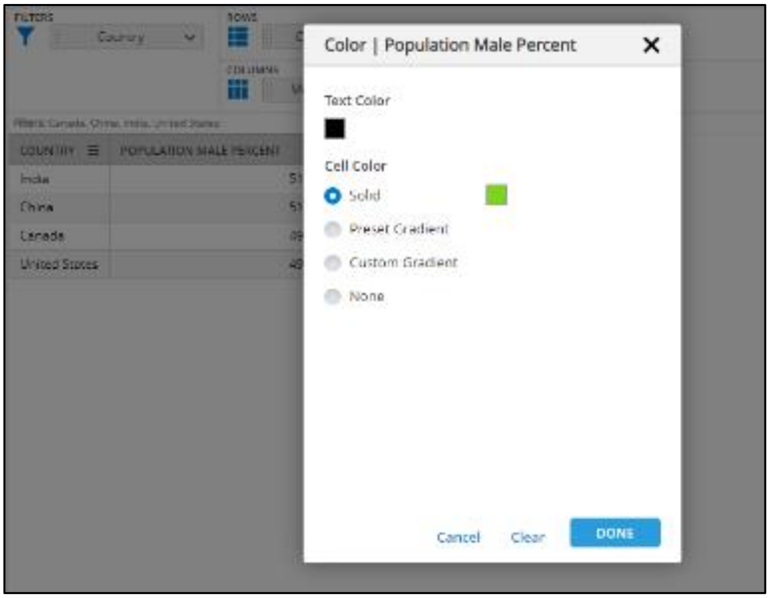
Apply Sort:

- Apply the sort on the Jun 2021 column.
- Select the 'Enable relative sort on date or datetime attribute' checkbox.
- Save the report.
- When reopening the report the next month, the data will update (e.g., May 2021, Jun 2021, Jul 2021)
- The sort will now apply to the Jul 2021 column.
- The sort popup will show Jul 2021 as the selected column.



Column Coloring

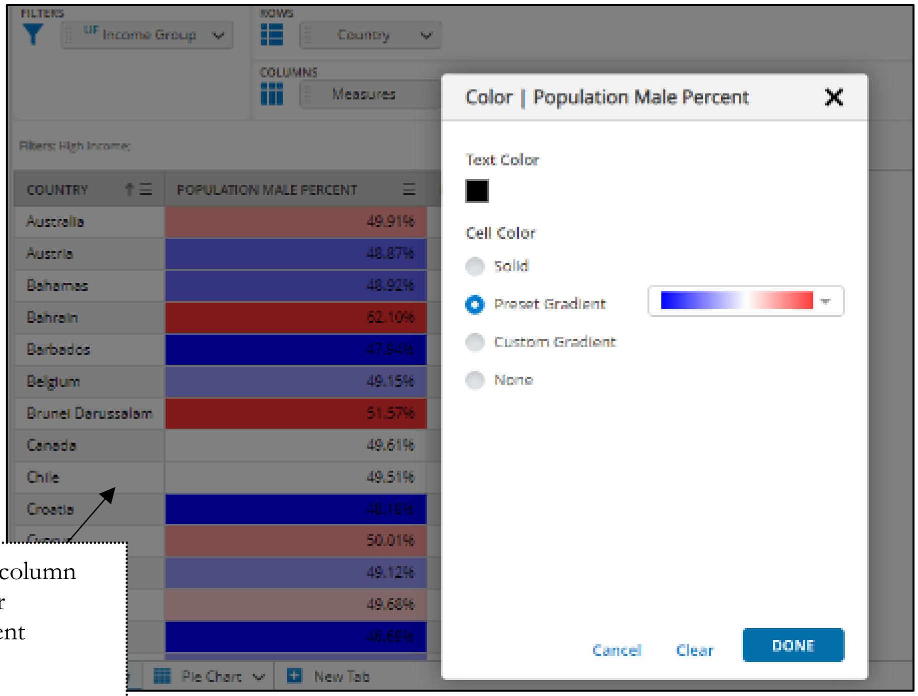
Column coloring has the following options: Solid, Preset Gradient, Custom Gradient, and None (no color applied).



The report below shows a column with a solid color option.

COUNTRY	POPULATION MALE PERCENT	POPULATION FEMALE PERCENT
Qatar	75.58%	24.42%
United Arab Emirates	73.70%	26.30%
Oman	63.00%	37.00%
Bahrain	62.10%	37.90%
Kuwait	57.60%	42.40%
Saudi Arabia	56.49%	43.51%
Greenland	52.91%	47.09%
Brunei Darussalam	51.57%	48.43%
San Marino	50.66%	49.26%
New Caledonia	50.58%	49.42%
Iceland	50.26%	49.74%
Norway	50.20%	49.80%
South Korea	50.08%	49.92%
Cyprus	50.01%	49.99%

The report below shows a column with the present gradient color option and alpha sort applied on the country column.

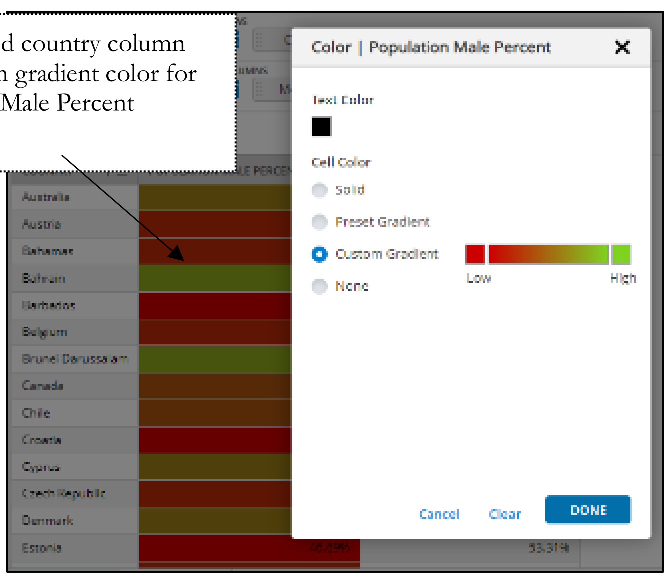


Alpha sorted country column with gradient color for Population Male Percent column

Note: Preset color palettes can be configured under the global settings using the "Multi Preset Color Palettes" setting. This is an array, and the user can provide any number of palettes and customize the name for the palette. There is no multilingual support for the names given to preset colors.

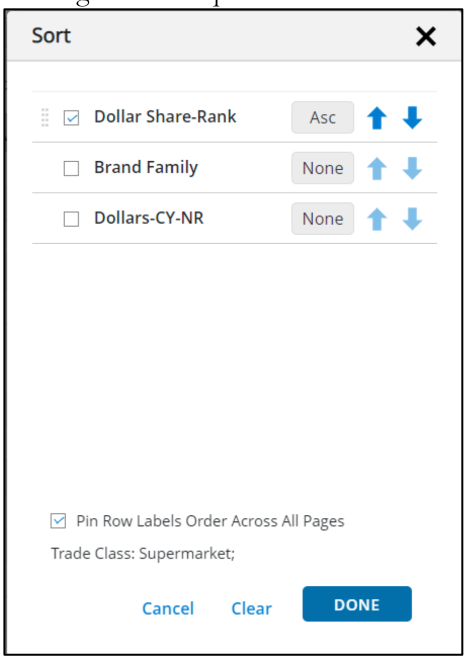
The report below shows a column with custom gradient color and sort applied on the country column. Custom gradient has High and Low color options.

Alpha sorted country column with custom gradient color for Population Male Percent column



Sort Pinning

Users can now pin the order of row labels in Report View with the new Sort Pinning feature, which maintains the same order even when the Rows and Pages filter values are changed. This functionality applies to visuals with the same Rows, Columns, and Pages (RCP) format. For grid layout, the Sort Pinning feature requires the Rows and Pages format to be the same.



A new checkbox option labeled "Pin Row Labels Order for all Pages" is displayed at the bottom of the sort popup. The Sort Pinning option is available in the sort popup only when there is at least one attribute on pages.

- By default, the Sort Pinning checkbox option is not enabled.

- If the user sets a display order on top of Sort Pinning, the Sort Pinning will be removed and a notification will be shown to the user.

- If the user sets sorting on columns, sets a display order, and enables Sort Pinning, the current order will be stored and applied to page filter changes.

- Sort pinning is respected even in the exported file.

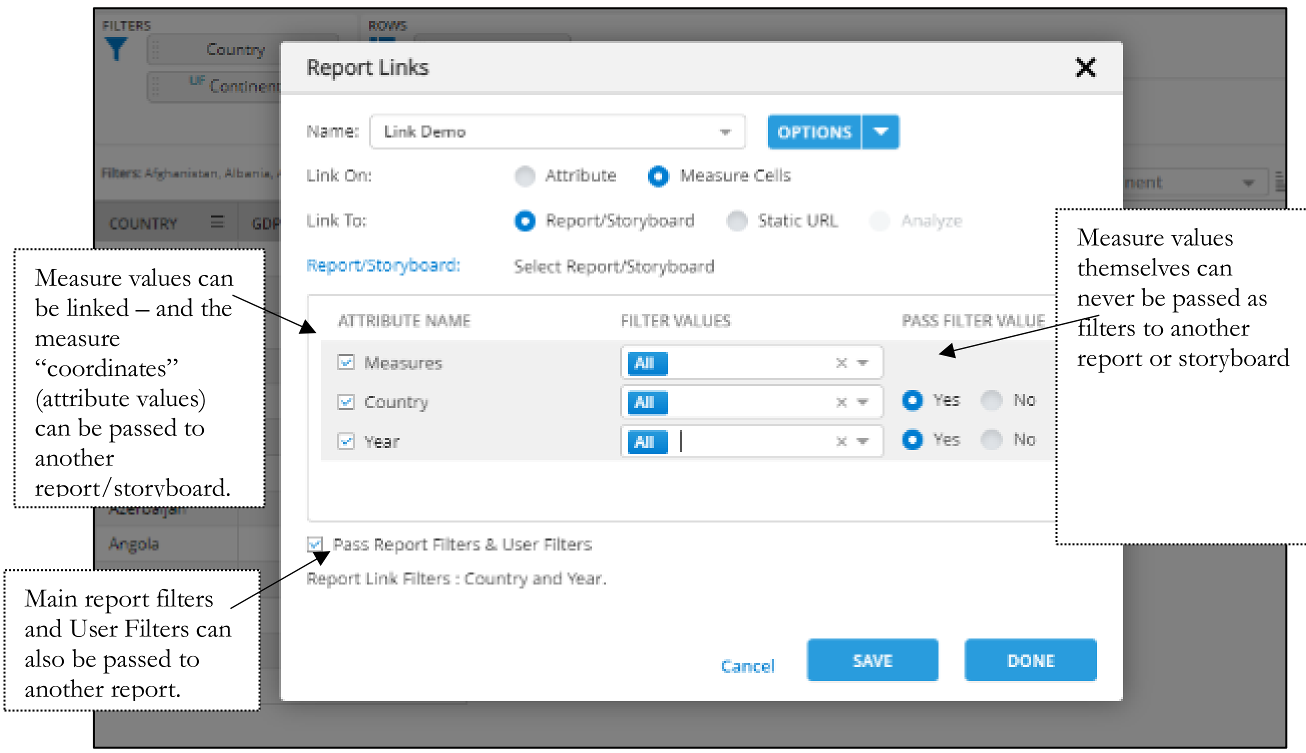
- If Sort Pinning is enabled, in grid layout cases, if the Rows and Pages combination is the same, the pinned order will be applied. In grid layout cases, if the combination of Rows and Pages is the same, the pinned order will be applied. In all other cases, Sort Pinning will be applied only if the Rows, Columns, and Pages format in the report view and visual is the same.

- When Sort Pinning is applied for a page filter(s) combination and the sort pinned order is stored, and then if the user changes the page filter value, it's possible that the rows we get now may be less or more than that of the pinned rows. In that case, the matching rows are sorted based on the pinned rows order, and the remaining extra rows are simply shown at the bottom without any sort applied.

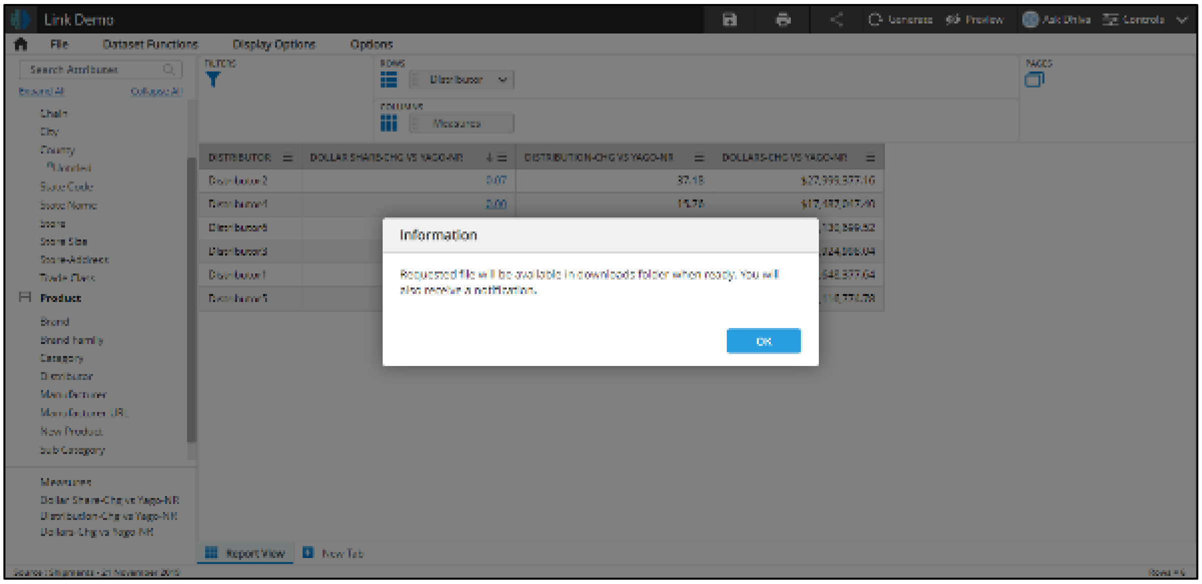
- The sort pinning option is not supported when we have a nested hierarchy.
- We remove the Sort Pinning when criteria changes of the report changes and user must reapply the Sort Pinning.

4.8 Linking Report - Attributes and Metric Values

Report values – attribute values and/or cell measure values can be "linked" to other objects: internal reports or storyboard or static external URL (web page) using the screen shown below.



An example of report linking is when a certain cell value says: The United States 2010 Life Expectancy Value of 78 years (for example) when clicked upon can be linked to a report showing the individual states in the US. In this case, the filter values the Country=United States and Year =2010 would be passed to a separate report which would apply these filters to provide a state level report (for the given Country and year).



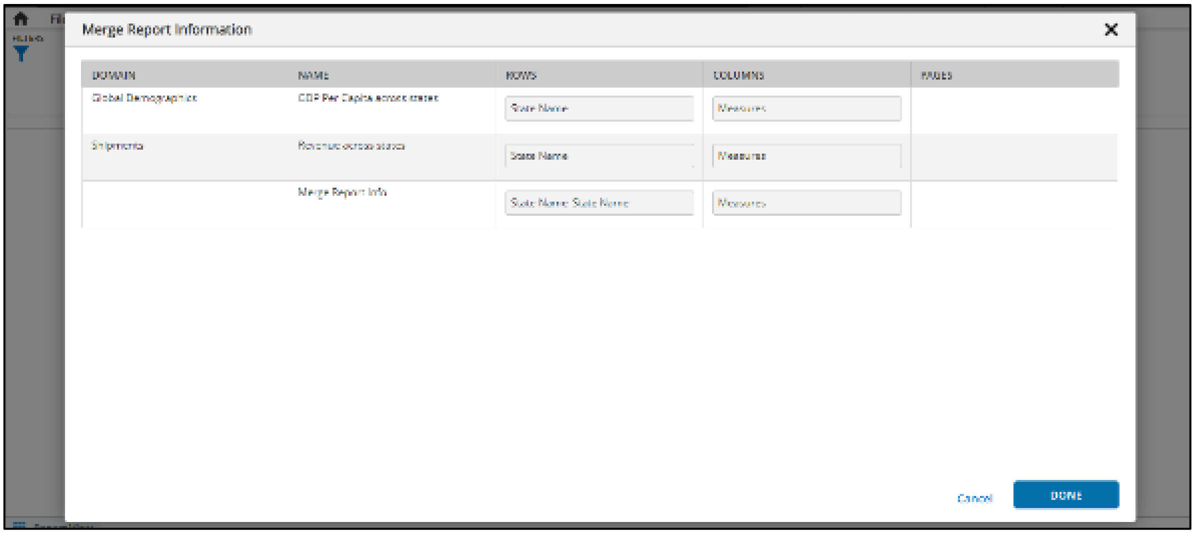
Report linking is a powerful construct to enable drill-through functionality (i.e., connecting different visualization objects). The same construct can be used to Link Storyboards and Dashboard objects also.

4.9 Merging Reports (multi-domain)

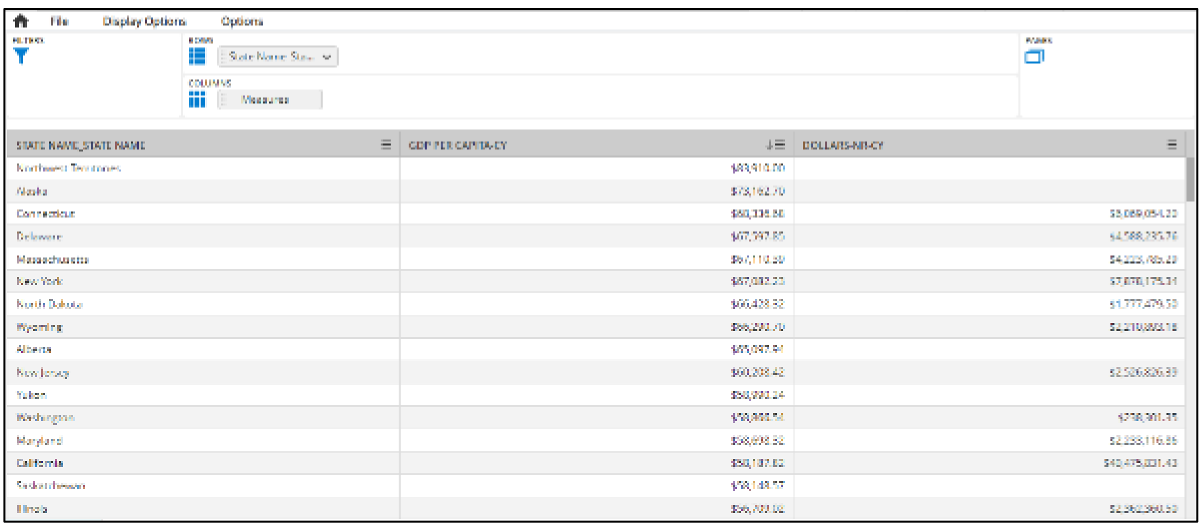
Merging of reports is often used to merge reports from multiple domains into a single report (although one could use it to merge within a domain when multiple levels of the same attributes are required). The alignment of this report is enhanced when the attributes in different domains are "mapped" by the Governor.

An example of a Merge Report is when Equipment scheduling information comes from one system (Domain), and status or operation (like maintenance) comes from another system. In the below example, Equipment is a common attribute across the domains and can be merged on one of the report dimensions. Another example is where there is data for Brand Families in retail market share (say for a state) – and also consumer market share (from a survey database) – then merging on Brand Families enables a merged report with both these measurements in one report.

Merge report requires the reports to be pre-defined and can be invoked by selecting the Merge Report option under the "New" on the asset page. Upon selection of the reports to merge, the following screen shows the data for merging:



The final merged report automatically "aligns" pre-configured attributes and values – if they exist – and creates a single "multi-domain" report. In the case below, two measures – Dollars (from Shipments domain) and GDP Per Capita (from Global Demographics domain) are merged into one report.



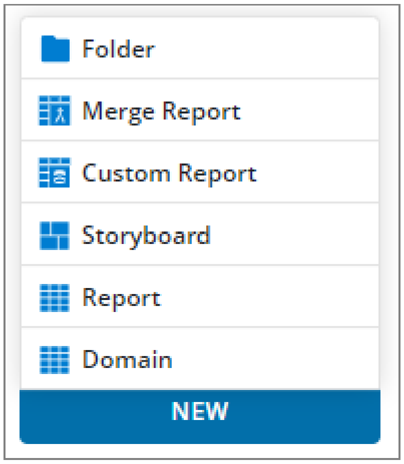
A merge report is a useful method for merging data from multiple domains into one report. An alternative way to show data from different domains is to use separate report objects in a Storyboard. Note that there are several restrictions with Merge reports, and in general, it is best to configure across domains into a single domain when possible.

CAUTION: When merging a report, a copy is made of the original report – and changes are not reflected in the main (source) report. Merge reports also have various limitations in terms of export, changing criteria, and other factors. Please review "Release notes" for a list of such limitations.

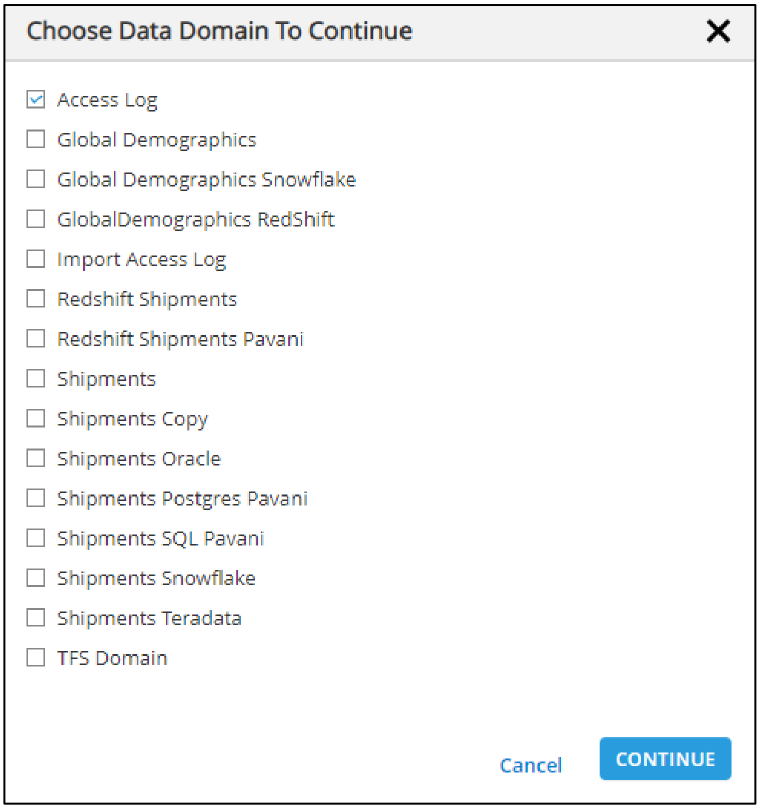
4.10 Custom Reports

A custom report is similar to a regular report, but it gives feasibility to the user to provide query/ function directly so that the user can play with the response. Custom reports can only be created by users who have a governor role or beyond.

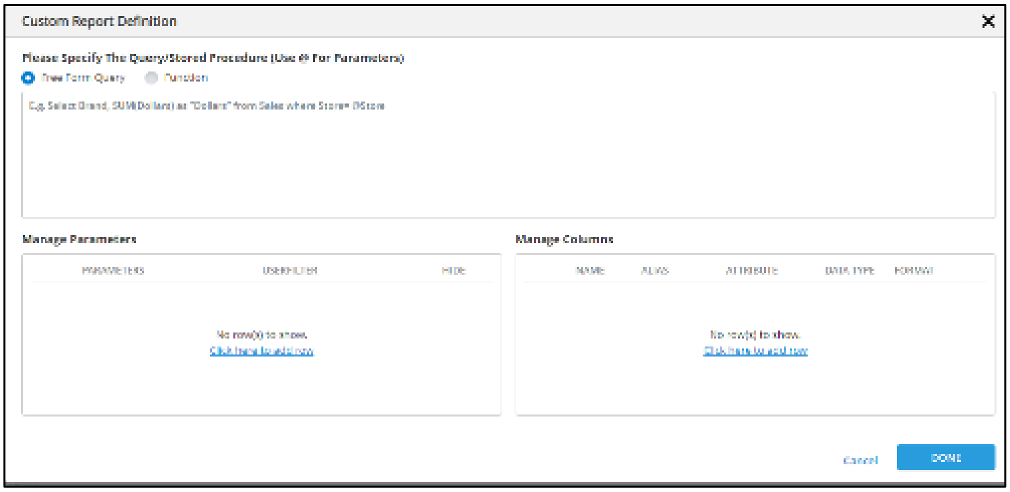
'New' custom report can be created by selecting the 'Custom Report' option from the 'New' tab list.



Select the domain for which the custom report is to be created.



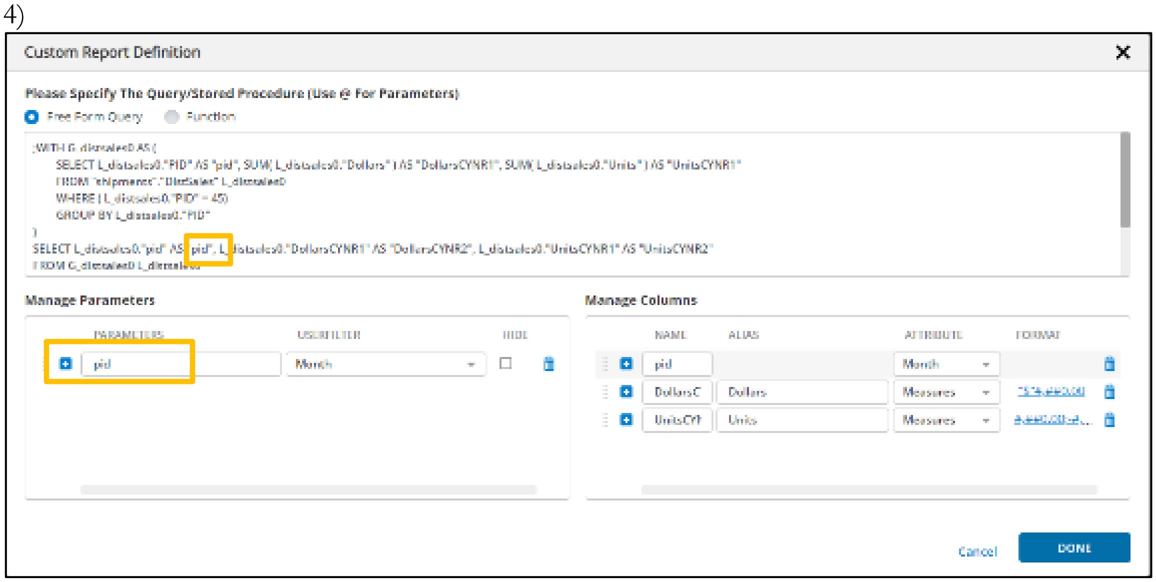
User needs to provide free form query or function (A stored procedure in case of SQL).



4.10.1 Manage Parameters Section

- If the input query requires any input parameters, the user needs to provide that information under the "Manage Parameters" section.
- The user should map the input parameter to one domain attribute, and this attribute behaves like a "user filter."
- Only the user-selected domain attributes are shown in the list while mapping an input parameter.

4)



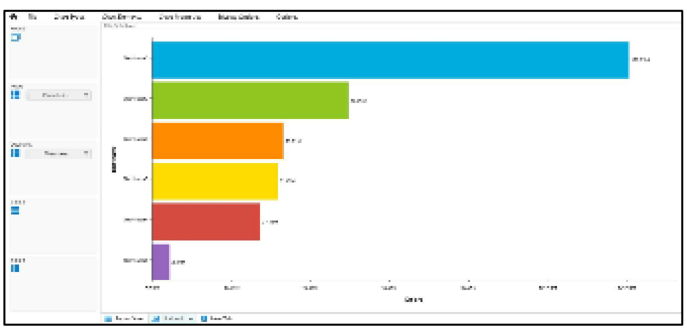
4.10.2 Manage Columns Section

- In this section, the user needs to provide a mapping to the response of the query.
- The user can map a column to either pre-configured domain attribute or measure or custom or ignore.

- The user can provide a data type for measure & custom and format for measures.
- Custom → When the user maps the column to "Custom," then a new attribute is created in the background, and the column is mapped to that attribute.
- Ignore → When the user maps the column to "Ignore," then that column is ignored in the response.
- This mapping is required for representing the response in a visual.

4.10.3 Custom Report Visual

After creating a custom report using any of the above ways, the finally generated report will behave like a normal report. We can create visuals with the report like any normal report.



4.11 Analyze Asset

For each analysis performed in the analyze workflow (via chat bot or analyze link), a new analyze asset will be displayed in the UI alongside the existing exported Word document.

- Whenever an analysis is performed via chat bot or analyze link, a new asset will be dynamically created and made available in the UI along with the exported ZIP file.
- The new asset will be named 'Analyze' + '<the query>'. Once the asset is created, a notification will appear in the UI. Clicking this notification will open the analyze asset in a new tab.
- Once the export is ready, a separate export notification will be displayed in the UI as usual.
- The newly created asset will be displayed in the last accessed folder. When opened, it will appear similar to a Word document, but only the 'Open Report' link will be available. This link will

open the corresponding report in a new tab. Since there is no separate Excel file, the 'Open File' option will not be shown in the UI.

- For Word documents, the 'Open Report' link works only a limited number of times before it becomes inactive. However, in this new asset, the link will remain active as long as the corresponding report exists. If the report is deleted, an error message will appear, indicating that the asset is no longer available.

- The visuals and tables will appear just as they do in the Word document. However, the only available option for tables is 'Copy Data'; other column customization options are not supported

- This asset cannot be edited, saved, or saved with a new name.

- You can export, print, or publish this asset using the icons in the header section. These options are only available on the desktop version.

- When you choose to export, the asset will be downloaded as a ZIP file containing a Word document and the related Excel files.

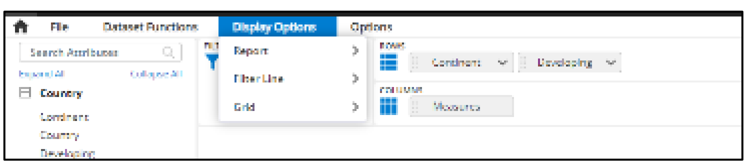
- Print and publish will work as usual.

- Some file options will be available for this asset on the home page, similar to regular assets. However, options like 'Schedule' and 'Schedule on Reload' are not supported.

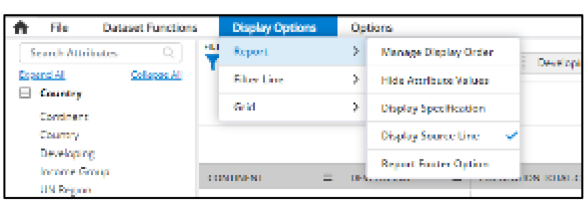
- This asset cannot be included in a storyboard or merged with other reports. However, you can open it using the 'Open' option from the file menu.

4.12 Display Options

This menu option provides a variety of report display options:



Using the Report submenu, we can perform the below actions:



1. Manage Display Order: This option enables the user to select a specific row, column, and page values to display. The visual indicator will be displayed on the column header when the user sets the display order. A particular value can be easily found with the searching capability.

2. Hide Attribute Values: This option enables the user to select a specific row, column, and page values to hide.

3. Display Specifications: This allows the user to review all the selections made for a specific report.

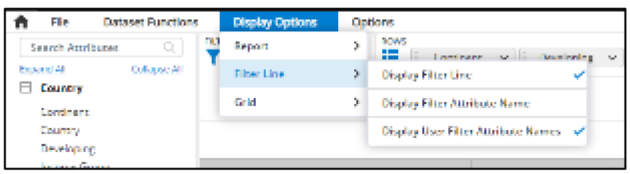
4. Display Source Line: The user can select to view the Domain name and the last update date for the domain.

5. Report Footer Option: The user can specify a custom footnote in the source line. Footnote can be placed in the source domain line or as a new line above the source domain.

6. Resize Attribute Panel: This allows user to resize the attribute list panel so that user can view attributes with long names.

7. Simple Color Conditions: This allows user to apply conditional color formatting by allowing user to apply multiple rules to the same metric and single rule to multiple metrics. These conditions also apply to row/column functions

Using the Filter submenu, we can perform the below actions:

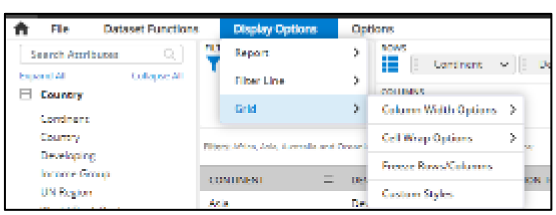


1. Display Filter Line: This option shows the filter line in the report. It will help the user to view the applied filter values.

2. Display Filter Attribute Name: This option shows the attribute name of an applied filter value. For example, if the filter Site=Pittsburgh is applied to the report, the default behavior would show only Filters = Pittsburgh. With this option, the filter line shows Site= Pittsburgh.

3. Display User Filter Attribute Name: Similar to attribute name display. The user can display the user filter attribute

Using the Grid submenu, we can perform the below actions:



1. Column Width Options: The user can set the behavior to "Fit To Window," "Auto Width," or "Optimal View."

2. Cell Wrap Options: The user can set the wrapping of the cell values either to Full Wrap or No Wrap.

3. Freeze Rows/Columns: The user can define the number of rows/columns pinned.

4. Custom Styles: The user can set the font, color, background color, header text.

4.13 Report Options

The report options menu has various options, including the following:

1. Ignore Report Filters: This is inside the publish locks menu option. This is to ignore report level filters when publishing a report. For example, a publisher may apply a territory filter to the report to reduce the size of the report (when designing) - but when publishing, the report would "ignore" this filter.

2. Show All Visuals: This is inside the publish locks menu option. By default, when a producer publishes the report, all other visuals are hidden except the main report grid view. The producer should select this option before publishing the report to make all visuals available to consumers of the report.

3. Report Links: As explained in section 4.7, this option allows the user to link attribute values and/or measure values to other reports/storyboards or an external URL.

4. Publish Locks: These are locks that a user can apply before publishing a report.

5. Use My Context Filters: This is inside the publish locks menu option. This allows the user to publish a report to another user, which would override the other user's context filters. This function should be used with care since it has security implications. This can be enabled/disabled in Global settings at an application level

6. Clear Column Options: This clears all column conditions across the report.

7. Result Query: This option allows a user to review the SQL Query generated based on the report specification (useful for Governors in particular).

8. Display External ID: This is a unique report ID – that can be used to call the report from an external application using the API provided.

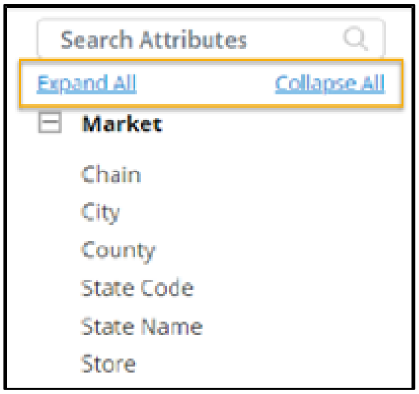
9. Summarize: This is an option to provide a written summary (analysis) of a generated report – provided the user has access to the Analyst module (otherwise, this option is grayed out).

10. Apply Row or Column functions: The user will be able to apply row-column functions. The user can define functions like Sum, Avg, etc., to be displayed. These functions are restricted to specific report view or visual and are not carried forwarded.

4.14 Additional Features

4.14.1 Expand and Collapse Attributes

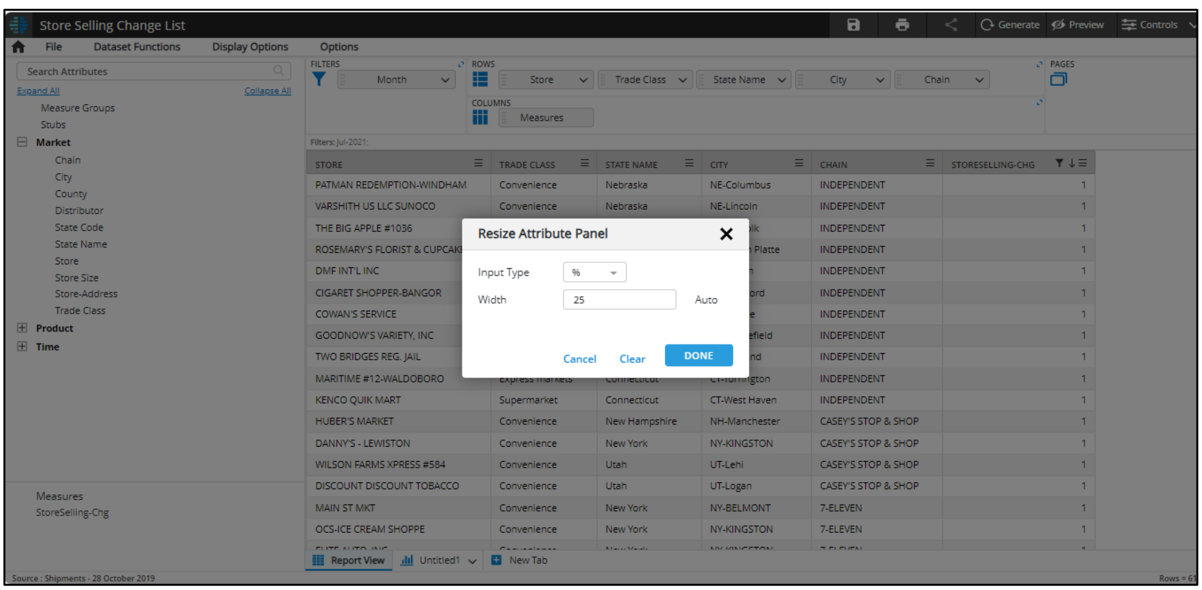
Users can now do expand all/collapse all in the attribute pane. Attribute folders are expanded up to the extent to which the scroll bar doesn't appear.



