Confidential

DhivaTM 4.1.0.0 - 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:

÷.	File	Dataset Functio	ns Display Options	
54	arch Attri	S citu	HLTHKK	Drag and drop
\sim	Sertinent		iii waa	- icon – (appears
	Windson World Ban	× Region		when selected)
~	Income Gr			-
	Developiny	4		

- 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 subset 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.

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.

Dhive Search Everything		Advanced :	Search	Fagish +	🛞 Ark Dhaa	P.	£ Û	29 📀
📳 Sort By: 🛛 Last Accessed 🔹 💌	Domaino: All Domaina 👻					Filte	ns 🝸	∎ ≣ ♦
5 Last Accessed	🛯 🕕 Published to Me 🛛 📄 12	8 My Assets	🗄 5 Downloads	7 Notifications				
Sample Report	Summary Test	default cascade III sport	Summery Report for chaim9cb44cas Ill accorr	Summary Report for channeltyper dia It spoor				

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.

Dhiva Search Everything	Q Advanced Search	English 👻 💿 A&Otexx 📑 🛨 🚯 🐉 🤇
🗐 Sort By: Last Accessed 🔹 Domains: All Domains	•	Filters: 🝸 🚼 🏭
5 Last Accessed 🛛 👘 () Published to Me	🔲 128 My Assets 👲 5 Downloads	Toggle Data Doma
On saving, the Data Domains pa	nel state is saved in user preferer	Toggle Data Domains

3.2 List Layout View

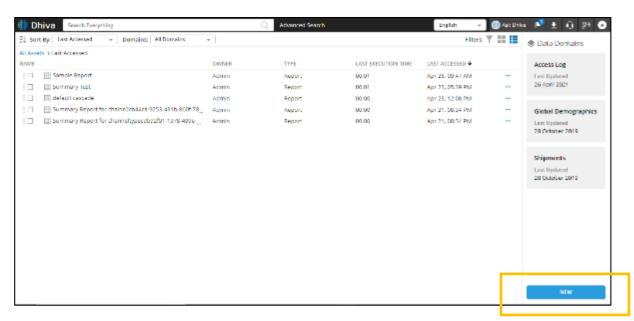
The List layout view is similar to the windows file explorer view. A user can expand the folders in this view, and it allows the user to move the assets across the folders. This view can be helpful for producers to manage and navigate.

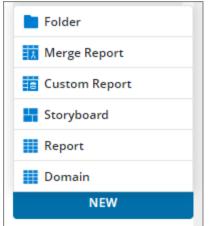
D 🕴	hiva Search Everything	0	Advanced Search		English v	💽 Aak Dhik	• 🖻 ± 🛈 🕫
i) Sor	t By: Last Accessed + Domains: All Domains	-			Filter	× Y 🖩 📕	Data Domains
II Anne	ts > Last Accessed						-
INNE		OWNER	TYPE	LAST EXECUTION TIME	LAST ACCESSED 4		Access Log
	🔠 Sample Report	Admin	Report	00:01	Apr 25, 08:47 AM		Last Ilpdated
	III Summary lost	Admin	Report	00:01	Apr 23, 05:39 PM		26 April 2021
	🔠 defeuit cascade	Admin	Report	00:00	Apr 23, 12:08 PM		
Π.	III Summary Report for chaine2cb44ca-9253-431b-8606-78_	Ashum	Report	00:00	Apr 21, 08:34 PM		Global Demographic
	🔠 Summary Report for channelsypecobood/01-1078-4056-	Admin	Report	00:00	Apr 21, DR:34 PM		Last Updated 28 October 2019
							Shipments
							Last Updated 28 October 2019
							NEW

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

	Filters:		📣 Admin User
I	LAST ACCESS 🗸	- 1	Change Password
,	ul 15, 11:26 AM		💄 Impersonate User
J	ul 15, 11:25 AM		💄 Admin/Govern
J	ul 15, 11:19 AM		😯 Refresh
· ·	ul 15, 11:16 AM ul 15, 10:40 AM		🗮 Mobile Menu 🛛 🔍
,	ur 15, 10.40 Aim		Dark Mode OFF
			 About
J	ul 15, 11:26 AM		🖯 Logout

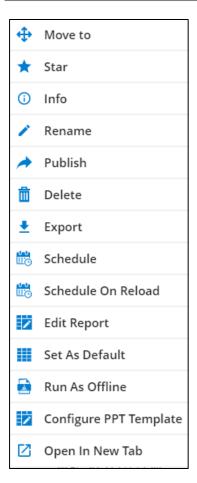
The New button at the bottom of the screen can create new Folders, Reports (Databooks), or Storyboards.





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.



📑 Dh	iva Search Everything		Advanced Sea	rch			English	🕞 📑 🛨 🕠 🦉
≣↓ Sort	By: Last Accessed 👻 Domains: All Domains 👻					Filters: [*]	T 📰 📰	Data Domains
	Demo	DOMAIN(S)	OWNER	TYPE Folder	LAST EXECU	ADD 18, US:47 AM		
	Group Modification	Shipments	Admin	Report		Apr 18, 09:47 AM	1	Access Log
	I DSF Support in Stacked Hierarchy	Shipments	Admin	Report	00:01	Move to		18 April 2023
	III Stub As User Filter	Shipments	Admin	Report	00:00	•		
	Item Sales Report	Shipments	Admin	Report	00:00	★ Star		Global Demographics
	Conditional List Criteria	Shipments	Admin	Report	00:00	 Info 		Last Updated
	Conditional List Criteria as Filter	Shipments	Admin	Report	00:00	✓ Rename		28 October 2019
	🛄 Column Filter & Top	Shipments	Admin	Report	00:00	Publish	-	
	III Numeric Range	Shipments	Admin	Report	00:00			Shipments
	IIII Group/List Attribute in Report	Shipments	Admin	Report	00:00	🛅 Delete		Last Updated
	IIII Relative Filter Indication	Shipments	Admin	Report	00:00	🛃 Export	-	28 October 2019
	For a compare the second secon	Shipments	Admin	Storyboard	00:01	🛗 Schedule		
	🔛 Retain Format	Shipments	Admin	Report	00:01	Schedule On Reloa	4 *	
	Data Label Precision	Shipments	Admin	Report	00:00	Edit Report	-	
	Column Sort Pin	Shipments	Admin	Report	00:01			
	IIII User Filter cascade	Shipments	Admin	Report	00:00	Set As Default		
	Demo Fold		Admin	Folder		🔁 🛛 Run As Offline	-	
	Shipments		Admin	Folder		Configure PPT Tem	plate "	
	✓ 🔤 Reports		Admin	Folder		Open In New Tab		
	III Manufacturer Share Trend	Shipments	Admin	Report		19101 30, 03.0311		
	Store Selling Report	Shipments	Admin	Report		Sep 00, 02:52 Pi		
	Store Selling Change List	Shipments	Admin	Report		Sep 06, 02:52 PM	1	
	Dollar Share KPI Report	Shipments	Admin	Report		Sep 06, 02:52 PM	1	
	Key Account Share Change	Shipments	Admin	Report		Sep 06, 02:52 PM	1	
	Competitive Share Change	Shipments	Admin	Report		Sep 06, 02:52 PM	1	NEW

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

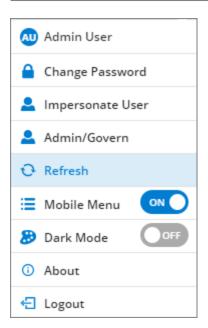
3.4.1 Advanced search options on the home page.

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

Advanced Search		×
💿 Filters 🛛 🔵 Wild Card		
Show Filtered Attributes		
Search Attributes		Q
Туре	Select Type	
Owner	Select Owner	•
Asset Name(s)	Select Asset Name(s)	-
Starred	Select Starred	-
Published by Me	Yes x	× •
Published to Me	Select Published to Me	-
Scheduled by Me	Select Scheduled by Me	-
Scheduled to Me	Yes x	× •
	Cancel Clear	DONE

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.



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.

Oreate Report Untitled Report		8 8	< 0 te	nerete 🥩 Preview	🕘 Jak Uhika 💿 Controla 🗸 🗸
File Dataset Punctions Display Options Options					
Search Amfbures () PUTCS	untry v				
Damy N Counters	Î			ŋ	
UN Nation World Early Region	ort Dimensions -	– Drop A	Areas		
H State: Convergingen State: State: State: State: Convergingen State:					
I Time filter areas)	O- Please dick here to ge	enerate the rep	ort.		
Measure attribute MUST be p	blaced on one				
Wresters of the report dimensions – be Life Toperary & Construction generating report	efore				
Traport View					

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.

File Dataset Functions Search Attributes Q.	Display Options Op PLTUS Venth V	Nons I Dates V Is Planned V	FAGES Sear	v
Erend Al Colorad Al		COLUMNS		
🖯 jab	Filtere: Occober-2000:		7667 2020	Ŧ
Lomplete Hag Job End Date	DUE TE BRANKE TE	E COMPLEXITY COMPLEXITY E		
jah ID	10/02/2020	Sadifii - Helf Aul		
🖽 Journal	10/00/2020	Staddfill - Less than half full		
H Maintenance	10/13/2020	Kandid - Other		
H Product	10/20/2020	Tenture Watery / thin dip ON RRST OPENING		
Shift Maintenance	10/26/2020	Pig Dign Diskie - Mukly dip ON FIRST OPENING		
E System				
I Time				
Measures				
Compleint Subject				
	III Report View D New Tab			
source : Sates - 64 Hebruary 2021				Parent 1

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

File Dataset Runction Search Attributes Q.] Isortol Att. Oxforesc Att	ns Display Options Op nurces T i Marsh V	dons I Bows III Date ∨ (II is Mantred ∨)) Area ∨		NACES
j Evens 1 jab		Comans Messures		
Job End Date	Riters: October 2020;			Viran 20020
Job ID	DATE I TO PLANNED I TO	AREA I T SHITT MAINTENANCE RECOUNT I JOD RECOUNT I	COMPLAINT SUBJECT	MAINTENANCE &COUNT
Job Kame Journal	10/02/2020		Slackfill - Haithul	
Maintenance	10/06/2020		Slackfill Loss than half full	
Product	10/13/2020		Record - Other	
Capac ParRaller	10/20/2020		Texture - Wetery / thin dip ON FIRST OPENING	
CupSite of	10/26/2020		Fig Dags Dislike - Moldy dip ON HIST OPENING	
Realth Qualification				
Rem State				
Material Category Material Family				
Material Flavor				
Material Status				
Marrie 1918				
Measures				
Shift Maintenance 90Count				
Job WCount Complaint Subject				
Maintenence %Count	Report View D New Jab			
ance : Satura - D4 Helbruary 2021	M Report view La New 125			Nov

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.

	titled Report			8 8 <	C Generate \$9 Preview	🕘 Aak Uhika 🛛 🖾 Controla 🗸 🗸
File Dataset Function	s Display Options O	ptions				
Search Attributes Q, Brown All Collopse All Country Londners	T	rouses	×			Noes
Country ¹⁰ A Countries ¹⁰ Acon Countries Derokyng Incorre Group UN Kapten World Derik Regten State Country Region						
State Code State Nome			O Marca database			
Time			O Please dick here to	generate the report.		
Tear						
Meanures Die Dopastancy at Birth-CY GDP Per Capito-CY						
Source : Gisbei Demographica - 30 October	Report View					

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

f	File	Dataset Functions	Display Options	Options	
Searc	ch		<u>२</u>] भ	FILTERS	ROWS
Expand	d All		<u>Collapse All</u>	T	
	Measure (iroups			Hierarchy X
E 2	Stubs				Hierarchy X
🗆 C c	ountry				
	Continent				Name Continent_Country
	Country				Include Total
	Developin				
	Income Gr				
	UN Regior				 Replacement Nested Stacked
E St	World Ban	k Region			
					Continent
	Country R State Code				Country
	State Code State Nam				e to generate the report.
E Ti		c			e to generate the report.
	Year				
	rear				
					Cancel DONE
м	leasures				
				Report View	

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.