4.14.2 Resizing Attribute List Panel

The user now has the capability to resize the attribute list panel to view attributes with long names more conveniently. This feature allows you to tailor the panel's width to your preferences.

Drag and Resize: You can easily adjust the width of the attribute list panel by dragging it from left to right or right to left. Simply click and drag the panel's edge to resize it according to your needs. When you hover your cursor between the attribute list panel and the report grid, a resize icon will appear, indicating that you can adjust the panel's width.



1. **Setting Width via Display Options:** For precise control, you can set the panel's width by following these steps:

    - Click on "Display Options" in the top menu.

    - Navigate to "Report" and select "Resize Attribute Panel."

    - In the popup that appears, you can enter the desired width in either "px" or "%" units.

2. **Minimum and Maximum Width Limits:** Keep in mind that there are limits to the width you can set. The minimum and maximum widths are predefined and are displayed as tooltips for

your reference. These limits ensure that the panel remains usable. These limits are set to a maximum of 40% and a minimum of 14%.

3. **Persistence:** These resizing settings are applicable in the report view only. Once you resize the panel, the state is saved, and whenever you reopen the report, your previous panel size will be persisted within a session. This resizing configuration applies across all domains.

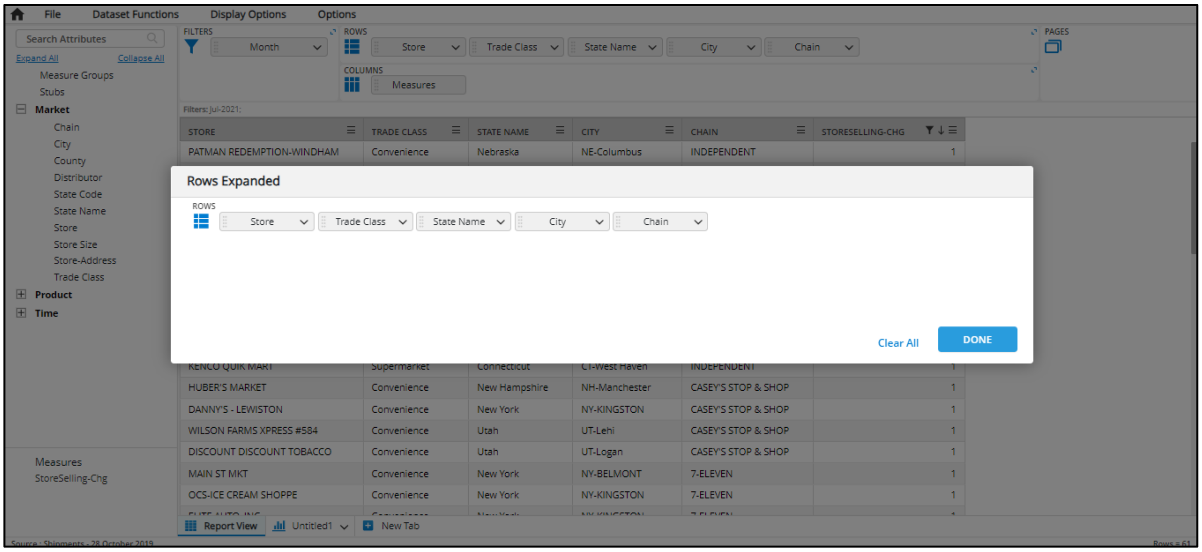
5)

4.14.3 Expand Row and Column Drag Areas

When there are more attributes in the rows/columns area, the area expands to three lines before a scroll bar is displayed.

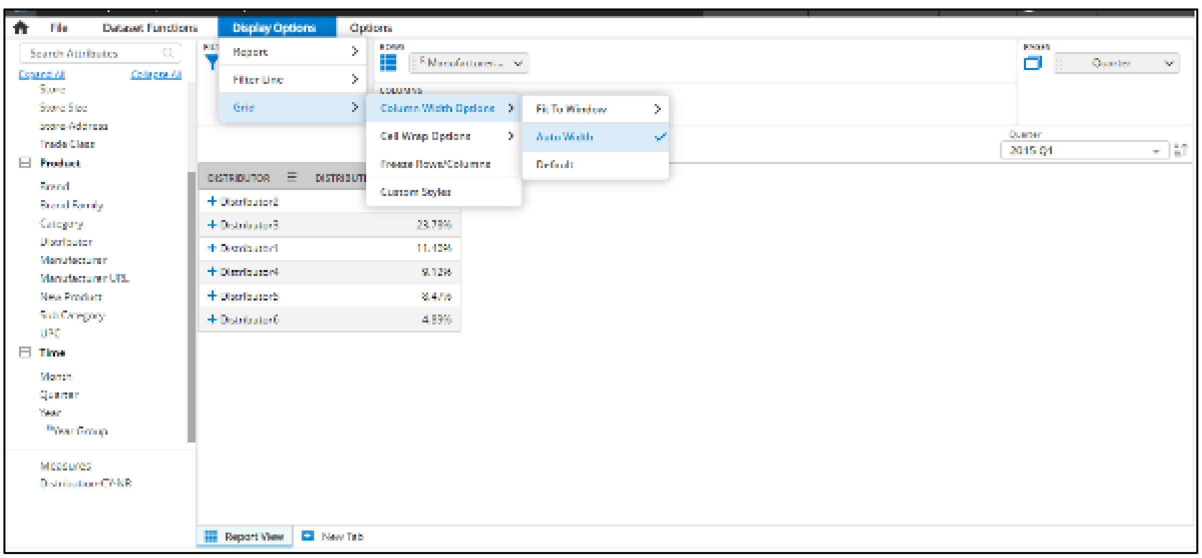
This feature addresses the challenge of managing a large number of items in the report format area. To enhance the user experience, we have introduced an "expand" icon in the top right corner of the rows, columns, filters, and pages areas. By clicking this icon, users can view the corresponding dimension in an expanded view. This feature is also available in the visuals.

- **Expansion Icon:** In each dimension area (rows, columns, filters, and pages), you will now find an expand icon. Clicking this icon allows you to view the expanded form, making it easier to manage a large number of items. The expand icon will be shown in a specific dimension only when there is at least one item in that dimension.
- **Full Functionality in Expanded View:** You can perform all the operations, including removing items, managing, creating hierarchies, reordering, and more, in the expanded view. This provides the same functionality as the normal view.
- **No Drag-and-Drop to Other Areas:** While in the expanded view, dragging and dropping items to other areas is not allowed. However, you can drag and drop items onto the attribute panel to remove them from the list.
- **Immediate Report Criteria Change:** Any changes made in the expanded view will directly impact the report criteria and cannot be undone. Please use caution when making changes.

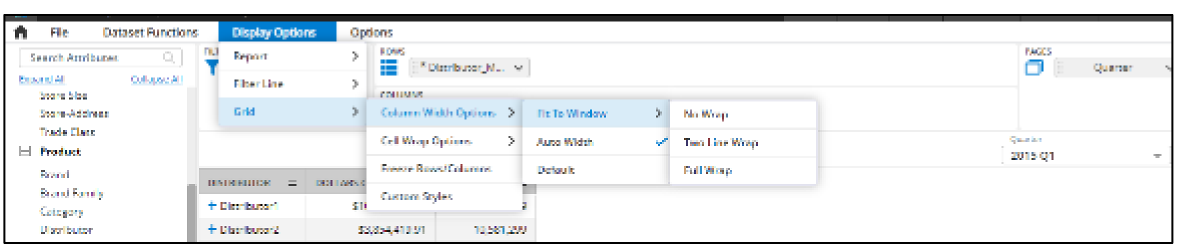


4.14.4 Wrapping Grid Columns Header Text

The user can set the wrap behavior for the grid column headers.



There are three options with Fit to Window.



1. No Wrap – This does not wrap the text. If the size of the text exceeds, it shows ellipses. This is the default behavior.

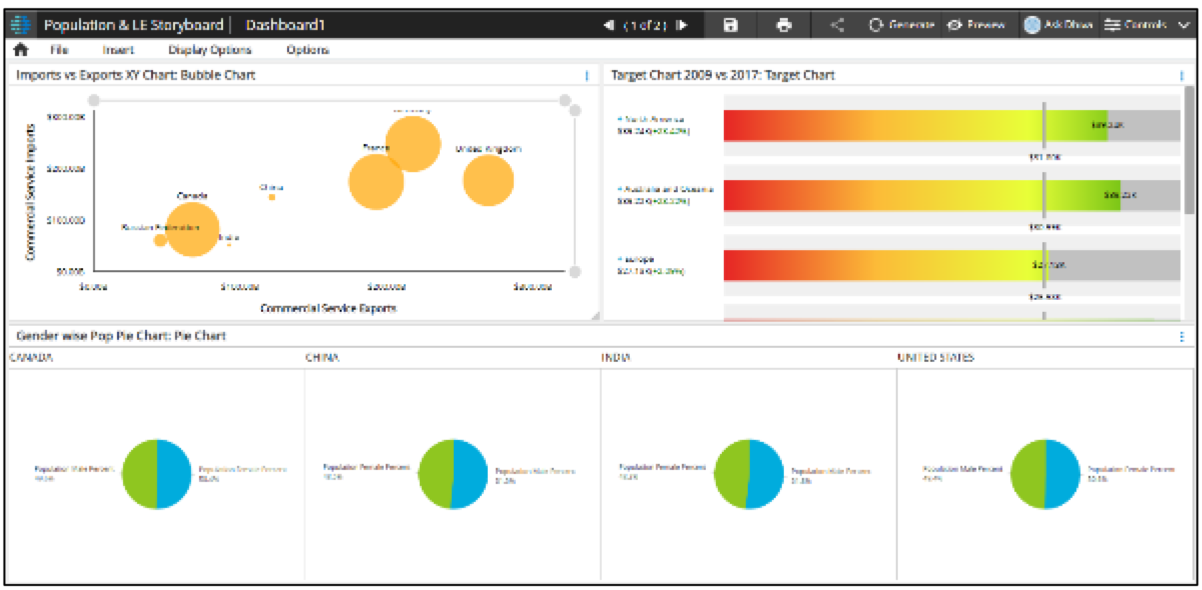
2. Two Line Wrap – This wraps the text to a maximum of two lines. If the size of the text exceeds, it shows ellipses.
3. Full Wrap – This wraps the complete text, and hence no ellipses are displayed.

4.14.5 Control Panel - Dock and Overlay Options

The control panel display behavior has two options.

1. Overlay – This option overlays the control panel on the report or storyboard. Reports are not re-rendered when the control panel is toggled. This is the default option.

2. Dock – This forces the report or storyboard widgets to adjust, and the report re-renders when the control panel is toggled.



4.14.6 Custom Currency Support

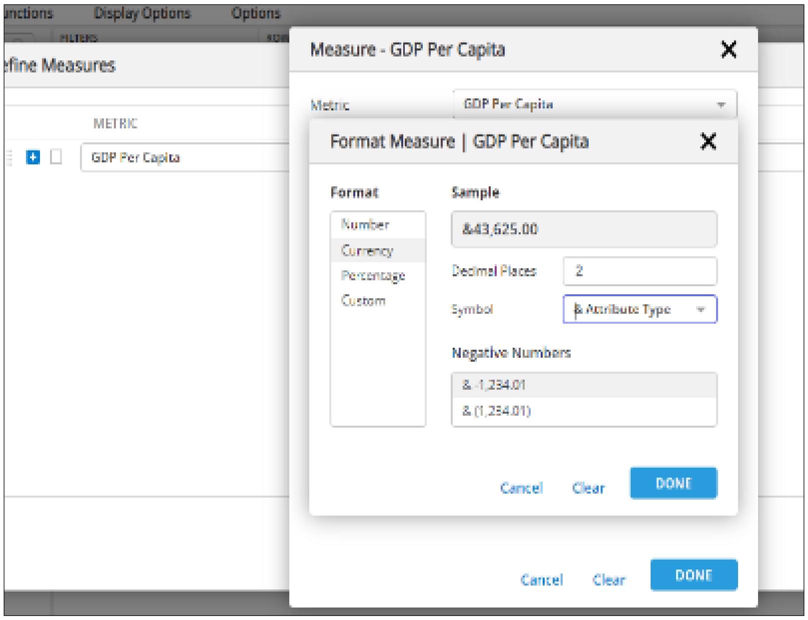
Custom currency features allow users to configure the currency symbols for each attribute value. For example, we may want to display a different currency symbol for the revenue measure when the report is at the country level. This configuration is done from the admin application, and please refer to the admin guide for more details on configuring such attributes.

The following are the steps needed to use custom currency by a report producer.

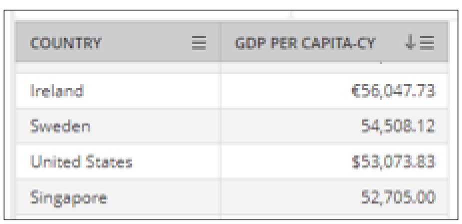
1. In the measure screen, click on more and select the Format option.

2. Select the Format option from the Format Measure dialog.

3. Select the "Attribute Type" value for symbol property.



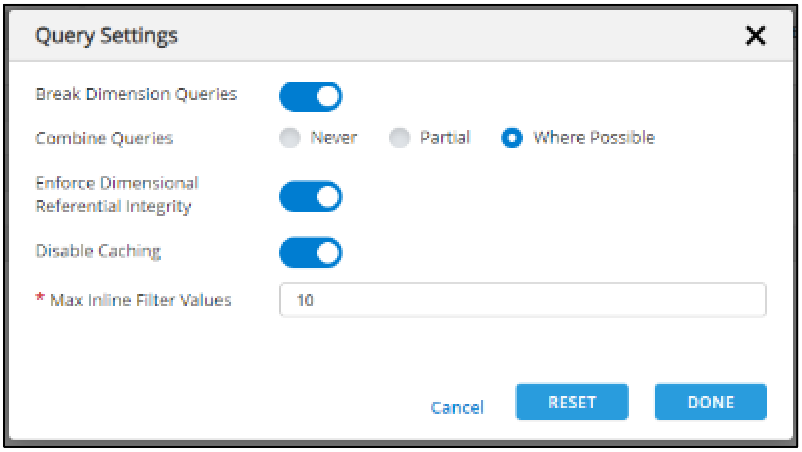
In this example, the country attribute is configured as a currency attribute from the admin application. When we use the country attribute in the report and add the above measure, we can observe that different currency symbols are displayed.



COUNTRY	GDP PER CAPITA-CY
Ireland	€56,047.73
Sweden	54,508.12
United States	$53,073.83
Singapore	52,705.00

4.14.7 Query settings

Users can set the query generation settings at the report level from the options menu in the report screen.

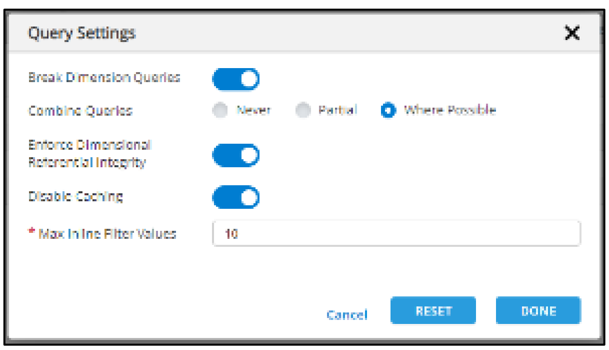


These options behave the same as in Governor Query settings but apply only to the report.

Please refer to the Governor guide for more detailed information on the settings.

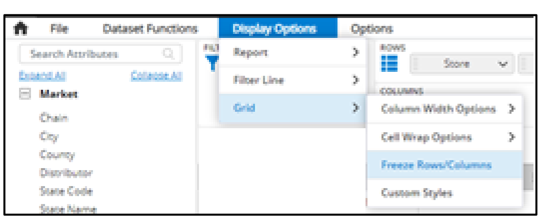
Disable Caching:

The user can now enable or disable caching of the report using the 'Disable Caching' option from Query Settings. By checking the 'Disable Caching' option, data is fetched from the server. By default, this option will be disabled, and the report output is cached.

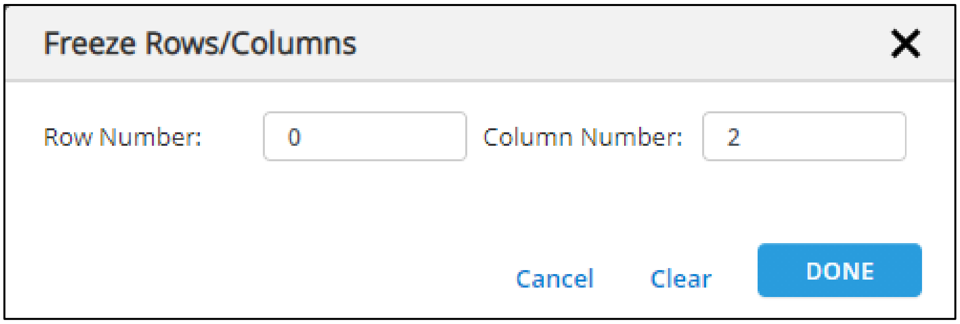


4.14.8 Freeze Column Options

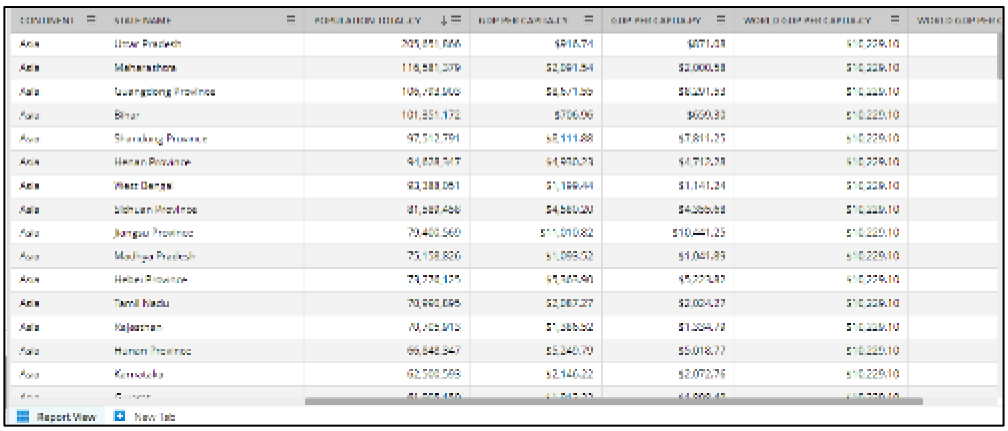
The user can now freeze rows/columns from "Display Options -> Freeze Rows/Columns.



6)



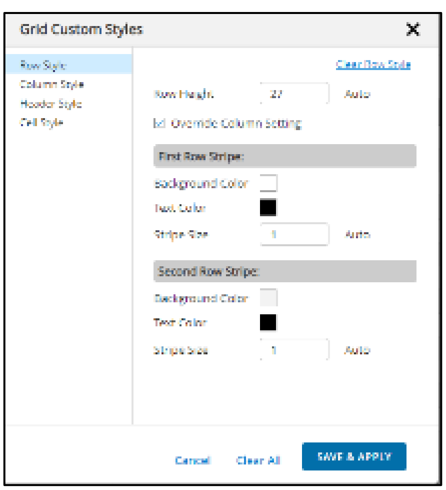
In this case, the first two columns are frozen, and the user can scroll to other columns. Similarly, the user can freeze the top rows.



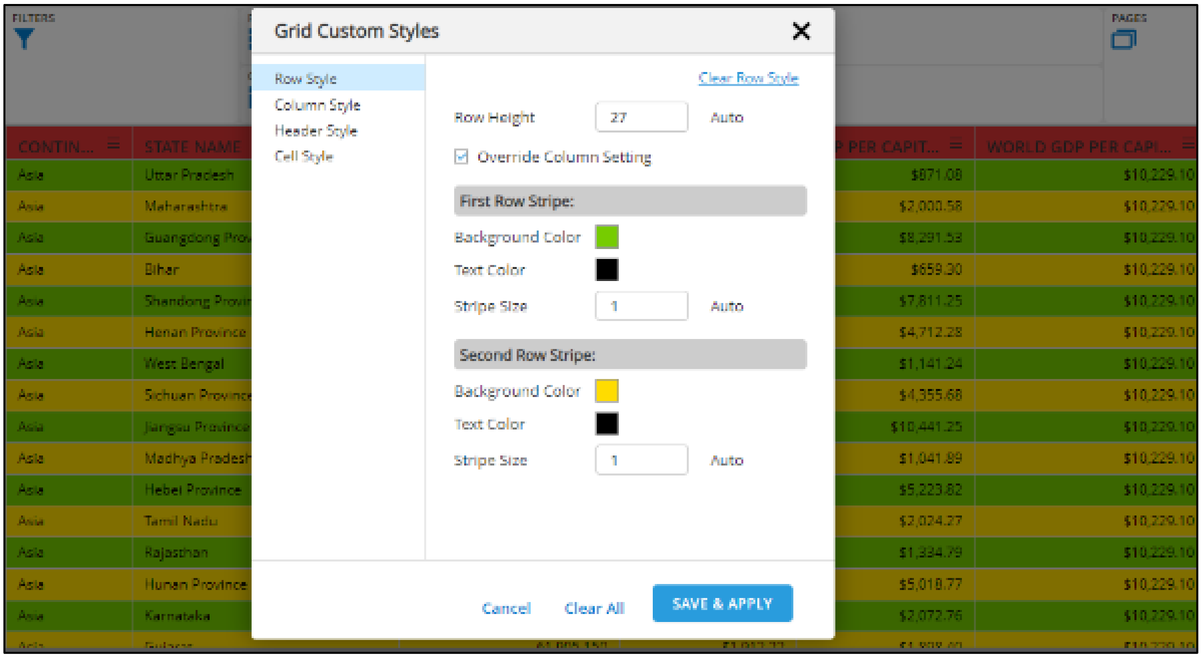
4.14.9 *Grid Custom Styles*

The user can now format the grid view styles using Row Style, Column Style, Header Style, and Cell Style options.

The user can define the height, background color, text color, stripe size, etc.



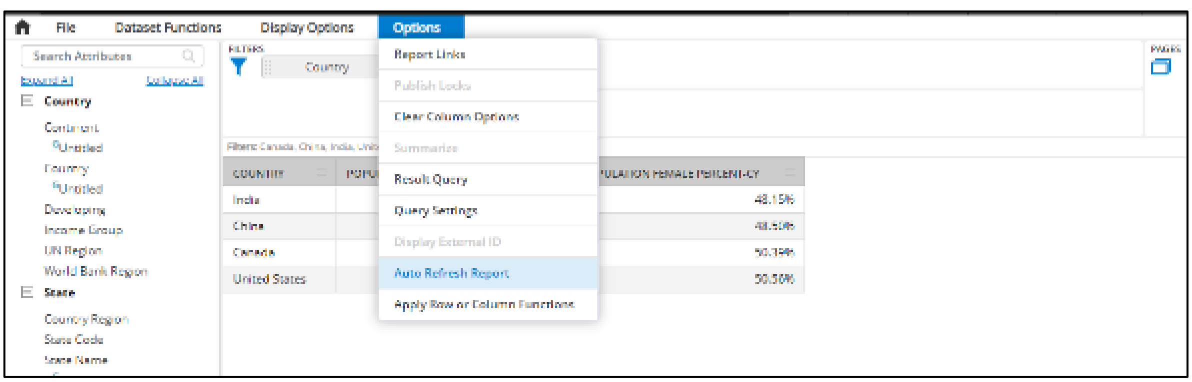
Below is an example report after applying column styles and header styles.

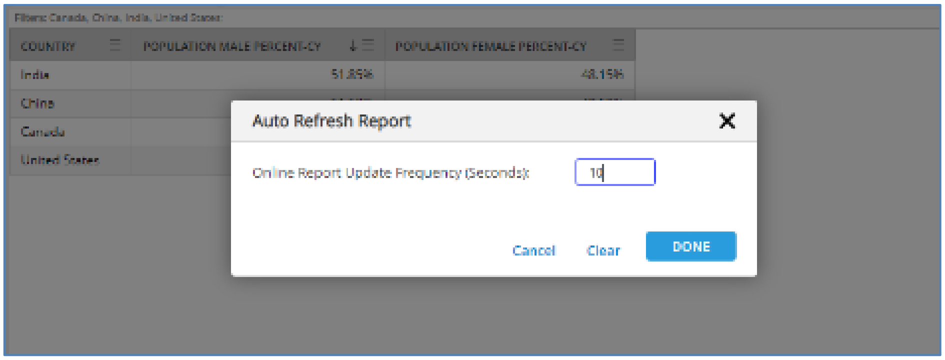


4.14.10 *Auto Update*

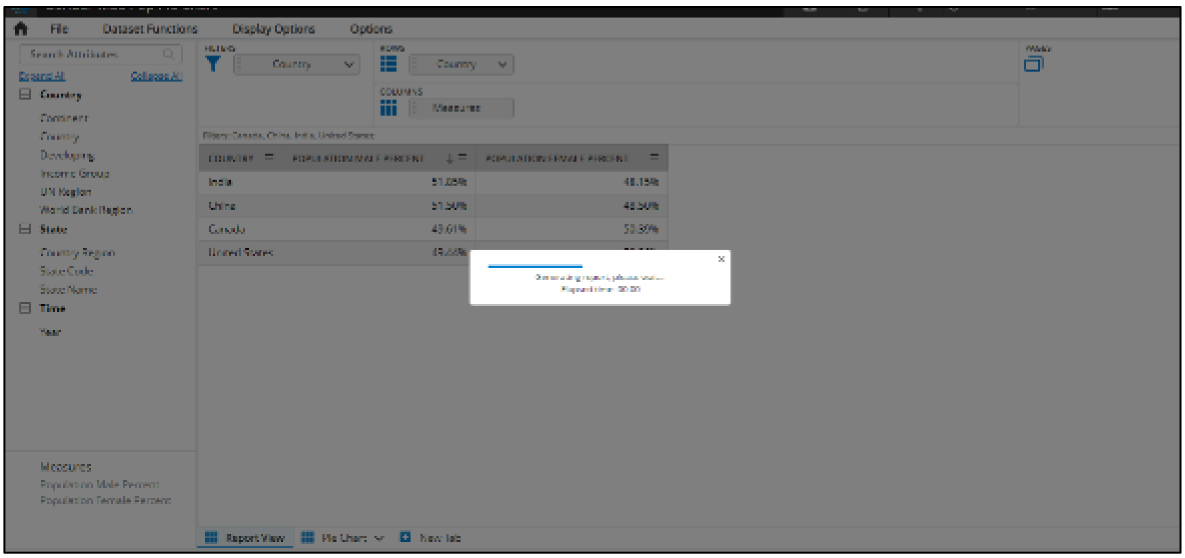
If there is a need to refresh the data regularly, the user can set the frequency at the report level. The same can be enabled on the storyboard if the report has been saved with auto-update information. The refresh frequency time is mentioned in seconds. The refresh here refers to getting the backend data and then updating the report with new data.

Frequency can be set from "Option -> Auto Refresh Report."

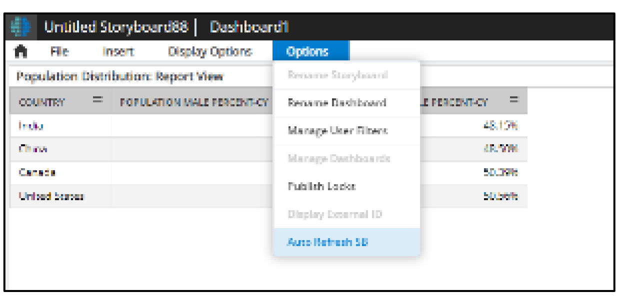


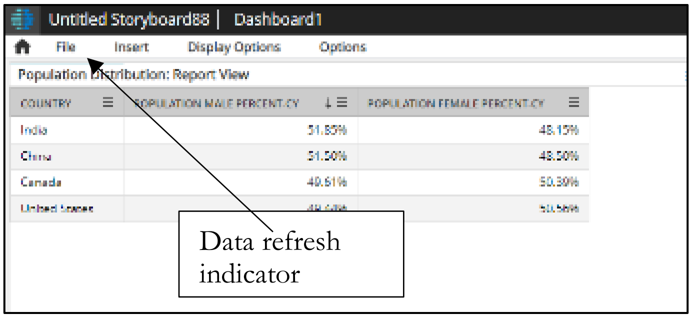


For every 10 seconds (as entered in the above popup), data refreshes.



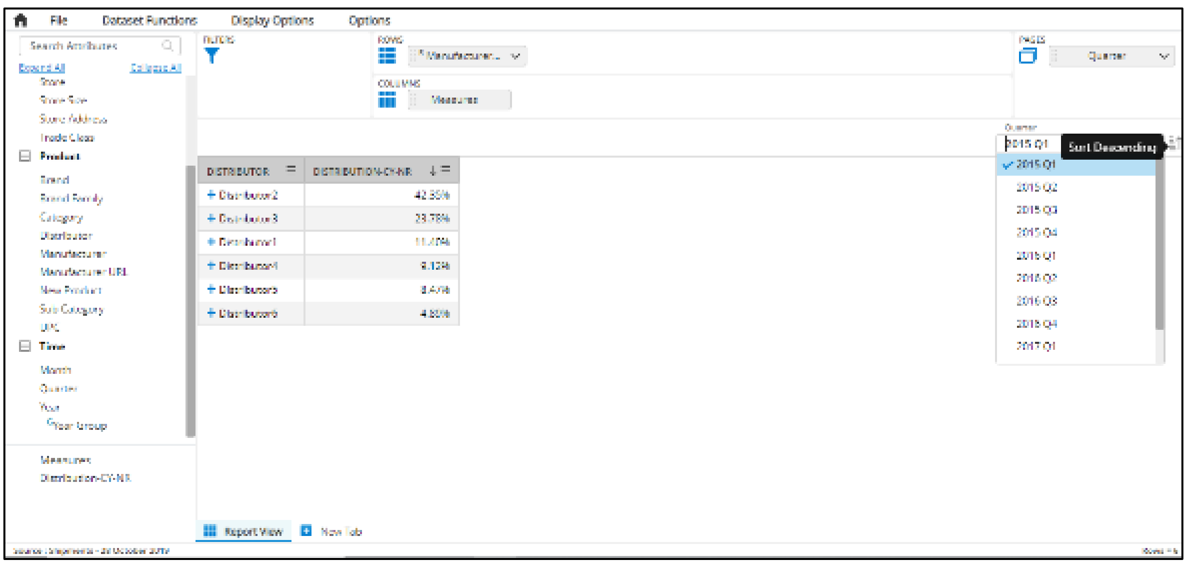
If the report is used in SB and the Auto Update option is enabled from Options in the storyboard, the data refreshes at the frequency set at the report level. The user can see a blue progress line above the header of the widget indicating refresh operation.

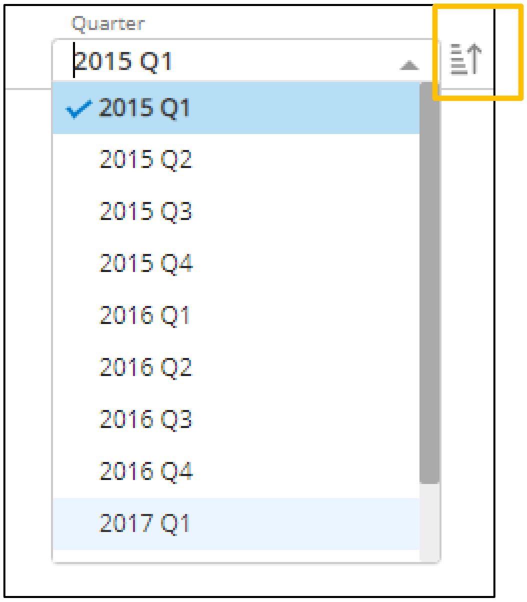




4.14.11 *Attribute Sorting on Page*

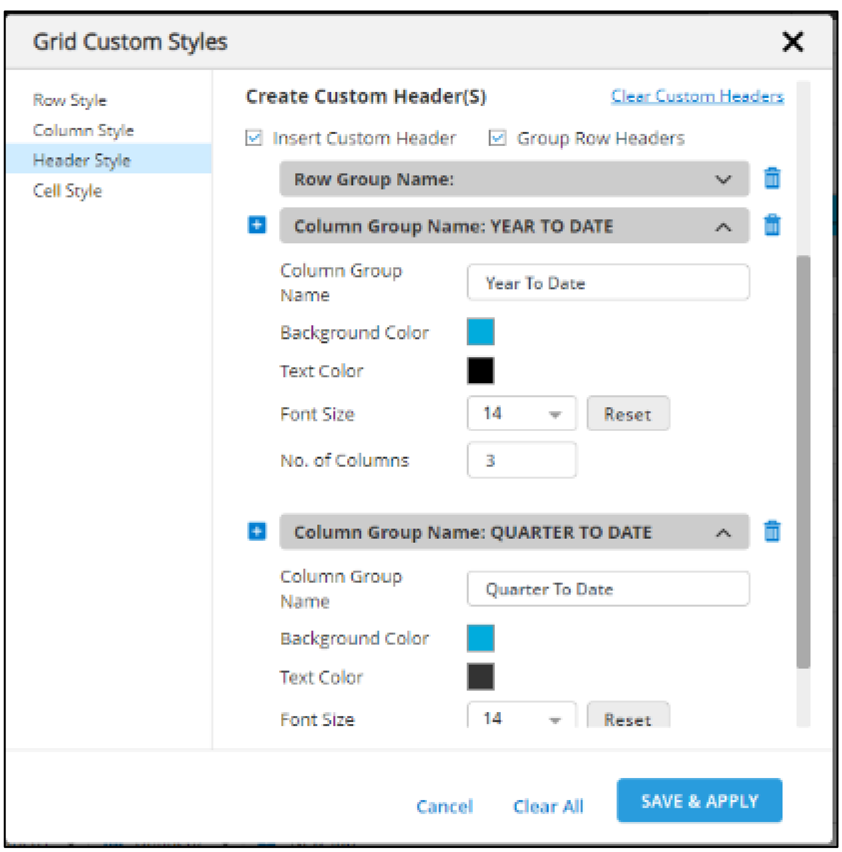
The sort icon is displayed for each page filter and quick filter (user filter). The selected sort type is consistent across the report throughout all the visuals and in the control panel. Similarly, for the storyboard, the user filter type is consistent across the dashboards and control panel. The sort icon would indicate the current sort order of the attribute values, and the tooltip of the icons would indicate the action when the icon is clicked.





4.14.12 Custom Column Headers

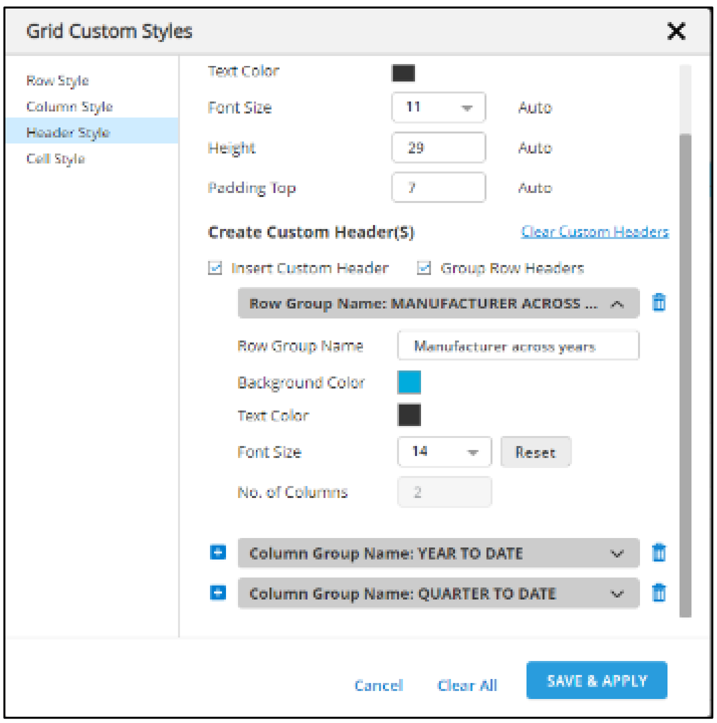
Users should be able to create column header groups and should be able to give user-specific header names for created column groups. Users can specify the number of columns in the group, background and text color, and the column group name. The custom column header can only be created incrementally.



Click on "Save & Apply" to apply these settings.

		YEAR TO DATE			QUARTER TO DATE		
MANUFACTURER	YEAR	DOLLARS-CY-YTD	UNITS-CY-YTD	PRICE-CY-YTD	DOLLARS-CY-QTD	UNITS-CY-QTD	PRICE-CY-QTD
HERSHEY COMPANY	2015	$52,006,861.31	167,884,294	$0.31	$52,006,861.31	167,884,294	$0.31
HERSHEY COMPANY	2016	$49,537,696.36	152,617,165	$0.32	$49,537,696.36	152,617,165	$0.32
HERSHEY COMPANY	2017	$40,609,350.42	124,235,230	$0.33	$40,609,350.42	124,235,230	$0.33
MARS INC	2015	$31,476,290.68	86,702,964	$0.36	$31,476,290.68	86,702,964	$0.36
MARS INC	2016	$40,273,949.11	97,197,426	$0.41	$40,273,949.11	97,197,426	$0.41
MARS INC	2017	$34,331,581.44	80,068,535	$0.43	$34,331,581.44	80,068,535	$0.43
NESTLE USA	2015	$8,125,639.30	24,478,825	$0.33	$8,125,639.30	24,478,825	$0.33
NESTLE USA	2016	$5,395,310.71	16,488,503	$0.33	$5,395,310.71	16,488,503	$0.33
NESTLE USA	2017	$4,632,416.44	13,228,167	$0.35	$4,632,416.44	13,228,167	$0.35

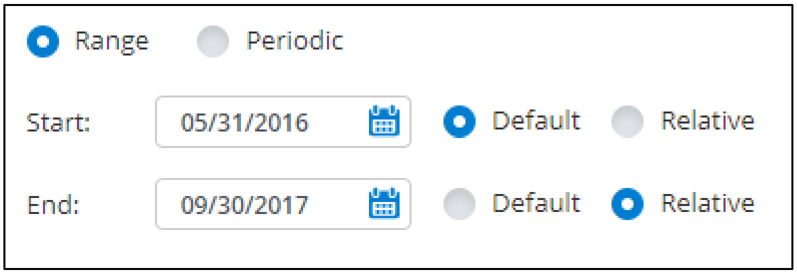
Users can also nest the row attributes as below and apply the settings.

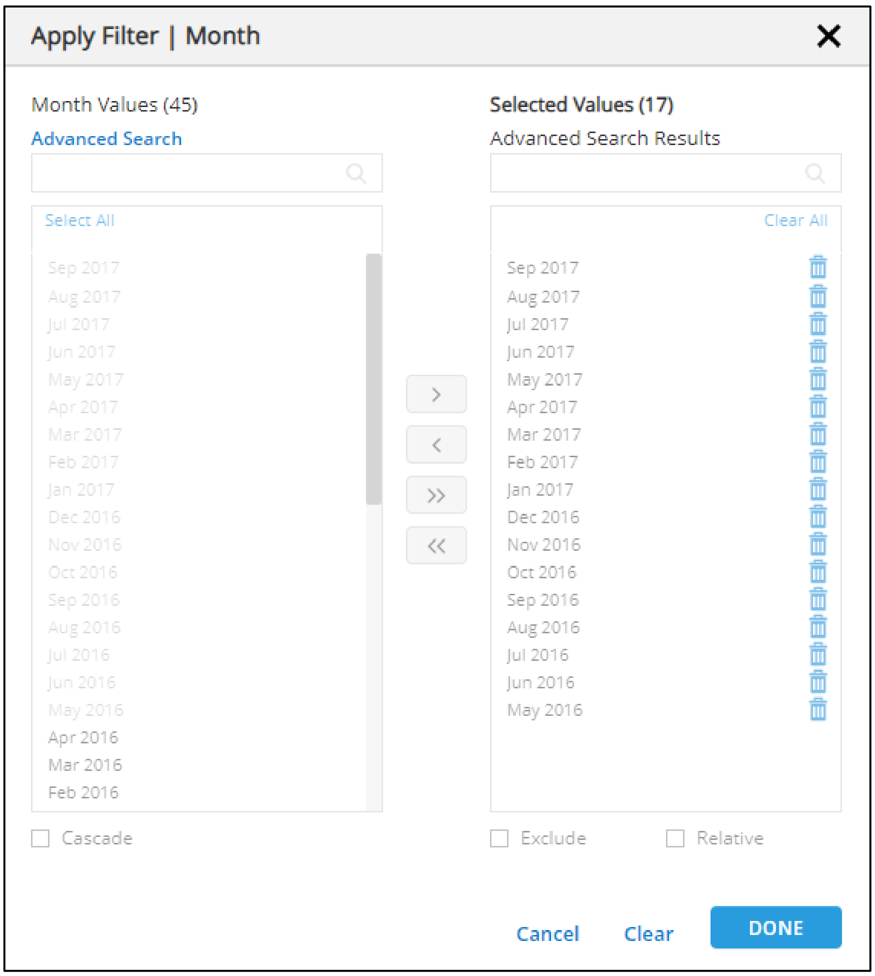


MANUFACTURER ACROSS YEARS		YEAR TO DATE			QUARTER TO DATE		
MANUFACTURER	YEAR	DOLLARS-CY-YTD	UNITS-CY-YTD	PRICE-CY-YTD	DOLLARS-CY-QTD	UNITS-CY-QTD	PRICE-CY-QTD
HERSHEY COMPANY	2015	$52,006,861.31	167,884,294	$0.31	$52,006,861.31	167,884,294	$0.31
HERSHEY COMPANY	2016	$49,537,696.36	152,617,165	$0.32	$49,537,696.36	152,617,165	$0.32
HERSHEY COMPANY	2017	$40,609,350.42	124,235,230	$0.33	$40,609,350.42	124,235,230	$0.33
MARS INC	2015	$31,476,290.68	86,702,964	$0.36	$31,476,290.68	86,702,964	$0.36
MARS INC	2016	$40,273,949.11	97,197,426	$0.41	$40,273,949.11	97,197,426	$0.41
MARS INC	2017	$34,331,581.44	80,068,535	$0.43	$34,331,581.44	80,068,535	$0.43
NESTLE USA	2015	$8,125,639.30	24,478,825	$0.33	$8,125,639.30	24,478,825	$0.33
NESTLE USA	2016	$5,395,310.71	16,488,503	$0.33	$5,395,310.71	16,488,503	$0.33
NESTLE USA	2017	$4,632,416.44	13,228,167	$0.35	$4,632,416.44	13,228,167	$0.35

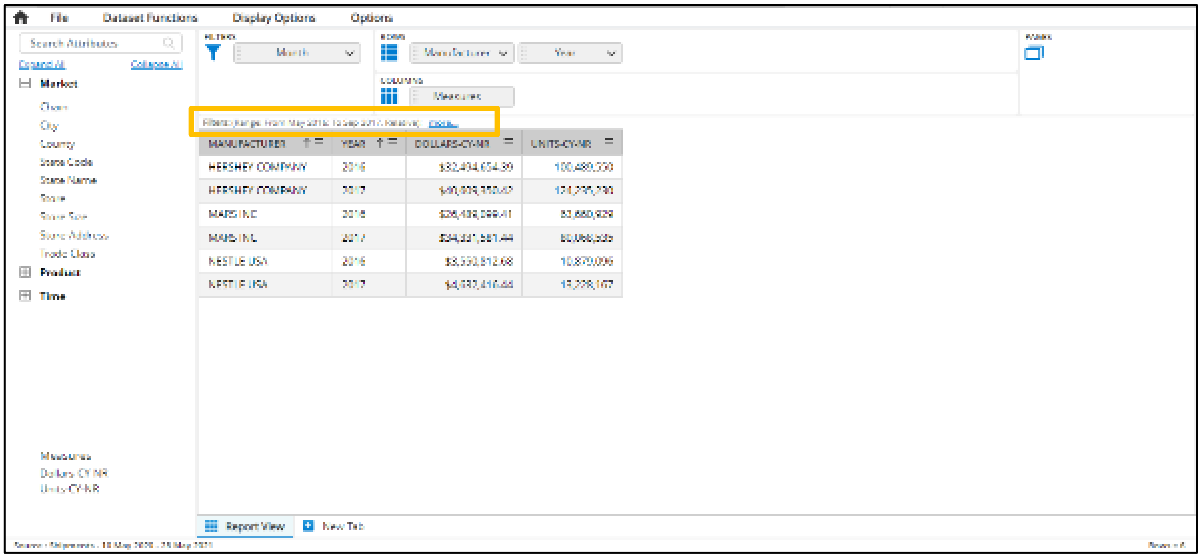
4.14.13 Advanced Date Search Display in Filter Line

When an advanced search condition is applied, the advanced search condition is displayed instead of displaying all the data values in the filter line. This is applicable only for date attributes.





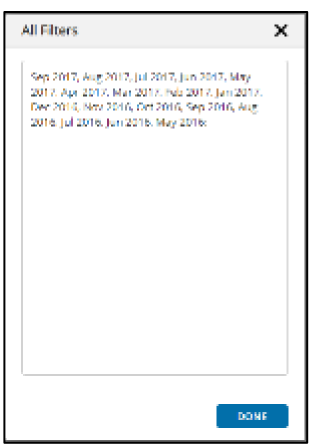
Instead of displaying all the selected values, "From" and "To" dates are displayed in the filter line. If the user wants to see all the values, he can view them by clicking on the "more" link on the filter line.



Filters: (Range: From May 2016; To Sep 2017, Relative); more...

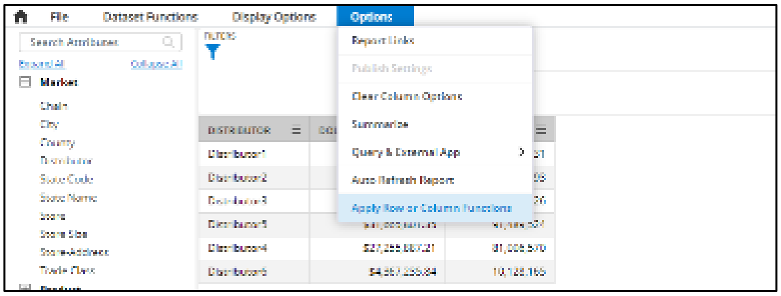
MANUFACTURER	YEAR	DOLLARS-CY-NR	UNITS-CY-NR
HERSHEY COMPANY	2016	$32,494,654.39	100,489,550
HERSHEY COMPANY	2017	$40,609,350.42	124,235,230
MARS INC	2016	$26,489,099.41	63,660,929
MARS INC	2017	$34,331,581.44	80,068,535
NESTLE USA	2016	$3,550,812.68	10,879,096
NESTLE USA	2017	$4,632,416.44	13,228,167

By clicking on the "more" link, all the filter values are displayed as below:



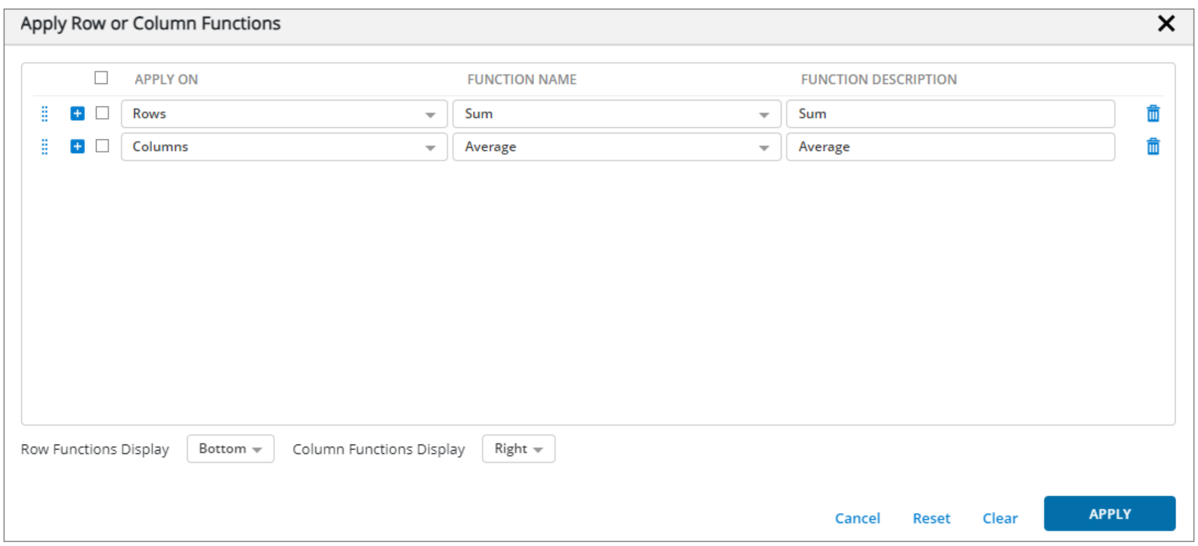
4.14.14 Row/Column Functions

7) The user will be able to apply row-column functions. Using **"Apply Row or Column Functions"** from the Options menu, the user can define functions like Sum, Avg, etc. These functions are restricted to grid view or visuals and are not carried forward.



It is possible to define Multiple Row/Column functions. The user can choose from a list of available functions and enter the custom description in the Function Description input box

The following dialog shows an example of Applying Sum function on Rows and Average function on Columns. . User can choose the position of row and column functions on the grid, displaying them on the top/bottom or left/right.



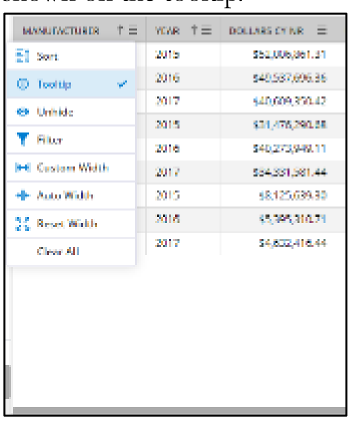
The Sum function is added as a new row on the grid, and the Average function is added as a column on the grid.

DISTRIBUTOR	DOLLARS-CY-NR	DOLLARS-PY-NR	AVERAGE
Distributor1	$120,530,661.40	$73,000,706.70	**$96,765,684.05**
Distributor2	$49,555,829.16	$28,650,110.91	**$39,102,970.03**
Distributor3	$33,013,680.81	$20,573,767.43	**$26,793,724.12**
Distributor5	$31,665,801.35	$20,234,441.95	**$25,950,121.65**
Distributor4	$27,255,887.21	$15,730,650.51	**$21,493,268.86**
Distributor6	$4,367,235.84	$2,941,348.00	**$3,654,291.92**
Sum	**$266,389,095.77**	**$161,131,025.50**	**$213,760,060.64**

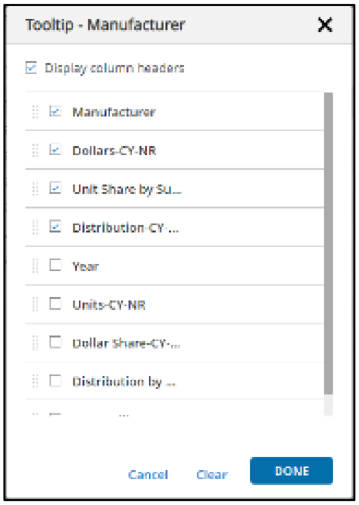
These functions are specific to this view only and are not carried forward to other visuals. In the case of row functions, they are always displayed at the bottom, and the user may have to scroll when there are more records. In the case of column functions, they are displayed to the right, and the user may have to scroll when there are more records. Nested Hierarchy row functions are always calculated on first-level nodes.

4.14.15 Tooltip Enhancement

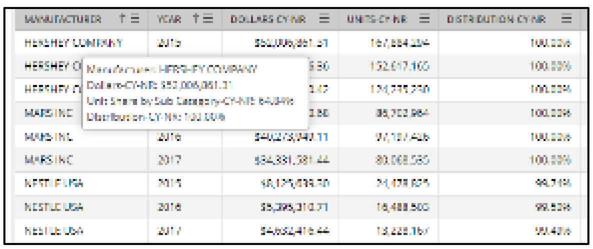
This feature will allow the user to configure the tooltip to display values of different column cells depending on the configuration. The user can configure it via a new Tooltip menu item in column options. Clicking on this Tooltip option, the user should see a popup where he can configure data to be shown on the tooltip.



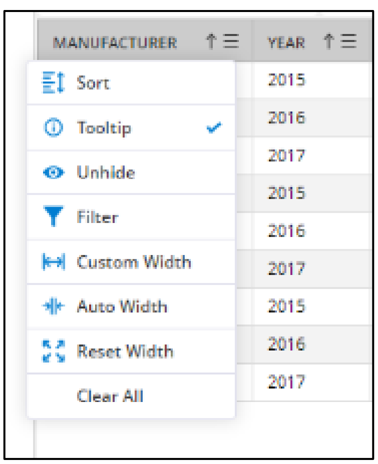
Select required columns and click on the "Done" button.



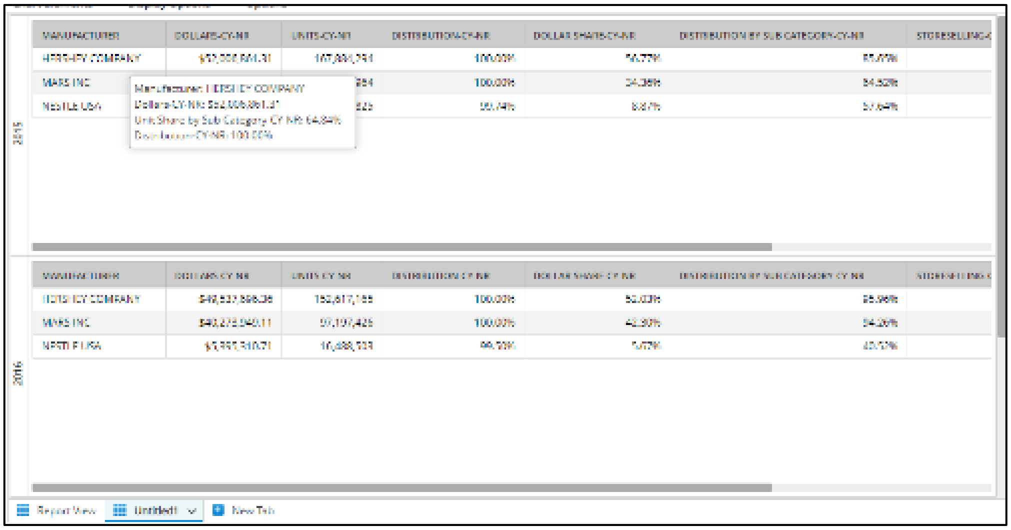
On hovering of Manufacturer attribute value, all the selected values will be displayed in the tooltip.



If the tooltip is configured for a particular column, the tooltip will appear as selected, as shown below.



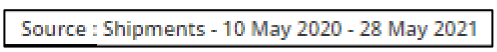
The same configuration is carried forward to other grid visuals.

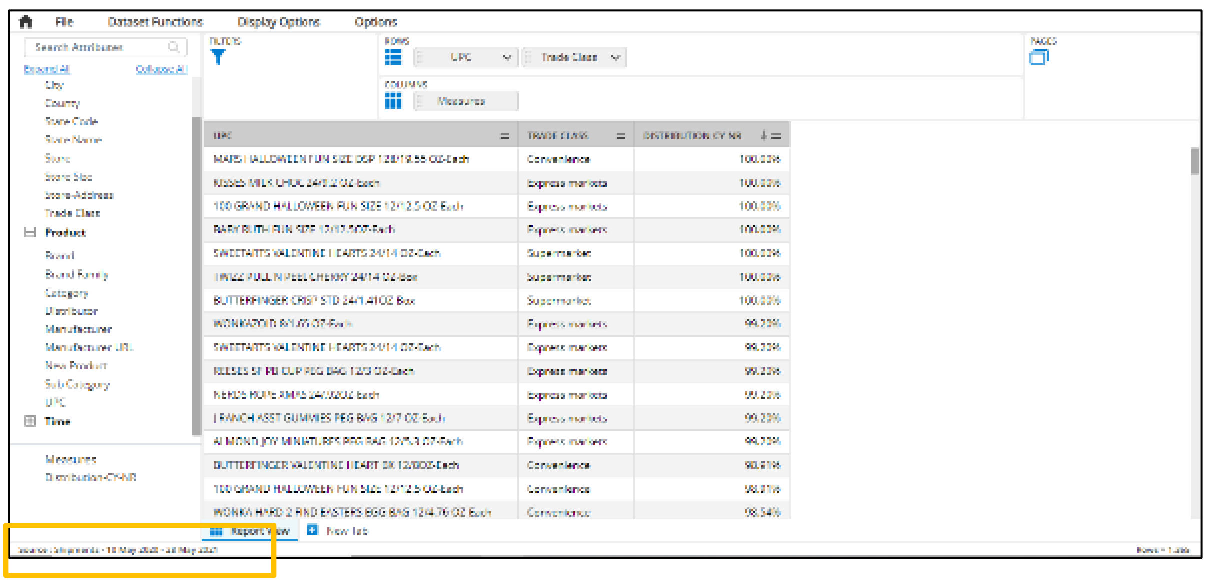


4.14.16 Foot Note Enhancement

Domain data start date is displayed in addition to the end date (anchor date) in the footnote.

If the start date is not available, only the end date (anchor date) will be displayed.

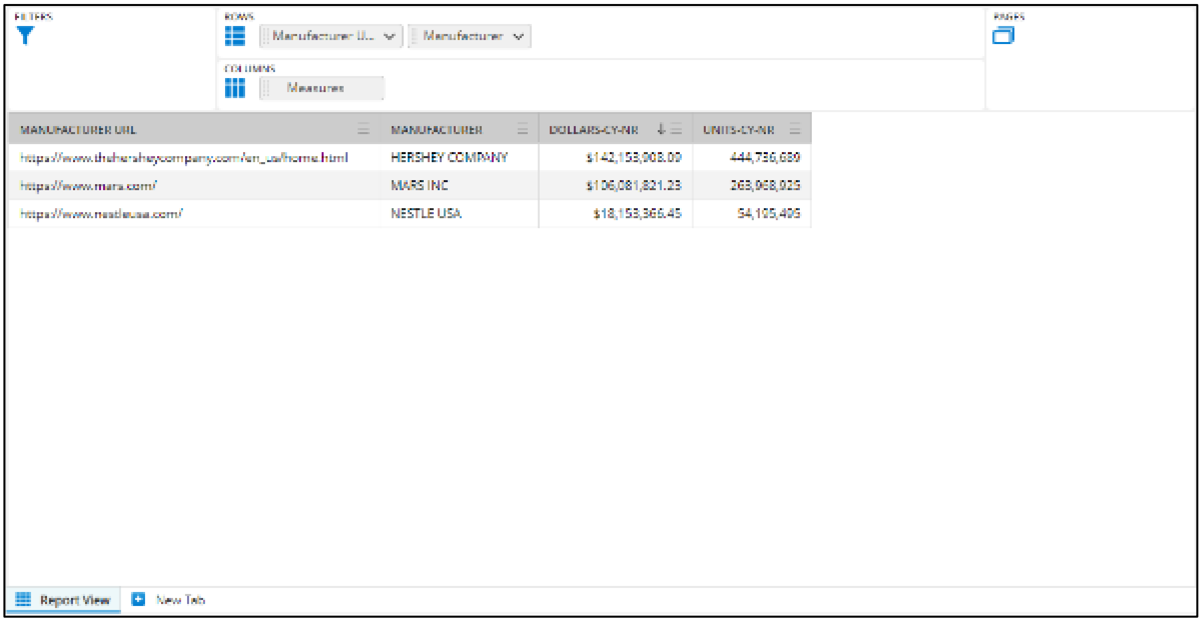




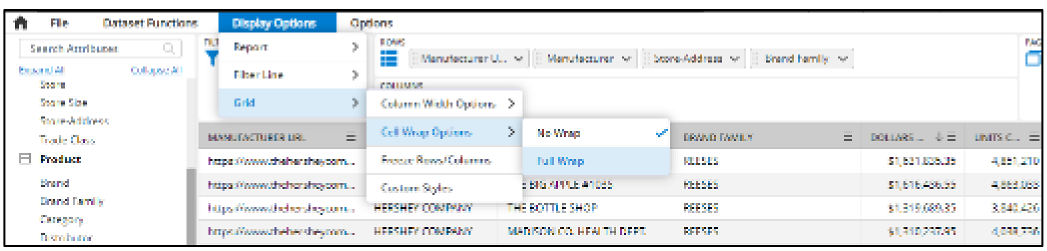
4.14.17 Wrap Text in Rows of the Labels

The user can now apply a full wrap on a column. Applying a wrap setting would override the auto width settings.

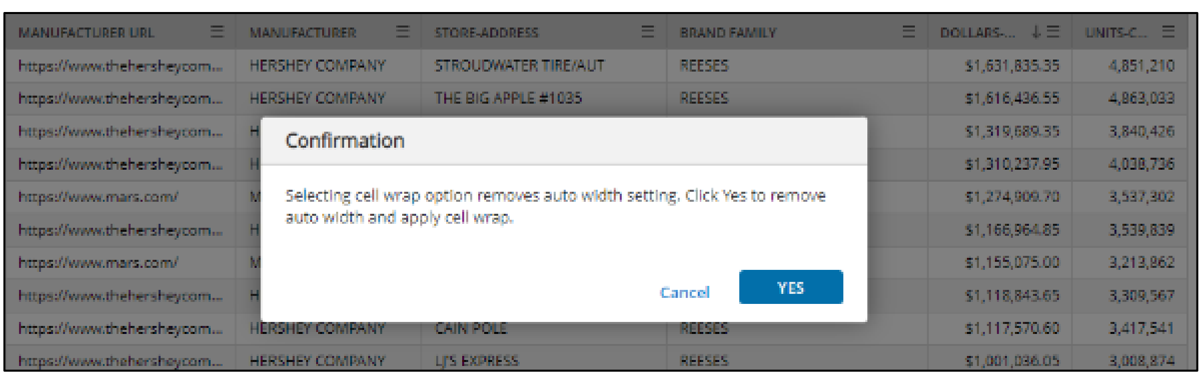
For example, consider the below report:



If the user wants to wrap the text in the first column in order to see the text clearly without ellipsis, the user can apply the full wrap.



Select "Full Wrap" from "Cell Wrap Options." The user is alerted with the below confirmation dialog to override auto width settings.



Clicking on "YES," wrapping is applied to the text to the row label values.

MANUFACTURER URL	MANUFACTURER	STORE-ADDRESS	BRAND FAMILY	DOLLARS-CY-NR	UNITS-CY-NR
https://www.thehersheycompany.com/en_us/home.html	HERSHEY COMPANY	STROUDWATER TIRE/AUT	REESES	$1,631,835.35	4,851,210
https://www.thehersheycompany.com/en_us/home.html	HERSHEY COMPANY	THE BIG APPLE #1035	REESES	$1,616,436.55	4,863,033
https://www.thehersheycompany.com/en_us/home.html	HERSHEY COMPANY	THE BOTTLE SHOP	REESES	$1,319,680.35	3,840,426
https://www.thehersheycompany.com/en_us/home.html	HERSHEY COMPANY	MADISON CO. HEALTH DEPT.	REESES	$1,310,237.95	4,038,736
https://www.mars.com/	MARS INC	STROUDWATER TIRE/AUT	M&M'S	$1,274,909.70	3,537,302
https://www.thehersheycompany.com/en_us/home.html	HERSHEY COMPANY	B & A VARIETY - TURNER	REESES	$1,166,964.85	3,530,839
https://www.mars.com/	MARS INC	THE BIG APPLE #1035	M&M'S	$1,155,075.00	3,213,862
https://www.thehersheycompany.com/en_us/home.html	HERSHEY COMPANY	BANGOR NEWS & GIFT	REESES	$1,118,643.65	3,309,567
https://www.thehersheycompany.com/en_us/home.html	HERSHEY COMPANY	CAIN POLE	REESES	$1,117,570.60	3,417,541
https://www.thehersheycompany.com/en_us/home.html	HERSHEY COMPANY	LJ'S EXPRESS	REESES	$1,001,036.05	3,008,874
https://www.mars.com/	MARS INC	THE BOTTLE SHOP	M&M'S	$986,256.75	2,709,106
https://www.mars.com/	MARS INC	STROUDWATER TIRE/AUT	SNICKERS	$969,850.25	2,834,371

Report View | New Tab

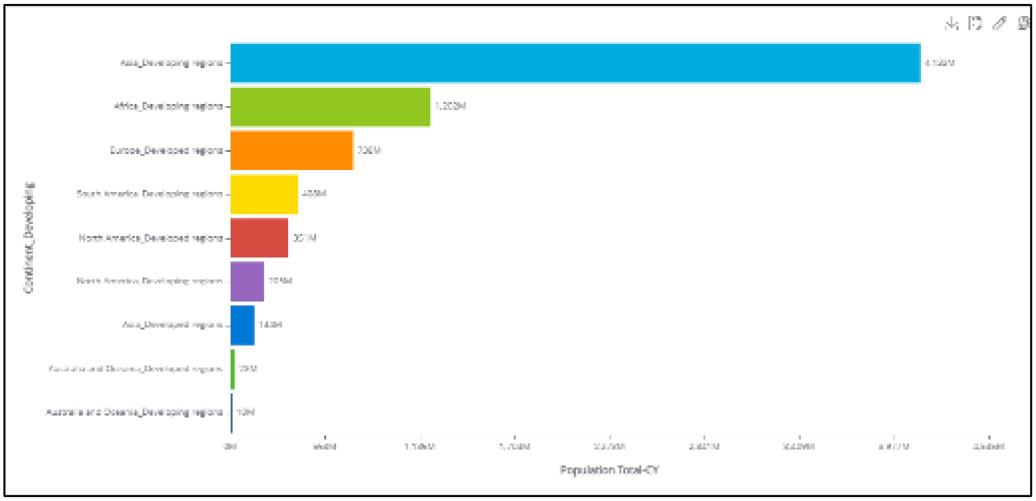
4.14.18 Expression KPI's/ Scaling

The user can set the custom format in the grid view through the measure configuration dialog. This format is specific to the grid view.

The custom format is not supported in charts, and the default format would be the same as the measure default format. The user has an option to change the scale in visuals.

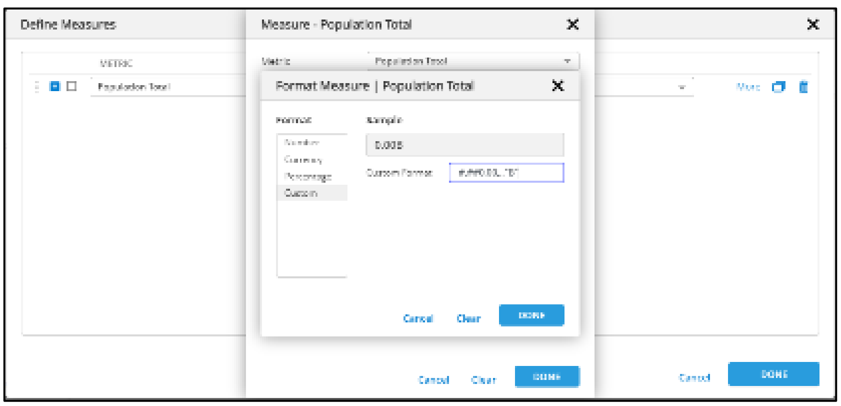
For example, consider the below report with two attributes and one measure. Report view and Visual view are shown below: For example, consider the below report with two attributes and one measure. Report view and Visual view are shown below:

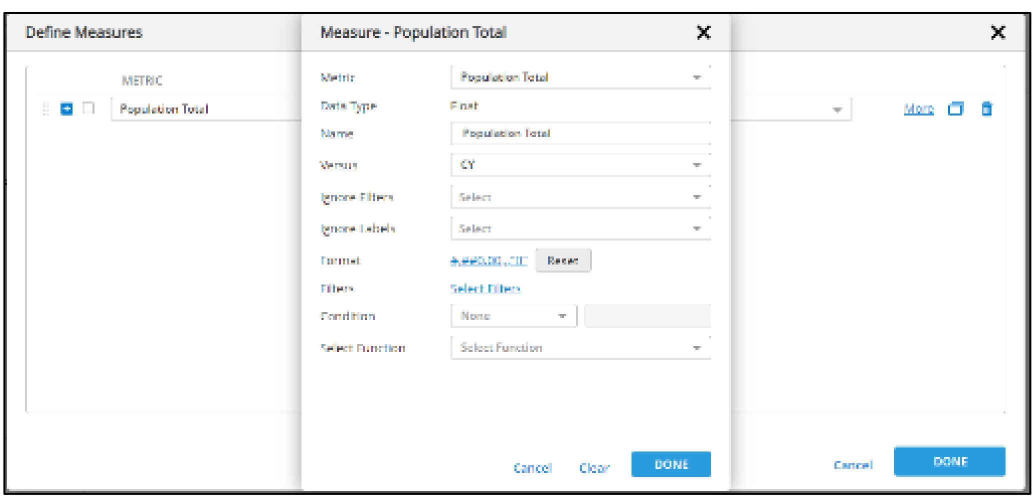
CONTINENT	DEVELOPING	POPULATION TOTAL
Asia	Developing regions	4,132,997,385
Africa	Developing regions	1,201,543,407
Europe	Developed regions	738,037,056
South America	Developing regions	407,681,712
North America	Developed regions	351,499,750
North America	Developing regions	205,045,384
Asia	Developed regions	144,446,578
Australia and Oceania	Developed regions	27,621,835
Australia and Oceania	Developing regions	9,851,476



Apply custom format for Population Total Measure in the report as below:

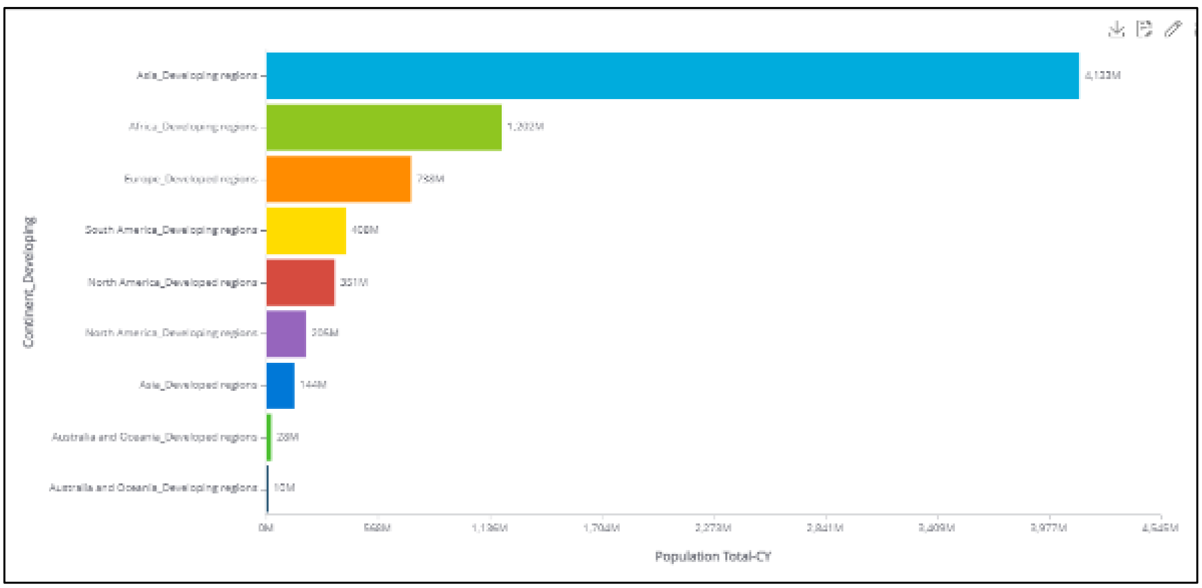
Applied Billions format: #,##0.00,,,**"B"**





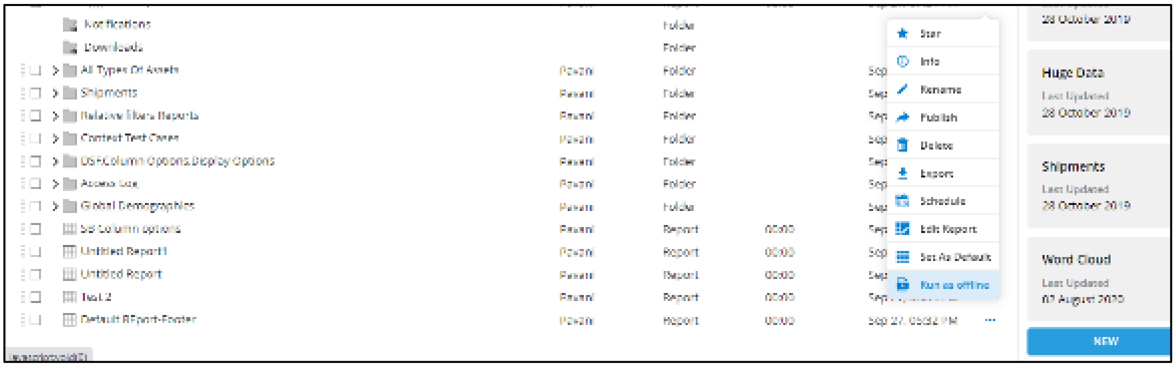
Now the same will be reflected in the report view but not on other visuals. Observe the format in the main view has changed to billions. But the format in the visual is still millions which are set by "Auto."