Hierarchy		×
Name	Year_Month	
Replacen	nent 🔵 Nested 🧿 Stacked	
ii Year		
Month		
	Cancel DON	E

FILTERS	ROWS	
Year	✓ SYea	r_Month 🗸
	COLUMNS	
	Me	asures
Filters: 2021;		
YEAR_MONTH \equiv	Dollars-cy-Nr $\downarrow \equiv$	
2021	\$62,314,083.61	
Feb-2021	\$9,451,557.91	
Jan-2021	\$9,428,205.44	
Apr-2021	\$8,959,316.24	
Mar-2021	\$8,950,774.35	
Jul-2021	\$8,891,690.28	
Jun-2021	\$8,591,203.92	
May-2021	\$8,041,335.47	

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.

Manage Groups		>	
Name:	All Trade Classes	• ОР	
Trade Class Values(3)		Selected Values	
Advanced Search			
	Q		Q
Select All		Select Values	Clear All
Convenience		✓ All Trade Classes (3)	1 🖬
Express markets		Convenience	面
Supermarket		Express markets	前
		Supermarket	Ē

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.

Hierarchy		×
Name Trac	le Class	
Replacement	t 🔵 Nested	Stacked
All Trade Cla	sses	
Trade Class		
	_	
	Cancel	DONE

Following is the output of the report.

	ROWS
	COLUMNS Measures
TRADE CLASS	Dollars-cy-Nr $\downarrow \equiv$
All Trade Classes	\$266,389,095.77
Express markets	\$150,476,422.81
Convenience	\$86,936,745.81
Supermarket	\$28,975,927.15

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.

FILTERS Year V	ROWS
	COLUMNS Measures
Filters: 2021;	
DISTRIBUTORS SALES \blacksquare	DOLLARS-CY-NR $\downarrow \equiv$
Distributors above 10 Million	\$41,327,875.75
Distributors below 10 Million	\$20,986,207.86
Distributor1	\$28,892,659.50
Distributor2	\$12,435,216.25
Distributor4	\$7,068,761.45
Distributor5	\$6,861,234.67
Distributor3	\$6,372,862.90
Distributor6	\$683,348.84

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

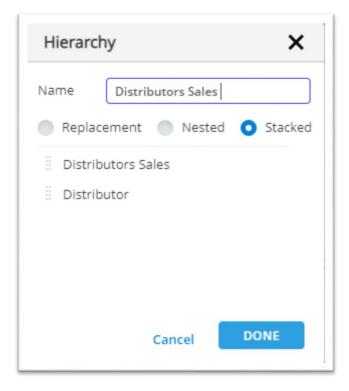
	*	OPTIONS 🔻			FEFFEEEDN	GENERAL
HU1995 SELECTION	MEASURE SELECTION		OPERATOR COMPARETO WALLS	AND/OR		
Post (42021)	Dollars CY NR		5 w Volar w 1000000			

Distributors below 90 Million	*	ormones 👻			EXPRESSION	GENERATE
HINK MOULDS	MWARD-1H RETER	OPHONE I	UNAME TO ANTON	050308		
Year-202021)	Dollars-CY-NR	A	Adar = 10000000			

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

Manage Groups	Distributors Sales		×
Name:	Distributors Sales	Ŧ	
Select List(s)	Distribut x Distri	out x × *	
Distributor Values(6)		Selected Values	
Advanced Search			
			Q
Select All		Select Values	Clear All
Distributor1		Distributors bel	ow 10 Million 🛛 🧪 🛅
Distributor2		Distributors abo	ove 10 Million 🛛 🧪 🛅
Distributor3			
Distributor4			
Distributor5			

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.

Create Report Unt	itled Report Display Options	Options		8	e <	O Generate 99 Proview	🎯 Ask Ohilea 👳 Controls 🗸 🗸
Search Actributes (C) Expend 64 College 64 F Country	T	nows					
Continent Country ⁶ A Countries	continent =	1	COPINE CARDALOY E				
*Acian Counties: Developing Income Group	+ North America + burge	77.26	535,948.01 527,75535				
UN Region World Bank Region E State	+ South America + Asia	7438	\$10,068,11 \$1,738,11				
Country Region State Code State Name	+ Africa	61.52	\$1,874.33				

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.

	tled Report			8	ð <	G-Generate	Ø Proiree	💮 Ark Dhee 😑 Controlk 🕚
File Dataset Functions Scarch Attributes Q. Estand Att Colleges Att H Country	Display Option	Continent Co	v					Evan
control y	Inter Astonian							
^G A Councries ^G Actian Councilies Developing	Autorella	82.16	SHP FFR CAPITALCY = \$57,277.57					
locame Group UN Region World Bank Region	New Zealand New Caledonia	8130 77.09	\$38,252,33					
E State	Tongo Sentos	75.67	\$3,937,51 \$3,940,19					
State Code State Name	Venueru Fil	73.10 50.7V	\$3,020.55 \$4,602.45					
Time Year	Solaman Islanda Popua New Gunea	60.41 64.80	\$1,811,35 \$2,471,00					

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.

Search Attributes Q.]	T	Bows B ^M Conditions_Col. •			NACES
Country Condinent		COLUMNS Mexaures			
Courtery	+1				
PA Countries	CONTINENT_COUNTRY =	Upb expectancy at Birth-cy $= \psi \equiv$	ODP FBR CAPITA-CY = Ξ		
"Asian Countines	Australia and Outania	77.90	\$40,965,45		
Developing Income Group	Australia	82.16	\$57,277.67		
UN Region	New Zealand	61.30	\$36,057,99		
World Dank Begion	New Caledonia	1100	\$38,252.33		
- State	Tonga	75/67	\$3,037.51		
Country Region State Code	Samoa	73,99	\$2,942.19		
State Name	Vanuatu	73,10	\$3,020.55		
Time	8y	69.79	\$4,602.45		
Year	Solomon klands	69.41	\$1,811.35		
	Papus New Guines	64.80	\$2,471.00		
	± North America	77,28	\$35,948,04		
	+ Europe	77,10	\$27,793.35		
Measures	+ South America	/4.38	\$10,083.11		
Life Departmency at Dirth-CY	+ /ok	71.77	\$5,738,11		
GDP Per Capita-CY	+ More	61.52	\$1,874.38		

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.

Search Attributes	Q				
Expand All	Collapse All				
Country					
Continent					
Country	~				
Add User Filter					
Manage Group	s				
Manage Lists					
Manage Condit	tional Lists				
World Bank Reg	ion				
File Dataset Function	ns Display Options	Options			
File Dataset Punction Search Attributes Q.] Separat Al Colleges Al Country Condinents		Options Incer () Continent () () Country () contract () Mecourts			
File Dataset Function Search Attributes Q Separal Al Colleges Al Country	ns Display Options	Continent V Country V			
File Dataset Function Search Amfbuses Q Councy Confuser Vurbited Charty V Add User Filter	ns Display Options	Continent V Country V			
File Dataset Function Search Amflutes Q Councy Configure All Configure All Constant "Unoded County V Add User Filter Manage Groups	ns Display Options	Continent V Country V			
File Dataset Function Search Amfbuses Q Councy Confuser Vurbited Charty V Add User Filter	ns Display Options	Continues Continues Continues Mocourco	Attribute panel -		
File Dataset Function Search Attributes Q Context Attributes Q Context Attributes Context Q Questions Growthy V Add User Filter Manage Groups Manage Groups Manage Constituted Liss	Select attri	Continuer Country Coun	Attribute panel –		
File Dataset Function Search Autoures Q Control M Condeners "Unofies Country Add User Filter Manage Groups Manage Candidianal Loss State Country Region States Country Region States Country Region States Country Region	Select attri drop-down	Cartment v Courtey v Webserts	-		
File Dataset Function Search Amflutes Q Search Amflutes Collapse Amflutes Search Amflutes Manage Groups Manage Groups Manage Groups Manage Conditional Lists Hasee Country Ragion Search	Select attri	Continuer Country Coun	-	erale report.	
File Dataset Function Search Attributes Q Control 2 Control 2	Select attri drop-down	Cartment v Courtey v Webserts	-	erale report.	

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

Manage Lists Country				×
Name: My Countries			٣	
Country Values (182) Advanced Search			Selected Values (5)	
Select Al	Q			Q. Oser Al
Austorijen Bahama Bahama Bangadesh Bahadas Bebos Bepter Beste Beste Baste Baste Baste Bost		> < >> «	Albania Angola Sakout Cambolia Camada	888888
			Exclude	
	Cance	di ch	SAVE	DONE

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.

	My Countries		× *		
Country Valu			Selected Va	lues (5)	
Advanced Sea	irch				
					Q
Select All					Clear All
			Angola		
			Albania		
			Selerus		
		3	Canada		
			Cambodia		
		4			
		>	>		
		<	<		
			Exclude		

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.

Create Report Unt	itled Report Display Options O	ptions	8	O C C Centering	99 Prodev 🛛 📵 Aak Uhika 💯 Controla 🗸
Search Amribuses Q.) Ensant Al Collasse Al Country Condinents	nutos ▼ [i Country ∨	Courses Courses Courses Messures	v •		
Country PA Countries Plokan Countines Developing	North America Costa Risa	□ LIFE EXPLICITINGLY AT DIRTH BY ↓ □ /2.28	GDP PCR CAPITA CV III S10,004.36		
Income Group UN Region World Bank Region	Nitice Algorie Asie America North America Greenland	75.80 74.05 71.47	54,714,32 55,002,53 546,551,43		
H State Country Rigiton State Code State Name H Time		101	THE MARCH		

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. By using the 'Link to List' checkbox, you can switch between the new and previous behaviors for managing lists, providing greater flexibility and control over your data.

When the 'Link to List' checkbox is checked, the selected lists are added directly to the right-hand side of the popup as values and the left panel will be filtered according to the selected lists and will be disabled. The right selections panel will show the list names within the dropdown. Exclude and relative checkboxes will be unselected and disabled.

Manage Lists	Brand Family	×
Name:	Brand Agg List	▼ OPTIONS ▼
 Create 	Import	
Select List(s)	Top 5 B x Bottom 5 x	(i) × •
Brand Family Val	ues (10) Selecte	ed Values (2)
Advanced Search	Q	Q
Select All		Clear All
M&M'S KIT KAT ASSORTED REESES SNICKERS HERSHEY-ETS LORENA POT OF GOLD SHOCKERS SKINNY COW		i Brands
 □ Set as Global ✓ Link to List 	Exc	lude
	Cancel Clear	SAVE DONE

When the 'Link to List' checkbox is unchecked then selected lists will filter the values on the left-hand side of the popup based on the selected list.

Manage Lists	Brand Family			×
Name:	Brand Agg Li	st	*	
💽 Create 📃 I	mport			
Select List(s)	Top 5 B x	Bottom 5	x (i) × ↓	
Brand Family Value Advanced Search	s (10)	S	elected Values	
	Q			Q
Select All M&M'S KIT KAT ASSORTED REESES SNICKERS HERSHEY-ETS LORENA POT OF GOLD SHOCKERS SKINNY COW		> < >> «	No row(s)	to show.
 Set as Global Link to List 	Ca	ncel Clea	Exclude	DONE

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

Advanced Search							×
Brand	Condition 👻	Contains	•	Text			
Brand Family	Selection 👻	3 MUSKETEERS x	X 🕶	Exclude			ā
Distributor	Selection 👻	Distributor3 x	×	🗹 Exclude			Ē
Add New Dependent Filter							
Save And Apply Criteria							
					Cancel	Clear	DONE

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

Advanced Search					×
Hour	Condition 👻	Contains	•	Text	
Date	Selection 👻	07/10/2024 x	X 💌	Exclude Relative	Ē
Add New Dependent Filter					
				Cancel	Clear DONE

- 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:

Advanced Search							×
Month	Condition 👻	 Rar 	nge 🔵 Period	lic			
		Start:	Date:	:::	O Default	Relative	
		End:	Date:		 Default 	Relative	
						Cancel Cle	ar DONE

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.