CONTINENT	DEVELOPING	POPULATION TOTAL
Asia	Developing regions	4.13B
Africa	Developing regions	1.20B
Europe	Developed regions	0.74B
South America	Developing regions	0.41B
North America	Developed regions	0.35B
North America	Developing regions	0.21B
Asia	Developed regions	0.14B
Australia and Oceania	Developed regions	0.03B
Australia and Oceania	Developing regions	0.01B

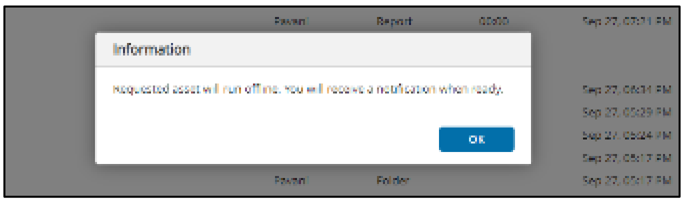


4.14.19 Running Report Offline

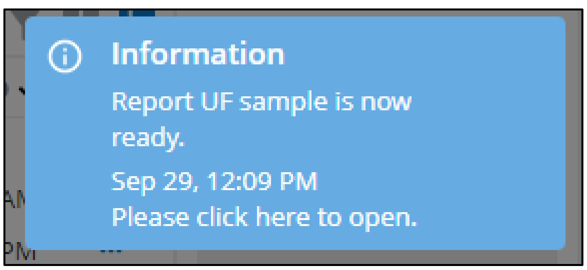
This feature is useful for long-running reports, and the user does not want to be In front of the system until the execution is completed. It allows the user to trigger the execution in the backend, cache the report data, and will notify the user when ready.



Clicking on the "Run To Cache" option for a specific report, the user will be alerted for the initiation of the report execution.



When the report is executed and cached, the user will get a notification. Now the user can open the report, and it should display much faster as it is fetched from the cache.

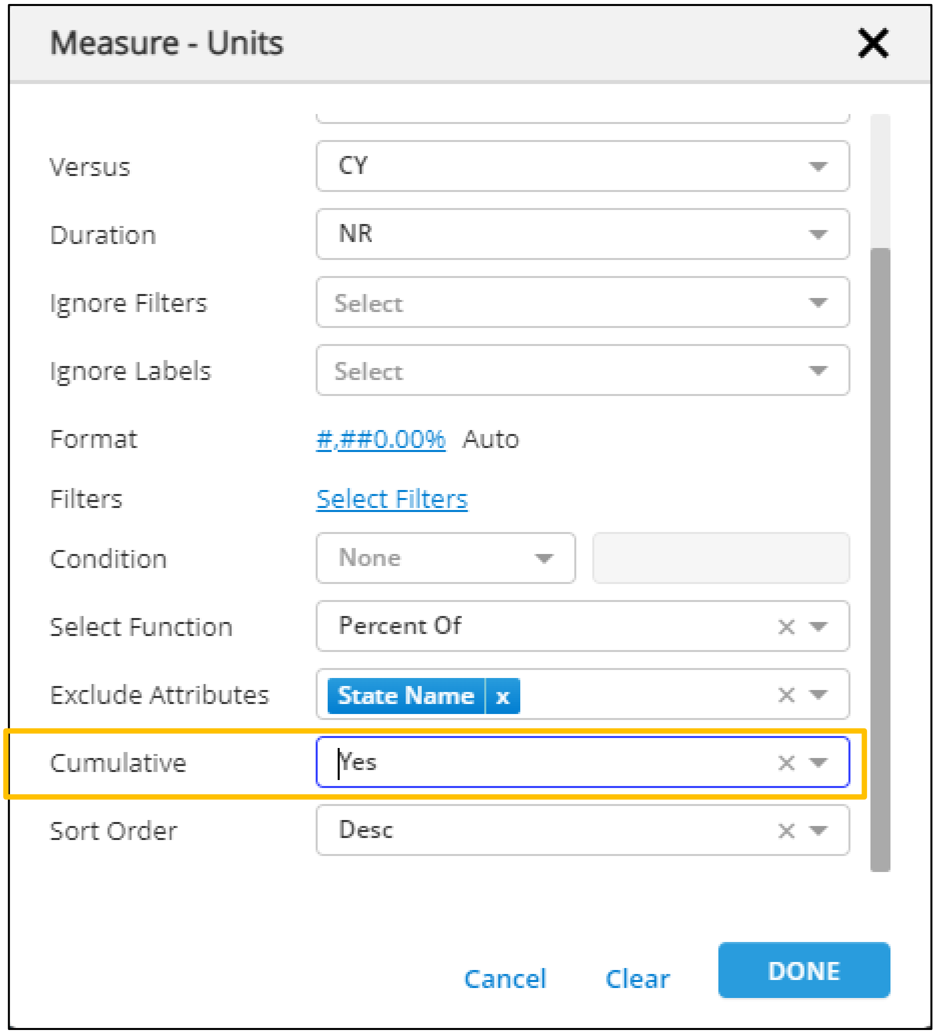


4.14.20 Support for Cumulative Percent Of

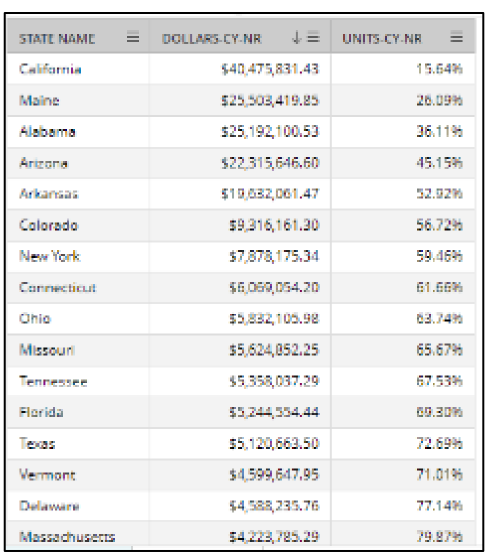
The percent of function is enhanced with cumulative parameter. This feature allows the user to calculate "Aggregate Running total" and share kind of metrics.

Following is an example to display cumulative percent on units measure:

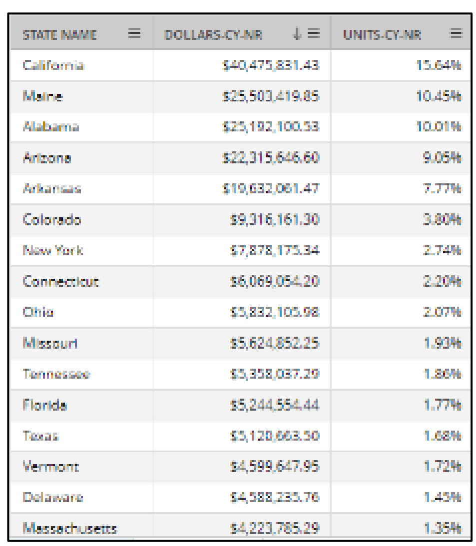
Choose the 'Percent Of' function and choose the Cumulative option as "Yes".



The following images display the difference between choosing “Cumulative” as “Yes” and “No”



STATE NAME	DOLLARS-CY-NR	UNITS-CY-NR
California	$40,475,831.43	15.64%
Maine	$25,503,419.85	26.09%
Alabama	$25,192,100.53	36.11%
Arizona	$22,315,646.60	45.15%
Arkansas	$19,632,061.47	52.92%
Colorado	$9,316,161.30	56.72%
New York	$7,878,175.34	59.46%
Connecticut	$6,069,054.20	61.66%
Ohio	$5,832,105.98	63.74%
Missouri	$5,624,852.25	65.67%
Tennessee	$5,358,037.29	67.53%
Florida	$5,244,554.44	69.30%
Texas	$5,120,663.50	72.69%
Vermont	$4,599,647.95	71.01%
Delaware	$4,588,235.76	77.14%
Massachusetts	$4,223,785.29	79.87%



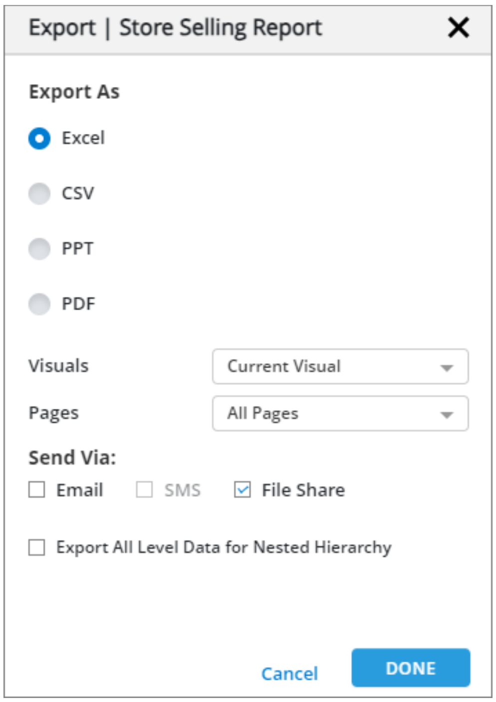
STATE NAME	DOLLARS-CY-NR	UNITS-CY-NR
California	$40,475,831.43	15.64%
Maine	$25,503,419.85	10.45%
Alabama	$25,192,100.53	10.01%
Arizona	$22,315,646.60	9.05%
Arkansas	$19,632,061.47	7.77%
Colorado	$9,316,161.30	3.80%
New York	$7,878,175.34	2.74%
Connecticut	$6,069,054.20	2.20%
Ohio	$5,832,105.98	2.07%
Missouri	$5,624,852.25	1.93%
Tennessee	$5,358,037.29	1.86%
Florida	$5,244,554.44	1.77%
Texas	$5,120,663.50	1.68%
Vermont	$4,599,647.95	1.72%
Delaware	$4,588,235.76	1.45%
Massachusetts	$4,223,785.29	1.35%

Applying Cumulative on Percent Of on Units Without applying Cumulative on Percent Of on Units

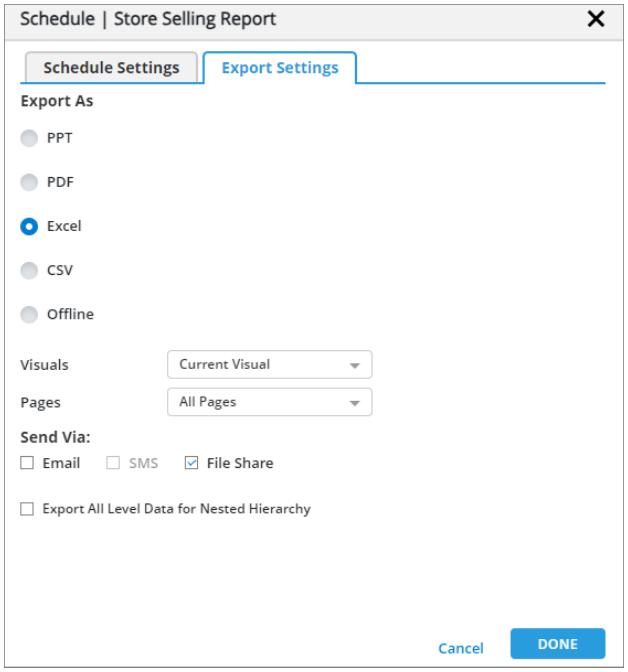
4.14.21 File share target: An option to schedule a file to a specific location.

This feature allows users to schedule/export a file to a specific location on the server. Admin/Governor must set up a directory for each user on the server. This feature needs to be enabled at an application level. By default, this feature is disabled.

On selecting the export/schedule option for the report from the home screen or report page, the below options are displayed to the user.



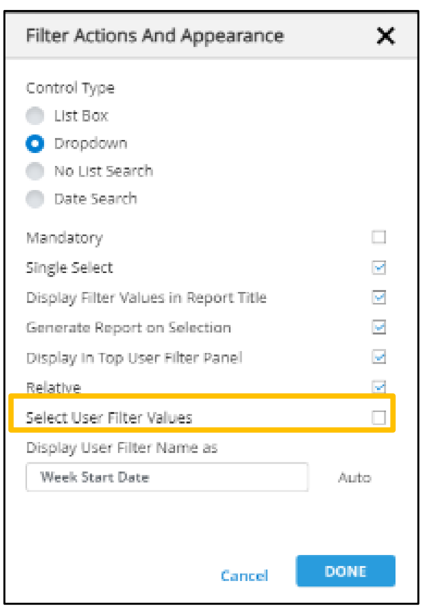
When the user selects the "File Share" option, the exported report will be placed in the user directory on the server, which is configured by the Admin or Governor. The same option is also available for schedule, as shown below.



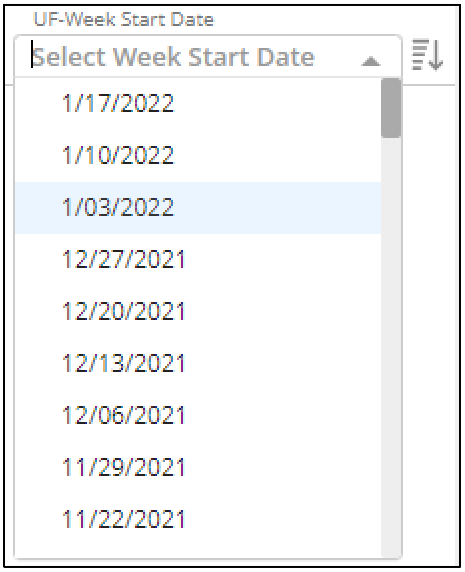
4.14.22 *User filter relativeness: Support for relativeness selection in the user filter*

The producer can specify the user filter value behavior as absolute or relative.

This allows the user to select relative date values as user filters which are updated when new data is added.



UF values are displayed in the UF area as below:



The values selected will respect relativeness and will be updated when domain data is modified.

4.14.23 Auto-update of Measure Name (KPI++)

When a measure is copied or created, the default metric convention (Metric-param1-param2-…) will be used to create the metric name.

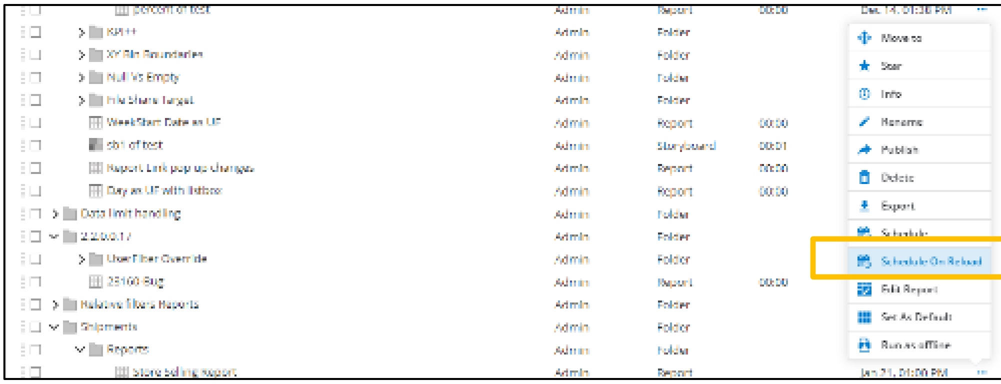
Please see how the name of the measure with versus and duration values.

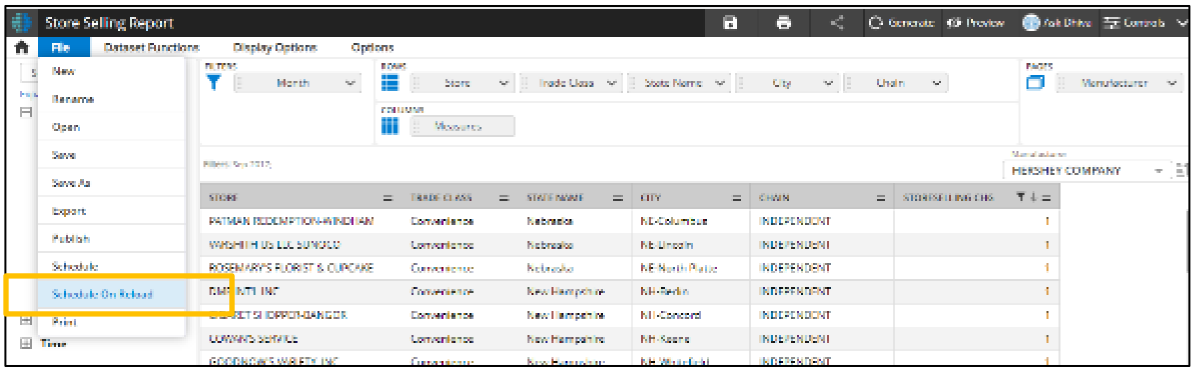
If the user modifies the value of the parameters like versus or duration, the measure name will adjust to show the new value of the parameter.

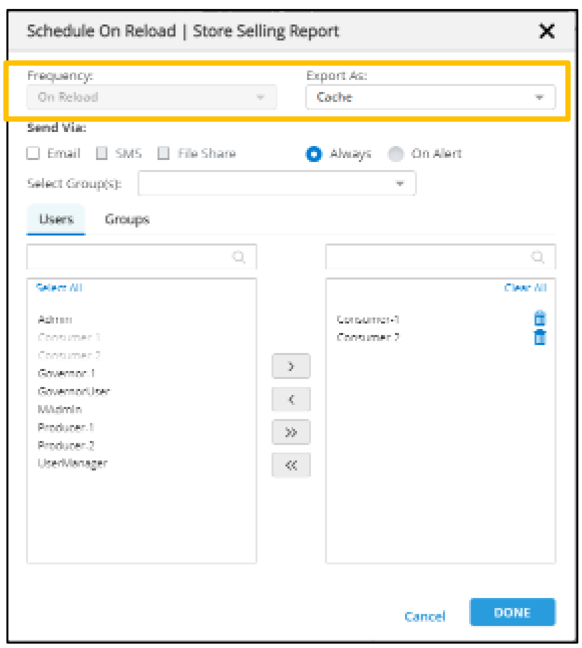
4.14.24 Cache data on reload

Cache data on reload feature allows producers to set up reports/storyboards to be auto generated or refreshed when domain data is updated.

The producer will have an option to refresh the cache of a specific report on data reload. This is specific to a report or storyboard and can be scheduled from the home page or the File menu from the report page.







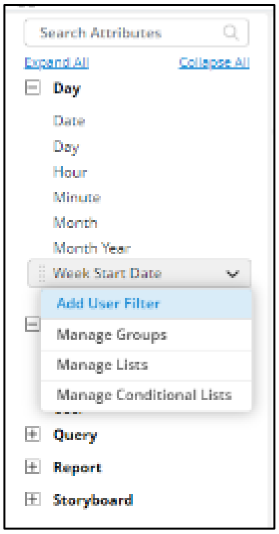
Users can schedule and export to cache besides other regular export options like Excel, PDF, etc.

On successful data load, assets that have been scheduled for reloading will be refreshed. When Export Type is selected as “Cache”, the user list is restricted to only those users/groups to whom the asset is published. This helps in reducing unnecessary cache creation for users who do not have access to the asset.

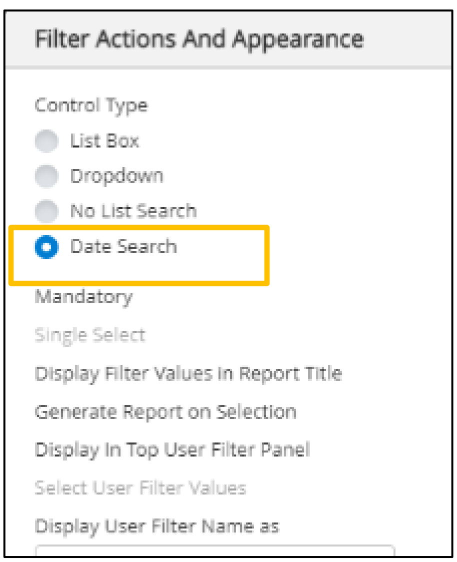
4.14.25 Advanced date search options for date-time attributes for UF

The user can now apply some advanced date search options from the user filters dialog. This allows producers to set up a user filter such that consumers will have an option to provide the date range.

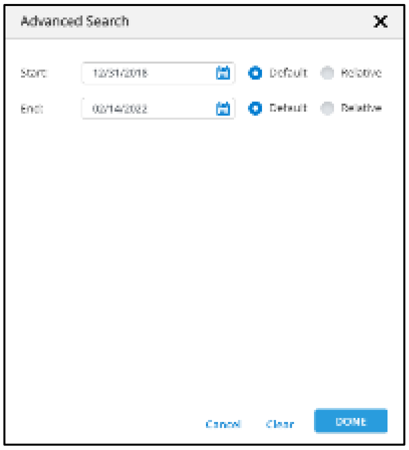
To add a user filter with a date range, select the "Add User Filter" option on the Date or DateTime attribute.



Please choose the "Date Search" option.



Users can use this feature only for date and date-time attributes. Select Start and End date with default or relative option as below and click on done.

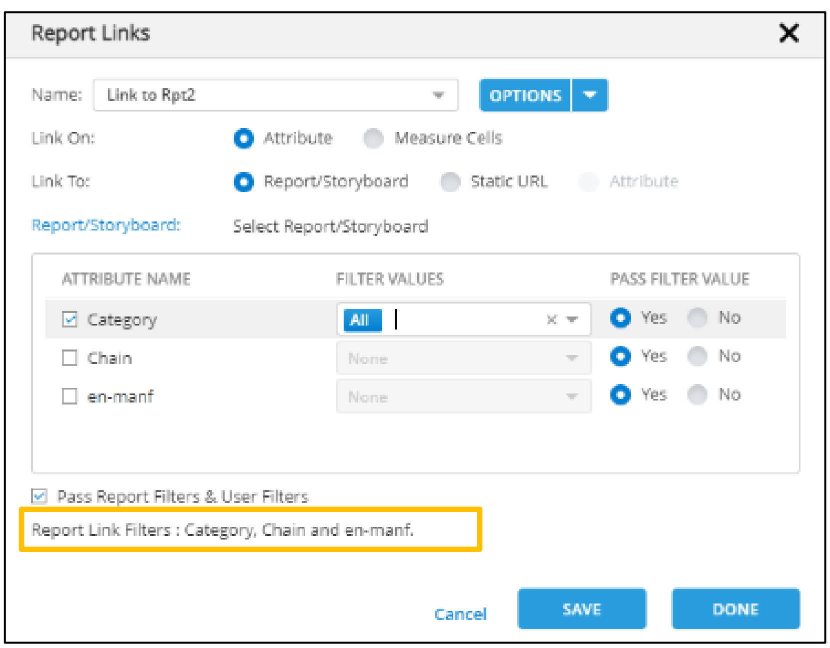


The Applied UF range is displayed in the filter line.

Note: This feature is applicable only for Date/Date Time attributes.

4.14.26 Report linking enhancements

- Report link filters: The users can easily identify which filters are passed to the target report.



- The behavior of the target report: When the user navigates to the target report via a link, the passed filters from the source will override both regular report filters and user filters of the target report.

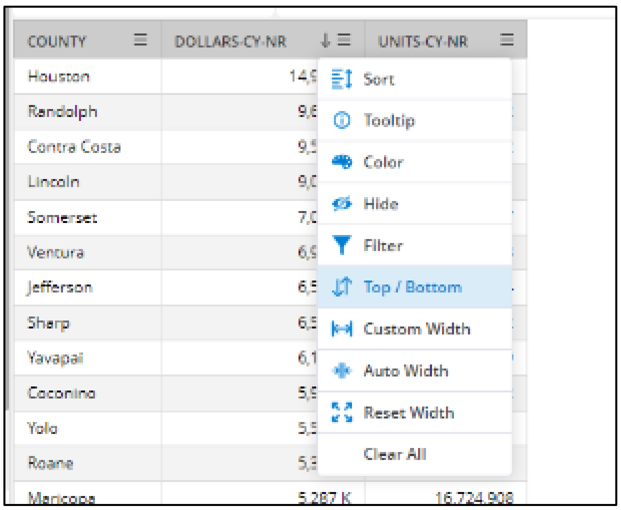
4.14.27 Feature to apply both Top and Bottom on the data

We can now apply both Top X and Bottom X at the same time. This will facilitate the user to view top and bottom values at the same time.

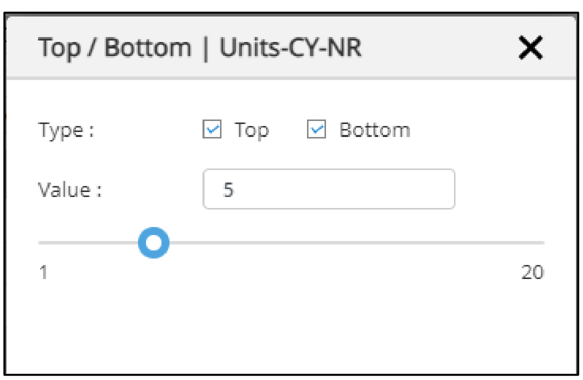
Following is an example.

1. Create a report with County on rows and Dollars, Units measures on columns.

2. From the Column option on Units, click on Top & Bottom.



Check both Top and Bottom and enter 5 in the values input box. Click on 'Done'

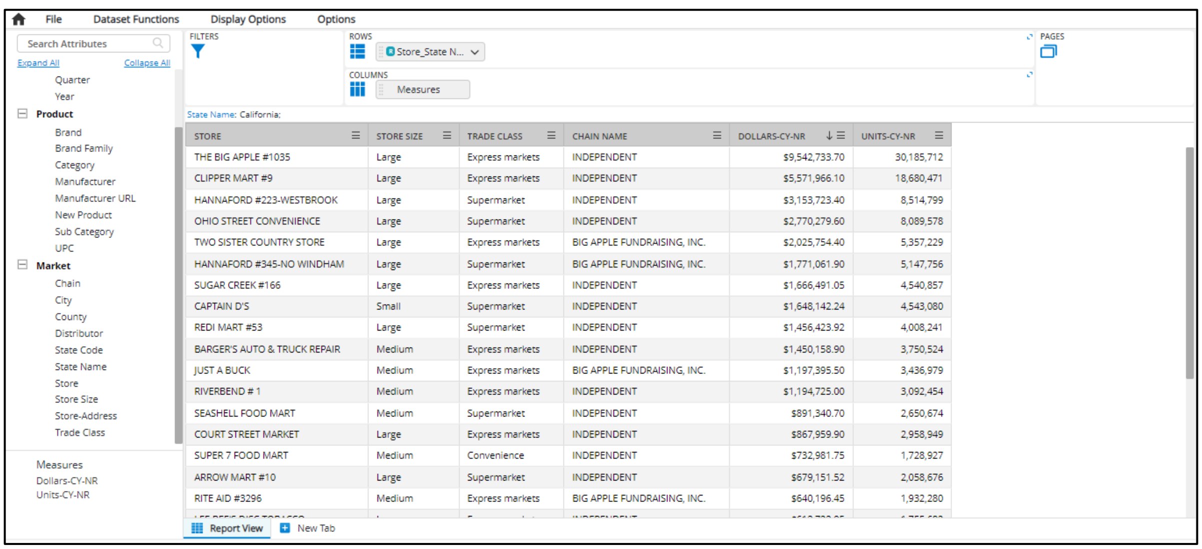


The report now displays the top five and bottom five countries on unit's measure.

COUNTY	DOLLARS-CY-NR	TOP & BOTTOM UNITS-CY-NR
Houston	14,995 K	44,642,771
Randolph	9,625 K	29,439,352
Contra Costa	9,543 K	30,185,712
Lincoln	9,048 K	27,351,241
Somerset	7,093 K	22,830,807
Carroll	4 K	10,370
Wayne	4 K	7,200
Monongalia	3 K	6,060
Thurston	2 K	3,780
Woodward	0 K	300

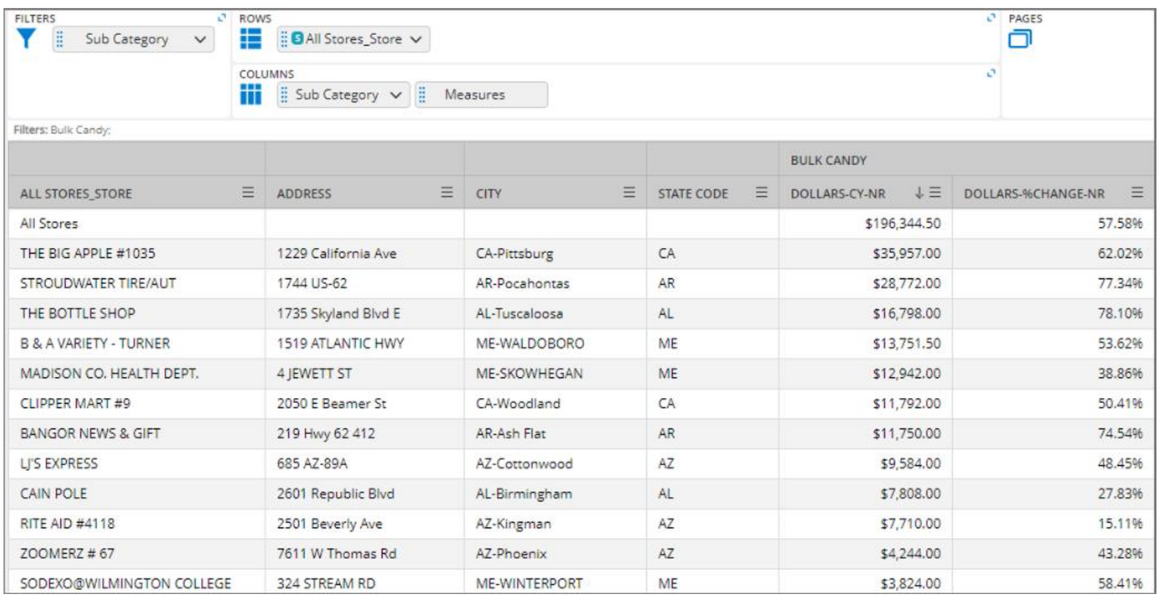
4.14.28 Display Attribute Configuration

"Show Display Attributes" feature allows users to configure additional display columns in addition to named attribute columns within a report. This feature enhances the flexibility and customization of report displays.



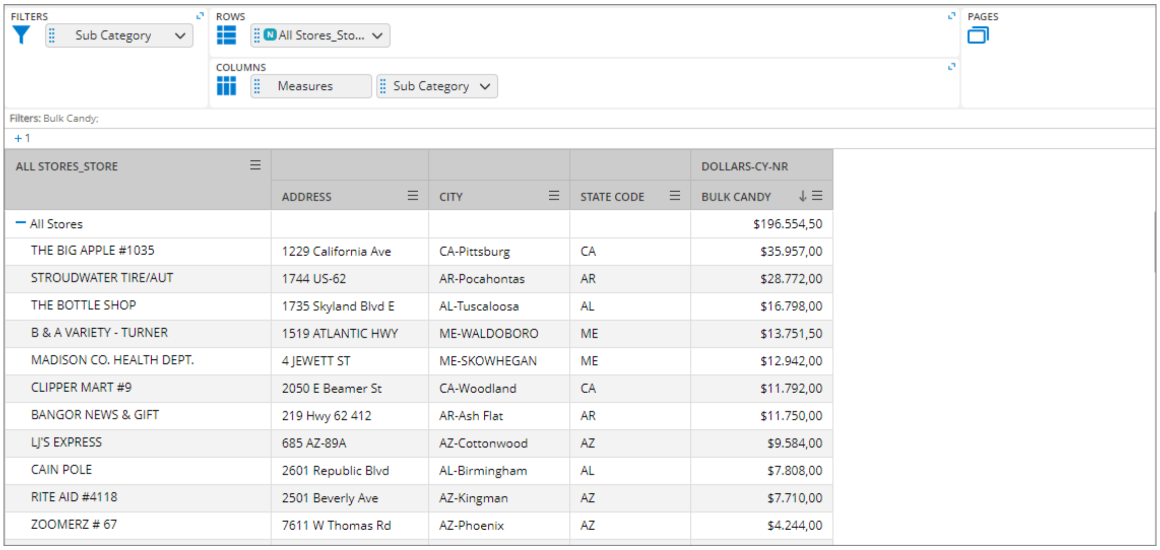
- Users can configure extra attributes as display attributes using the admin application within the attributes section.
- A toggle option labeled "Show Display Attributes" is provided in the report view's options menu.
- The toggle option is available exclusively in the report main view and is not accessible within visuals. Even within the report grid visual, this option is not provided; instead, the setting from the report main view is used.

- The default setting for the "Show Display Attributes" option is defined in the global settings. This setting is used as the default for new reports.
- If a user explicitly changes the "Show Display Attributes" option within a report and saves it, the modified configuration is retained for that specific report.
- Reports that have been explicitly configured with different toggle settings will always use the saved report's configuration, regardless of the global settings.
- The "Show Display Attributes" option is disabled for published reports.
    - For Producers: The option becomes enabled after performing a "Save As," allowing the producer to configure it.
    - For Consumers: This option is disabled for both variants and published reports.
- The "Show Display Attributes" option is provided inside the report, regardless of whether the display attributes are configured within RCP.
- For report links and replacement cases, all the display columns have hyperlinks, and they all feature a "+" icon when in replacement mode. Users can drill down from any column to the next attribute.
- In case of stacked hierarchy/stub, configured display attributes will be added to the columns beside the stacked hierarchy.



				BULK CANDY	
ALL STORES_STORE	ADDRESS	CITY	STATE CODE	DOLLARS-CY-NR	DOLLARS-%CHANGE-NR
All Stores				$196,344.50	57.58%
THE BIG APPLE #1035	1229 California Ave	CA-Pittsburg	CA	$35,957.00	62.02%
STROUDWATER TIRE/AUT	1744 US-62	AR-Pocahontas	AR	$28,772.00	77.34%
THE BOTTLE SHOP	1735 Skyland Blvd E	AL-Tuscaloosa	AL	$16,798.00	78.10%
B & A VARIETY - TURNER	1519 ATLANTIC HWY	ME-WALDOBORO	ME	$13,751.50	53.62%
MADISON CO. HEALTH DEPT.	4 JEWETT ST	ME-SKOWHEGAN	ME	$12,942.00	38.86%
CLIPPER MART #9	2050 E Beamer St	CA-Woodland	CA	$11,792.00	50.41%
BANGOR NEWS & GIFT	219 Hwy 62 412	AR-Ash Flat	AR	$11,750.00	74.54%
LJ'S EXPRESS	685 AZ-89A	AZ-Cottonwood	AZ	$9,584.00	48.45%
CAIN POLE	2601 Republic Blvd	AL-Birmingham	AL	$7,808.00	27.83%
RITE AID #4118	2501 Beverly Ave	AZ-Kingman	AZ	$7,710.00	15.11%
ZOOMERZ # 67	7611 W Thomas Rd	AZ-Phoenix	AZ	$4,244.00	43.28%
SODEXO@WILMINGTON COLLEGE	324 STREAM RD	ME-WINTERPORT	ME	$3,824.00	58.41%

- In case of nested hierarchy, configured display attributes will be added on expansion and removed on collapsing the hierarchy.



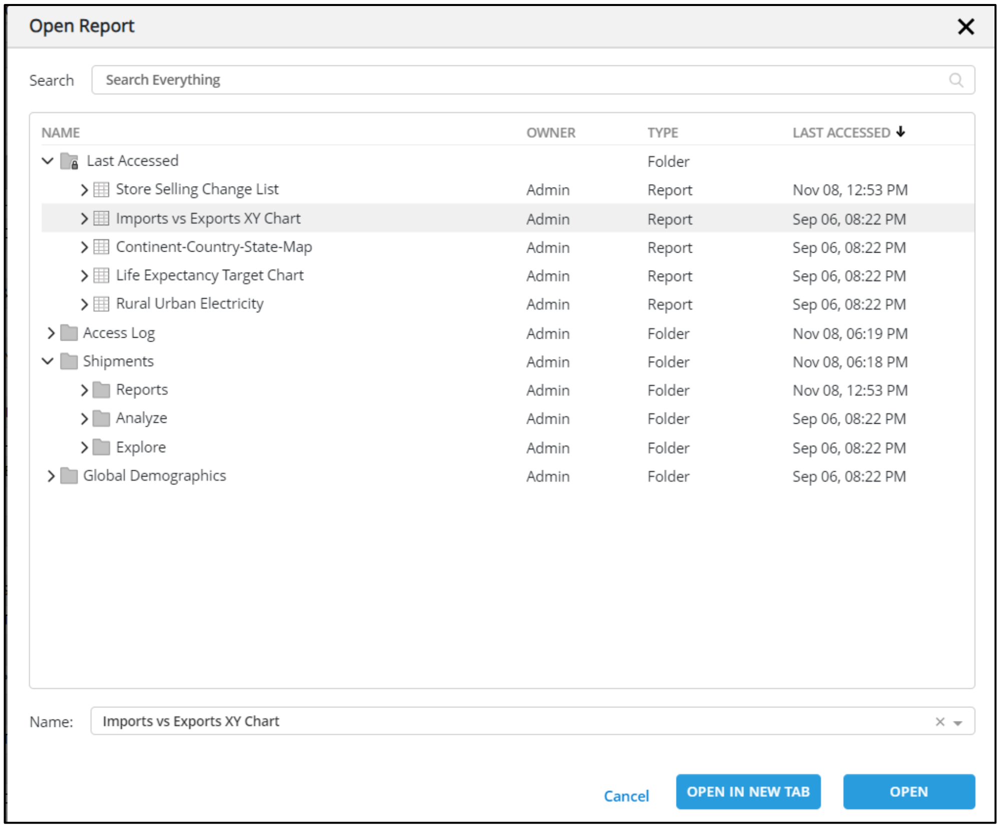
ALL STORES_STORE	ADDRESS	CITY	STATE CODE	DOLLARS-CY-NR BULK CANDY
− All Stores				$196.554,50
THE BIG APPLE #1035	1229 California Ave	CA-Pittsburg	CA	$35.957,00
STROUDWATER TIRE/AUT	1744 US-62	AR-Pocahontas	AR	$28.772,00
THE BOTTLE SHOP	1735 Skyland Blvd E	AL-Tuscaloosa	AL	$16.798,00
B & A VARIETY - TURNER	1519 ATLANTIC HWY	ME-WALDOBORO	ME	$13.751,50
MADISON CO. HEALTH DEPT.	4 JEWETT ST	ME-SKOWHEGAN	ME	$12.942,00
CLIPPER MART #9	2050 E Beamer St	CA-Woodland	CA	$11.792,00
BANGOR NEWS & GIFT	219 Hwy 62 412	AR-Ash Flat	AR	$11.750,00
LJ'S EXPRESS	685 AZ-89A	AZ-Cottonwood	AZ	$9.584,00
CAIN POLE	2601 Republic Blvd	AL-Birmingham	AL	$7.808,00
RITE AID #4118	2501 Beverly Ave	AZ-Kingman	AZ	$7.710,00
ZOOMERZ # 67	7611 W Thomas Rd	AZ-Phoenix	AZ	$4.244,00

Assumptions, Limitations, and Issues:

1. In replacement drill-down, the breadcrumb value always shows the named attribute value, even when the drill-down occurs on additional display columns.
2. If a user applies sorting to two or more display attribute columns and manages the display order on the attribute, group sorting may not be consistently applied.
3. All display attribute columns will be shown upfront in exported file, regardless of expansion.

4.14.29 Opening Report in New Tab

This feature allows users to open a report in a new tab directly from the existing report or storyboard view, without the need to return to the home screen. The "Open in New Tab" option enhances user efficiency by simplifying the process of accessing and managing multiple reports.



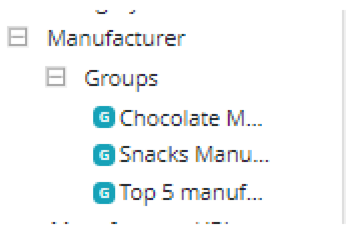
- A button labeled "Open in New Tab" is added to the asset selection pop-up that appears when the user clicks the "Open" option from the menu.
- When a report/storyboard is selected, the "Open in New Tab" option is enabled.
- Upon clicking "Open in New Tab," the selected report/storyboard is opened in a new tab, allowing users to work with multiple reports simultaneously.

4.14.30 Folder Organization for Groups and Lists

This feature introduces the capability to organize groups and lists into individual folders, improving the management and accessibility of these artifacts.

Groups and Lists are now organized into individual folders, offering a structured approach to managing these artifacts. Folder creation for groups and lists is dependent on the existence of at least one group or list within the category. These folders resemble the root-level folders, such as Product, Market, and more, ensuring consistency in the user interface.

In the attribute list panel, when an attribute is expanded, folders for groups or lists are displayed. Upon expanding these group or list folders, individual artifacts are presented under their respective folders.

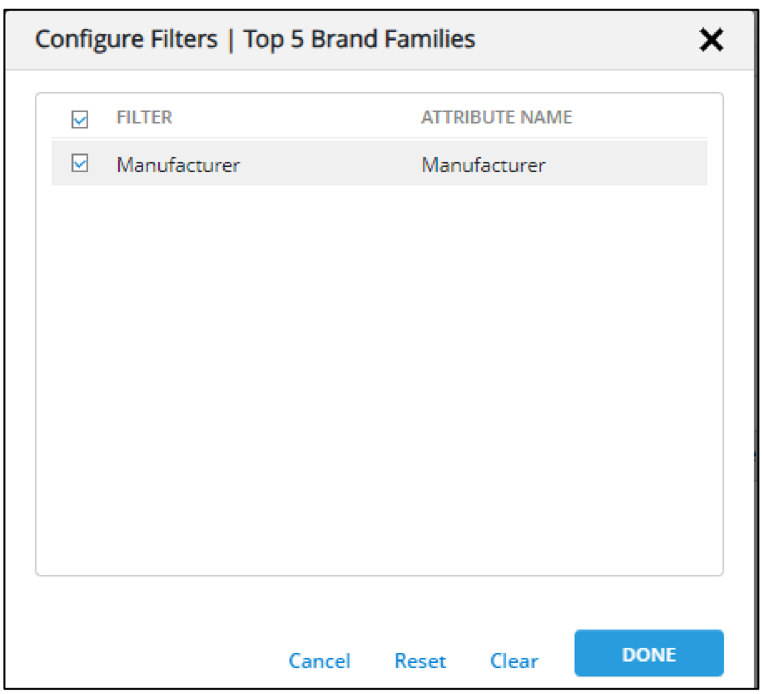


Users can configure this setting in global settings to determine whether to display groups and lists in separate folders or not.

4.14.31 Configure Filters on Conditional List/List/Group/Stub

This feature aims to enhance the usability of different artefacts within the RCP by allowing the inclusion of report filters while executing them. Upon accessing a conditional list/ list/group/stub in RCP a new option named "Configure Filters" will be available.

Selecting the "Configure Filters" option triggers a pop-up window showcasing report filters and user filters, excluding stub, measure group, , group, list and conditional list. Filters will only be applied to artefacts where applicable. Static groups and static lists will not be affected by filters.

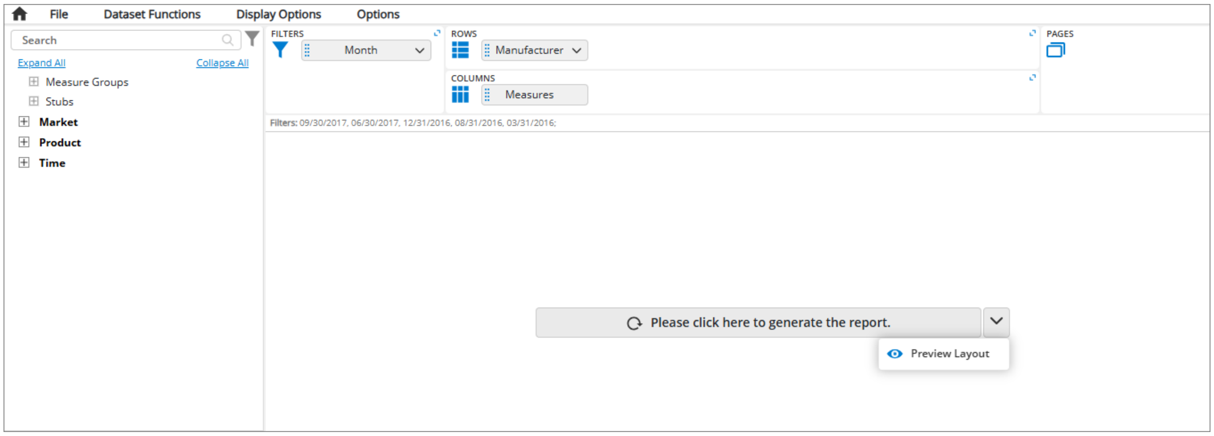


Configuration in Hierarchies: Even when filters are part of a Hierarchy, users can configure them by accessing the "Edit Hierarchy" pop-up and navigating to the conditional list dropdown options.
This approach enhances the conditional list functionality by allowing users to align their report filters with conditional list executions, ensuring greater flexibility and control over data filtering.

4.14.32 Preview Report Layout

This feature lets you preview the report layout before generating it. You can see how the attributes and measures will be arranged in the grid with synthetic data.

- If any criteria are changed, a message will appear to notify you. You will also have the option to view a preview of the updated layout.

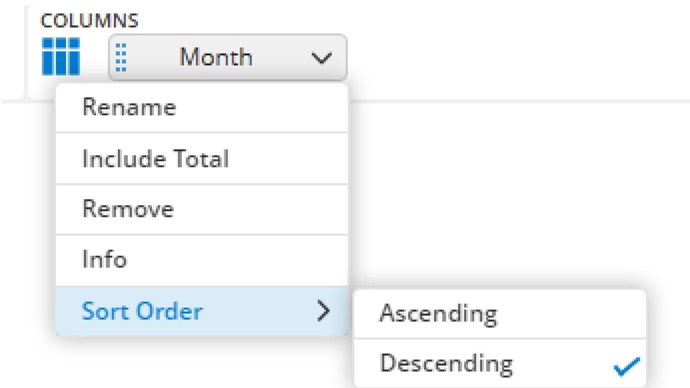


- The system will switch to preview mode, just like the existing preview feature in the report view. It will use sample data to show the layout without retrieving actual data.

- When Nested or Replacement Hierarchies are used, drill-down icons will appear on both cell values and headers, allowing you to explore detailed data.
- For stacked hierarchies, all related attributes will be combined and displayed together.
- The preview option is available only for grid visuals. We do not support preview mode for charts.
- In preview mode, certain features like row and column functions (such as Top, Bottom, Sort, and Filter), data bars, superscripts for artifacts, report links, and other advanced options will not be displayed.
- The preview mode is not supported in mobile view.

4.14.33 ASC Or DESC order for column attributes

Time-based attributes in columns will now be sorted in descending order by default. You can also change the sorting order using a new sorting option available for all column attributes.

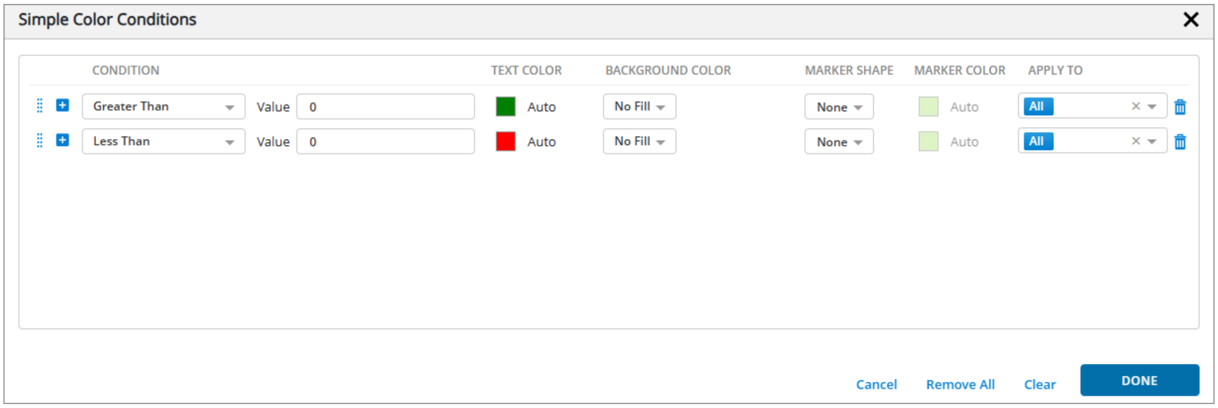


- You can sort all attributes using the sorting option, except for the 'Measure' attribute, which cannot be sorted.
- This menu will include a sub-menu with two sorting options: 'Ascending' and 'Descending.' One option will be selected automatically based on the type of data in the column. By default, date and date-time attributes will be sorted in 'Descending' order, while all other attributes will be sorted in 'Ascending' order.
- If you sort an attribute in the columns section and then move it to rows or pages, the sorting will not be retained.
- The sort order will be maintained in the grid visual.
- If you sort an attribute in the columns section and then move it to rows or pages, the sorting will reset.
- For stubs, these settings are editable only via the Stub Configuration Popup

4.14.34 Simple Color Conditions

This feature streamlines conditional color formatting by enabling users to apply multiple rules to a single metric, as well as a single rule across multiple metrics.

- A “Simple Color Conditions” option is available under Display Options, allowing users to define multiple conditions. The popup, similar to the image below, includes columns for Condition, Text Color, Background Color, Marker Shape and Color, Apply to Metrics, and a Delete icon.



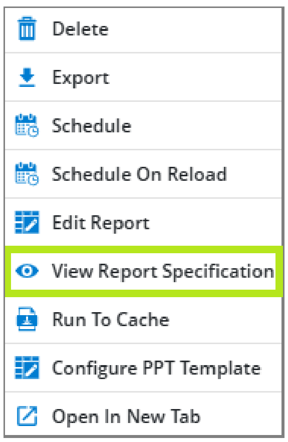
- The Condition dropdown includes operators such as: *Greater Than, Greater Than or Equal To, Less Than, Less Than or Equal To, Equals, Not Equals,* and B*etween*. A corresponding text area will be available for users to input the target value.
- The **"Apply To"** column will feature a dropdown listing all user-defined measures and row/column function descriptions, along with an **ALL** option.
- By default, "**ALL**" is selected for the initial condition as well as for any newly created conditions.
- The Background Color column includes a dropdown with "**No Fill**" selected by default. When "**Fill**" is chosen, a color picker appears beside the dropdown, allowing the user to select a background color.
- The **Text Color** column includes a color picker and an **Auto/Reset** button. When the text color is changed, the **Auto** button switches to **Reset**, allowing the user to revert to the default color with a click.
- By default, two conditions are pre-populated when the popup opens:
  - **Condition 1**: *Greater than 0*, green text color, no background fill, marker shape (None), and marker color.
  - **Condition 2**: *Less than 0*, red text color, no background fill, marker shape (None), and marker color.
- If multiple conditions are met for a particular metric, the last matching condition takes precedence and is applied.
- When overlapping conditions apply to the same metric:
  - The last matching condition takes precedence.
  - If the first condition sets both text and background colors, and the second sets only the text color (with "No Fill" for the background), the text color from the second condition and the background color from the first condition will be applied.
- There is no limit to the number of conditions that can be configured, and overlapping conditions are allowed.
- Style precedence (from highest to lowest):
  1. Simple Color Condition
  2. Data Bars
  3. Color Column Function
  4. DSF
  5. Grid Custom Styles
- These colors will be extended to charts through the Override Color dropdown within the chart properties popup (where DSF is supported). The dropdown label has been updated to **"DSF / Simple Color Conditions."**
- This feature is supported across all charts that support extended DSF functionality, including: *Bar Chart, Column Chart, Pie Chart, Funnel Chart, Tree Chart, Bubble Chart, Map, and Combo Chart*.

- When a Measure Group is selected as a user filter, Simple Color Conditions are not applied, and the option for configuring color conditions is disabled.

4.14.35 View Report Specification

Users can view a report's specifications directly from the home screen without executing the report.

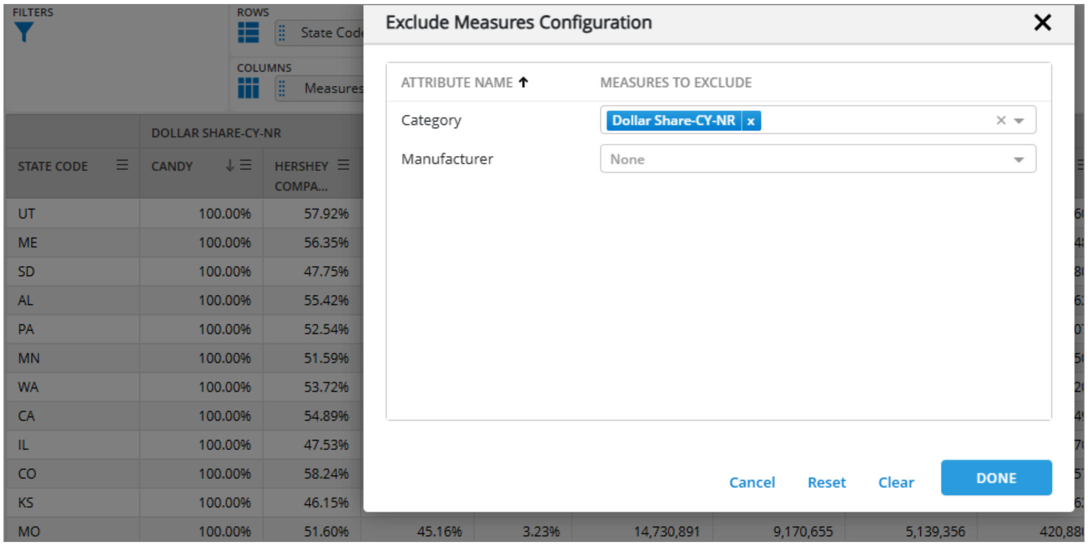
- A "View Report Specification" option has been added to the Asset menu on the Home page.
- This option is displayed for Adhoc Reports, Standard Reports & Merge Reports.
- The option is available for both **user-owned reports** and **reports published to users**.
- When you select this option, the user will be taken to the Report View page, and the Display Specification window will open, showing the report details without running the report.



4.14.36 Exclude Measures Configuration

At the report level, users can choose which measures should not apply to a specific attribute within a stub or stacked hierarchy

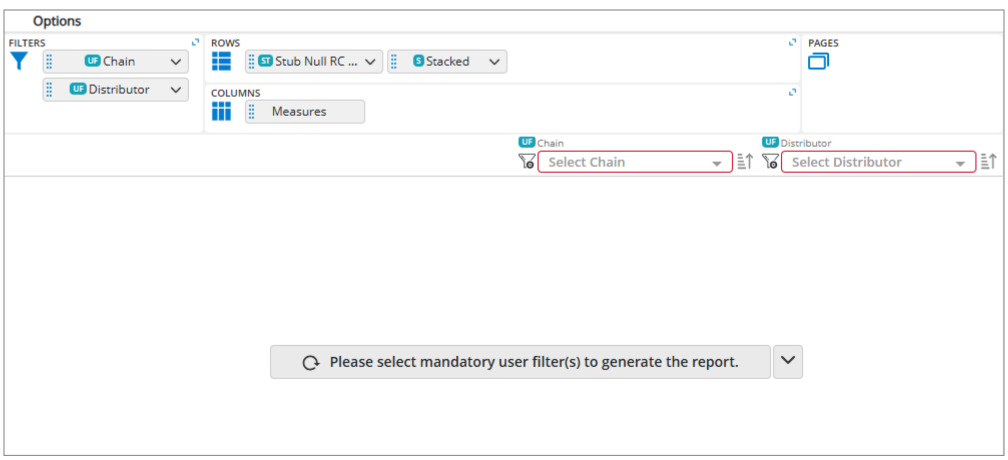
- All attributes involved in stubs or stacked hierarchies within the current report are displayed.
- If a stub is used as a user filter, all participating attributes from all relevant stubs will be displayed.
- If groups or lists are present, only the parent attribute is shown.
- If an attribute is present in more than one stub, stack, or a combination of both, it is displayed only once.
- For each attribute, users can select one or more measures.
- Measure groups are also supported in this configuration. However, if the measure group user filter is changed, the system clears the excluded measures configuration and shows a message to inform the user of this action.



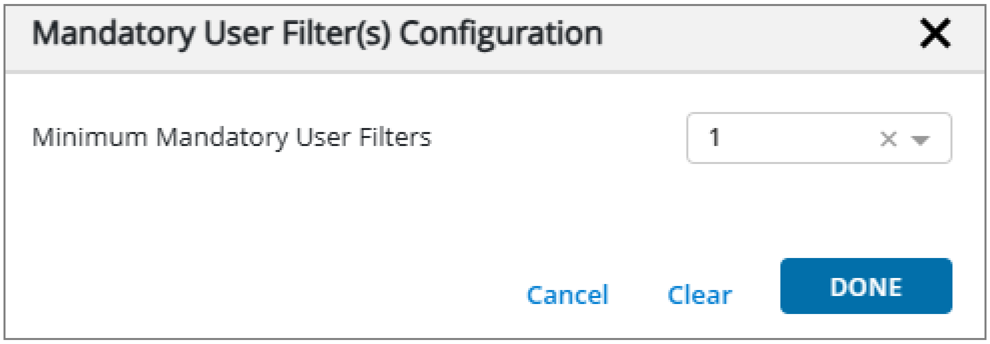
4.14.37 Or Condition for Mandatory User Filters

Users can set a minimum number of mandatory filters that must be selected from the available user filters before the report can be executed.

- An interactive icon is shown to the left of the user filters only when there is more than one mandatory user filter.



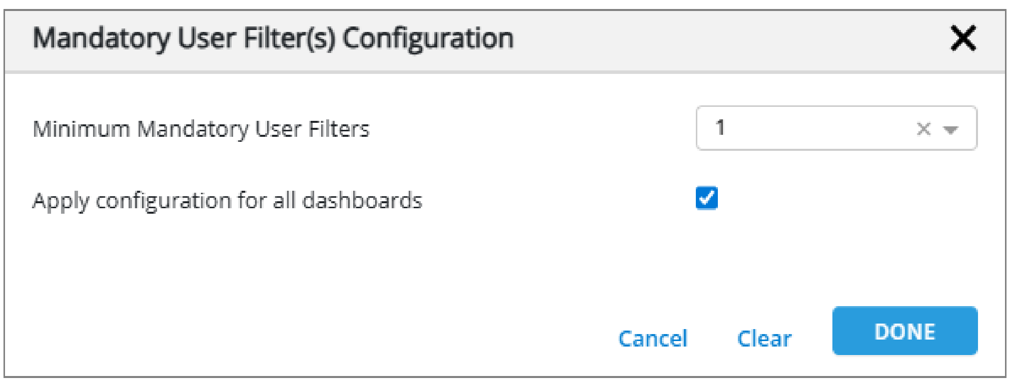
- Users can also configure the minimum number of mandatory user filter selections directly from the report's "Options" menu.
- Clicking this icon opens a popup dialog with a dropdown, allowing users to choose the required minimum number of filters.



- The icon changes color to indicate the selection status: gray when no value is selected and blue when a value is selected.
- This feature is available for reports, merge reports and storyboards.
- The option is disabled for Non-owner reports & Consumer users.

Global and Dashboard-Level Settings

- In storyboards, users can set a global configuration for mandatory user filter selections.
- This global value can be overridden at the individual dashboard level.
- An additional "Apply to All Dashboards" option is provided, allowing users to propagate the global setting across all applicable dashboards.



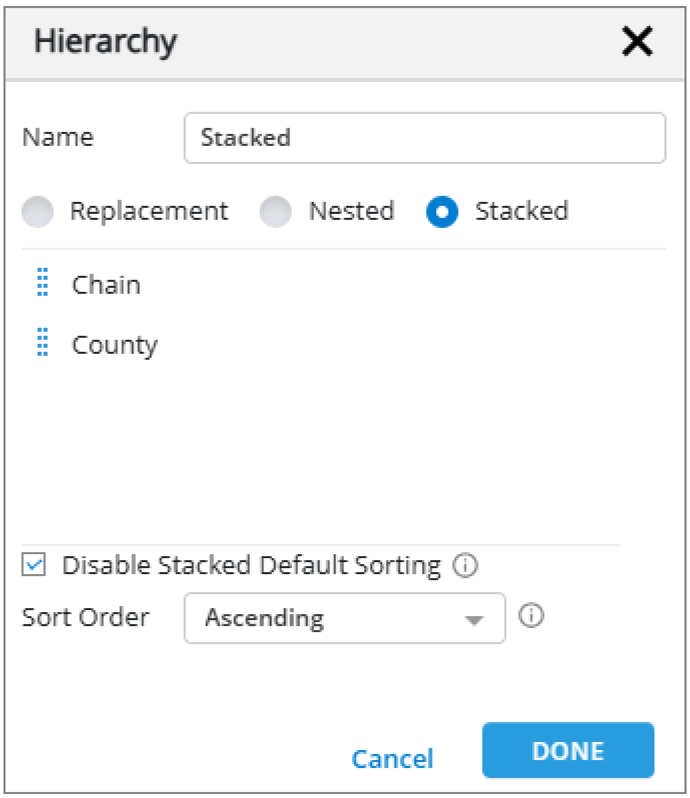
- If a dashboard-level configuration already exists, and the user clicks **"Apply to All Dashboards"**, the system will:
  - Display a confirmation message informing the user that the existing dashboard-level setting will be cleared.
- If the configuration being applied is not valid for all dashboards, the system will
  - Show a confirmation prompt
  - Notify the user that the setting is not applicable to all dashboards
  - Ask the user to revise the configuration before proceeding
- When applying configuration across dashboards, the system will:
  - Only include dashboards that contain mandatory user filters
  - Apply the configuration only to dashboards that meet the required criteria
- When a new dashboard is created or an existing dashboard is inserted into a storyboard:
  - If the new dashboard contains more than or equal to the configured number of mandatory user filters, then the configuration will be applied.

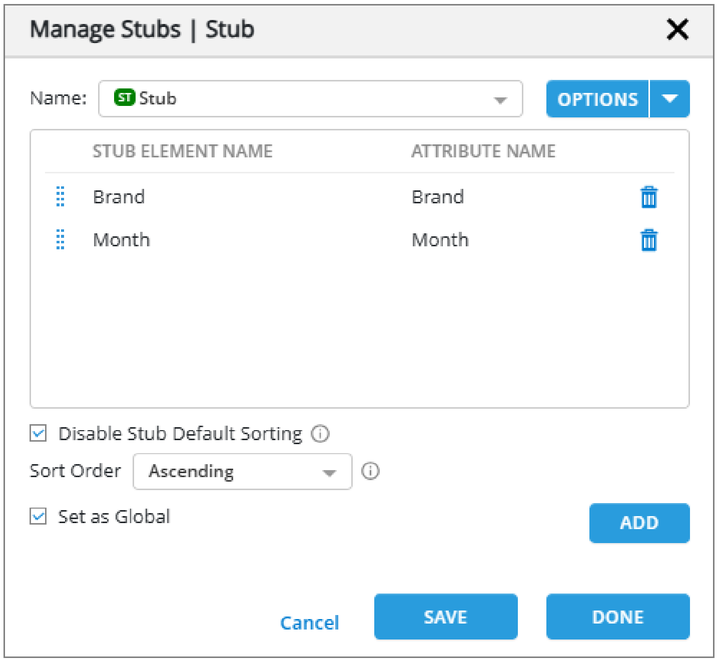
4.14.38 Disable Stub/Stacked default sort

Users can choose to apply a full sort to a measure, stub, or stacked column—or restrict the sort to constituent-level values only

This setting **"Disable Stub/Stacked Default Sorting"** allows users to control the default sorting behavior of measure columns when stubs or stacked hierarchies are placed in rows. This provides more flexibility in defining how measures are sorted independently of the stub or stacked attribute order. The default setting can be configured through global settings and user preferences.

- This setting is available in Hierarchy Creation Popup (both PRE-DEFINED and REPORT-SPECIFIC) & Stub Creation Popup





- This setting is applicable only when stacked hierarchy is selected in the hierarchy creation popup.
- This setting is unselected by default and can be modified in the global settings or user settings.
    - When this checkbox is selected, measure columns are sorted independently of stub or stacked attribute values otherwise the sorting is applied at the constituent level

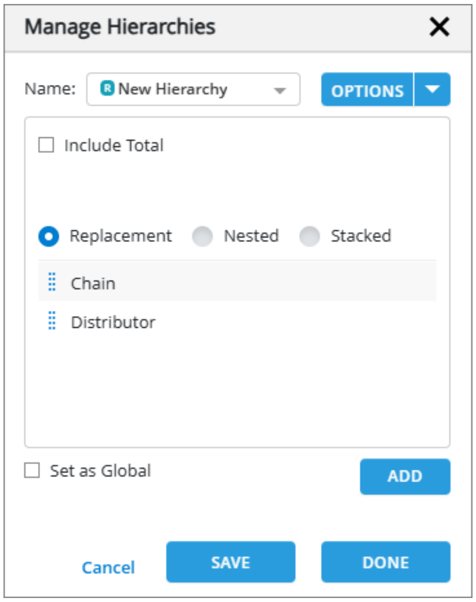
- The setting is respected across all relevant areas, including:
    - Rows, Columns and Pages
    - Manage Display Order
    - Hide Attribute Values
    - Visual Filters

- This option is also available for predefined stacked hierarchies.
- For stubs, these settings are editable only via the Stub Configuration Popup.
- The sort order(Ascending/Descending) option is applicable only when the stub/stacked hierarchy is in columns

4.14.39 Hierarchy Management

Users can create and save hierarchies at global and private levels which can be used across multiple reports and users.

- **Creating Predefined Hierarchies**
    - Users can create hierarchies directly from the attribute list panel.
    - Manage Hierarchies allows users to Create, Edit, Copy & Delete



- **Hierarchy Configuration Options**
    - Users can configure the same set of options available in report-specific hierarchies, including Totals & Display of nested columns as separate columns
    - However, certain report-specific attribute-level configurations (e.g., exclude, configure filters) are not supported in predefined hierarchies
    - Hierarchies created this way can be saved as either Private Hierarchies or Global Hierarchies
    - The icon for predefined hierarchies is the same as that used for report-specific hierarchies.
    - The icon color is gray for in report hierarchies.
- **Predefined Hierarchy Constraints and Behavior**
    - Users cannot remove all attributes from a predefined hierarchy
    - A minimum of one attribute with total enabled or at least two attributes must be present to save the hierarchy.
    - Once a predefined hierarchy is modified after being placed in the RCP, a copy is created that is report-specific and no longer linked to the original predefined hierarchy
    - On Save As of a published asset having a private hierarchy, a copy of it is created in the published user's account.
    - When a predefined nested hierarchy is dragged into rows which already have a nested hierarchy in rows then the dragged predefined nested hierarchy becomes a report specific replacement hierarchy

4.14.40 Allow customization of dashboard & widget level options at storyboard level

Users can configure settings at the storyboard level, with the ability to override them at the widget level. Additionally, provided enhanced options for customizing the dashboard.

This centralized approach ensures consistent styling and behavior across the entire dashboard, while still allowing for granular customization. New configuration options include control over background color, borders, padding, title formatting, and more. This enhancement improves both design consistency and usability, offering users greater control over the overall appearance and layout of their dashboards.

- Storyboard-level settings are accessible through the control panel and apply uniformly to all widgets across all dashboards. These storyboard settings are grouped into the following sections.
  - **Dashboard Options:** Includes options like Margin and Background Color
  - **Border:** Toggle to show/hide borders, Border thickness, Border color, Border radius, Header border toggle (show/hide the bottom border of the header)
  - **Padding:** Enables users to apply internal spacing (padding) within widgets, with flexibility to configure padding individually for top, bottom, left, and right.
  - **Title:** This section mirrors the title configuration from widget settings but includes additional options specific to storyboard-level titles. Inputs include options such as Font style, Font size, Font color, Background color.
- The styling controls primarily apply to storyboard widgets, though certain options also impact static objects. Regardless of whether a widget or static object is selected, all styling sections remain visible in the control panel. However, when the static tile format panel is active, only the relevant style options for static objects will be applied.
- A Reset/Auto button has been introduced next to all configurable options—excluding text format fields—to allow users to quickly revert to default values.
- When a user modifies any setting in the storyboard settings panel, the "Auto" button next to that option changes to "Reset", indicating a manual override. The updated value is then automatically applied to all widgets across all dashboards.
- Widget-level settings are inherited from the storyboard by default. These inherited values are indicated with the "Auto" label.
- If a user manually adjusts a setting at the widget level, the "Auto" label is replaced with a "Reset" button, and the change applies only to that specific widget, overriding the inherited storyboard setting.

Limitations

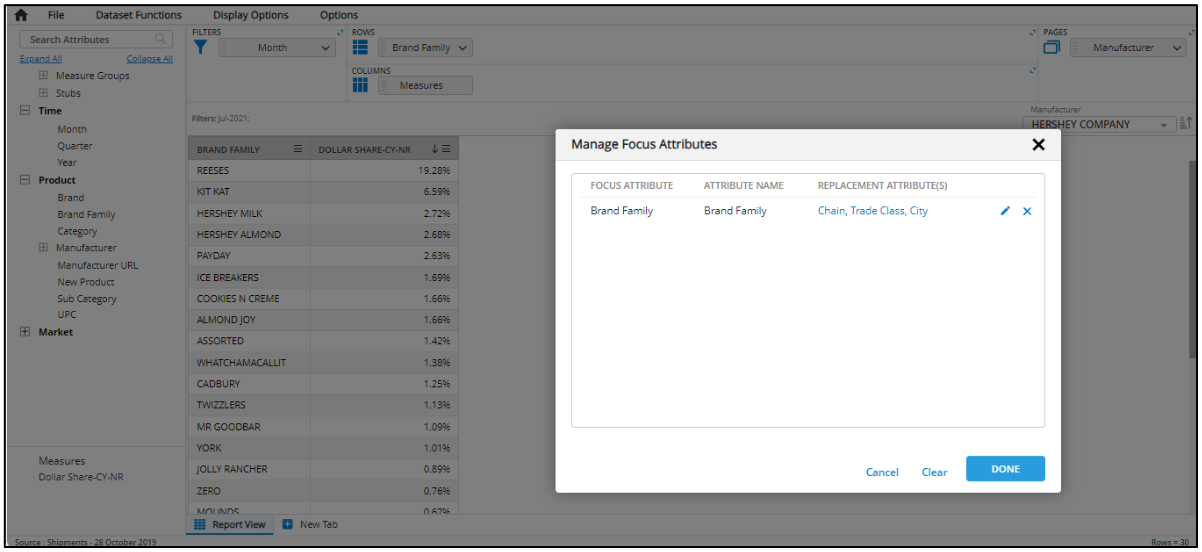
- Storyboard customization settings are not supported in Excel export
- PPT exports currently do not support storyboard settings such as background color, padding & border radius

4.15 Focus Attribute in Report

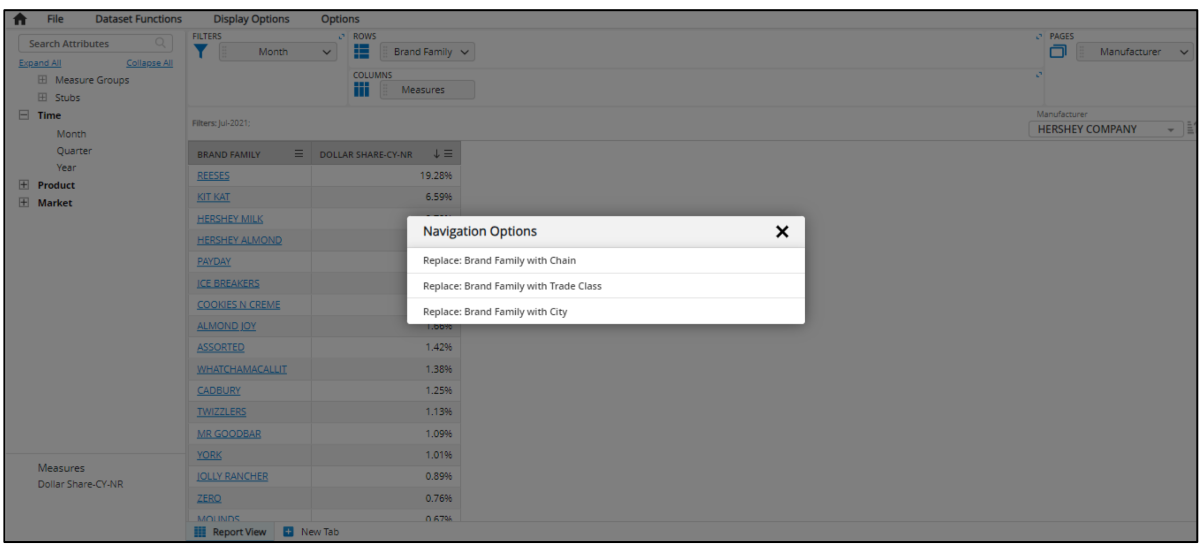
This feature allows you to specify a focus attribute in a report, enabling the replacement of that attribute with another attribute, improving the flexibility and customization of your reports.

- **Configuring Focus Attributes:** To configure focus attributes, you can access the "Manage Focus Attributes" option in the report main view's options menu. A pop-up will appear with two columns: Focus Attribute and Replacement Attribute(s).
  - In each row of the pop-up, you'll see attributes present in the report's rows and columns.
  - You can select replacement attributes for each focus attribute by clicking on the "Select Replacement Attributes" link. You can select up to 5 replacement attributes.

- Replacement attributes should be different from the current focus attribute or any lists created on the current focus attribute.
- Replacement attributes cannot already be part of the report's rows or columns.