Advanced Search								×
Country	Condition	•	Contains	•	Text A			
Continent	Selection	-	Asia x	X 🔺	Exclude			â
Add New Dependent Filter			Africa					
Add New Dependent Filter			🗸 Asia					
			Australia and Oceania					
			Europe					
			South America					
						Cancel	Clear	DONE

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

E Create Report Untitled Report9	Manage Groups My Regions	< O Generate @ Preses 🚔 Coornels 🗸
File Dataset Functions Display Options	Manage Groups My Regions X	
Scarch Attributes Q Counce Attributes Q Councer Attributes Q Co	Nome: My Regions Country Values(17) Selected Values	
Contract	Advanced Search	
Control of the second s	October October Solver All Server's Verant Solver All Server's Verant	
Country Terran Town Count Sour Narre For Voorts Select items to	Norme : E Countries	Select items and select Add to Sub Group
Manuters CORPERTS CORPERTS Second Part of Second Se	Cancel SAVE DONE	Use Include all other option to group remaining items

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

Search Attributes Q Country Consinent Country	T	Couvers My Regions V Couvers Measures				PAGES	
⁶ My Regions Developing	MY REGIONS	†≡	GDP PER CAPITA-CY	=	LIFE EXPECTANCY AT BIRTH-CY		
Income Group	A Countries			\$14,267.50			71.
UN Region	B Countries			\$6,962.52			72
World Bank Region State	C Countries			\$7,525.76			74
State	D Countries			\$11,040.92			69.

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

🕇 File	Dataset Functions	Display Options O	ptions		
A Expand All Country World Bank R	X Collapse All egion	FILTERS	COLUMNS		
Country GAsian Cour	thes	UN REGION	POPULATION TOTAL $\downarrow \equiv$		
GA Countrie		+ Asia Southcentral	1,776,208,105		
 State 		+ Asia Eastern	1,571,481,089		
State Code		+ Asia Southeastern	619,621,452		
State Name		+ South America	407,681,712		
 Time 		+ Africa Eastern	372,707,184		
Year		+ North America Northern	351,499,750		
		+ Africa Western	334,741,382		
		+ Europe Eastern	293,156,000		
		+ Asia Western	243,554,055		
		+ Africa Northern	216,266,519		
		+ Africa Middle	216,185,031		
		+ Europe Western	192,499,077		
		+ North America Central	167,796,945		
Measures		+ Europe Southern	151,155,196		
Population To	Ital	+ Europe Northern	101,226,783		
		+ Asia Central	66,579,263		
		III Report View 📶 Map 🗸	🖌 💶 New Tab		

4.2.12 Creating Groups/Lists using existing lists

While creating groups/lists, the user can select the existing list on that attribute. Attribute values of the selected list are added to the left panel. Users can select multiple lists, and all the attribute values of the selected lists are combined and shown to the left. Users can sub-select from this left panel and move to the right panel to create groups/subgroups (lists).

Manage Lists Co	ounty			×
Name:	tl		Ŧ	OPTIONS 🔻
🖸 Create 🛛 🔘 Imp	ort			
Select List(s)	t2 x		X w	
County Values (283) Advanced Search			Selected Values (3)	
	Q			Q
Select Al				Clear All
Allegheny Besdle Benton		>	Allegheny Beadle Benton	1 1 1
Brist Fourt		<	EXTENSION 1	
		>> <<		
		_		
			Exclude	
	Ca	ncel Cl	SAVE	DONE
Manage Groups	County			>
Name:	my list		-	
Select List(s)	t2 x		× 7	•
County Values(283)			Selected Values	

elect List(s)	t2 x		X ¥	
County Values(283)			Selected Values	
Advanced Search		1		
Select All			Select Values	Clear A
Allegheny Beedle Benton		> < >> «	Barton Bartow Beedle Belmani Heimani Allwghany	
			include all others	id to Sub Grou

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

Manage Groups	Store			×
Name:	G Large Stores		Ŧ	
Select List(s)	Large Stores x		XA]
Store Values(151)	✓ C Large Stores	5		
Advanced Search	Small Stores	5		
				Q
Select All			Select Values	Clear All
MONTY'S LIQUOR REDI MART #7 NINO LISBON GETTY CATHY'S TASTE OF HOM CLIPPER MART #9 CIRCLE K #7040 BANGOR SAVINGS BANK RANDOLPH TAKE OUT PAPA JOE'S LIQUORS SO BLUE GRASS ENERGY HANNAFORD #211	<	> < >> «	Large Stores	∕ 面
Set as Global			🗹 Include All Othe	ers
☑ Link to List			All Others	
		_		Add to Sub Groups
		Cano	cel SAVE	DONE

2)

Observe that the Link to List check box at the bottom is checked when a list is selected. The "Include All Others" checkbox is enabled. It is the default behavior when one or more lists are selected when creating a group. 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.

Manage Groups	Store				×
Name:	G Main Stores			•	
Select List(s)	Large St x	Small St	x	() × •	
Store Values(275)			Select	ted Values	
Advanced Search					
					Q
Select All			Selec	ct Values	Clear All
MONTY'S LIQUOR REDI MART #7 NINO LISBON GETTY CATHY'S TASTE OF HOM CLIPPER MART #9 CIRCLE K #7040 BANGOR SAVINGS BANI RANDOLPH TAKE OUT PAPA JOE'S LIQUORS SO BLUE GRASS ENERGY HANNAFORD #211	¢	> < >> <<		arge Stores mall Stores	 ✓ 前
🗌 Set as Global			🗹 In	clude All Other	s
☑ Link to List			All	Others	
				O A	dd to Sub Groups
		Can	cel	SAVE	DONE

靊	Create	Report	Untitled	Report					
♠	File	Dataset Fund	tions	Display Options	Ор	tions			
	arch		Q Y				ROWS	G Main	Stores 🗸
	Measure Stubs	Groups	Collapse All						ures
+	Time Product			G MAIN STORES	≡	DOLLARS	-CY-NR	$\downarrow \equiv$	
+	Market			Large Stores		S	133,085	,172.36	
				All Others			\$72,879	,078.15	
				Small Stores			\$56,057	,609.42	

The default behavior is to create a dynamic group when using a list in the group definition. However, if a user does not want to create a dynamic group but prefers to use it a filter the left side values based on the selected list, he can do that by unchecking the "Link to List" checkbox at the bottom. This changes the definition of the group to static values. All options of static group creation will now be enabled, including subgroup and "All Other" subgroup. The selected list is then only used to filter the left panel to selected list values. If more than one list is selected, the left panel shows the union of the values of the selected list.

Manage Groups	Main Stores				×
Name:	G Main Stores			•	
Select List(s)	Large St x	Small St	x (i) × -	
Store Values(275)		:	Selected Va	lues	
Advanced Search					
	Q				Q
Select All MONTY'S LIQUOR REDI MART #7 NINO LISBON GETTY CATHY'S TASTE OF HOM CLIPPER MART #9 CIRCLE K #7040 BANGOR SAVINGS BANI RANDOLPH TAKE OUT PAPA JOE'S LIQUORS SC BLUE GRASS ENERGY HANNAFORD #211 CIRCLE K #7012 DR. BALLOU	ζ	> < >> «	N	io row(s) t	to show.
Set as Global		[Include	All Other	s
Link to List				6 A	dd to Sub Groups
		Cano	el 📄	SAVE	DONE

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

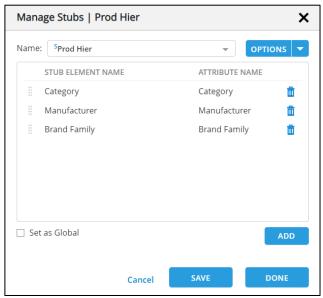
4.2.15 Stub

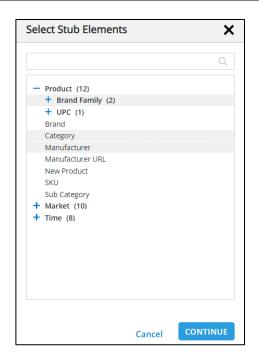
A stub is a combination of attributes, lists (static, dynamic, and conditional lists), and groups (static and dynamic groups), similar to a stacked hierarchy.

- 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.
- In a storyboard environment, if a widget has a private stub selected as a User Filter and the storyboard is published to another user, the widget displays an error message indicating that the User Filter selection cannot be removed.
- 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.

Manage Groups	Quarter		×
Name:	GGQuarter	•	
Select List(s)		•	
Month Values(45)		Selected Values	
	Q		Q
Select All		Select Values	Clear All
Jul-2021 Jun-2021 May-2021 Apr-2021 Feb-2021 Jan-2021 Dec-2020 Nov-2020 Oct-2020 Sep-2020 Aug-2020 Jul-2020 Jul-2020 May-2020 May-2020 May-2020 Feb-2020 Jan-2020 Dec-2019 Nov-2010	•	 > Q2 (3) > Q1 (3) 	
🗹 Set as Global		Include All Othe	rs
	I	G	Add to Sub Groups
		Cancel SAVE	DONE

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.

lame:	LHershey Brand Far	nily 👻	OPTIONS 🔻
Create 🛛 Ir	nport		
rand Family Values	5 (78)	Selected Values (46)	
dvanced Search	Clear Search		
Select All			Clear All
100 GRAND		5TH AVENUE	
3 MUSKETEERS		AIR DELIGHT	前
		ALLAN	
		ALMOND JOY	一 目
		ASSORTED	
		> BARKTHINS	山 一一一一一一一一一一一一一一一一一一一一一一一一一一一一一一一一一一一一
		BREATHSAVERS	
BABY RUTH		< BROOKSIDE	· · · · · · · · · · · · · · · · · · ·
		BUBBLE YUM	tin la
BIT-O-HONEY		>> CADBURY	Ē ☆
BOTTLE CAPS		COOKIES N CREME	
		<< DROPS	
		GOOD N FRUITY	m
		GOOD N PLENTY	<u> </u>
BUTTERFINGER		HEATH	
		HERSHEY	
CHUNKY		HERSHEY ALMOND	Ξ.
		HERSHEY MILK	
CRUNCH		HERSHEY-ETS	<u>m</u>
DOVE		ICE BREAKERS	tin a la l
		JOLLY RANCHER	
		VICCEC	the second seco
Set as Global		Exclude	

4.2.17 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.

Apply Filters Manufactu	Jrer		×		
Select List		-		ROWS	
Manufacturer Values (3)		Selected Values (1)		COLUMNS	
Advanced Search					
	Q		Q		
Select All			Clear All		
HERSHEY COMPANY MARS INC NESTLE USA		MARS INC	•		
Advanced Search					×
Manufacturer	Condition 👻	Contains	•	Text	
Add New Dependent Filter					

ntitled	Report2	Apply Filters Brand Fami		×	G < O Genera
ns	Display Options		'Y	^	
	Advanced Search				×
	Brand Family	Condition 👻 Conta	ins 👻	Text	
	Manufacturer	Selection 👻 MARS	INC x × -	Exclude	ā
	Add New Dependent F	lter			
				Cancel	Clear DONE
				Cancel	Clear Clear
			Cancel	Clear DONE	

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.

Dhiva: Confidential

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.

Apply Filters Mar	nufacturer		×	_	_		ы	~	() Gen
Select List	Advanced Search								×
Manufacturer Values Advanced Search	Manufacturer	Condition 👻	Contains	•	Text				
	Brand Family	Selection 👻	10 x 3 M x	() × •	Exclude			亩	
Select All MARS INC	Category	Selection 👻	Candy x	× •	Exclude			ā	
NESTLE USA	Add New Dependent Filter								
Cascade						Cancel	Clear	DON	E

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.

Apply Filters Manufacturer		×	_	
Select List	-	ROWS		
Manufacturer Values (3)	Selected Values (1)	COLUMNS		
Advanced Search		iii		
0		Q		
Select All		Clear All		
HERSHEY COMPANY	MARS INC	=		
MARS INC				
NESTLE USA				
Advanced Search				×
Manufacturer Cor	dition 👻 Contains	- Text		
Add New Dependent Filter				

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.