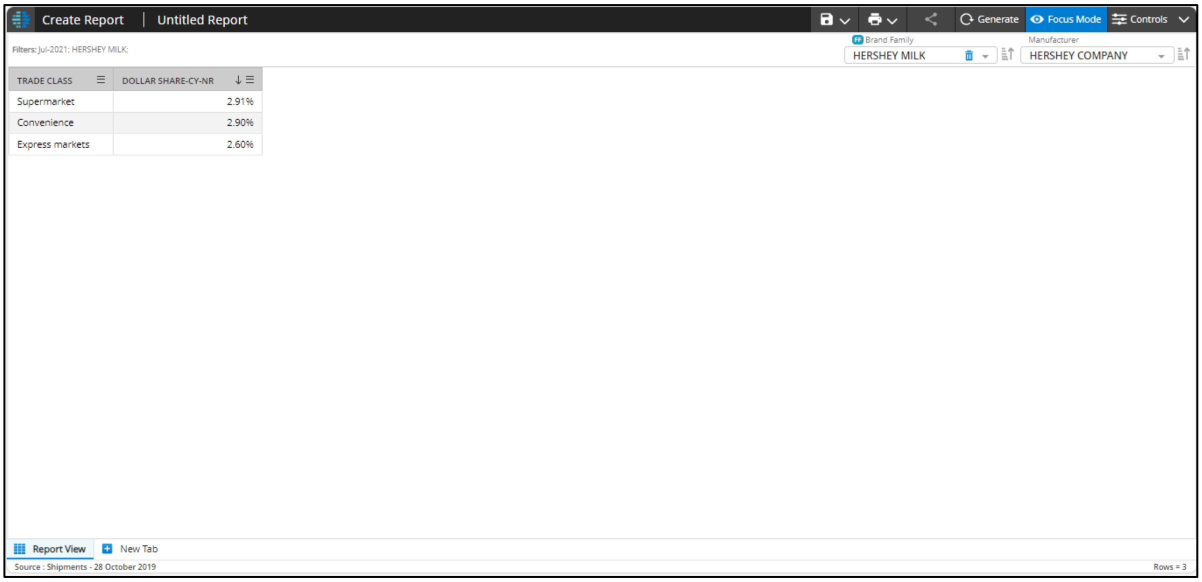
- **Using Focus Attribute:** Once focus attributes are defined, links similar to report links will be shown for the attribute values of the focus attribute on the grid. The same applies to all visuals.
    - Clicking on a link will display a navigation option pop-up, allowing you to choose from multiple actions like "Focus," "Open Link," "Drill Down," etc.



- Multiple focus options will be shown for each replaceable attribute configured on the focus attribute.

- **Focus Mode:**

- Clicking on a focus option/link will take you to focus mode, similar to the preview mode, but with a different icon and label.



- In focus mode, you can't change criteria, format, apply visual filters, or make any other configurations, just like in preview mode.
- The current focus attribute is added as a User Filter (UF), with the UF selection being the attribute value on which the link is clicked.
- The focus attribute column on the grid is replaced with the replacing attribute column.
- Any DSF/links and other configurations continue to apply to the report in focus mode based on available attributes.
- You can save the report in focus mode, with options for "Save" and "Save As."

Assumptions & Limitations:

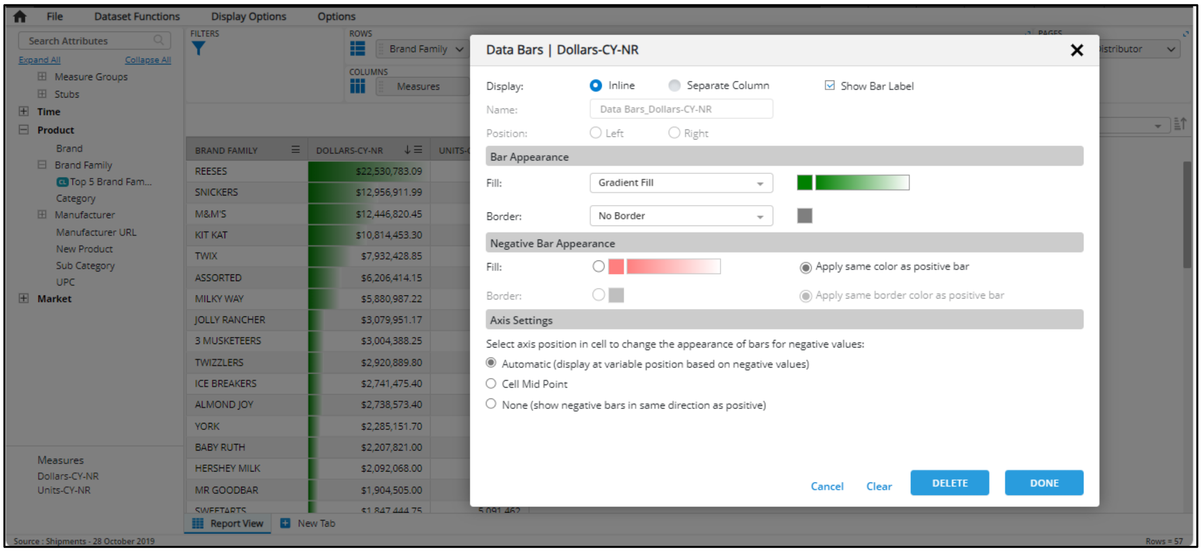
- Configuration of focus attributes isn't supported for Replacement/Nested/Stacked hierarchy/stub attributes.
- This is not supported in Storyboard, Merge report, Custom report, Offline and mobile view.

4.16 Data Bars in Report Grid

This feature provides a quick and effective way to analyze and comprehend your data.

Rendering Data Bars:

The user can render data bars on numeric measure columns in the report grid. Please note that this feature is not available for string measure columns. To access the Data Bars feature, simply go to the column menu options in the report grid. If the column you want to apply Data Bars is a numeric measure column, you'll find the "Data Bars" option.



Customization Options: With Data Bars, you have several customization options to tailor the appearance of the bars to your specific requirements. These options include:

- *In-line/Separate:* Choose between "inline" and "separate" If you select "inline," Data Bars are applied to the same column. If you choose "separate", a new column is created to display the Data Bars.

- *Show Bar Label:* Decide whether to display cell values in the column. If you disable this option, only the Data Bars will be visible.

- *Position Left/Right:* Specify whether the separate column should be displayed on the left or right side of the original column.

- *Bar Fill - Solid/Gradient:* Select "solid fill" for consistent, uniform colors in the Data Bars. Opt for "gradient" for a smooth color transition, creating a gradient effect.

- *Border - Solid/No Border:* You can include or exclude a border around the Data Bars as per your preference.

- *Negative Bars Appearance:* Choose between "Same Color as Positive" (applies the same color to both positive and negative values) or "Fill" (allows you to select a specific color for negative values in the Data Bars).

Axis Settings: Data Bars also offer flexibility in axis settings to better represent your data:

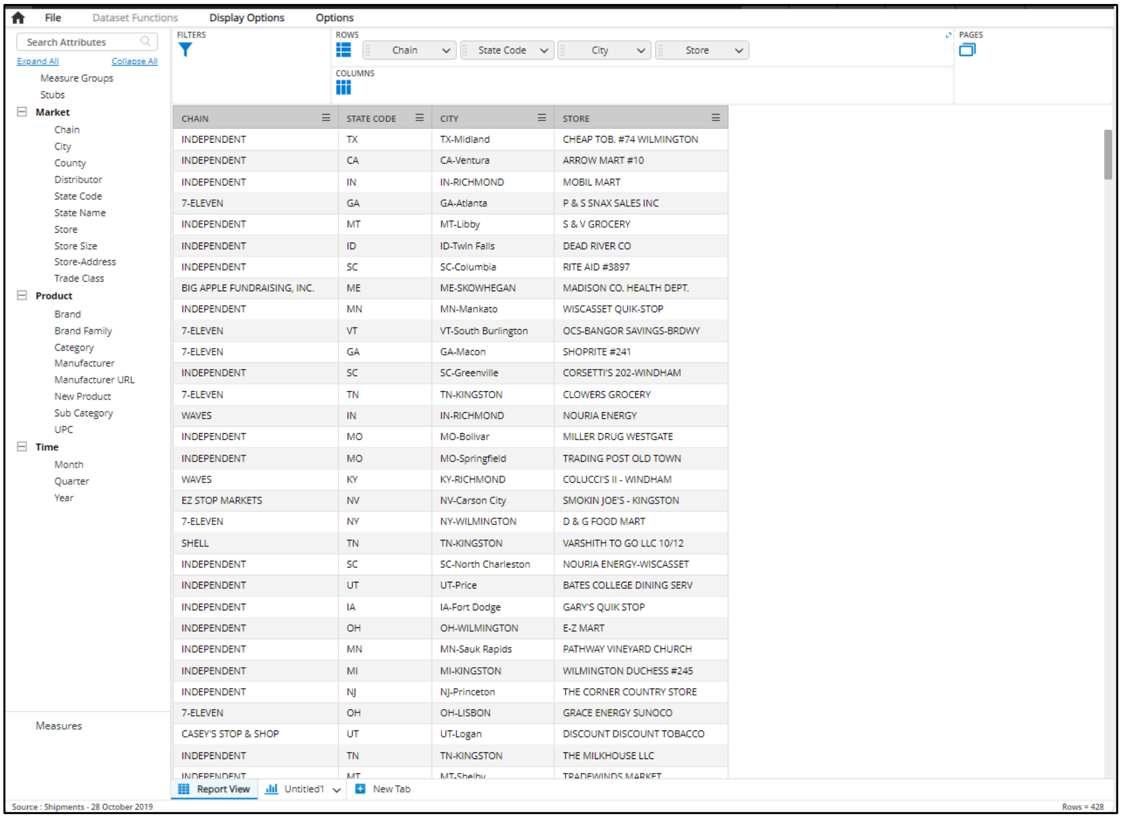
- *Automatic:* With the "Automatic" option, the axis adjusts automatically based on the minimum and maximum values within the selected range. This ensures that the length of the data bars reflects the relative values within the range.

- *Cell Mid-point:* Selecting "Cell Mid-point" sets the axis at the midpoint value of the cell. Data bars extend from this axis in both directions.

8) *None:* In this setting, both negative and positive bars are displayed in the same direction.

4.17 Attribute Only Reports

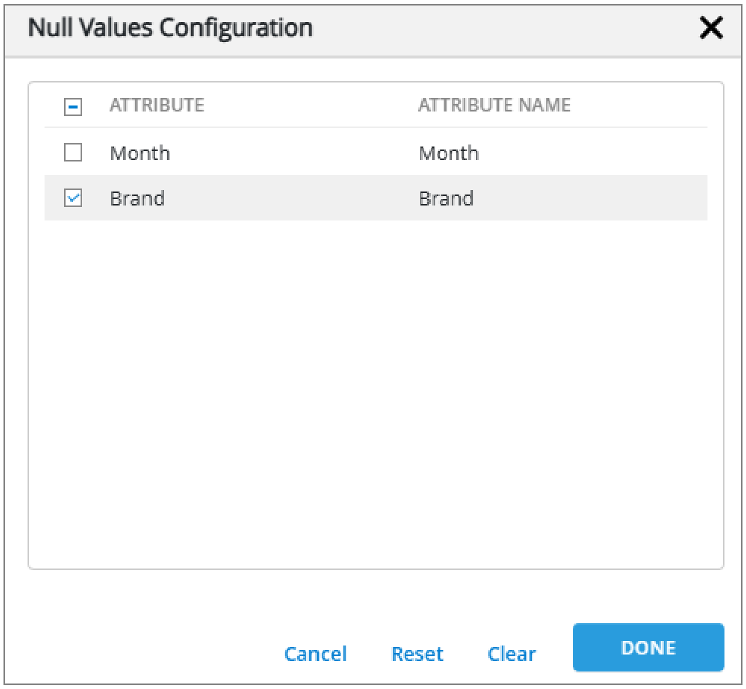
User may create reports, which do not have any metrics. This is useful when a user wants to explore the attribute values. These reports can also be exported to all supported formats. This enables the user to use visuals like word cloud which can be plotted on attribute values.

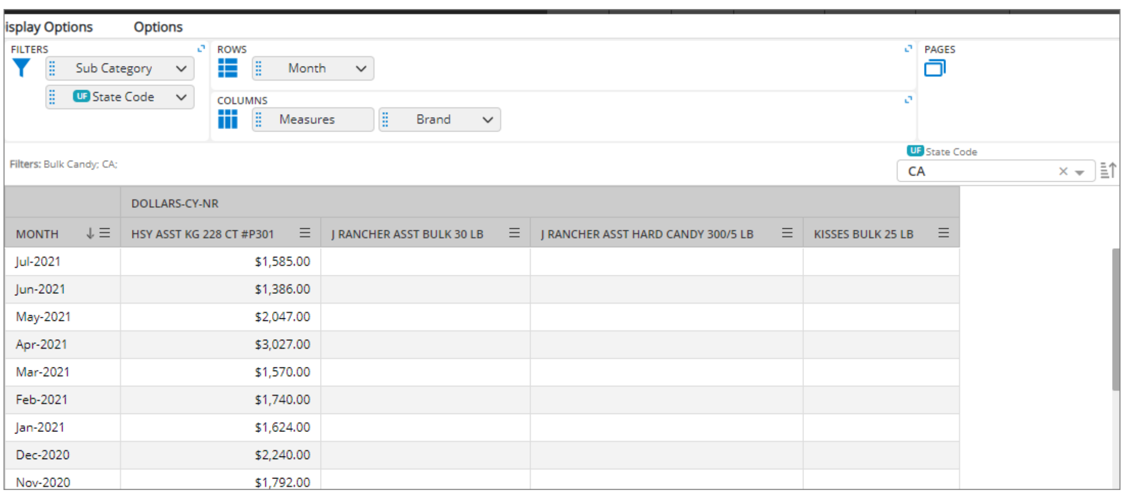


4.18 Null Rows/Columns In UI/Export

This feature allows consistent display of grid rows/columns with page/cross dimension report filter changes in both UI and export. When this option is chosen for a row attribute, the values of the row attribute remain constant even with changes to the page/report filter.

In "Report Options" menu, select the "Null Values Configuration" option. A popup will open, showing attributes from RCP with a checkbox for each attribute. Check the boxes for the attributes you want to keep constant, even with page /report filter changes. Once configured, null values for the selected attributes will be displayed on the grid.





- If the number of null rows or columns exceeds the UI display limit, a message will be displayed to the user on UI that the null rows or columns are not shown because the data has exceeded the configured max limit.
- When null rows are configured and if the number of rows (excluding the null rows) exceeds the “Max Rows To Return” then a CSV link is displayed on UI and if user tries to download the file by clicking on the link then the null rows are not displayed in the downloaded CSV file. But null rows can be exported to csv file using the export option.
- During export, if the records exceed the export limit due to null rows or columns then they will be ignored in the exported file.
- User can configure nulls for lists and groups as well.
- When show null labels is enabled:
    - For an attribute, related report filters apply to the result dataset

  - For a group, only filters on the same group apply to the dataset

- **Assumptions & Limitations:**
  - Null rows/columns are not supported when null configured attribute is dragged to grid x/y
  - Null rows/columns are not supported in CSV link case
  - Display order is not respected for null configured attribute when it is in columns

5 CREATING CHARTS

5.1 Overview

Charting can be performed on the extracted data set using various chart types and dimensional manipulation of the extracted data, as further explained in this section.

- Chart Types: The system support dozens of different chart types, including bar, column, pie, line, combo, scatter, target, gauge, tree, etc. The system also has a proprietary "tile" and "kpi" chart types, which are ideal for displaying KPI performance. Geographic mapping is also enabled for various in-built shape types (Continent, Country, and state level for a few countries) and custom shape files if they are configured.

- Chart Formatting: Chart formatting pertains to how the data is structured for plotting. In all cases, the system assumes that rows are objects to plot while columns are measurements – with pages not impacting the chart format. The type of chart that can be plotted is based on how the various report attributes are positioned across rows, columns, and pages (e.g., a target chart is not available if there is only one column since a minimum of two columns is required).

- Chart Properties and Colors: Each chart has properties related to (a) the data ranges and related properties, and (b) chart-specific properties such as 3D or Bi-Scale, etc. Colors for charts are driven by either (a) standard palette, (b) custom (user entered) colors, (c) Dataset Function (DSF) conditional colors, or (d) Database configured colors – for

- Chart X-Y Gridding: Charts can be "gridded" using attributes that are not used to create a chart. Placing an unused attribute/field on the X-grid would create "x" charts (equal to the number of attribute values). Placing attributes on both X and Y grids would produce x*y charts.

- Chart Export: Charts supported in Excel or PowerPoint can be exported in native format to these applications, while all other charts are exported as images.

- Chart Navigation: Chart navigation is similar to report navigation – with (a) bread crumbs for replacement hierarchy and "+/-"nested hierarchy, and (b) link via hyperlinked data values, and (c) drill-down on chart area for attribute level drill-down.

Chart objects are created within a Data book by selecting a new tab (at the bottom of the report screen). Data for charting is dependent entirely on Report View data sets.

5.2 Chart Types

There are various chart types that can be plotted, which have varying requirements. A summary of the essential requirements is shown in the table below.

#	Type	Variant	Rows (X-Axis)	Columns (Y-Axis)	Comments
1	Bar	Single	1+	1	If more than one column – then 2+ ignored
2	Bar	Stacked	1+	1+	All columns are stacked
3	Bar	Clustered	1+	1+	All columns are clustered
4	Column	Single	1+	1	If more than one column - then 2+ ignored
5	Column	Stacked	1+	1+	All columns are stacked
6	Column	Clustered	1+	1+	All columns are clustered
7	Line	Single	1+	1+	All columns are considered
8	Line	Stacked Line	1+	1+	All columns are stacked
9	Line	Area	1+	1+	All columns are considered
10	Line	Stacked Area	1+	1+	All columns are stacked
11	Pie		1+	1+	If more than one column - then 2+ ignored
12	Funnel		1+	1+	If more than one column – then 2+ ignored
13	XY	Scatter	1+	1+	If more than one column - then 4+ are ignored
14	XY	Bubble	1+	1+	If three columns - then a third is used for size
15	Bridge	Horizontal	1+	2	
16	Bridge	Vertical	1+	2	
17	Gauge		1+	1+	If more than two columns - then third+ are ignored
18	Target	Horizontal	1+	1+	If more than two columns - then third+ are ignored
19	Target	Vertical	1+	1+	If more than two columns - then third+ are ignored
20	Tile		1+	1+	All columns are considered
21	Tree		1+	1	
22	Grid		1+	1+	All columns are shown
23	Year-On-Year		1+	1	
24	Maps		1+	1+	Max six columns shown
25	Word Cloud				
26	Radar	Line	1+	1+	All columns are considered
27	Radar	Column	1+	1	If more than one column - then 2+ ignored
28	Radar	Area	1+	1+	All columns are considered
29	Candlestick		1+	1+	
30	Heat map		2+	1+	
31	Kpi		1+	1+	If more than one row - then 1+ ignored

Chart types are dependent on the type of data available in the report – AND the structure of data (i.e., row, column, and page structure). The data structure can be "reformatted" or moved around in the chart view to enable additional chart options. Selecting an option creates a chart – with auto-rearrangement of the attributes to the extent possible. If there is no combination that can render the chart, users are forced to select another option.

Certain chart types are highly data-dependent – in particular Funnel (requires "funnel" type of measures), Year-On-Year (requires time attribute with more than one year of data), Bridge (requires a starting point and changes that make up the endpoint), and Map Data. Also, there are significant restrictions to these visuals when the nested hierarchy is used or when the grid X/Y feature is used. Examples of these types are provided in the demo database provided with the system.

CAUTION: The various chart options when selecting Chart Type from within an existing chart tab – result in a sub-set of charts that satisfy the current "row and columns" selected in the chart view. However, when selecting a Chart Type from the "new tab" (when creating a new data asset report tab), it uses the Report View tab data structure to determine the chart types available. The key here is that the list of charts available could vary depending on whether you select from within an existing chart tab versus when creating a new tab/page.

5.3 Chart Properties

Each chart type has a set of properties (options) that can be enabled by selecting the Chart Properties menu item. An example of the property view for a Combo chart is shown below:

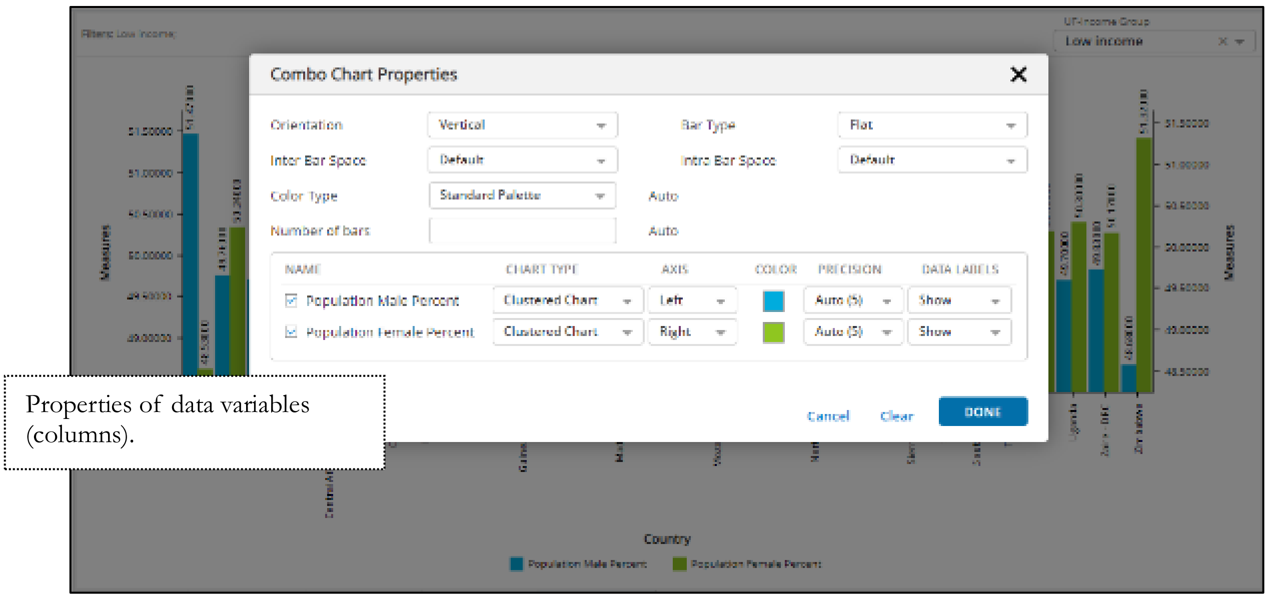
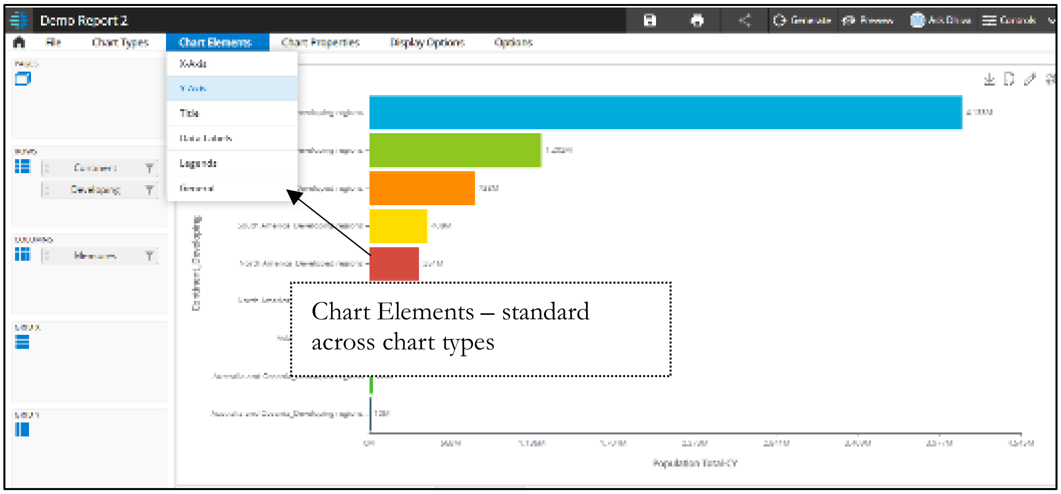


Chart properties vary by chart type and enable customization of the data ranges used – in terms of color, line/bar type, data labels, precision, axis, and other factors relevant for the type of chart.

5.4 Chart Elements

Chart elements are common elements/objects across most chart types. These include the elements shown in the drop-down list below:



- X & Y-Axis: This element allows the customization of X and Y-Axis labels and min/max values. In the case of bi-scale, ad Y2-Axis would also appear. Some charts may not have X or Y-axis elements (e.g., Tile chart). NOTE: Axis scaling is based on IQR – and extreme data value may not be shown per scale (i.e., the scale may not cover extreme values). Users can enable or disable IQR logic at each visual level, with the default setting configurable through global settings.

- Chart Title: Chart title is, by default is, set to blank – but a title can be entered as required – and font size and type can be adjusted as required.

- Data Labels: Data labels and size apply to all data labels on the chart – and can be hidden or turned on with this function (data range label to show/hide functionality is part of Chart Properties in most cases). Data label display, color and interval can be configured at each series level in various multi-series charts.

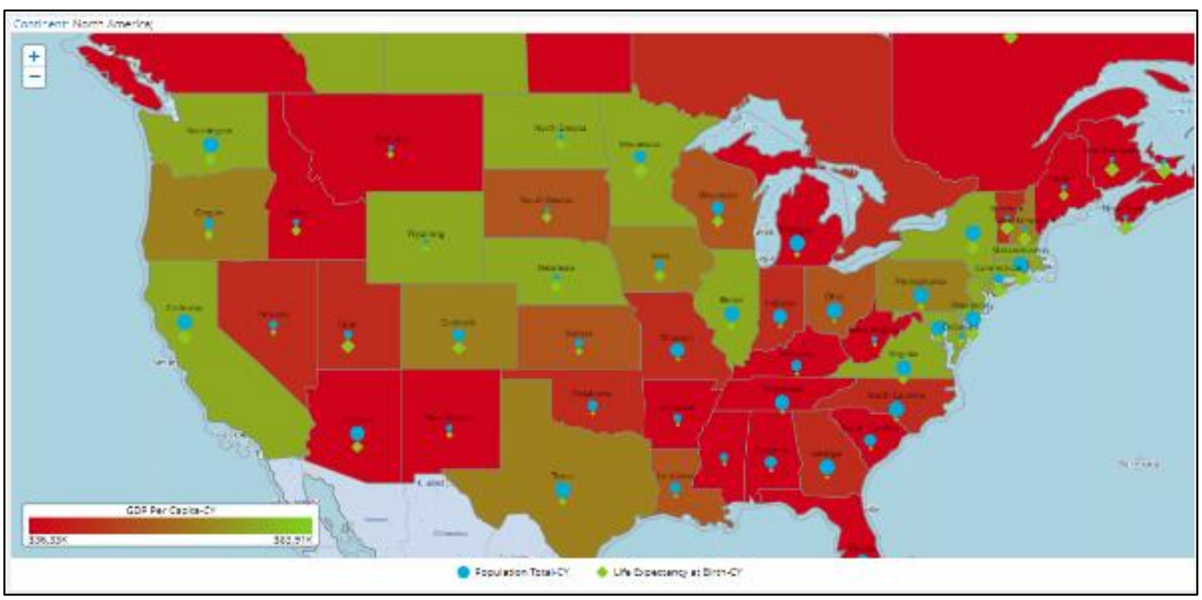
- Legends: Legend location, show/hide, and font size can be controlled for most charts using this option.

- General: This option contains the ability to pad charts and set background color for the chart – and other functions.

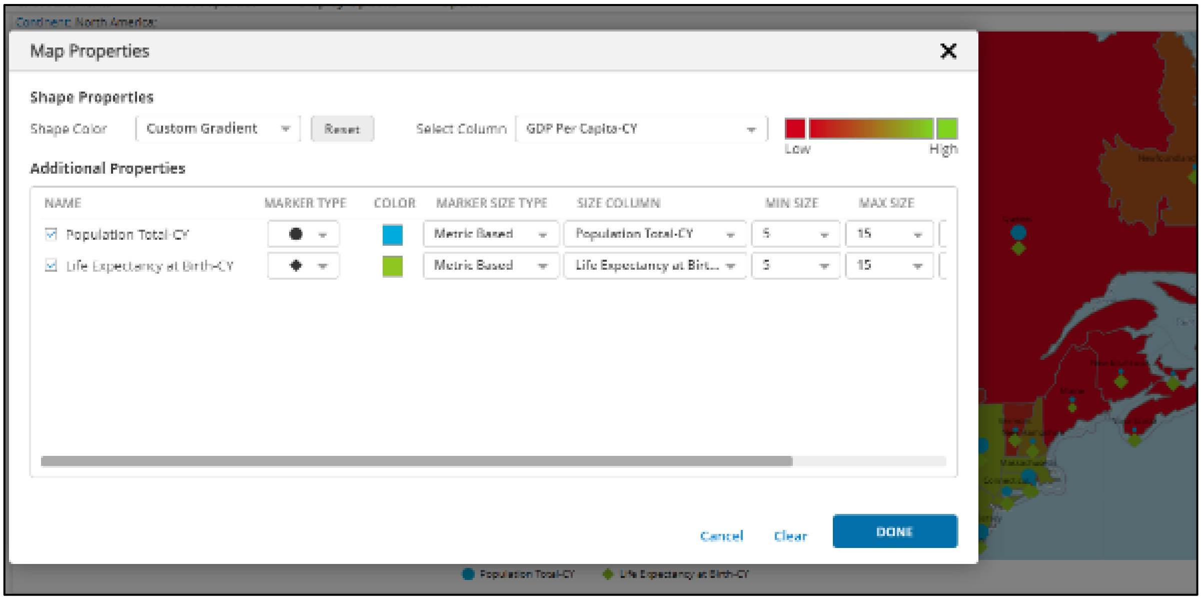
An example of Chart Element selection for Y-Axis is shown below. Note that all Chart Element options are shown in the right panel – which must be closed (using the "X" button) – and are not part of the "Controls" element.

5.5 Maps

Maps are rendered for the attribute values whose shape files (GeoJson format) are configured. By default, Dhiva Application has global country level, continent level, and USA-state level shape files pre-configured. Maps can be rendered for any attribute value whose shape file is configured by the client from the Governor application in GeoJson format. Attribute values can be represented by custom shapes (markers) also.



9) Map Properties enable the map formatting with markers, colors, gradient colors, size of the markers, and more.



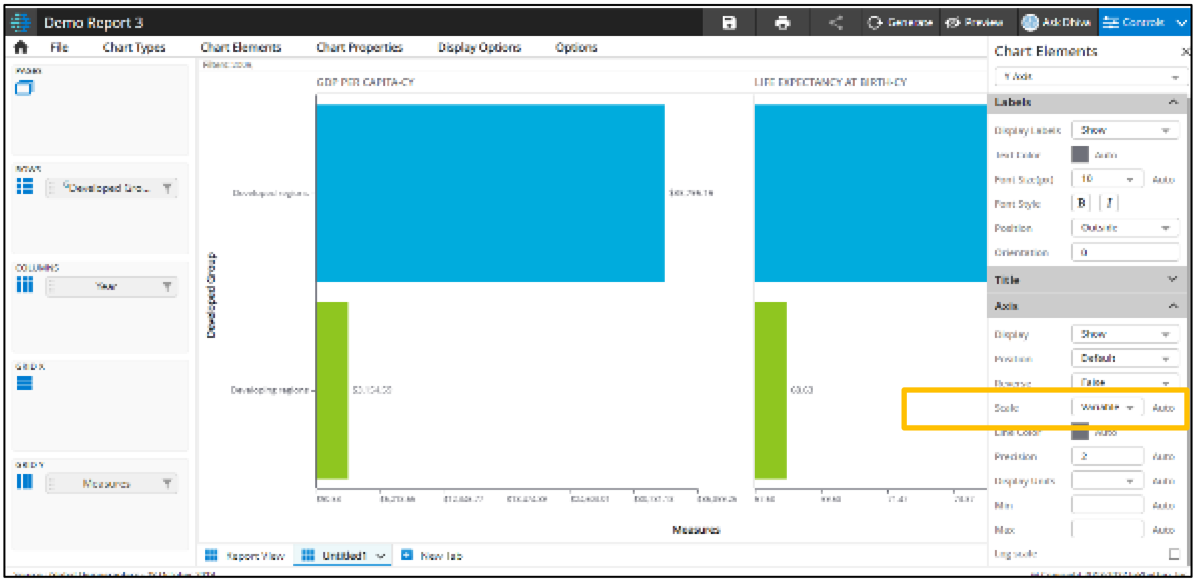
5.6 Chart Grids

A specified chart can be "gridded" in the sense that the same chart can be repeated for a separate attribute along the X or Y axis, as shown in the example below (for an X-axis grid).

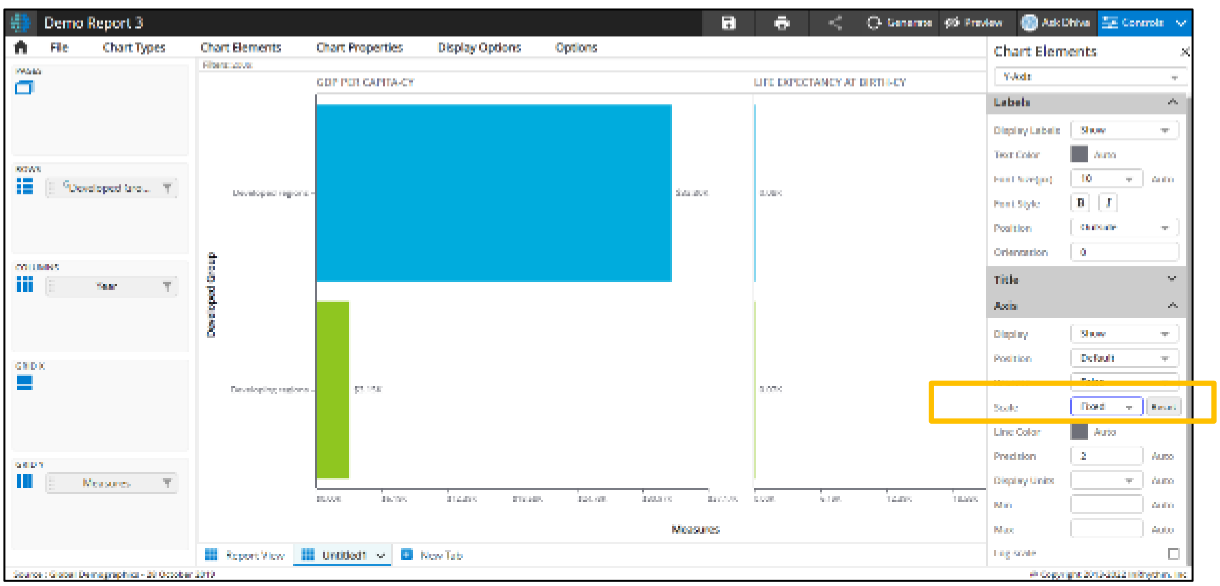
Option to show variable scale/fixed scale in a grid layout:

The user can set the scale to variable or fixed for visuals in the grid layout. This feature provides an option under chart elements to select a fixed/variable scale. A variable scale is selected by default, and the display unit is set to "None."

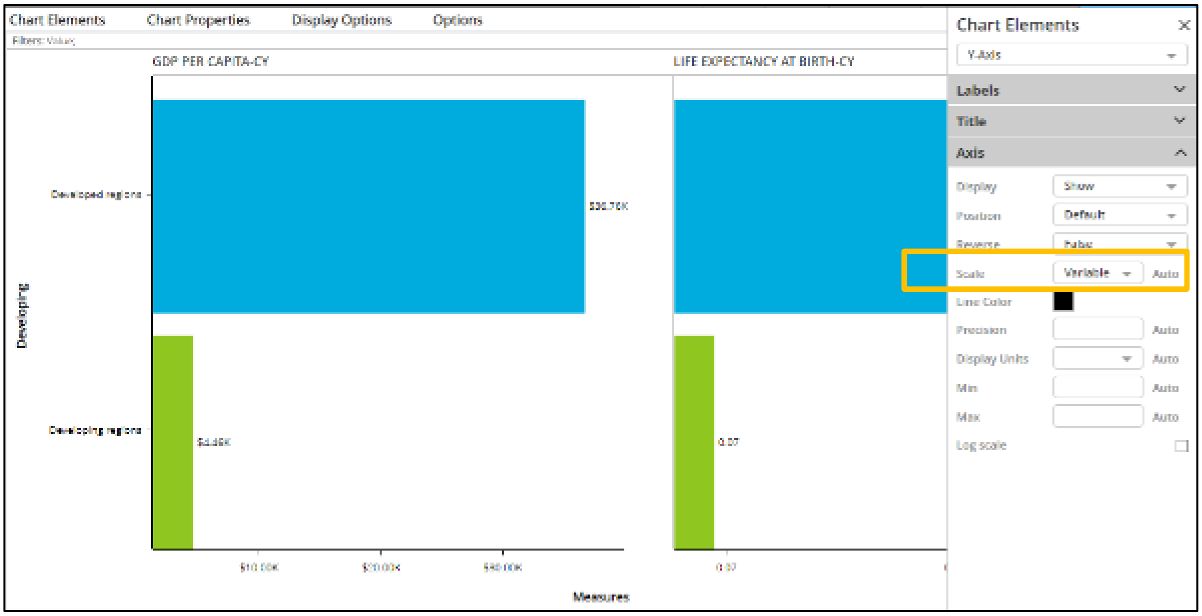
Let us consider if there are two measures set up in a report, and the user wants to view the variations in Grid Y. By default, the variable scale is applied.



Users can change the option to fixed based on the requirement



Users can revert to the default setting by clicking on the Reset button besides Scale options.



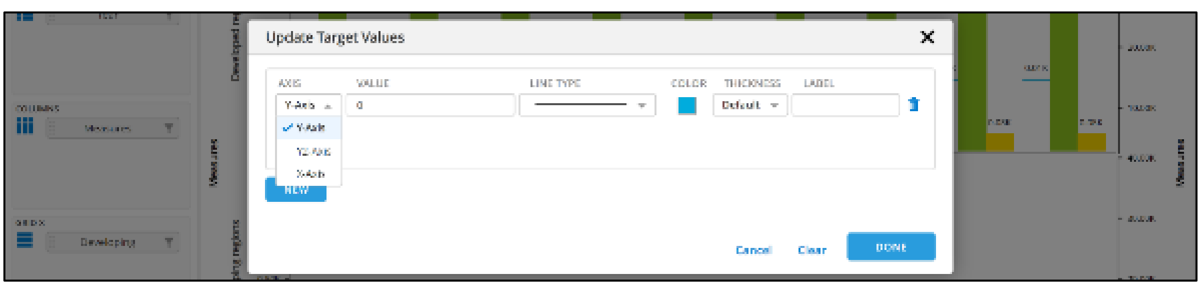
Users have the flexibility to define varied/fixed scales for all the grid charts based on the need.

5.7 Options

The options under this menu item are as follows:

- Hide/Show Data Labels: This is a toggle option to show or hide data labels. This can override Chart Property settings.

- Set Target Values: Display Target Value is a method to add a "Target Value" to a bar/column/line/combo" chart type in particular. This allows creating a line at the specified value of X or Y-axis – along with a user entered text value.



- Chart Scroll: This is a toggle button that allows the chart to scroll (vertically) if selected. Disabling this fits all the data into the window.

- Cell Dimensions: This allows setting the height and width of the chart area on the screen. Larger values result in scroll bars appearing.

5.8 Annotate & Email

Users can add annotations to charts, copy them to the clipboard, and email the chosen clips.

- Annotate charts & add to clipboard:

  This allows user to annotate any chart and add to clipboard using copy to clipboard option

- Emailing Clipboard Items:
  - Clicking the email button will open a pop-up where you can select users or groups to send the email.
  - The list of available users and groups depends on the domains of the selected clipboard items. Only users with permission for all associated domains will be displayed.
  - After selecting users or groups and clicking 'Done,' an email will be sent with the selected clipboard items and message.

6 Creating a New Storyboard

6.1 Overview

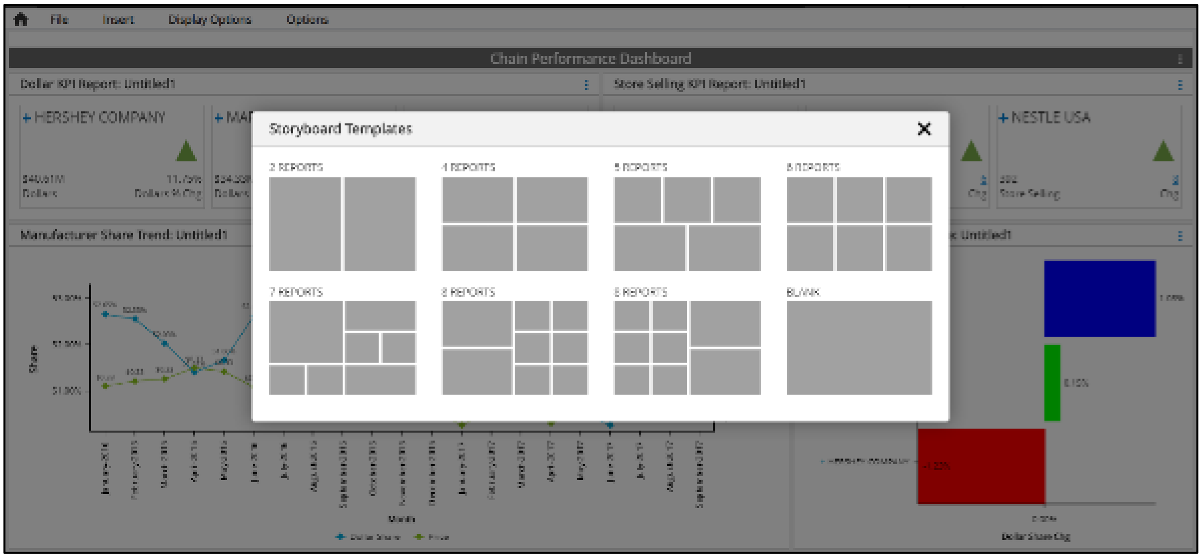
Storyboards are a collection of dashboards – which are collections of report objects. A storyboard may contain one or more dashboards (unlimited but recommended to be less than 20) – and a dashboard may contain one or more report objects (limited to space availability on the Dashboard). Report objects on a dashboard may be from different "domains," and filters can be applied for each Dashboard separately or to the entire storyboard.

A new Storyboard is created by selecting the "New" button in the asset selection screen. This requires the selection of a Dashboard type, as shown below (which can be changed after the fact also):

6.2 Storyboard Insert Menu Options

6.2.1 Inserting a New Dashboard

A new dashboard can be inserted into a storyboard by selecting the "Insert New Dashboard" menu option. Upon selection, the user can select a pre-formatted dashboard style (which can also be changed after the fact).



6.2.2 *Inserting a Report Object*

A new report/chart can be inserted in a dashboard by selecting the "Insert Report" menu option, provided there is a "minimum" space for the insertion.

6.2.3 *Inserting a Header*

A new header object can be created by selecting the "Insert" menu option. Upon selection, the user can select a pre-formatted dashboard style (which can also be changed after the fact).

6.2.4 *Inserting a Dashboard Title*

A new dashboard title can be created by selecting the "Insert" menu option. Upon selection, the user can select a pre-formatted dashboard style (which can also be changed after the fact).

6.2.5 *Inserting an Existing Dashboard*

An existing dashboard can be added by selecting the "Insert" menu option. Upon selection, the user can select a pre-formatted dashboard style (which can also be changed after the fact).

6.2.6 *Inserting an Image*

An image can be inserted within a static object. User can open Insert Elements panel through the context menu options of the static tile or by clicking on the edit icon present in the top right corner within the static tile.

The selected image will be directly uploaded to the server and displayed in a grid format within the popup. Image will be added to the static tile on clicking the image thumbnail.

The image can be dragged, resized, and various layout, styling, and positioning properties can be adjusted (e.g., bring forward, push backward). Uploaded images will be carried forward across the SB for all dashboards. There is an option in the global settings to set the maximum size of the images allowed. The image accordion will be shown if user has permission to upload images. This permission is set at the application level in the user info settings.

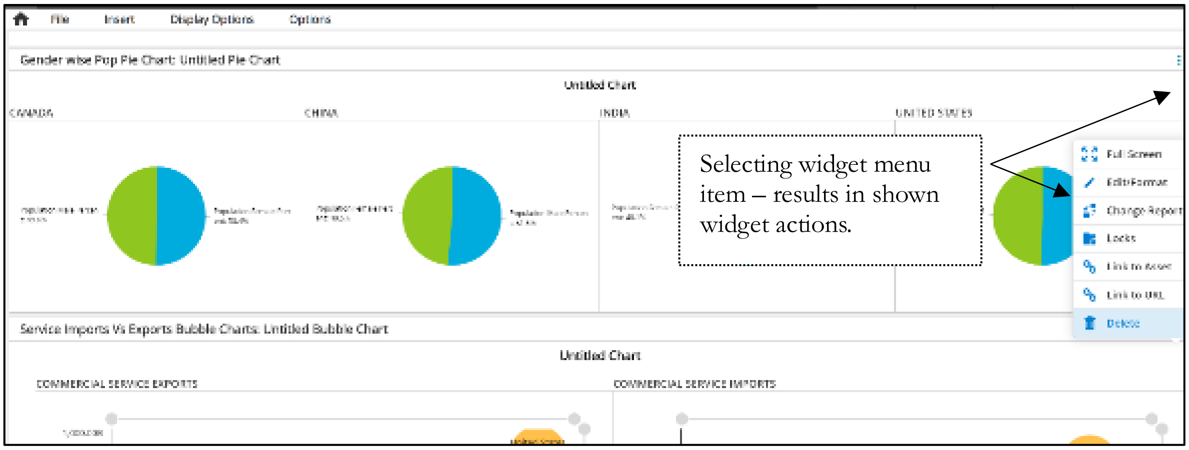
6.3 Dashboard "Widget" Object Properties

6.3.1 Sizing & Formatting a Dashboard Widget

Every object on a Dashboard (report, chart, or static header) is termed as a "widget" – and can be formatted in terms of background color, size, etc. To change the size of a widget: (a) click on the widget header and using the lower right hand-corner (folded page icon) re-size as required, or (b) pressing down on the widget header move the widget to the desired location, or (c) click on header once and change widget format in the control panel on the right.

6.3.2 Changing Widget Properties

Selecting the "dot icon" on the extreme right of a widget header – shows a menu of options for widget actions. These are shown in the image below:

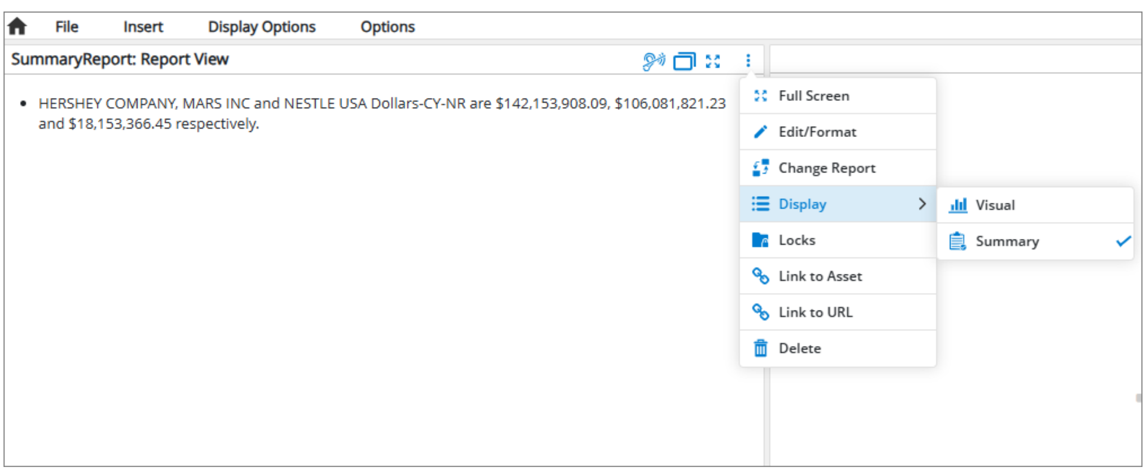


- Full Screen: This enables users to view the asset (report/chart) in full-screen mode, provided a publisher of the storyboard sets no lock. **CAUTION: Any changes made to a report/chart affect the source report/chart – and possibly other storyboards using the report.**

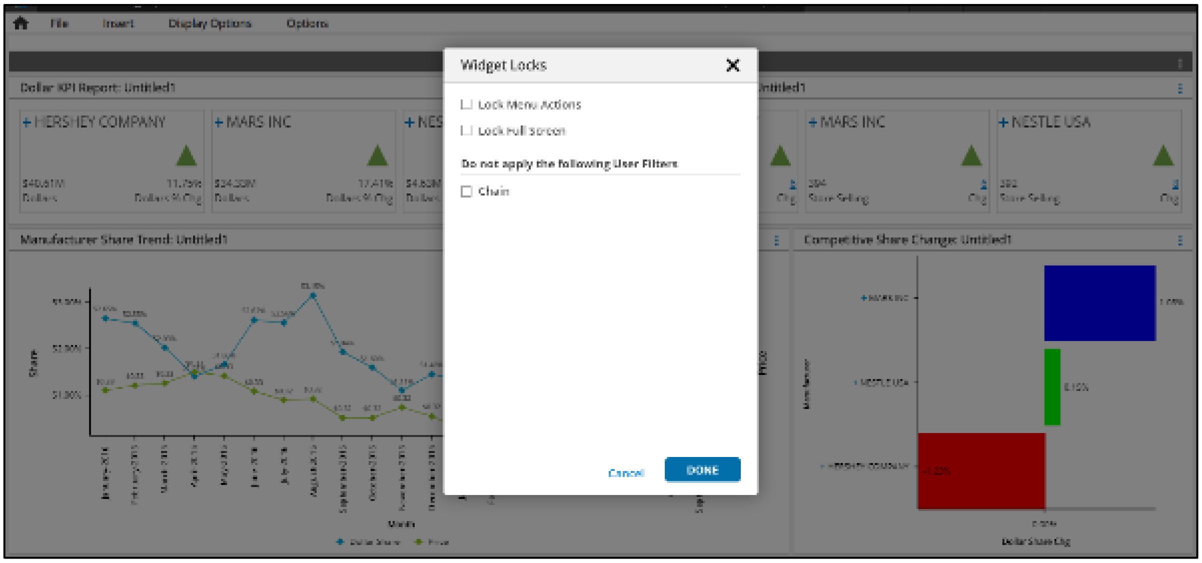
- Edit/Format: This enables Producers to edit the widget, including (a) Border, line width and color, (b) Title font, size, and color, (c) Hide/Display page, and user filters (d) Hide/Display data source option, and (e) Set widget height/width manually.

- Change Report: This enables the user to select a new report object to embed within the widget.

- Display Visual/Summary: This allows the user to display the visual/grid or summary within the widget.



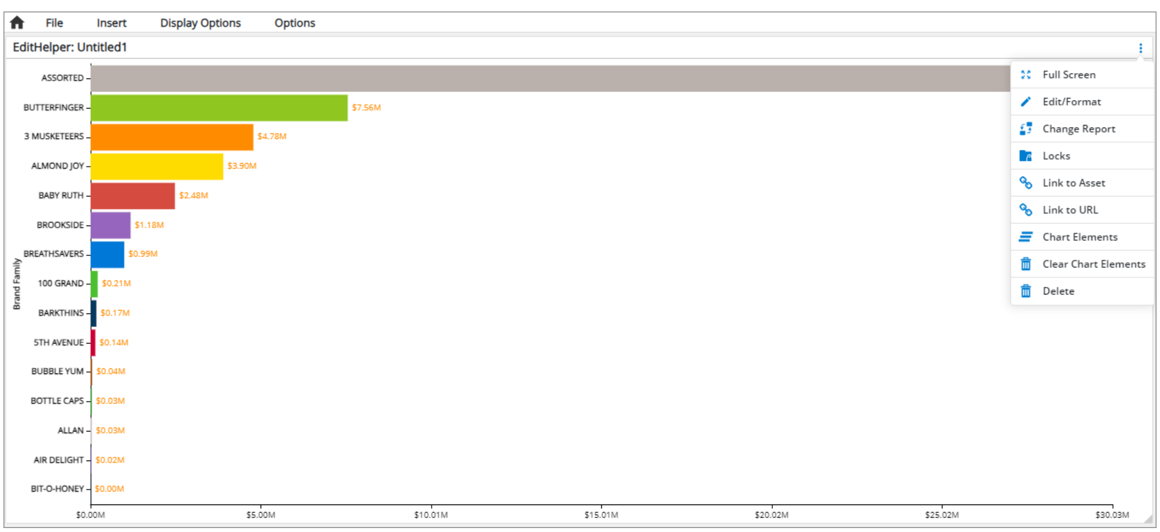
- Locks: This allows the user to specify locks on the widget related to Full Screen and Menu function availability for end-users when published. In addition, it can specify if certain defined User Filters should not be applied to the selected widget (visualization).



- Link to Asset: This allows the user to specify a link to an existing report/chart or storyboard asset when the storyboard asset is clicked (specifically for header objects).

- Link to URL: This allows the user to specify a link with an external URL specifically for header objects.

- Chart Elements: This allows the user to edit chart elements for visuals added to the storyboard. If changes are made at the widget level and no changes exist at the report level, the visual will display only the widget level changes. If both widget and report level changes exist, both sets of changes will be merged and applied. If both levels include changes to the same element, the widget level changes will override the report level change

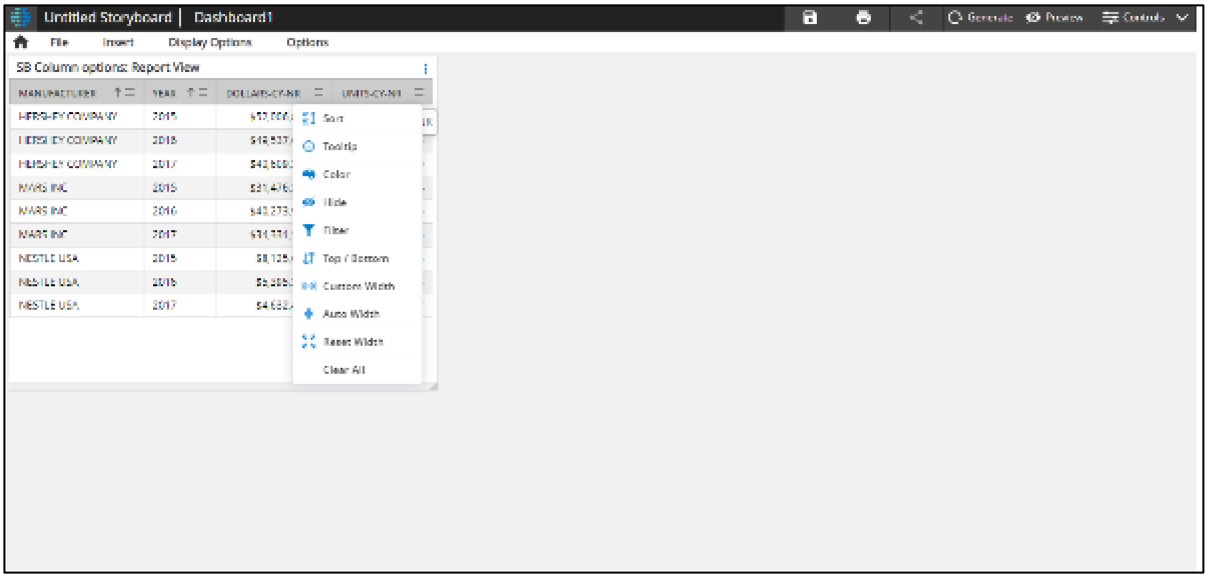


- Clear Chart Elements: Initially, only the "Chart Elements" option will be available. After making changes, the "Clear Chart Elements" option will appear. Clicking "Clear Chart Elements" will undo widget level changes.

- Delete: This deletes the widget

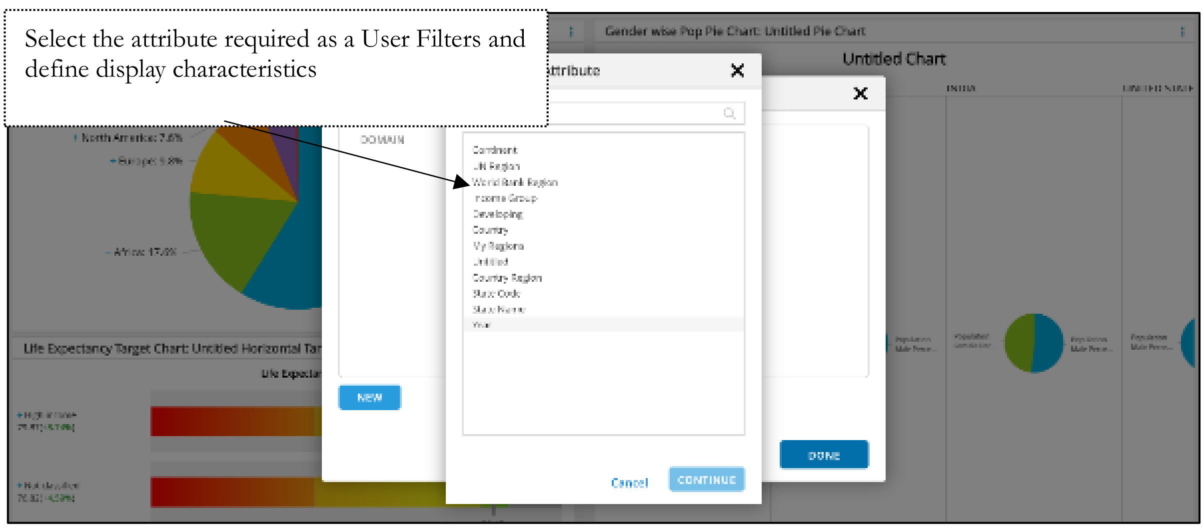
6.3.3 Grid column options for the widget in the storyboard

Column options are enabled grid view widgets in the storyboard. The user can use the column options only for view purposes. These options can't be saved at the storyboard widget level. These options can be saved only from the full-screen view and applicable at the report level.



6.4 Storyboard User Filter Specification

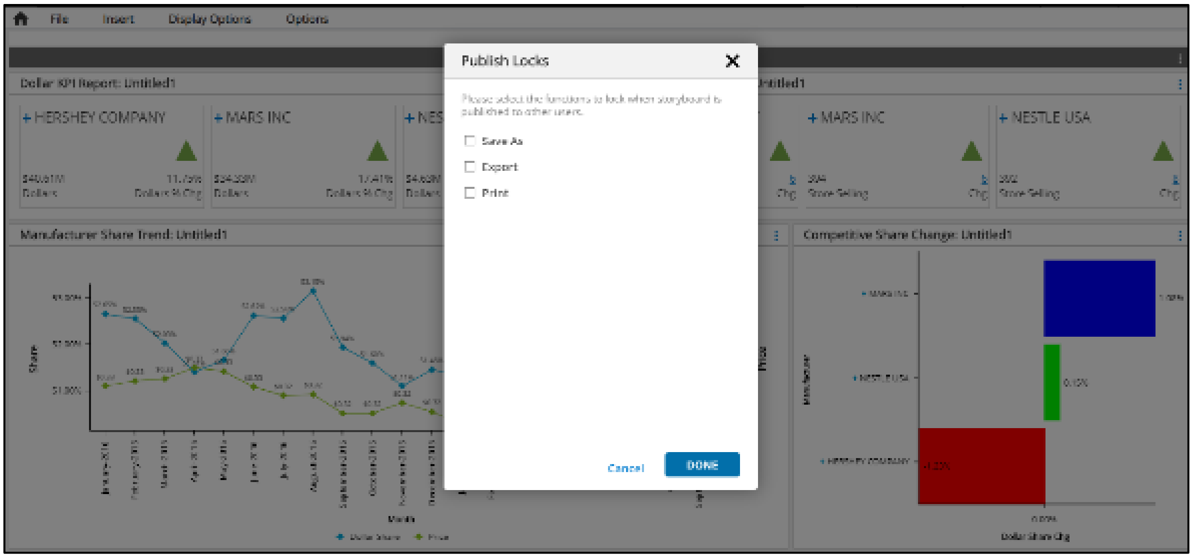
Storyboard User Filters enable: (a) selecting a specific user filter and (b) the dashboards to apply it. Multiple User Filters can be specified using the "New" option.



Note: Storyboard Filters result in the regeneration of all the reports in a given Dashboard/Storyboard – and therefore can be "expensive" depending on the size of the database.

6.5 Storyboard Publish Locks

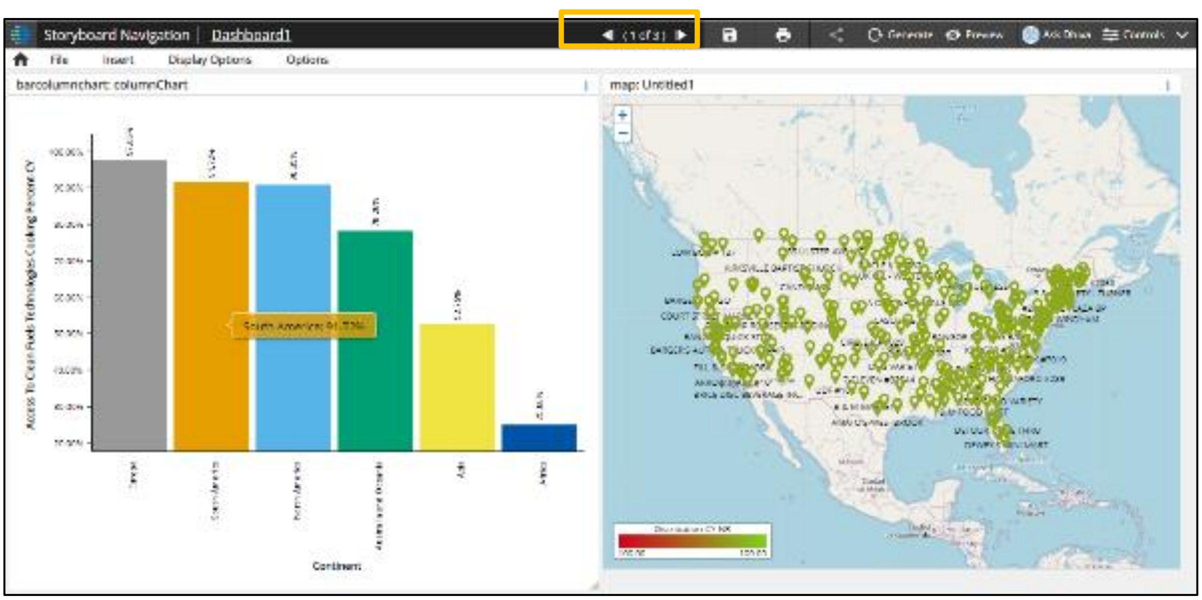
Storyboard Publish locks can be applied to Save As, Export, and Print options, which would not be available to the receiving users if locked.

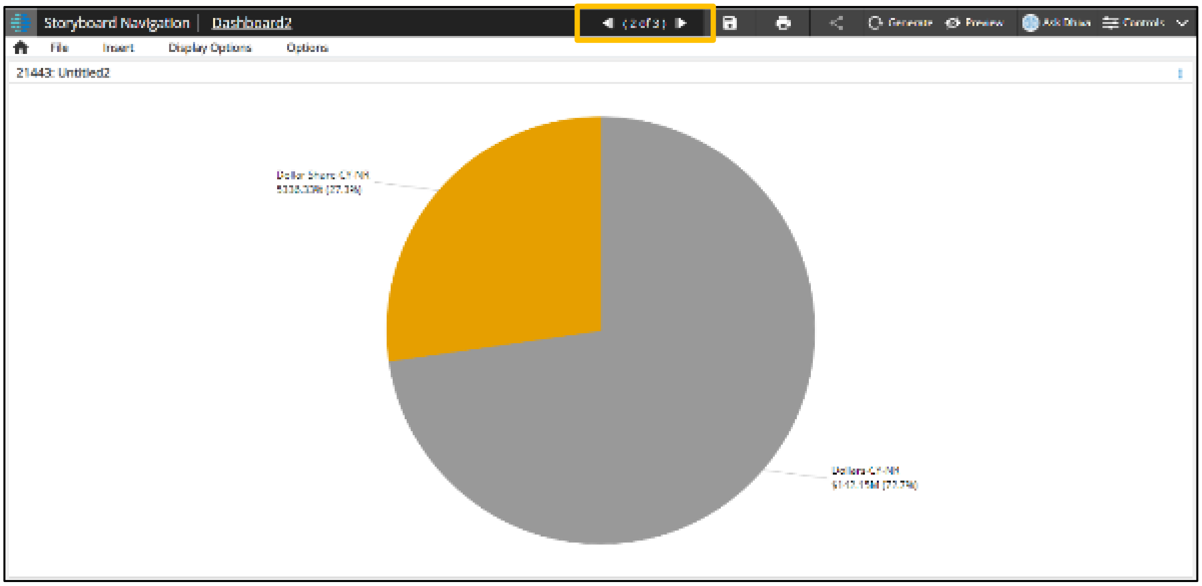


6.6 Dashboard Navigation

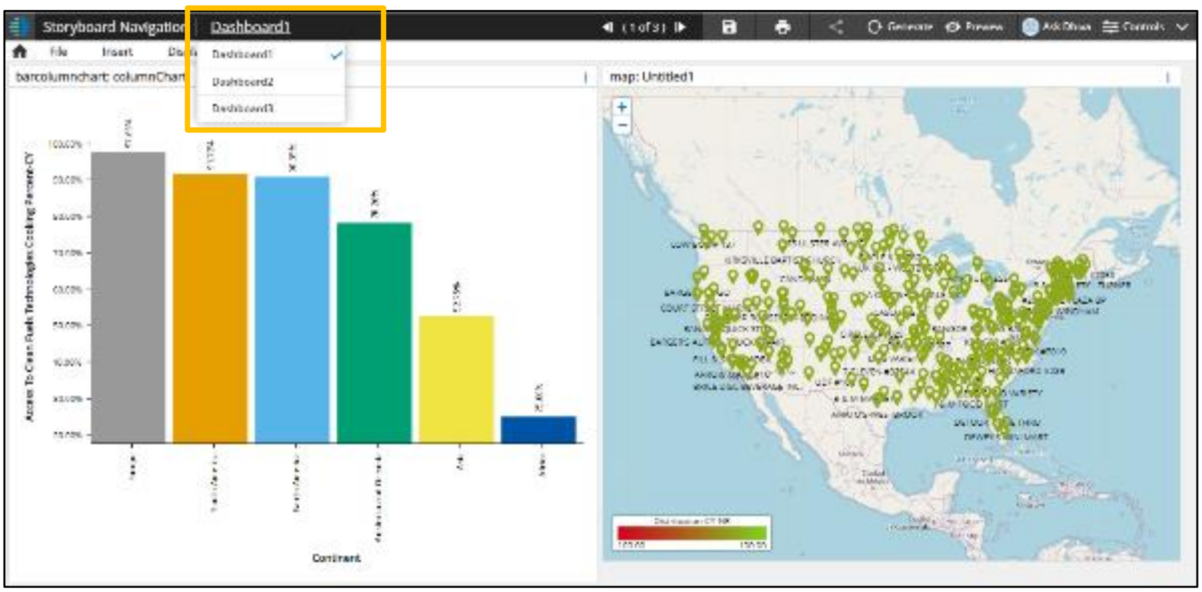
The user can navigate through the dashboards in a couple of ways.

Option 1: The user can use the navigation arrows beside the Save icon to walk through the dashboards.

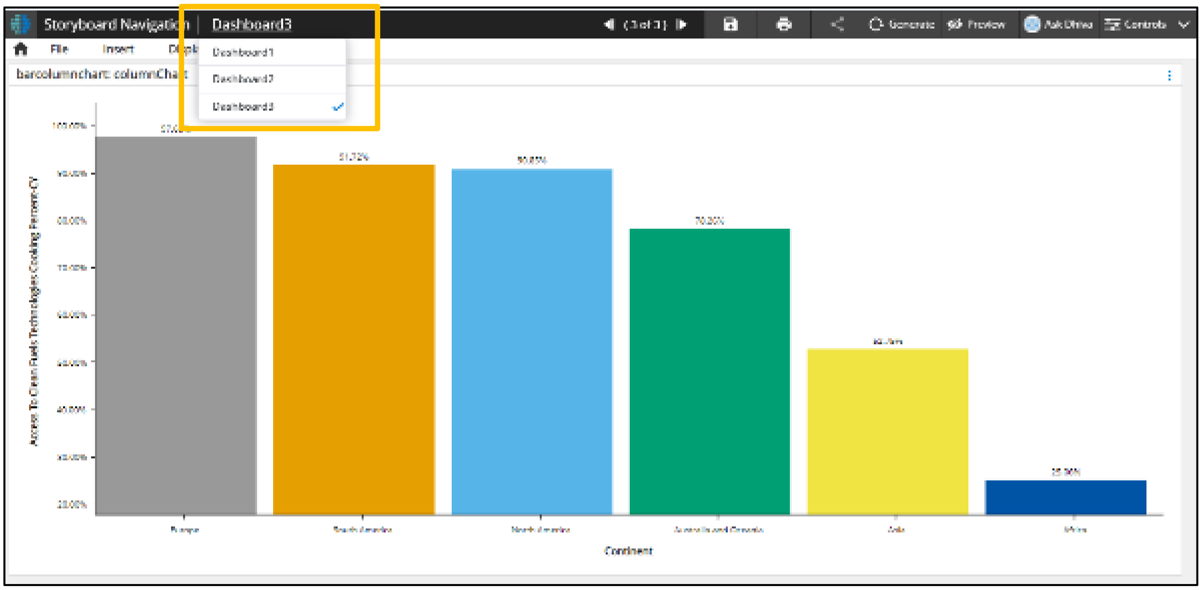




Option 2: The user can directly navigate to a specific Dashboard by clicking on the dashboard link available besides the storyboard title.

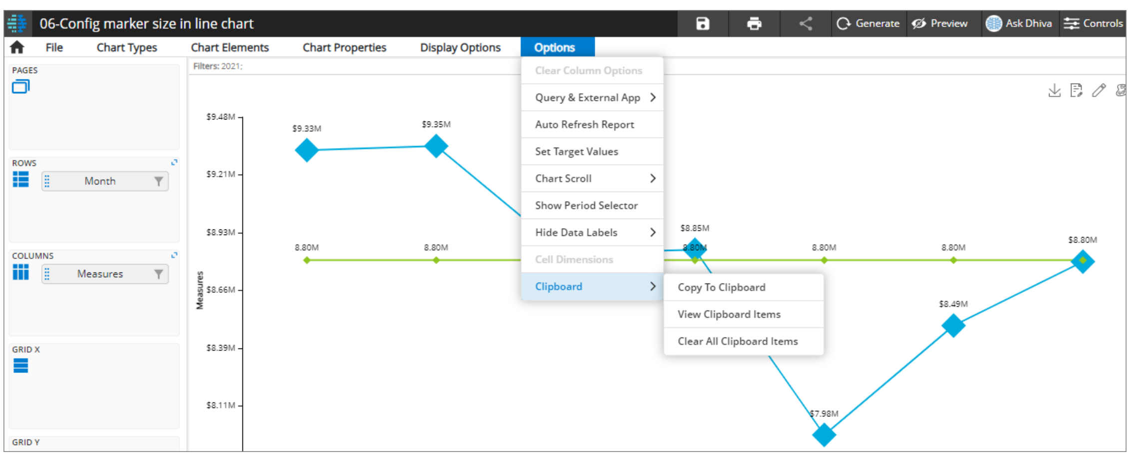


Now clicking on the Dashboard3 link would navigate the user to Dashboard 3.



7 AD-HOC PPT/PDF GENERATION

User can now generate a PPT/PDF from the producer application by taking screen shot of the assets. The screen shot can be taken for multiple reports/storyboards and added to the clipboard. The clipboard helps in organization of these screen shots. The images added to the clipboard can be exported as a PPT/PDF. User can add images to clipboards by selecting the "Copy to Clipboard" option available under Options -> Clipboard and choose between PPT and PDF.



User can view the images added to clipboard from the "View Clipboard Items" option available under Clipboard. Viewing, Reordering and deletion are of images is supported in the clipboard items page.

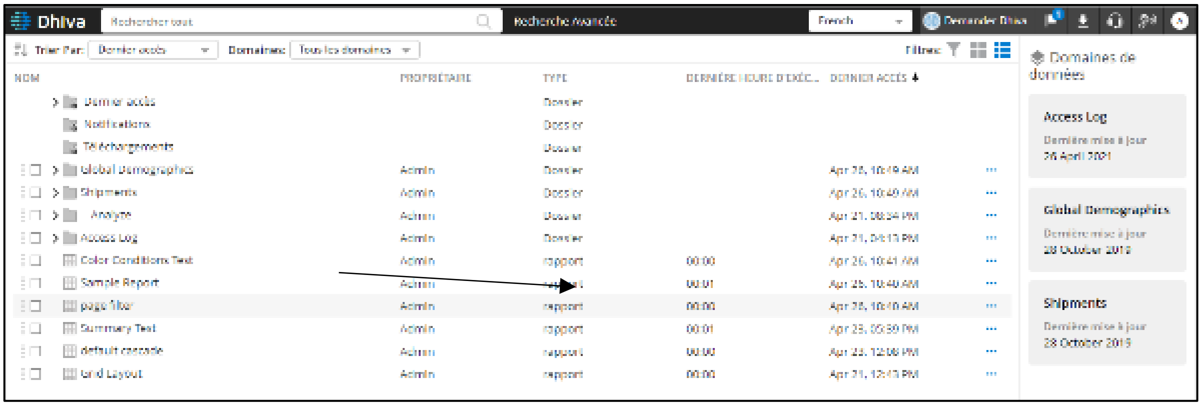
Users will be able to add maximum of 15 images to the clipboard. Once these images are added user can export the clipboard to a PPT and may choose to clear the clipboard on successful export.

8 INTERNATIONALIZATION

Dhiva is designed to support multiple languages. Multi-language support is provided for both "static" and "dynamic" elements, with some exceptions. "Static" elements include Labels, Menus, Messages, etc. "Dynamic" elements are Domains, Attributes, Metrics, and Parameters.

Admin/Governor application doesn't support internationalization.

The user can select Language from a language drop down in the Producer application. Below is an example of changing the language to "French."



All the static elements are displayed in the French language. These static elements are configured in respective locale files. The language values for the dynamic fields are configured in Governor Tool.

The language preference option is persisted at the user level.