Apply Filters Date		×		_	_	_	8	<	C Generate
Select List	Advanced Search		_						>
Date Values (2023)									
Advanced Search	Date	Condition 👻	🗿 Ran	nge 💿 Periodic					
	Q		Start:	Date:	0-0 	 Default 	Relative	2	
Select All			End:	Date:					
			End:	Date:	=	🗿 Default	Relative	2	
07/15/2024									
07/14/2024	1								
07/13/2024									
07/12/2024									
07/11/2024									
07/10/2024									
07/09/2024									
07/08/2024									
07/07/2024									
07/06/2024									
07/05/2024 07/04/2024									
07/03/2024									
07/02/2024 07/01/2024									
06/30/2024									
06/29/2024									
							Cancel	Clear	DONE
Cascade									
					_				
	Cancel 0	lear DONE							

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

4.2.18 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:

ame:	MG Sa	ales	▼ OPTIONS ▼					
		METRIC	NAME	VERSUS	DURATION			
8 •		Dollars	- Dollars-CY-NR	CY	NR	-	More	
8 🛨		Price	 Price-CY-NR 	CY .	NR	-	More	o t
i 🛨		Units	- Units-CY-NR	CY	NR	-	More	0 1

- 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:

Search Attributes Search Attributes Collapse All Expand All Collapse All Measure Groups Sales	FILTERS Month	✓ COLUMNS	es v			PAGES
Share Stubs	Filters: Jul-2021; Share;					Measure Groups
Time	BRAND FAMILY =	MANUFACTURER =	DOLLAR SHARE-CY-NR $\downarrow \equiv$	UNIT SHARE-CY-NR =	DOLLAR SHARE BY SUB CATEGORY-CY-NR	
Month	REESES	HERSHEY COMPANY	19.28%	19.83%	18.69%	
Quarter Year	M&M'S	MARS INC	12.69%	10.40%	20.30%	
Product	SNICKERS	MARS INC	12.18%	9.81%	5.72%	
Brand	ASSORTED	MARS INC	7.97%	6.25%	29.36%	
Brand Family	KIT KAT	HERSHEY COMPANY	6.59%	8.08%	4.1196	
Category Manufacturer	TWIX	MARS INC	4.39%	4.01%	2.84%	
Manufacturer URL	MILKY WAY	MARS INC	3.00%	3.81%	3.74%	
New Product	HERSHEY MILK	HERSHEY COMPANY	2.72%	2.92%	1.70%	
Sub Category UPC	HERSHEY ALMOND	HERSHEY COMPANY	2.68%	3.37%	3.34%	
Market	PAYDAY	HERSHEY COMPANY	2.63%	2.38%	55.66%	
	BUTTERFINGER	NESTLE USA	2.34%	2.16%	2.91%	
	3 MUSKETEERS	MARS INC	1.78%	1.58%	2.22%	
	ICE BREAKERS	HERSHEY COMPANY	1.69%	1.92%	92.05%	
	COOKIES N CREME	HERSHEY COMPANY	1.66%	1.28%	2.07%	
Measures	ALMOND JOY	HERSHEY COMPANY	1.66%	2.71%	2.07%	
	ASSORTED	HERSHEY COMPANY	1.42%	1.58%	21.75%	
	Report View	HERSHEV COMPANY	1 38%	1 54%	1 77%	

- 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.

4.2.19 Enhanced Visual Cue for Artifacts

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

Search Attributes	Q	Į,
Expand All	Collapse All	
Measure Groups		
Stubs		
🛨 Time		
🗄 Product		
🖻 Market		
🖯 Chain		
G Supermarket		
🕒 Chain List		
🕒 Top 5 Chains		
City		
County		
Distributor		
State Code		
State Name		
Store		
Store Size		
Store-Address		

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.

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

3)

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:

Descharton Stregory	Define Mea	sures											×	
inde Cass tate		METRIC		NAME	DURATION		VERSUS		ROLLING PO	100		σ	ũ	
easter Start Dat	: 🖬 🗆	Dollars	*	Dolen	NR.	*	CV .	*	Select	Ŧ	More	٠	0	
inar Ity	1 🖬 🖻	Dollar Share	w	Dollar State 3WM Chg 1960	ROLLING	*	Chg Vh Yago	×	3	Ŧ	More	٥	•	
Anna Franky kond Franky Lab Dalagony Lab Dalagony Lab Dalagony Lab Calagony Lab Cal								aran n me	neter fo	or a ions c		e		63 5 57,4 852 75

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

Define Measures	Measure - Units X		×	×
METRIC	Metric	Units	* ATION	
Units	Name	Float Units-CY-NR	_	- More 🗇 💼
	Versus	MaxWindowing		
	Duration	Min Min Running Total		
	Ignore Filters	Min Windowing NTIIe		
	Format	Percent Of		
	Filters	Percentile Value Rank		
	Select Function	Row Number Select Function		
		Cancel Clear DO	DNE	Cancel DONE

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.

Define Measures	Measure - Units		×	×
METRIC	Versus Duration Ignore Filters Ignore Labels Format Filters Condition Select Function Attributes Sort On Sort Order	CY NR Select Select \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	* * * * *	Mara Ta
		Cancel Clear	DONE	Cancel DONE

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	$\downarrow \equiv$
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.

Define Measures	Measure - Units	5	×	×
METRIC	Versus	CY .	ATION	
Units	Duration	NR		The main and the m
	Ignore Filters	Select	*	
	Ignore Labels	Select	*	
	Format	#.##0:-#.##0 Auto		
	Filters	Select Filters		
	Condition	None 👻		
	Select Function	Rank	× v	
	Attributes	Bran., x Manu., x	× *	
	Sort On	Attribute	× *	
	Sort Order	Asc	X *	
			_	
		Cancel Clear	DONE	Cancel DONE

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

MANUFACTURER =	BRAND FAMILY =	UNITS-CY-NR ↓ 🗄	
HERSHEY COMPANY	ZERO	7	79
HERSHEY COMPANY	ZAGNUT	7	78
HERSHEY COMPANY	YORK	7	77
NESTLE USA	WONKA	7	76
HERSHEY COMPANY	WHOPPERS	7	75
HERSHEY COMPANY	WHATCHAMACALLIT	7	74
HERSHEY COMPANY	UNKNOWN	7	73
HERSHEY COMPANY	TWIZZLERS	7	2
MARS INC	TWIX	7	71
HERSHEY COMPANY	TAKE 5	7	70
HERSHEY COMPANY	SYMPHONY	6	59
NESTLE USA	SWEETARTS	6	58
NESTLE USA	SPREE	6	57
HERSHEY COMPANY	SPECIAL DARK	6	56
NESTLE USA	SNO-CAPS	6	55
MARS INC	SNICKERS	6	54

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.

Define Measures	Measure - Unit Share X			×
METRIC	Metric	Unit Share	Ŧ	ATION
🗄 🧧 🗌 Unit Share	Data Type	Float		- More 🗇 🗊
	Name	Unit Share-CY-NR		
	Versus	a	-	
	Duration	NR	-	
	Ignore Filters	Select	-	
	Ignore Labels	Select	-	
	Format	0.00% Auto		
	Filters	Select Filters		
	Condition	None 💌		
	Select Function	Select Function	Ŧ	
		Cancel Clear DONE		Cancel DONE

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."

Define Measures	Measure - Unit Sh	are	×	×
METRIC	Metric Format Measur Format Number Currency Percentage Custom	Unit Share Unit Share Sample 4362577.0000% Decimal Places Use 1,000 separator ()	×	→ More C
	-	Cancel Clear	DONE	Cancel 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.

Define Measures	Measure - Unit	Share	×		×
METRIC	Metric	Unit Share	Ŧ	ATION	
Unit Share	- Data Type	Float		-	More 🗇 🗊
	Name	Unit Share-CY-NR			
	Versus	CY	Ŧ		
	Duration	NR	-		
	Ignore Filters	Select	*		
	Ignore Labels	Select	-		
	Format	0.0000% Reset			
	Filters	Select Filters			
	Condition	None 👻			
	Select Function	Select Function	-		
		Cancel Clear	DONE	Cance	DONE

	COLUMNS Measures
DISTRIBUTOR ≡	UNIT SHARE-CY-NR $\downarrow \equiv$
Distributor1	48.3458%
Distributor2	17.0520%
Distributor5	11.9923%
Distributor3	10.6641%
Distributor4	10.6182%
Distributor6	1.3276%

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).

Search Attributes Q.] Estance/d. Collapse-Att H Country Continent		PE TPAL	COLUMNS	ntmark v Country	×			
	Gunddod	CONTINENT	=	COUNTRY	= NOP PER CAPITALCY	7=	THE REFERENCE AND REPORTS	=
	Country ⁴ Undded	Europe		Luciembourg		\$107,757,060		01.01
	Developing	Europe		Norway		\$87,929,860		81.69
Ē	hanre Group 🛛 🗸 🗸	Europe		Switzenland		\$81,141.870		82.72
	Add User Filter	Acia		Qarar		\$74,125,090		77.77
E	Manage Groups	fale .		Macan		\$72,276.600		82.99
	Manage Lists	Lurope		Denmark		\$53,122,810		80.07
	Manage Conditional Lists	Fumpe		San Marino		\$18,002,040		83.02
	State Name	Australia and Occania		Assertie		\$57,277.670		82.16

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

Scarch Attributes Q	T		Filter Actions And Appearance	×		
Ventel Rank E State Country Ital State Code State Name H Time	comment foruse foruse foruse foruse foruse foruse forus	atar atar atar atar atar atar atar	Control Type List Das Dropdown No List Swarch Mandatory Single Select Display Piter Values in Report Title Generate Report or Safection Display in Top List? Elber Papel order Select		POPULATION TOTALLOW IIII 06 544,075 07 7,0783,181 08 7,0783,181 09 2,194,182 00 5,44,195 01 5,44,195 02 1,194,182 03 5,46,90,283 04 5,690,283 05 6,21,194	81.01 81.04 82.72 77.77 82.99 85.07
Your	Australia and Orivenia Europe Europe North Amoriku Acia Europe	Autoreli Instand Sweden United Singape Instand	Select User Filter Name as Dipley User Filter Name as Income Group	Auto 47 33 13	87 23,134,037 73 4,647,511 74 5,0090,52 88 316,307,70 80 7,975,70 81 32,000	81.64 91.55 1 78.12 1 85.27
Measures GDP Fer Cepts-DY Population Total-DY Ute Expectancy at Skrth-DY	Europe Europe NordinAmerika Report View D Now Ist	Kesteri Austria Consido	Cancel	DONE	50 16,010,483 09 8,527,013	51.29 51.06

Control Type: This is the type of UF control to show the user: (a) List Box (fully open list), (b) Dropdown 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.
- 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.

A File Dataset Punctions	Y income Group 🗸	Ca	ntinant V E Lounty V		Income Grou User Filter (w selected initial	p shown ith none ly)	as	angi Unan 至 Cana Re I	rola 🗸
SUnded Country								feare trues dect Income Group	-
	CONTINENT	=	COUNTRY	=	GOP PER CAPITA-CY	+=	LIFE EXPECTANCY AS	DIRTH-CY	=
UF attribute /	Europe		Luxembourg			\$107,757,060			81.61
appears in the	Europe		Norway			\$87,929,060			81.69
Filter area –	Fumpe		Switterland			\$31,101,870			82.72
	Tak		Qator			\$74,325.090			77.77
and can be 🔤	Adla		Macao			\$72,275,600			82.99
removed from	Europe		Denmark			\$18,122,810			80.07
here.	Europe		San Marino			\$38,002,040			83.02

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

File Dataset Punction Search Assributes Q. Bound At College: All Content Content	s Display Options Opti nume T I M Income Group V	COLUMNS	ntinent v Esunoy v	User selected Low Income value from Income Group UF		
^o Unrided Country	Filters: Lev Income:			·	Low income	$\times \times$
Oradea	CONTINENT	=	COUNTRY	□ GOP PCR CAPITA CY ↓ :	LIFE DIRECTANCY AT BIRTH CY	=
Developing Income Group	Africa		South Sudan	52,015.022	u -	55.21
UN Region	Aca		North Korea	\$1,532.07	0	70.60
World Bank Region	Mitka		Comortos	\$1,376.89	0	62.84
H State	Africa		Senegal	\$1,293.74	0	65.75
Country Region	Mace		Zonhalswe	\$1,122.50	0	57.35
State Code State Name	Africa		Chad	5255.64	U	51.54
⁴ Unrided	Africa		Denin	\$830.49	٥	60.00
H Time	Mour		Temportie	1828-34	0	68.36
Your	Atrica		Mell	5/80.30	U	56.70
	North America		Hairi	\$754.00	0	62.35
	Millio		Guinea	\$698.33	0	58.29
	Adla		Nepal	\$685.4Q	U	69.10
Measures GDP Per Capital CY	Maca		Roanda	\$663,69	0	65.06
Life Expectancy at Birth CY	Mrice		Uborle	\$630.13	0	60.33
	Africa		Burkina Faco	\$830,40	0	50.57

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

opply Filters Income Group	×
High Income	
Loss because	
Lower middlis income	
Not devolved	
Upper middle income	
Cancel Clear DOW	e .