The dynamic fields language mappings can be configured from Governor, and the details are provided in the Governor User guide.

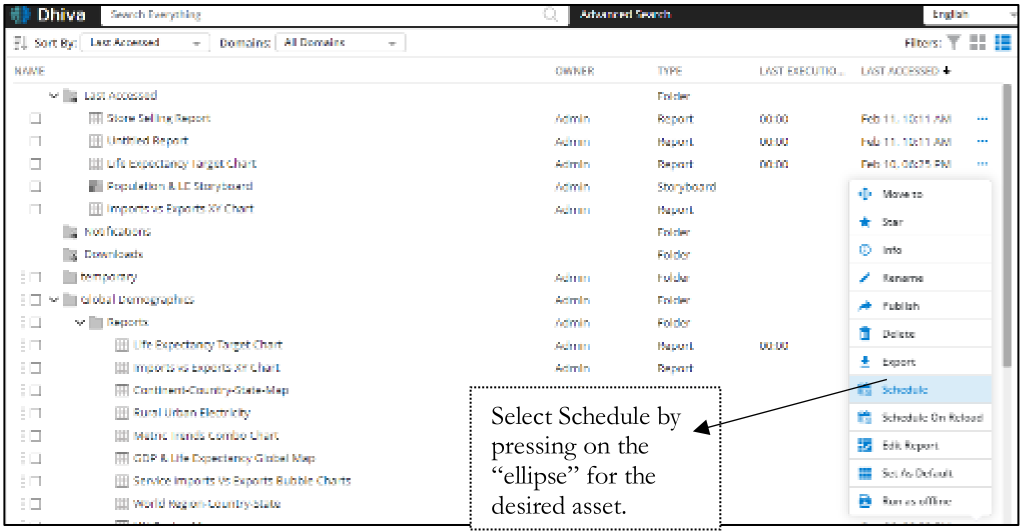
Static elements that are not present in the language provider bag from service can't be translated.

- 'Name' field in the Measures popup

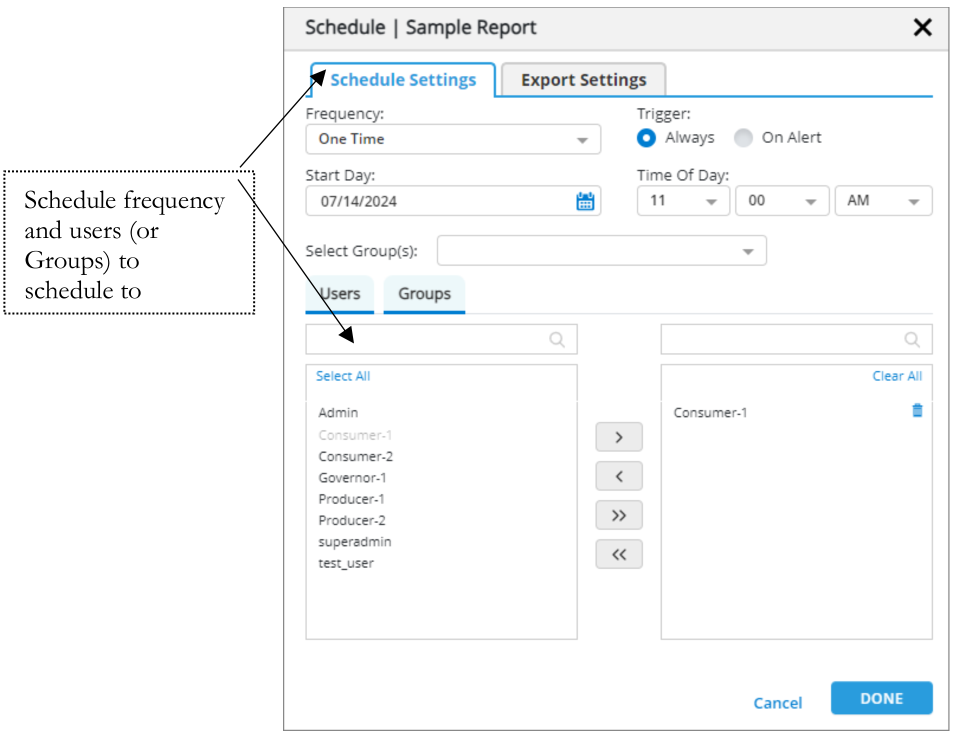
9 SCHEDULING & PUBLISHING

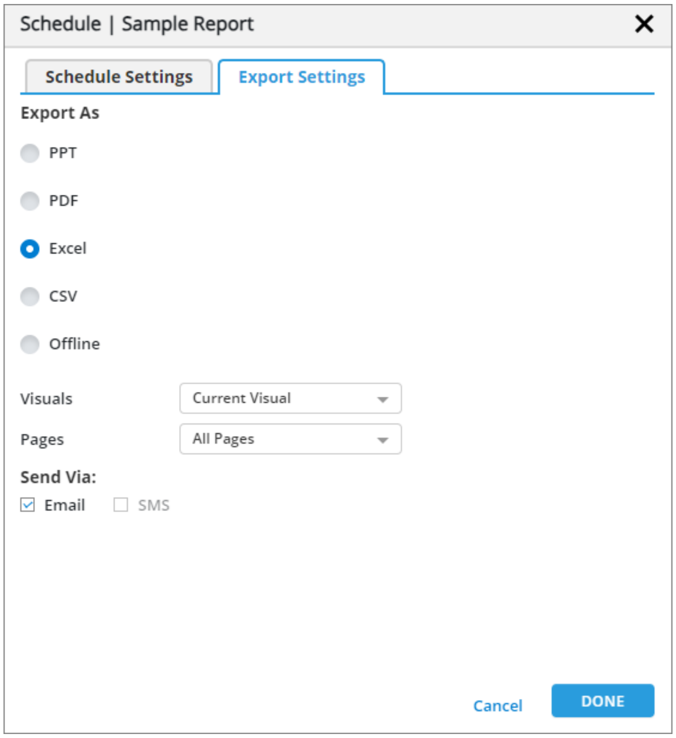
Publishing enables the user to generate the report/storyboard and make changes (as allowed by the publisher). Scheduling allows (a) the generation and sending of an Excel, PPT, etc., file directly to a set of selected users. Here the user receives the notification on the defined schedule.

Reports and Storyboards can be published to other licensed users and user groups from the asset management page by clicking on the "ellipses" to the right – as shown below.



Scheduled assets can be defined for a set of users or Groups, as shown below.

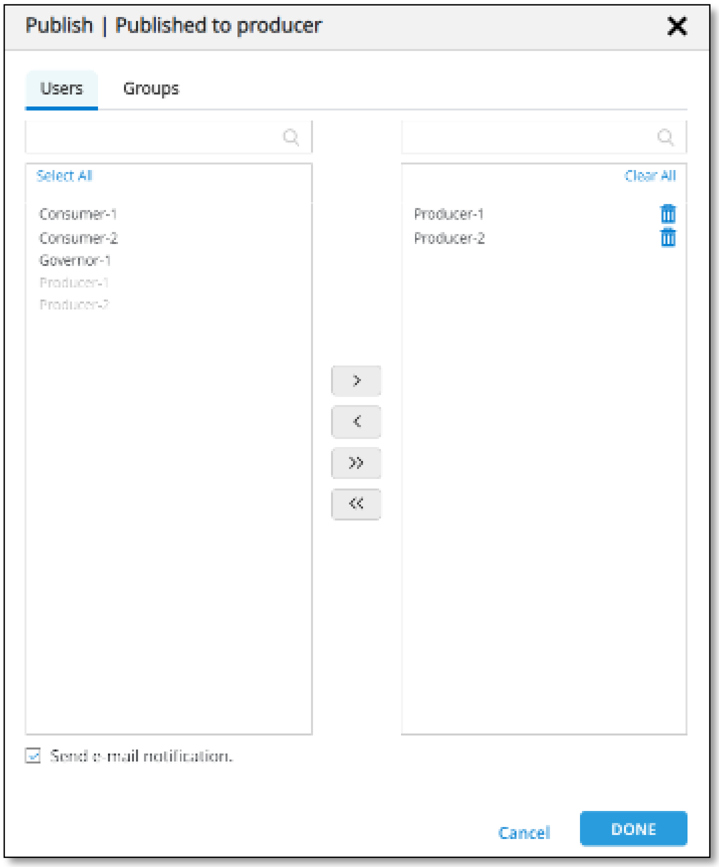




By checking one of the options in Send Via, the system notifies the user via Email/SMS.

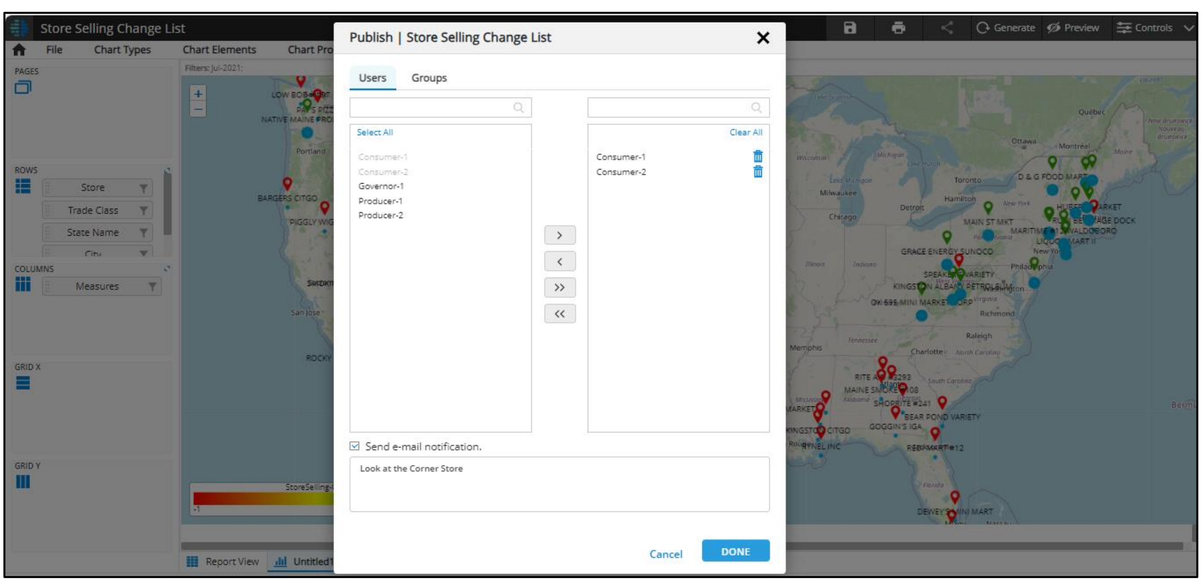
By default, notifications are always be sent. If the user wants to receive a notification only when the Alert is triggered, the user can check the 'On Alert' Radio button while scheduling.

When publishing an asset to a user or group, we may choose to send an Email to notify the user about the published asset. By default, the email option is selected as shown below.



9.1.1 *Publish Message with Email Notifications:*

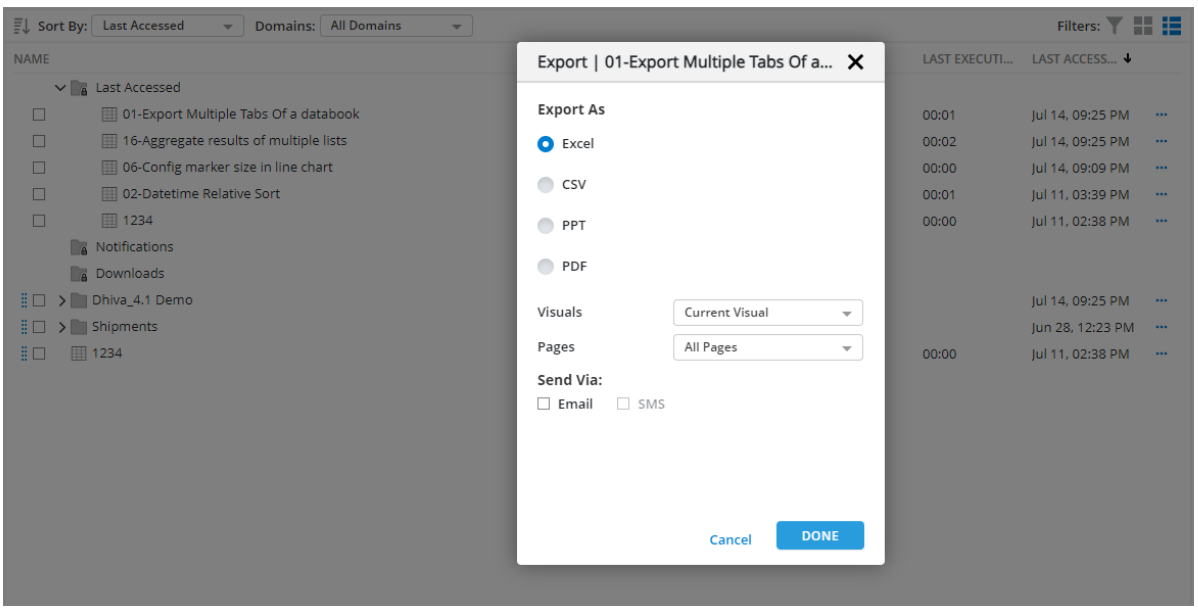
This allows users to include custom messages when publishing an asset. These messages can be sent to the published users through email notifications and are also displayed in the Info sidebar for the published asset.



- An inline text box is added below the "Send Email Notification" checkbox in the publish asset popup. Users can enter the message they want to send to the published users.
- When the user clicks the "Done" button in the publish popup, and If the "Send Email Notification" checkbox is checked, the message is included in the email notifications sent to the published users.
- If the "Send Email Notification" checkbox is not checked, the message entered by the user will only be shown in the Info sidebar to the published users, and no separate emails will be sent.
- The message entered by the user during the asset publishing process will be persisted. When the user reopens the published asset, the message will be retained.

10 Exporting & Printing

Reports and Storyboards can be exported in various formats, as shown below.



Users can export an asset without the need to save it first .Note that there are several restrictions for exporting charts and other visuals to Excel and PPT. For example, the bridge chart is not supported in Excel or PPT. Charts not supported by Excel/PPT and/or special enhancements cannot be exported in native form to Excel or PPT. Use only simple visuals which are supported to export to preserve "native" operations in Excel and PPT.

The exported file can be shared via Email, SMS, or File Share.

Viewing Exported File Status

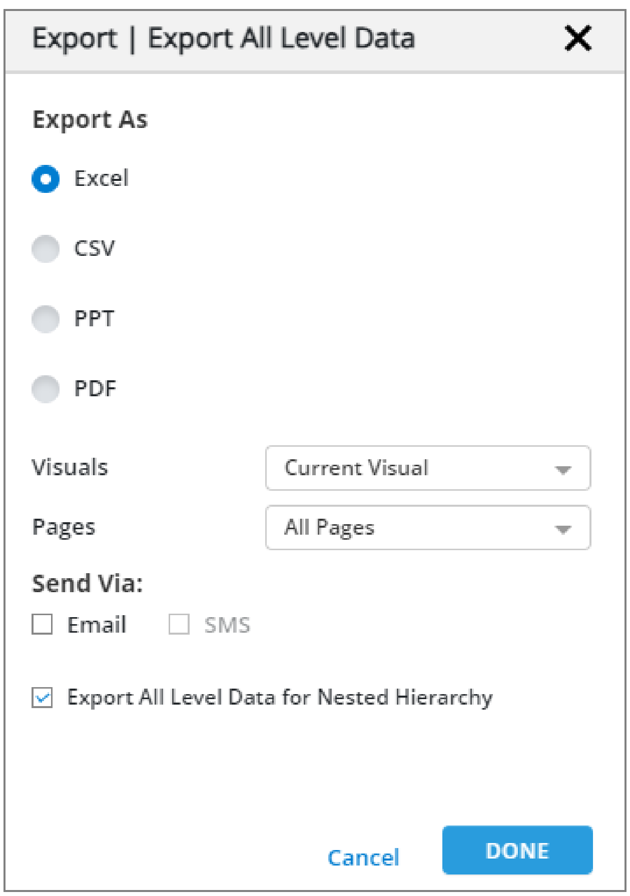
The feature enables users to monitor the status of all exported files, including those in progress or have failed.

Details:

- Producers can check the status of requested reports in real-time, including scheduled reports that are in the "queue."
- Admins have access to a list of all export requests.
- The download screen will display the export list as a grid.
- Users can filter values for "Export As," "Trigger Type," and "Status" using dropdown menus.
- Users can export reports/storyboards with their custom user filter selections without resaving the report. It ensures that user filter values are displayed appropriately during the download process. User filter values associated with assets will be displayed at the bottom of the asset names
- The 'Delete' feature allows users to remove one or multiple items (any status) up to 50 items from the downloads page in the producer application.

Export All Level Data

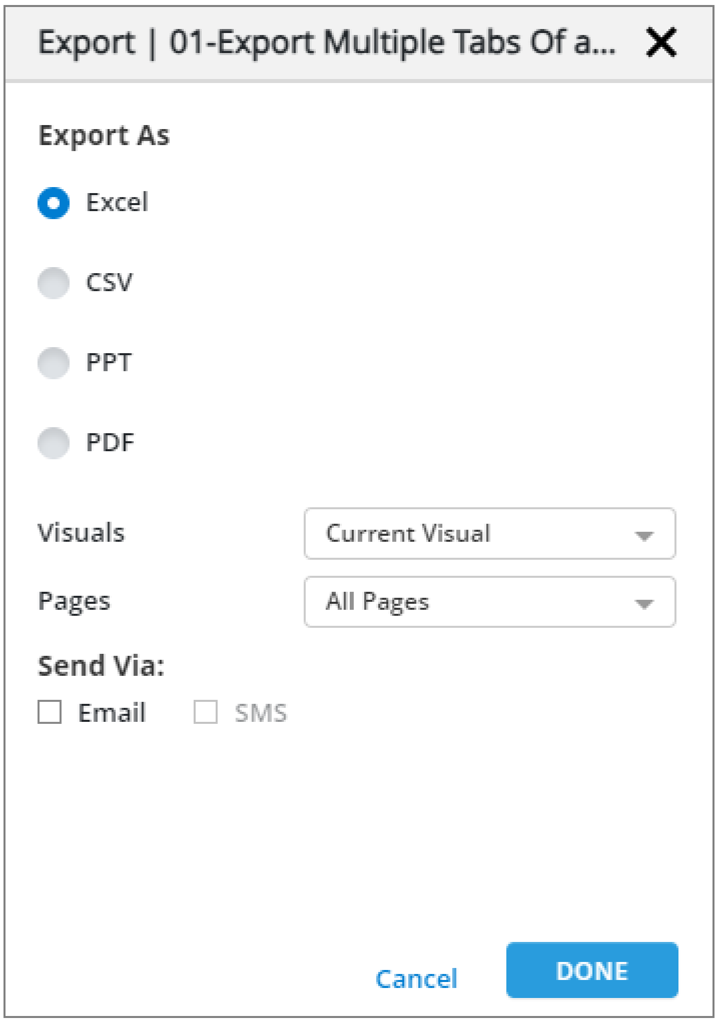
This feature helps export data for all hierarchy levels in Nested mode without the requirement to manually expand the UI to the least level. This enhancement simplifies the process of exporting data for different hierarchy levels, offering users more control and convenience. This option is applicable only for excel export.



Option in Export, Schedule, and Schedule On Reload Pop-ups: An option has been added to the Export, Schedule, and Schedule On Reload pop-ups. Users can enable this option when they want to export all levels of data for nested reports, even if they haven't expanded those levels in the UI.

Export Multiple Tabs

This feature allows users to export all the visuals (tabs) created in a report to a single exported file. The 'Visuals' dropdown provides 'Current Visual' and 'All Visuals options. Similarly the 'Pages' dropdown provides 'Current Page' and 'All Pages



When 'All Visuals' and 'Current Page' are selected, a file of the chosen export type is generated. This file includes all visuals for the current page filter (if present) selected in each visual.
When 'All Visuals' and 'All Pages' are selected, a file of the chosen export type is generated. This file includes all visuals for all page filters (if present) available for each visual. Users can turn tab name prefixes on or off for single or multi-visual exports in the global settings.

Storyboard export to Excel

Users can now export a storyboard as an Excel file, in addition to the existing PPT and PDF options. Each widget from the storyboard will be saved as a separate sheet in the Excel workbook.

- Widget Export as Sheets:
    - Each widget from the dashboard will be exported as a separate sheet in the Excel file.
    - If a widget contains a grid or report view, all its data will be exported into a single sheet in Excel.
    - If a widget contains a native export supported chart, it will be saved in two sheets: one for the chart and another for the corresponding data table
    - If a widget contains a chart that is exported as a screenshot, it will appear in a single sheet with an embedded image.
- Sheets Order:
    - The sheets in the Excel file will be arranged in the same order as the widgets appear on your dashboard
    - All widgets from the dashboards will be exported in the same order as the dashboards appear in the storyboard.
- Sheet Naming Convention:
    - Sheets will be named using the format D1:W1 where:
        - **D1** represents the dashboard number.
        - **W1** represents the widget number within that dashboard.

        Example: D1:W1, D1:W2, D2:W1.
- Each sheet will include information about the widget, such as the dashboard and report names, any filters that were applied, the source, the domain, the date it was last updated, and the time it was exported.

Limitations

Excel Sheet Name Length

- Excel sheets have a 32-character limit for sheet names.
- Full names (e.g., Dashboard Name: Report Name) might exceed this limit.
- When we shorten the names to 32 characters, two different reports with different visuals might end up with the same name. This can cause errors or force Excel to automatically rename the sheets (like 'Sheet1', 'Sheet2')

Static Tiles and Dashboard Headers

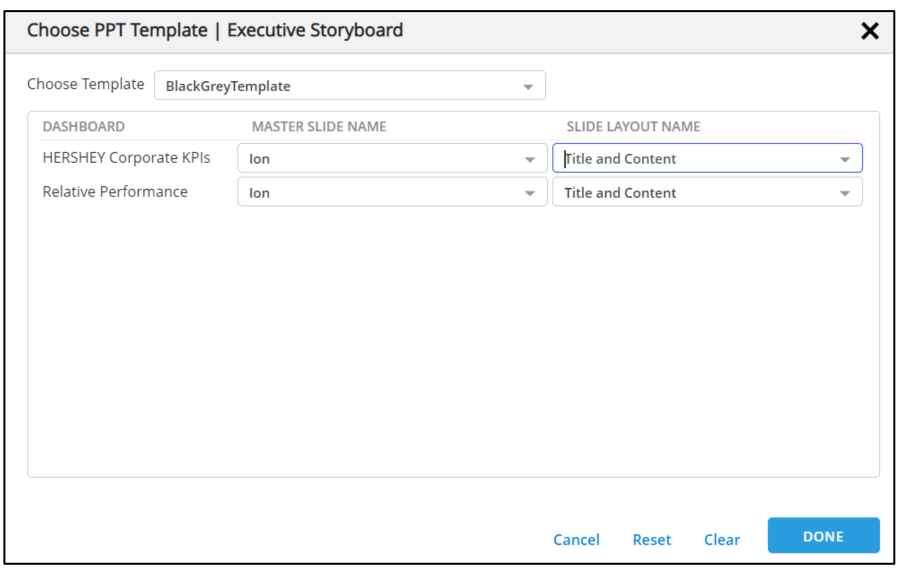
- In the web app, dashboard headers appear as fixed tiles. When exporting, these headers will be captured as images.
- When exporting, any special styling for filters or widget titles set in the widget template won't be applied.

Supporting Multiple PPT Templates

This feature allows users to utilize multiple PowerPoint (PPT) templates in Dhiva, providing the ability to handle different Master PPT templates for Reports or Storyboards. Users can choose from one or more template options when exporting a storyboard.

Dhiva enables users to associate specific Master Slides from a template with each Dashboard in Storyboards, allowing for seamless customization when multiple master slides are available.

The template selection is persisted and would be used across all exports and schedules. If no template is configured at an asset level, then the default template is picked. The default template can be configured at an application level by adding a value in global settings for the setting “Default PPT Template File Name”. The value should be the name of the PPT file. Ideally it would have a master slide with a default layout. If this value is not specified, then no template would be used during export. Even if the report or storyboard isn't saved, the default PowerPoint template will be used when exporting to PPT.



Following are the steps to configure the custom template for PPT export:

- After opening the ppt, navigate to View Tab and select “Slide Master”.
- We can see predefined master slides and layouts
- Select the layout and click on “Insert Placeholder”. Choose Content.as the place holder and open the “Format Shape” panel.
- On the right side options panel, select "Size and Properties".
- Under "ALT Text," give the title as "Output Container" and save the ppt.

- This should be done for all the layout where Dhiva content is expected.
- The new templates should be placed under $Dhiva_Instance_Central_Root\Central\Active\Configuration\PPTTemplates

Option to Export All Measure Groups

Users now have an option to export a report so that each group of measures in user filter appears is included in a single Excel file.

If you set a measure group as a filter in the report view, you can export all the measure groups at once by selecting the option from the export pop-up.

- In the export pop-up, you'll see an option called 'Export All Measure Group User Filters.' If you select this, every measure group used as a filter will be exported. Otherwise, the export will follow the usual process.

- If the total number of measure groups is below the set limit, all will be exported. There is an option to adjust the limits in settings but this may have performance impact on the application.

- Users can also schedule the report with all measure groups included by choosing this option.

11 Chart Limitations & Requirements

Certain chart visualizations have specific data requirements and limitations, as indicated below.

1. Pie Chart: This visual cannot be plotted in nested expanded mode. Drill down is not supported in the nested mode for this chart.
2. Funnel Chart: This visual cannot be plotted in nested expanded mode. Drill down is not supported in the nested mode for this chart.
3. Year-On-Year Chart: Only one attribute of the "date" type should be on rows for this chart to be enabled.
4. Clustered Charts: A Minimum of two columns are required to enable this chart.
5. Stacked Chart: A Minimum of two columns are required to enable this chart.
6. XY Chart: A Minimum of one column is required to enable this chart.
7. Map: This visual requires at least one geo attribute to be on the rows. This visual cannot be plotted in nested expanded mode. Drill down is not supported in nested mode. A map is not displayed at the Total hierarchy level. If there are two geo attributes on rows, then the latter will be pushed to pages if we add a chart from the new tab and from the change chart type.
8. Bridge chart: A Minimum of two columns are required to enable this chart. This visual cannot be plotted in nested expanded mode. Drill down is not supported in nested mode.
9. Target chart: A minimum of two columns are required to enable this chart.
10. Gauge chart: A maximum of 10 rows and 10 columns can be plotted as tiles. Grid X and Grid Y are not enabled for this chart.
11. Tile: A maximum of 10 rows and 10 columns can be plotted as tiles. Grid X and Grid Y are not enabled for this chart.
12. Chart properties can be defined in the main visual view only and not in the grid layout view for pie and funnel charts. In the grid layout view, chart properties will be disabled and respect the properties of the main layout view.
13. When a report is exported, the trend line equation is not exported. As of now, this is only a UI feature.

14. The visual rendering of the summary report is only supported in export but not in UI.
15. When a secondary value is chosen in bar charts, exported visual will be a screenshot.
16. The DSF colors are supported only for Bar/Column, Pie, Funnel, Bubble, Tree, Map, Combo & Grid chart.
17. When a visual with the DSF colours applied are exported to excel/PPT, the legend colours may not sync with UI.
18. XY Charts: The export will result in a screenshot when we have more than two axes in the chart or more than one measure assigned to a single axis.
19. XY Charts: Max Axes limit is 4 (4 X-Axes and 4 Y-Axes)
20. When charts are exported in native format, we try to sync as much as possible, but there could be limitations in certain cases due to different reasons, and hence they can look a little different from how they appear on UI.
21. All Chart Types
    a. Axis title position is not supported and is removed from chart element section.
    b. Underline is not supported.
    c. Previous version of charts who attribute values have duplicate descriptions will differ from current version.
    d. 3D mode is not supported.
    e. Number of value axis labels would differ from previous version of charts.
    f. Export will not consider zoom of the chart.
    g. On data zoom, overflow could be visible when chart back ground is enabled.
    h. Legends will not respect inverted symbol.
    i. Legends disabled color will not be handled with respect to the theme.
    j. Annotations are not supported for native charts in excel.
22. Radar Chart
    a. Null value in the data is plotted at origin instead of being neglected.
    b. Category Axis labels may overlap with each other.
    c. Padding section is removed from chart elements.
    d. For Radar Area chart, Legends marker shape would differ from previous versions. It would be like a line similar to that of line chart
    e. For Radar Area and Line charts, tooltip may not be correct.
    f. For Radar column chart, Y Axis log scale is not supported and is removed from the chart elements
23. XY Chart:

a. Bubbles may be rendered outside the axis when the bubble value is close to min or max values.

b. Position values of data labels will not be updated in chart elements as these are changed dynamically to avoid overlapping.

24. Line thickness is not respected in legend for Line, Area, YOY and Radar charts.
25. A gap between bar and axis line is expected in case of bar or column charts.
26. Axis position property is removed from the chart elements in case of gauge chart.
27. Chart themes are not supported for tile, map, Gauge and grid charts.
28. When a pie chart is exported to excel there might be a mismatch in decimal values
29. DSF text color is not supported for map data labels
30. Report links visual cue is not available in case of conditional formatting and secondary measure in charts

Chart Types & Max Data Limits

The table below shows the system data limits for various chart types. These limits apply to all users. The data limit refers to the number of cells.

Chart Type	Sub Chart Type	Data Limit
Bar		2000
Column		2000
Tree		1500
Line		50000
Area		50000
Combo		2000
Clustered	Bar	2000
	Column	2000
Stacked	Line	50000
	Area	50000
	Bar	2000
	Column	2000
XY	Bubble	50000
	Scatter	50000
Tile		100
Target		100
Gauge		100
Radar	Line	500
	Area	500

	Column	500
Candlestick		500
Heatmap		25000

12 CACHING FOR THE END-USER ARTIFACTS

12.1 Introduction

Following items are cached on the server-side:

- Report execution result
- Conditional list execution result

This cache on the server-side helps to reduce execution times and increase performance drastically.

There are two types of caching that are done for such artifacts.

- Short Term (lasts within a single login session only)
- Long Term (persists across sessions)

1. Short Term Cache (STC):

10) Short Term Cache is only used to cache the output of the last executed unsaved report. It is temporarily cached within the user's session on the server. This is particularly useful when the user is trying out various changes continuously within the report that doesn't affect the data output of the report, like using Summarize, etc.

Consequently, at any point in time, only one report is cached in the short-term cache. That is the last unsaved report that was executed.

Short-term caching (lookup/storage) is done only in the case of reports executed by opening/creating them from the home page. Not in the case of a storyboard widget/export/linking to a report. Also, not in the case of conditional list execution.

The short-term cache will be cleared once the user logs out of the application.

2. Long Term Cache (LTC):

The Long Term cache is used to store the **data output of a saved report or a conditional list**. Whenever a saved report/conditional list is executed, the application checks the LONG-TERM cache. If found, then it reads the cached response stored in the LTC instead of executing an SQL query on the portal database. If the cache cannot be found and is a saved asset/conditional list, the execution is done on the portal database, and the response is now cached in the LTC.

For storyboards/merge reports, the cache is maintained at the inner report/widget level only. Not at the whole storyboard/merge report level.

For new report/storyboard/merge report/conditional list, no lookup or storage is performed in the LTC.

12.2 What factors affect the cache lookup

Below list is the complete list of factors that come into play when doing a lookup for a cache entry within the LTC or STC:

	The following factors determine cache lookup
Long term Report cache	• User filters applied on the report (net resultant after considering user filters from storyboard/merge report, if any) • Hierarchy States in the report • Query Settings in Report Options • Report owner user's context mapping • Executing user's context mapping • Last modified dates of the above two contexts • Filtering UserId (referring to UserId based context filters), if any • Publish filters to be ignored on the report if any • Dataset Time • Changes to any lists/groups used in the report • Any changes to the domain (after save)
Short term Report cache	• Any changes to the report criteria could alter the response, like filters, labels, hierarchies, etc. • Query Settings in Report Options • Report owner user's context mapping • Executing user's context mapping • Last modified dates of the above two contexts • Filtering UserId (referring to UserId based context filters), if any • Publish filters to be ignored on the report if any • Dataset Time • Changes to any lists/groups used in the report • Any changes to the domain (after save)
Conditional List cache (Long-term only)	• Dataset time • Conditional list owner's context mapping • Last modified date of the owner's context • Changes to any lists/groups used in the report • Any changes to the domain (after save)

12.3 Domain level operations and cache

Following domain operations, remove both the LTC and STC cache for that domain when performed:

- Domain un-deploy
- Domain reload

- Dataset time update via explicit/query

13 TIPS & TRICKS

The system is optimized to visualize complex metrics from large disparate databases. Data can be retrieved in many different ways with various complex KPIs. As with any system accessing large sets of data, user experience can be impacted by the time to retrieve data (which is a function of hardware resources and concurrency). Below are a few tips and tricks for enhancing the user experience:

- **Handling Filters vs. Report Selections**: Report filters can be used as a mechanism to subset the data that is being retrieved. This is critical for time periods in particular. If you select Period without a Period Filter, you will retrieve data for every single Period in the database. A report selection can include any variable, which results in all values for that variable to be retrieved. Filters are the only way to reduce/limit the data selection and retrieval times.

- **Period versus Relative Period**: Period and Relative Period is a concept to be used when a report is to be saved and regenerated with new data each Period. The relative Period variable indicates to the system to use the most recent time period. Note: When using Relative Periods, be sure to select the "relative time" flag in time selections.

- **Report User Filters vs**. Pages: Use attributes on pages when it is highly likely that the data for those values are required in the report. Otherwise, using UF is more efficient since the values are only fetched on-demand.

- **Apply Storyboard User Filters**: It is best to apply Storyboard UF after all the dashboards are specified. This allows the specification of UF for individual dashboards (or a sub-set as required).

- **On-Demand UF Execution:** If multiple values can be selected for multiple UF – then be sure to turn off the "generate on-completion" specification for the user filters.

- **Custom Totals – Total Products, Total Markets, and Total Periods:** Use the "Total" option in the report attribute Row/Page/Column area when you wish to obtain a total for an attribute. To have multiple levels of attributes on a report dimension, you can create different reports – with the same structure and then "stack them" using the Merge Report functionality. Alternatively, you can use groups within an attribute with both groups and individual items.

- **Handling Time Calculations:** Time period calculations are based on the time metric selected. If a "non-rolling" (NR) metric type is chosen, the metric is computed for the selected time period. For example, if the % Store Selling-NR-CY metric is selected (which is the % of stores receiving the product in the "current year/time period"), and if the time period value selected is one Period, then this would be computed for one Period. For a "custom period" computation for, say, ten Periods in total, % Store Selling would provide % Stores Selling for the ten Periods.

- **Adding New Metrics:** Complex non-additive metrics such as % Stores Selling and ACV Distribution are complicated to compute. It is recommended that the time periods used to compute these metrics be limited. For example, do not extract 52 Week % Stores Selling for all brands since this could require reading many records. When adding new metrics, ensure that the duration used for non-rolling metrics is combined with the proper time dimension selection.

14 FREQUENTLY ASKED QUESTIONS

This section provides a list of frequently asked questions and associated responses:

1. *Why is my report running so slow?* Almost always related to the amount and nature of data and hardware platforms. Check for the following:

   (a) You have a large dataset that you are trying to extract

   (b) Your internet connection is slow

   (c) You have complex metrics like distribution or weighted distribution, which are computationally intensive.

2. *Why don't I have all the reporting and charting options (i.e., why are they grayed out)?* This is either due to (a) you having a "Consumer" profile that restricts options or (b) if the producer of the content has not enabled the options.
3. *Why can't I export certain charts to Excel or PPT in native mode?* Not all charts can be exported as native charts. Only certain charts with conditions are exported as native charts.
4. *Why can't I publish offline reports/charts to users:* This could occur if you don't have the licenses available to perform this function? You can publish Excel/PPT offline – or secure additional licenses.
5. *Why can't I export my data?* You cannot export data into Excel if the configured limits exceed.
6. *Why don't I see some of my columns of data?* In some cases, if there are too many columns, the system automatically hides columns from the view. Use the Display option to select more columns to view/hide.
7. *Why don't I see some of the attributes?* Your Admin/Governor may have restricted based on user permissions.
8. *Why can't I move my Nested Hierarchy to columns or pages?* The system design supports only a single Nested Hierarchy on rows. However, any number of Replacement Hierarchies are supported on any report dimension.
9. *Why can't I see my chart?* This could be due to no data (select another page or row value) or if the chart type does not support the data structure (try changing the chart type).
10. *Can I have multiple hyperlinks defined for attributes and cells?* Yes, you can define any number of links to reports and storyboards.
11. *How do I create an Index variable?* You can do this via the Dataset Function (DSF) or via Governor pre-configured metric.
12. *What is the "All Other" flag in the creation of the group?* This contains all the items of the parent attribute that have not been used in a Group AND which are not shown in the Group panel (on the right).
13. *What is the difference between 3MM, MTD, QTD, YTD, and NR metrics?* The first four are "rolling" metrics computed at a point in time (i.e., on a given Month). "NR" or non-rolling metrics are any groupings of the Months as required by the user. These are configured parameters.