• 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.

PLITERS	attes Continent V Country V	PASES
Modify Rename	COUUNKS Measures	
Remove User Filter		JP-Income Group → 111

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

Rename Inco		¢107 757 (×
Name	Income Group Across The Continents		
		Cancel	DONE

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

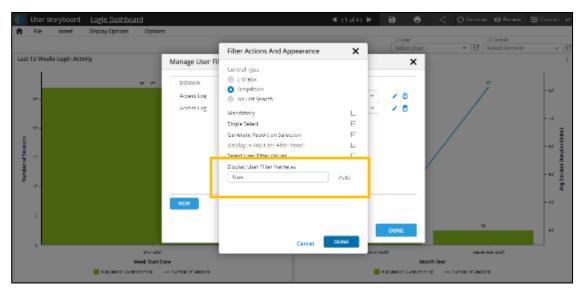
UF Income Grou	COL	Continent V Continent	UT-Income Group Acress The Contil			
CONTINENT	≡	COUNTRY	≡	GOP PER CAPITA CY $\downarrow \equiv$	POPULATION TOTAL CY	
Europe		Luxembourg		\$107,757.06	544,975	81.61
Europe		Nonwey		\$87,929.86	5,068,164	81.69
Europe		Switzerland		\$81,141.87	8,097,527	82.72
Asla		Qeter		\$74,325.09	2,194,169	71.77
Asla		Macao		\$72,276.60	574,950	82.99
Europe		Denmark		\$58,122,81	5,630,269	80.07
Europe		San Marino		\$58,002.04	32,197	83.02
Australia and Oceania		Australia		\$37,277.67	23,124,057	82.18
Europe		Ireland		\$36,047.73	4,047,511	81.04
Europe		Sweden		\$34,508.12	9,030,859	81.95
North America		United States		\$53,073.83	316,307,720	78.12
Asia		Singapore		\$52,705.00	5,353,762	82.27
Europe		loeland		\$30,657.41	326,106	82.43
Europe		Netherlands		\$40,732.58	16,818,483	81.29

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

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

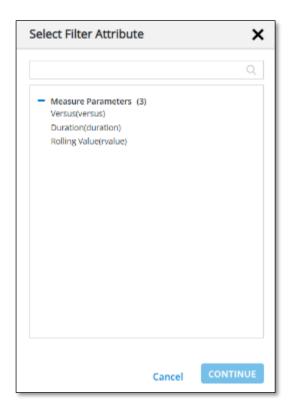
Filter Actions And Appearance	×
Control Type	
 List Box 	
Dropdown	
No List Search	
Mandatory	
Single Select	
Display Filter Values in Report Title	Υ.
Display in Top User Filter Panel	~
Colort Line: Gilter Values	
Display User Filter Name as	
Income Group	Auto
Cancel	DONE

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.

ket i		ures									×	
1Ain		METHIC		NAME	VORSUS		DUINTION					
N :	•	Bolies	-	Ballers CY MR	14	-	84	-	None		1	× .]}
solution (1)		Price	-	Prine CP RM	1.0	-	NK	-	None	٥	1	
Code Name	•	Dollar Shere		Dollar Share-CY-NR	CH	~	111	~	Note	e.	1	

👬 Create Report 🛛 Unt	ried Report				a	• <	O terreste 🛛 terres 🗄 terreste
🏫 File – Detaset Functions	 Obplay Options 	Options					
Search Astributes (A) Donne Al Collecter A El Nariose	 The second second	V Versilverser V Courses					
Oldr Oldr County	Films 2 (pr. Vige						With responsed, Streamin Chip vs Kago X w
Distributor	NUM INCOME TO BE	NOT LESS that we write $\Delta M = \frac{1}{2} = 1$	PERFECTED VEHICLES	DOLLAS SHARE CHOVE WE DAVE			
Mate Code State Name	REALESCIES OF	\$54,80 A,81 A 16	\$1.01	1.0%			
E Slore	MARSING	\$45,004,641,89	\$6.52	2.148			
Mana Mari Maria Adaress Tratic Cusy	NESTLE USA	15,054,511,12	40.00	0.65%			

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.

Filter Actions And Appearance	×
Control Type	
List Box	
o Dropdown	
No List Search	
Mandatory	
Single Select	\checkmark
Display Filter Values in Report Title	\checkmark
Generate Report on Selection	\checkmark
Display In Top User Filter Panel	\checkmark
Enable Cascade Filtering	\checkmark
Select User Filter Values	
Display User Filter Name as	
Distributor	Auto
Cancel	DONE

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.

PAGES					
	Filters: Store;				
	5 STORE	Ξ	DOLLARS-CY-NR	$\downarrow \equiv$	UNITS-CY-NR =
	INDEPENDENT		\$133,270,56	50.28	379,178,550
	BIG APPLE FUNDRAISING, INC.		\$61,180,15	58.75	187,511,016
ROWS	7-ELEVEN		\$23,873,49	96.60	67,355,875
ST Product	SHEE'S GAS & GROCERY INC		\$13,874,23	35.66	38,623,977
	WAVES		\$8,929,30	00.75	22,722,206
	HESS-H & P PETROLEUM INC.		\$8,929,23	32.50	22,228,695
COLUMNS 2	SHELL		\$7,017,87	73.75	18,761,388
OLUMNS OLUMNS	EZ STOP MARKETS		\$5,989,99	98.70	16,894,100
	CASEY'S STOP & SHOP		\$3,324,23	38.78	9,625,302
	AR-Pocahontas		\$9,625,16	58.35	29,439,352
	CA-Pittsburg		\$9,542,73	33.70	30,185,712
	AL-Tuscaloosa		\$8,033,58	35.21	24,716,833
	ME-SKOWHEGAN		\$7,093,39	95.85	22,830,807
	ME-WALDOBORO		\$6,891,00	09.05	21,627,569
	AL-Birmingham		\$6,580,38	38.35	21,084,654
	AR-Ash Flat		\$6,565,44	48.00	19,735,392
	AZ-Cottonwood		\$6,118,15	58.49	19,138,009
	AZ-Flagstaff		\$5,995,51	11.15	17,528,312
	CA-Woodland		\$5,571,96	56.10	18,680,471
	TN-KINGSTON		\$5,358,03	37.29	14,180,631
	Report View				

- 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. However, the selection present in the UF will not be copied.

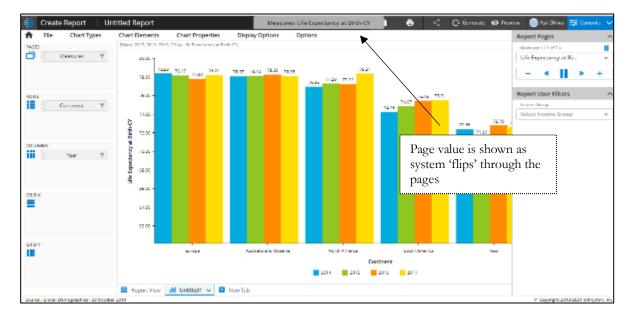
4.5 Control Menu

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

A the Defend function	Studies Ballanci Old							
ft Pile Delaset Function							Report Pages	-
Search Attellactes D,	T D Not N	inter internet					Mooves (1873)	
Research All Colleges All			· •				The Experimenty of Sta-	
E Louriny	🗄 🔤 income Group 🔗	COLUMNO Fear	~				Report User Niters	
Local Internal							Introduction (Sec.)	
Country	Filmer 2017, 2015, 2015, 2014; 100 Paper	nang on Birth City					Jelen Income Simus	
¹⁰ A Country iss Motors Country in	CONTINUES = 2014	4 - 33	m —	2012 - 2012	-		Helphane	
Notice Countries Developing	Easym	78.39	26.17				Low income	
Income Croup	Assistation of Constants	78.07	76.12	Control pa	nel chow		In we can be the formula	
UN Region	North America	76.95	77.39				Not clean field	
World Kent Kegine	South America	74.26	74.87	Pages – an	d User Fi	lter	Opper middle income	
E State	Asia	72.09	71.41	selections				
Encomp Region Mate Scale	Africa	62.50	52.87	selections				
State Name				L				

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).

esh Attributes (C) el Al Colesse Al	A Law Provide	aroup v	Country N	*						Nociones
Construction of the second sec		0000		×						
Dourney Developing							Select Incom		Lf GDP Per Ca	pha-CY v
noome Group	country =	2 00 0 E	200 II	2011 II.	2002 – E	#** III	2014 III III	ans = =	205 III	ao =
Us Ragion World Dank Neglon E Store Country Region Nation Inde	Lucembourg	\$100,190,67	\$104,965,31	\$115,751,51	\$105,749,01	\$112,525.13	\$119,225.30	\$101,445,79	\$100,730,88	\$104,102,04
	Manage	\$2(567.18	\$2,7007	\$100,010.2V	\$201,66617	\$108,03025	447,194.47	\$70,000.14	\$10,000.00	station of
	Sen Menno	\$76,810,15	\$66,756.37	\$55,213,52	\$55,133,99	\$57,746.17	\$54,760.51	\$15,237,09	\$47,115,64	\$40,008.00
	Switsprioret	500.527.47	\$14,606,72	\$55,415,63	\$6556625	\$55,112,45	\$85,605.95	55/016/02	\$45,566,08	\$80,188.70
itere Name Tana	Qatar	691,478.24	\$75,306.23	\$85,918.07	MRR, SIGNAR	88,406,838	\$85,852.71	\$25,177,23	\$56,544,25	\$63,248.42
8a.	Denmark	\$56,153,29	\$55,041,41	\$51,753,55	\$\$5,537,50	\$61,191.12	\$82,548.99	\$\$3,013,00	\$52,576,75	\$55,307.51
	Index al	\$12,100.00	\$45,671.89	\$52,186.50	\$29,047,84	\$50,778.11	\$55,412.98	991,83267	966,100.43	469,882,69
	Netherlands	251,200,24	\$50,000.25	\$53,540.51	\$49,474,71	\$51,574.49	\$52,157.41	\$44,748,33	\$45,537,69	\$40,223.16
	Austria	\$47,365,18	\$45,558.04	\$51,874.95	\$48367.70	\$55,706,71	\$51,704,54	\$44,236.78	\$44,751.01	\$47,259.31
	Finland	\$47,407.46	\$45,202.42	\$50,793,72	\$17,415.56	\$45,530.00	\$19,911.52	\$12,134,22	\$40,400.00	\$45,703.33
	United States	\$47,001,56	\$45,375,41	\$43,755,71	\$51,450,96	\$52,782.00	\$54,655,73	\$96,443,82	\$57,538,54	\$57,531,55
Accounts	Section	\$16,207.06	\$52,076,25	459,568,29	\$17,131/08	\$65,288,25	\$59,182,20	\$30,812,19	\$50,848.76	\$53,642.21
OP Per Capita CP	Creanland	\$44,\$10,55	\$42,908.23	\$47,188.90	\$45,936,77	\$47,252.28	\$50,408.00	\$44,912,27	\$46,159,87	\$49,159.57
He Expectancy at Birth CY feaulation listal US	N-Spinster, Spinster, Spin	\$44,000,000	\$44,000.00	\$47,002.81	\$44,5817.00	pas, works a	347/2014/	SAUSHING	\$41, March	140,000.00

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.

	Manage New Measure Values	× PACCS
New Measure Expression – where Mean is	New Measure Value: GDP Index v OPTIONS v Format: <u>E-ET0.00</u> Calculate This Expression	Dense Kasarova
a function	CDP Per Cestra-CY / (rCAN) CDP Per Cestra-C**)	ene Group 👻 🗌 GDP For Capita-CY 👻
defined	18	= 2016 = 2017 =
separately		For These Attribute Values 46.70 \$100,73155 \$104,133.04
San N		Country
State Name Switze		The new measure is
Time Quarter	6 7 8 MAK VAK GM SD	computed for all
Dores Dores Network	Expression Variables	Countries and Years (you could select to only
Austr		compute for a subset of
Tislae Usine	Life Brockway v. 8 HH-CF	Any Any Contract of the set of th
Measures Dr. Green		
Ute Depertancy at Dirth-CY Relat	Carro	101.15 \$44,000.98 \$42,879.81

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).

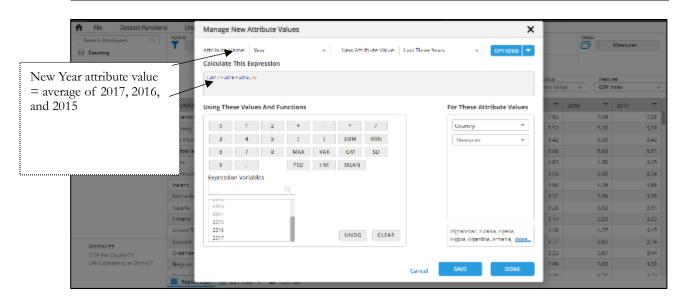
A File Dataset Function	na Dia	Aggregate Function: MEAN	×		PAGE 5	
Country	T II	MEAN This Expression			Massores	
Country Developing Income Group		Union Theore Values	For These Attribute Values	ine proce	Varian GRAD Columb	
UV Regtor Wond Sank Hagton State Country Teglon Course Crale State Norse Time Tear	COLINTE Luxombs Norway San Man Switzoria Qeter Dermani Indand	Using These Values	Country *	= 46.79 #8.14 07.89 16.02 77.25 13.00 27.67	Mean is computed GDP Per Capita - ONLY across cou (i.e. it is computed separately for each then)	 intries l
	Netherla Austria Finland United St Sweden	CLEAT		18.33 96.78 24.22 13.62 12.19	544 751.01 547,290.91 545 455.03 545,705.55 547 566.51 458,51.55 551 844,75 558,442.51	
Measures GDP Per Castel-DY Die Desemeny at Birth-CY	Greenler Belgium		cancel DONC	12.27 81.15 24.74	548,158,67 548,158,57 541,586,68 \$45,523,81 948,966,69 \$45,766,57	

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

Search Amribuses Q	The second secon		Courses	~					NAGES	Measures
Country Continent			E Your	v						
Courtery Developing							Select Income		COP Index	*] <u>1</u>
Income Group	COUNTRY =	2009 4.3	= 2010 =	2011 - 2	2012 III	2015 =	2014	ans =	2016 III III	2017
UN Region World Bank Region	Lucenbourg	7.1	1 7.43	6.20	7.58	8.05	R/H	7.18	7.13	7.37
State	Norway	5.5	7 8.22	7.13	7.20	7.30	6.00	5.28	5.02	5.25
Country Region	San Marino	5.4	5 48/	4.62	3.99	4.09	5.88	3.27	3.54	3.46
State Code	Switzerland	4.9	5 5.28	6.25	5,92	6.08	6.13	5,81	5.66	5.68
State Name	Quar	4.3	5 4.98	6.09	6.27	6.25	645	4.07	4.18	4.48
Year	Denmark	41	2 4.11	4.37	4.14	4.33	6/0	3.75	1.79	3.99
	Instand	3.5	9 3.45	3.70	3.47	3.67	3.92	4.35	4.54	4.91
	Notherlands	3.6	8 3.56	3.79	3.50	3.65	5.69	3.17	3.25	3.41
	Austria	3.4	0 8.32	3.64	3.44	8.59	3.00	3.13	3.17	3.35
	Finland	1.1	4 3.27	3,00	3.35	4.52	3,53	3.00	3.06	3,24
	United States	11	3 3.43	3.53	1.54	3.74	3.87	4,00	4.06	4.22
Measures	Sweden	3.2	/ 3.60	4.22	4.05	427	4.19	3.60	3.67	3.78
GDP Per Capita-CY	Greenkand	3.1	8 8.11	3.34	3.25	8.85	8.57	3,18	3.41	3.48
Ufe Depectancy at Dirth-CY Population Totel-CY	Belgium	21	R 3.14	2,38	3.17	3.30	3.85	2.85	2.92	3.07
	Report View	Now lab								

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.

Country Contrant Country	Y whe	ome Gr	ilup V	COLUMNS	Country Vear	* *							Westures
Developing Income Group												et morre Group 🔹	LT GOP Index
UN Region World Eanly Region	COUNTRY	=	2000 1 =	2010 🗄	2011 =	2012 =	3013 =	2014 =	2015 =	2016 🗐	2017 🗐	LAST THREE YEARS =	
State	Lovembourg		8.19	7,87	7.82	7.25	7.51	7.82	7.52	7,48	7.29	7.43	
Country Repon	Narway		6.36	6.58	6.80	6.91	6.81	6.38	5.52	5.26	5.28	5.36	
Stere Code	Sen Merino		6,11	5.16	4.40	3.85	3.82	3.59	3.42	3.50	3.42	3.45	New Year
State Navre	Switzerland		5.55	5.60	5.97	5.67	5.62	5.68	6.08	5.93	5.61	5.87	attribute
Time	Qutar		4.88	5.27	3.80	6.02	5.83	5.70	4.83	438	4.43	4.55	value = Last
Year	Denmark		4.62	4.15	4,17	3.97	4.04	-4.10	3.93	3.98	3.94	3.05	Three Years
	Trefand		4.14	3.65	3.52	3.33	3.42	3.63	4.58	4,76	6.05	4.73	
	Netherlands		4.12	3.78	3.62	3.36	3.41	1.42	3.32	3.39	3.34	3.35	added to
	Austria		3.81	3.51	3.47	3.30	3.35	3.39	3.28	3.32	3.31	3.30	report.
	Finland		3.74	3.47	3.43	3.22	3.28	3.27	2.14	3.22	3.20	3.19	1
	United States		3.73	3.63	3.36	3.49	3.49	1.59	4,18	4.27	d.17	421	L
Measures:	Sweden		3.67	3,91	4.02	3.88	3.98	3.88	3.77	3.85	3.74	3.78	
GDP Fer Ceptu-CY	Greenland		3.57	3.30	3.19	3.12	3.12	3.31	1.11	3.57	3.44	3.45	
Life Experiancy at Einth-CY	Delgum		3.56	3.33	3.22	3.64	3.08	3.11	2.09	3.06	3.09	3.03	

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.

Name: GDP Index	▼ OPTIONS ▼	EXPRESSIO
Apply This Color To Attribute Cells Text Color	Apply This Color To Measure Cel Text Color O Background Color	Color is set to green – IF GDP Per
Alert Trigger		I
Enable 🗌 Linked Reports 🗌 Ar	ialyze	/
Message:		
For These Attribute Values Usin	g These Conditions	OPERATOR COMPARE TO VALUE AND/OR
	👖 🗖 🛛 GDP Per Capita-CY	>
Measures v		
Measures v	1 Ufe Expectancy at Birth-CY	> • Value • 75

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.

Search Attributes Q	T incor	ne Grou. 🗸 🗸	E Cours	ry v						NACES E	lessures
Country Conditions			COLUMNS E Your	~							
Courtery								Harris Zong Jerro elect Income Gro		GDP Per Capita	cr -
Developing Income Group	COUNTRY =	2009 4 =	2010 =	2011 =	2012 =	2015 =	2014 =		2018 E	2017 =	LAST THREE
UN Region	Lorenhourg	\$103,198,67	\$104,905,31	\$115,761,51	\$106,749,01	\$113,025,13	6119,225,33	\$101,446,79	\$100,738,08	\$104,105,04	\$400,288.50
World Benk Hegion	Nonwy	\$50,057.18	\$87,770.27	\$100,711.22	\$101,660,17	\$103,059,25	\$97,199,92	\$74,496,14	\$70,690,04	\$75,501.57	\$200,880.75
Country Region	San Marino	\$75,918,15	\$86,750.37	\$86,213,62	\$58,400.99	\$57,746,17	\$54,766,51	\$46,207,09	\$47,115.64	\$48,888.03	\$142,211.50
State Code	Switzerland	\$60,927.47	\$74,605.72	\$\$8,415.55	\$83,568.23	\$85,112,45	\$86,606,96	\$82,016.02	\$79,866.03	580,189.70	\$242,071.0
State Name	Quiat	\$61,478.24	\$70,806,28	\$\$5,948,07	\$\$8,564,82	\$\$8,304,88	\$86,852,71	\$65,177,28	\$39,044,25	\$63,249,42	\$187,470.9
The Sec	Denmark	\$58,163,29	\$58,041.41	\$61,753.66	\$58,507.50	\$61,191,19	\$62,548,99	953,013,00	\$53,578.76	\$50,307.51	\$107,899.7
tear.	ireland	\$52,104.00	\$40,671.89	\$52,105,50	\$19,042,34	\$51,773.11	\$55/12.93	\$51,607,67	\$51,100.43	999,330,499	\$195,238.7
	Netherlands	\$51,900.34	\$50,338.25	\$53,540,61	\$49,474,71	\$51,574,49	\$52,157,41	\$44,748,33	\$45,837,09	\$48,223.16	\$138,807.3
	Austria	\$47,963.15	\$46,858.04	\$51,374,95	\$48,567,70	\$50,/16,/1	\$51,704,54	\$44,206.78	\$44,751,01	\$47,290.91	\$196,228.7
	Finland	\$47,107.16	\$46,202,42	\$50,790,72	\$47,415,55	\$49,688,08	\$49,914,62	\$42,424,22	\$48,488.03	\$45,708.33	\$181,560.3
	Bored States	\$47,001.56	\$48,375.41	\$49,793,71	\$51,050.90	\$12,782,09	\$54,090,73	516,443,82	\$57,588,54	\$19,531.00	\$173,566.0
Measures	Sweden	\$/6,207.08	\$52,076.25	\$59,593,29	\$57,134,43	\$80,263,25	\$59,100,20	\$50,012.19	\$51,014,75	\$53,042.01	\$150,090.9
GDP Per Capitor CY	Greenland	\$44,918,55	\$43,900.33	\$47,106.25	\$45,936,77	\$47,262,28	\$50,406,33	\$44,912.27	\$48,159,67	\$46,159,67	\$142,231.6
Population Total-CY Life Expectancy at Birth-CY	Selgium	\$44,880.57	\$44,380,15	\$47,702,81	\$44,740,55	\$46,582,67	\$47,351,97	\$40,361,15	\$41,250.98	\$45,525,81	\$124,945.9

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:

Kame: GDP INDEX		PRESSION
Apply This Color To Attribute Ce	ells Apply This Color To Measure Cells	
ext Color	Text Color O Background Color O Marker	
Alert Trigger		
Enable 🗌 Linked Reports	Analyze	
/essage:		
for These Attribute Values	Using These Conditions	
For These Attribute Values	FILTERS SELECTION OPERATOR COMPARE TO VALUE AND/OR	
for These Attribute Values		
For These Attribute Values	FILTERS SELECTION OPERATOR COMPARE TO VALUE AND/OR	
For These Attribute Values	FILTERS SELECTION OPERATOR COMPARE TO VALUE AND/OR	
For These Attribute Values	FILTERS SELECTION OPERATOR COMPARE TO VALUE AND/OR Image: Comparison of the c	DONE

all commission on			
File Dataset Functions		Options	
Search Amribunes Q. Braansi All Quilappe All	T	nows N III Continent ↓ Continent ↓ C	
Country Condinent		Mesares	
Country	CONTINUNT =	For precarity $\alpha = \phi$	
Developing Income Group	Automits and Oceania	\$40,965.45	
UN Region	North Amorica	\$05,V48.01	
World Benk Region	Europe	\$27,793.85	
E State	South America	\$10,083.11	
Country Region State Code	Ada	\$5,733.11	
State Name	Atrica	\$1,874.35	
E Time			
Year			
Measures			
GDP Per Capita-CY			
	Report View	u lak	
Searce : Grater Demographics - 24 October		1.11%	House - te

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.

anne.	GDP Index Color		v	OPTIONS -					EXPRESSION
pply Tł	his Color To Attribute Ce	lls	Apply This	Color To Measu	re Cells				
ext Colo	r		Text Color	Background	Color 💮 Mark	er			
Jert Enable	Trigger	/2e	-	÷.,					
essage:	GDP Index Color report t	o be reviewe	d						
or Thes	se Attribute Values	Using The	se Conditions						
Count		-	FILTERS SELEC	TION	OPERATOR	COMPARE TO	VALUE	AND/OR	
Measu	ires v		GDP Per Capit	ta-CY	> w	Value 👻	40000	AND +	
	- 1		Life Expectant	cy at Birth-CY	> w	Value +	75		
Vers									

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".

Search Ateritoutes C. Economical Communication	T Prices	eGrap V	1040	wery v							CO MARKET	-
Contract			COLUMNS .	That 🗸								
Courtry ⁶ A Courteries									Smarte Group		GOP Per Capita CV	* N
Advan Countries	COLAITRY II	2009 4 11	2010 =	2011 0	2012 II	2013 1	2014	2015	2016	3017 11	LAST THREE YEARS	
Developing Income Group	Luterborg	\$100,198.67	\$104,965,31	\$115,781.51	\$106,749.01	\$113,625.13	\$119,225.38	\$101,446.79	\$100,738,68	\$104,103.04	\$102,096,17	- 11
UN Region	Norvay	\$80,067.18	\$87,770.27	\$100,711.22	\$101,668,17	\$108,058.25	\$97,199.92	\$74,498,14	\$70,890.04	\$75,504.57	\$73,630.92	
World Bank Region	San Marino	\$76,918.15	\$68,758.37	\$15,213.62	\$56,403.99	\$\$7,746.17	\$54,796.31	\$48,207.89	\$47,115,64	\$40,000,03	\$47,403.85	
State	Switzenand	\$19,927.47	\$74,605.72	\$10,415,63	\$11,538.23	\$85,112.46	101,105.54	\$82,016.02	\$79,866.03	\$80,189.70	\$82,890.58	
Courtery Region State Code	Qasar	\$61,478.24	\$70,306.25	\$85.948.07	\$10,564.02	\$10,104.00	\$88,852.71	\$65,177.23	159,544,25	\$12,249.42	\$82,490.30	
State Linde State Name	Denmark	\$58,163.29	\$58,041.41	\$61,753.66	\$58,507.50	\$51,791.19	\$62,548.99	\$53,013.00	\$53,578.76	\$56,307.51	\$54,298,76	
Time	ireland	\$52,104.03	\$42,571,20	\$52,186.50	\$49,042,84	\$51,773.11	\$55,412.03	\$61,807.67	\$64,100.43	\$69,300.69	\$85,076.40	
Year'	Networks	\$51,900.34	\$55,314,25	\$53,540,61	\$49,474.71	\$51,574,49	\$52,157,41	\$44,746.33	\$45,537,89	\$48,223.16	\$46,202.46	
	Ausola	\$47,963.18	\$46,858.04	\$51,374.96	\$48,567.70	\$50,716,71	\$55,704.54	\$44,206.78	\$44,791.01	\$47,290.91	\$45.408.57	
	Finland	\$47,107.18	\$48,202,42	\$50,790.72	\$47,415.56	\$49,630.08	\$49,914.62	\$42,424.22	\$43,403.03	\$45,723.33	HAMAN	
	United States	\$47,001.56	\$48,375.41	\$48,793,71	\$51,450.96	\$52,782.09	\$54,696.73	\$56,443.82	\$37,588.54	\$59,531.66	\$57,854,67	
Maggiures	Sweden	\$45,207.06	\$52,076.26	\$19,593,29	\$57,134.08	\$60,283,25	\$59,180.20	\$50,812,19	\$31,844,78	\$55,442.01	\$12,032,09	
GDP Per Capite-DY	Greenland	\$44,918.58	\$43,968.33	\$47,196.98	\$45,996.77	\$47,212.28	\$50,408.33	\$44,912.27	\$48,159.67	\$48,159.67	\$47,410,54	
Ure Expectancy et Birth-Of	Beigium	\$44,880.57	\$44,380.18	\$47,792.81	\$14,740.58	\$46,582.67	\$47,351.97	\$40,361.15	\$41,260.96	\$43,323.81	\$41,648.85	
	Report View	New Tab									and the second se	

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.

	A support		-								10000	
Search Attributes C. Estect All Converti	T Proom	eGroup 🗸	0	ouroy 🗸							C Meeter	100
Contract				Tear v								
Courtery ⁶ A Courteries									Smp time The		GDP Per Capita CY	- N
Advan Countries	COLATRY II	2009 4 11	2010 10	2011 🗐	1912 II	2013 2	2014 1	2015 🗐	2016 🔠	3017 11	LACT THREE VEARS	
Developing Income Group	Luxenbourg	\$100,198.67	\$104,965,31	\$115,761.51	\$106,749.01	\$113,625.13	\$119,225.38	\$101,446.79	\$100,738,68	\$104,103.04	\$102,006.17	1
UN Region	Norway	\$80,067.18	\$87,770.27	\$100,711.22	\$101,668,17	\$108,098.25	\$97,199.92	\$74,498.14	\$70,890.04	\$75,504.57	\$73,630,92	1.1
World Bark Region	San Marino	\$78,918.15	\$68,758.37	\$65,213.62	\$56,403.99	\$57,746.17	\$54,766.31	\$46,207.89	\$47,115,64	\$40,000.03	\$47,403.85	
State	Sutterland	\$19,927.47	\$74,605.72	\$10,415,63	\$83,538.23	\$15,112.46	\$85,605.56	\$82,016.02	\$79,966.03	\$80,189.70	\$20,690,58	
Courtery Region State Cade	Qasar	\$61,478.24	\$70,306.25	\$85,948,07	\$10,564.02	\$10,304.00	\$88,852.71	\$65,177.23	\$59,044.25	\$62,249.42	\$82,490,30	
State Name	Denmark	\$58,163.29	\$55,041.41	\$61,753.66	\$58,507.50	\$51,791.19	\$62,548.99	\$53,013.00	\$53,578.76	\$56,307.51	\$54,298,76	
E Time	instand.	\$52,104.03	\$48,871.89	\$52,186.50	\$49,042,84	\$51,773.11	\$55,412.03	\$61,807.67	\$64,100.43	\$69,330.69	\$85,076.00	
Year'	Nehelanda	\$51,900.34	\$55,318,25	\$53,540.61	\$49,474,71	\$51,574,40	\$52,157,41	\$44,746.33	\$45,537,89	\$48,223.16	\$45,202.46	
	Aussia	\$47,963.18	\$46,858.04	\$51,374.96	\$48,567.70	\$50,716,71	\$55,704.54	\$44,206.78	\$44,731.01	\$47,290.91	\$45.428.57	
	Reland	\$47,107.18	\$48,202,42	\$50,790.72	\$47,415.56	\$49,636.08	\$49,914.62	\$42,424.22	\$43,431.03	\$45,723.33	643.833.33	
	United States	\$47,001.56	\$48,375.41	\$48,793,71	\$51,450.96	\$52,782.09	\$54,696,73	\$56,443.82	\$37,588.54	\$59,531.66	\$57,854,67	
Maggiurag	Svieden	\$46,207.06	\$52,076,26	\$10,508.29	\$57,134.08	\$60,283,25	\$59,180.20	\$50,812,19	\$31,844,78	\$53,442.01	\$52,032,09	
GDP Per Capite-DY	Greenland	\$44,918.58	\$43,908.33	\$47,196.98	\$45,996.77	\$47,242.28	150,408.33	\$44,912.27	\$48,159.67	\$48,159.67	\$47,410.54	
Life Expectancy at Birth-CY	Begun	\$44,880.57	\$44,380.18	\$47,792.81	\$44,740.58	\$46,582.67	\$47,351.97	\$40,361.15	\$41,260.98	\$43,323.81	\$1.645.65	
	E Report View	New Table										-

- 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.

Search Amfbures Q	nurors	ROWS		NAGES	
and Al Column Al			*	U1	
Country		COLUMNS Measures			
Continent		(: messures			
⁴ Unrided	+1				
Coursy Puradest	-		UPE EXPECTANCY AT SIRTH-CY =		
Developing	+ South America	\$10,063,110	74.38		
Income Group	- /ale	\$5,738,110	75.77		
UN Region	Qasar	\$74,325,090	77.77		
World Eank Region	Macao	477,276,000	82,99		
State	Singapore	352,705.000	02.27		
Country Region State Code	lapan	541,407,300	83.35		
State Name	United Arab Emirates	\$30,636,400	68.25		
Gunded	Kuwait	\$95,107,940	74.93		
Time	Hong Kong	059.005,852	83.77		
Year	Brond Danasalam	\$35,891,970	77.15		
	Issael	\$54,615,600	82.00		
	Сурпик	\$27,955,430	79.98		
Measures	South Kones	\$25,219,440	81.17		
GDP Per Capita-CY	Behrein	\$22,762,020	76.47		
Life Depetrancy at Birth-CY	Soudi Analako	521,722,420	74.07		
	Report View D New Is	10			

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

Schedule Color Condition	1s Test		×
Trequency: One Time Export As: Excel Notify By: Email SMS Users Groups	*	Start Day: Dote: Time Of Day: 11 - 00 - MM O Always On Alarm	*
Seen 61 Admin Consumer-1 Consumer-2 Gesenan-1 Hrodoce-1 Produce-2		> Ke row(s) to show.	
		Cancel BOX	IE

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.

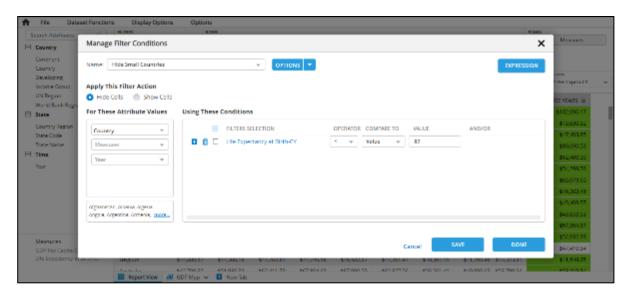
Users can choose if the linked reports or analyst reports should be shared when an alert is triggered by checking Linked Report or Analyze option from the Trigger section.

Manage Alerts & Color Condit	ons	×
Name: GDP Index Color	▼ OPTIONS ▼	EXPRESSION
Apply This Color To Attribute Ce	ls Apply This Color To Measure Cells	
Text Color	Text Color O Background Color O Marker	
Alert Trigger Enable Unived Reports Analy	те	
Message: GDP Index Color report to	b be reviewed	
For These Attribute Values	Using These Conditions	
Country	FILTERS SELECTION OPERATOR COMPARE TO VALUE	E AND/OR
Measures v	□	0 AND +
	Image: Constraint of the second se	
GDP Per Capita-CY, Life Expectancy at Birth-CY, Last Three Years		
	Cancel	SAVE DONE

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.

Search Attributes Q	VILLENS	ar Gaup - M		Country								Main Measures
Country												
Continent			COUM	i toar	~							
Country											Otherware Group	Measures
Developing Income Group											Select Income Group	+ Life Expectancy a
UN Region World Bank Region	COUNTRY =	2009 ↓Ξ	2010 =	2011 =	2012 Ξ	2013 🗄	2014 =	2015 =	2018 Ξ	2017 =	LAST THREE YEARS 🗄	
State	lopon	82.93	82.84	82.59	83.10	83,33	83.59	83.79	33.98	84.00	88.92	
Country Region	HongKong	82.75	82.96	65.42	65,46	83.83	83.95	84.28	54.23	54.45	54.32	
State Code	Macao	02,45	82.70	82.94	83,16	03,35	03.54	83.70	\$2.05		82.93	
State Name	Switzerland	82,04	82.25	82.70	82,70	82,80	83.20	82.90	82.90	83.00	82.03	
Time	Singapore				62.00	82.25	82.50	82.74	82.80	83.61	53.05	
Year	inely		82.04	\$2.19	82.24	82,69	93,09	82.54	\$2.54	33.69	82.92	
	San Marino		82.95	88.01	88.07	88,12	83.15	88.24	88.30	88.50	88.28	
	Lough Cores				,			82.02	82.02	82.02	82.02	
Only showing	- maluos m	horo I	fo				82.25	82.20	\$2.20	32.68	12.36	
Only showing		nere L	ne		82.05	82.15	82.30	82.40	82.50	82.91	82.60	
Expectancy is	s > 82								82.03			
-							82.10	82.30	82.51	82.03	82.28	
GDP Per Capita-CY	Share.			62.46	62,43	85.08	83.25	82.85	52.83	85.13	52.53	
Die bepettensy at Birth-CY	Unigasy								12.36			
	had and			81.96	82.02	92.04	22.26	01.77	\$2.47	00 MC	83.67	

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.

Search Amribures Q	T	Year	~		т v							Messures	
Expand Al Collapse All	ji ^{us} In	come Group	· · ·	E Your	~								
Country Developing	Filters: 2017, 201	2016,2014,	014, 0012, 201	, 2010, 200 4 ;						Select	ncome Group	 Ture Expectancy at	-
Income Group UN Region	CONTINUNT	=	5 9009 J	= 0100 =	2011 =	2012 =	2010 Ξ	2014 =	2015 =	2016 =	2017 =		
World Bank Region	Austra la and	El Sort		- 77.60	77,64	77.88	77.98	78.07	78.12	78.25	78.09		
H State	Korth Amerik	O Toold	,	77.10	77,28	77.41	76.97	76.95	77.29	77.22	78.87		
Country Region	Europe	- Color		71.05	75.81	76.21	27,57	78.39	28.17	77.80	78.21		
State Code	South Americ	9 Hide		73.82	73.65	74.00	74.16	74.28	74,87	75.45	75.51		
State Name	/alc			71.09	71.25	71.20	72.14	72.30	71.61	72.75	72.64		
Year	Noce	T Blow		60.60	60.83	61.42	61.85	62.50	62.97	62.13	61.80		
		LT Top /											
		+ Auto	Widsh										
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Measures		Gear	A1			umn fi							
GDP Per Capita-CY Die Expectancy at Birth CY					tou	ching o	or sele	cting '	'icon"				
ieuros : Giabel Demographica - 30 October	🐰 Report Vie	w 🗈 N	ew Tab		of	each co	olumn	headi	ng				

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.

Search Attributes Q	T in the former of the former	Sort	t			×			Maax Measures
Country		JMNS				~			
Loursty Developing			2009		None	1+		UP Income Brany	Manual Inc.
Income Group			Countr	y	Aut	++		Netest Income farm	p + [Lie Equitanya
UN Region World Bunk Region	$\text{COUNTRY} \ \equiv \ 2009 \ \ \psi \pm \ \ 2010 \ ;$		2010	/	None		2017 =	LAST THREE YEARS \equiv	
State	Jupon 82.93 82.8	-/ -	2019		140446	1.4	84.00	88.92	
Courtory Region	Hong Kong 322.78 82.5	6 8 [2011		None	1 ¥	54.46	84.32	
State Code	Marzo 82.48 82.3	n a	2012		None	A 1		82.43	
State Name	Switzerland 8274 823		2012		none	T +	88.00	82.93	
Time	Singspore		2013		None	1 ¥	\$3.61	63.05	
foar	holy and						\$3.64	R2.A2	
Salacting Sort	anable single or		2014		None	т +	55.30	65.28	
	- enable single or	1	2015		None	++	82.02	62.02	
multi-sort – an	d ordering of the						82.68	82.36	
sort operation.	Select gray button		2016		None	т+	52.91	62.60	
for sort direction									
Managers		-				111111	52.03	\$2.28	
GOP Per Capita-CY	Spain	-		Cancel	Clear	DONE	83.13	62.93	
Life Experiency at Birth-CY	Bagay					N/1	971		

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.

Sort	×
Dollars-CY-NR_Ju	Desc 🕇 🕹
	None 1
Dollars-CY-NR A	None 1
Dollars-CY-NR M	None 1
☑ Enable relative sort on o	date or date time attribute(s)
Cancel	Clear DONE

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.

File Dataset Functions	Display Options Options			
iearch Q		ROWS Chain	\sim	
xpand All Collapse All				
Measure Groups		COLUMNS Measures	Month	
Stubs		Measures	# Wonth	~
Time	Filters: Relative (Jun-2021, May-2021, Apr-20	21);		
Month		DOLLARS-CY-NR		
Quarter Year	CHAIN =	APR-2021	MAY-2021 =	JUN-2021 ↓ Ξ
Product	INDEPENDENT	\$4,455,959.39	\$4,012,753.14	\$4,195,640.45
E Market	BIG APPLE FUNDRAISING, INC.	\$1,986,006.90	\$1,917,894.10	\$1,952,883.15
	7-ELEVEN	\$838,767.75	\$760,490.50	\$853,763.75
	SHEE'S GAS & GROCERY INC	\$465,919.20	\$360,029.98	\$418,900.32
	WAVES	\$306,178.00	\$269,959.50	\$317,678.25
	SHELL	\$222,096.50	\$188,618.25	\$237,956.50
	EZ STOP MARKETS	\$185,371.25	\$166,669.50	\$180,308.00
	HESS-H & P PETROLEUM INC.	\$227,297.25	\$183,422.75	\$172,891.50
	CASEY'S STOP & SHOP	\$165,973.50	\$115,280.25	\$163,996.00

Column Coloring

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

PLTCRS	5000 - XXXII	TOWE		-
	aruy v		Color Population Male Percent	×
		CDI JIMSIS	Text Color	
Pillets: Canada, Chi	w.miii.tumiiii.taa	-	Text Color	
	POPULATION MA	LE PERCENT	Starsa	
inda		51	Cell Color	
China		51	O Solid	
Canada		09	Preset Gradient	
United States		49	Custom Gradient	
			None	
		2	Cancel Clear DONE	

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

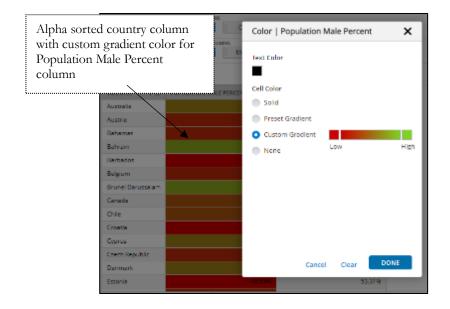
	POPULATION MALE PERCENT	POPULATION FEMALE PERCENT
Qatar	75.58%	24.42%
United Arab Emirates	73.70%	26.30%
Oman	63.00%	37.00%
Bahrain	62.10%	37.90%
Kuwait	57.60%	42.40%
Saudi Arabia	56.49%	43.51%
Greenland	52.91%	47.09%
Brunei Darussalam	51.57%	48.43%
San Marino	50.66%	49.26%
New Caledonia	50.58%	49.42%
loeland	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.

	Thurses Income G	roup 🗸	country V	v
			COLUMNS Measures	Color Population Male Percent
	Riters: High Income:			Text Color
	COUNTRY † =	POPULATIO	IN MALE PERCENT 🛛 🔤	
	Australia		49.91%	Cell Color
	Austria		48.87%	
	Bahamas		48.92%	
	Bahrain		62.10%	•
	Barbados		47.94%	 Custom Gradient
	Belgium		49.15%	 None
	Brunel Darussalam		51.57%	
	Canada		49.61%	
	Chile		49.51%	
	Croatia		40.10%	
	Grand		50.01%	
Alpha sorted country c			49.12%	
with gradient color for			49.68%	
Population Male Percen	nt		46.69%	Cancel Clear DONE
column		Pie Chart	🗸 🚦 New Tab	Cancer Crear

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.



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.

Sort			×
🛛 🖂 Dollar Share-Ra	ank	Asc	t +
Brand Family		None	t +
Dollars-CY-NR		None	↑ ↓
Pin Row Labels Ord	er Across A	II Pages	
Trade Class: Supermark	ket;		
Cancel	Clear	DON	E

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.

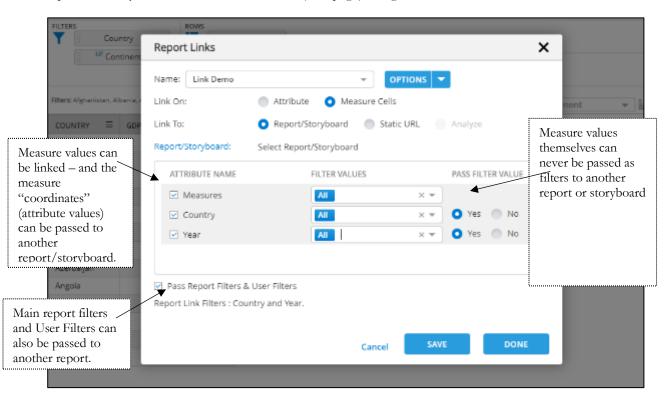
- By default, the Sort Pinning checkbox option is not enabled.
- If the user sets a display order on top of Sort Pinning, the Sort Pinning will be removed and a notification will be shown to the user.
- If the user sets sorting on columns, sets a display order, and enables Sort Pinning, the current order 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).

File Dataset Punction		Options				
Search Attributes Q	T	Bows				MAGES
Chain Dhy		E Messures				
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State Code	Distributor2	0.07	37.18	\$27,999.37	36	
State Name	Dembarard	2.00	15.75	\$17,437,00	5/80	
Score Size	Dietri burtană	Information		130,890	852	
Store Side Store-Address	Discributor3			,724,001	5.04	
Trade Class	Distributor1		wailable in downloads folder when re	sady. You will	564	
Froduct	Depaharon5	also receive a notificat	on.	0.14,77		
Brand						
Brand hamily Catagory				OK		
Distributor						
Manufacturer						
Manufacturer URL						
New Product Sub Category						
Measures						
Do lar Share-Chg ve Yago-NR Distribution-Chg ve Yago-NR						

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:

DOWAIN	NAME	NOWS	COLUMNS	PAUES .	
Global Demographics	CDP Per Capita across states	State Name	Measures		
Shipmenta	Revenue ouroas states	State Name	Measures		
	Merge Report Info	State Name State Name	Nessures		

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.

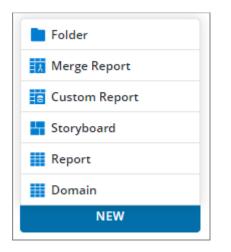
★ File Display Option HETRS.	ns Options				waax
	COUNVS				
STATE NAME_STATE NAME	=	GDP PER CAPITA-EY	1=	DOLLARS-NR-CY	=
Korthwest Tex mores			\$83,910.00		
Alaska			\$73,162.70		
Connecticut			\$50,335.56		\$5,069,054.20
Delewere			\$67,997.85		\$4,588,235,76
Massachusetta			\$67,110.50		\$4,223,785.29
New York			\$57,082.23		\$7,878,175.34
North Dokota			\$66,428.52		\$1,777,479,50
Wyoming			\$66,290.70		\$2,210,893.15
Alberta			\$55,097.94		
New Jersey			\$60,208.42		\$2,526,826,89
Yukon			\$56,990.14		
Weshington			\$50,000.54		\$238,301.35
Maryland			\$58,698.32		\$2,233,116.86
California			\$50,187.82		\$40,475,031,43
Saskatrhesian			\$58,148.57		
Elinois			\$56,709.02		\$2,362,360.50

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.

Choose Data Domain To Continue		×
☑ Access Log		
Global Demographics		
Global Demographics Snowflake		
GlobalDemographics RedShift		
Import Access Log		
Redshift Shipments		
Redshift Shipments Pavani		
Shipments		
Shipments Copy		
Shipments Oracle		
Shipments Postgres Pavani		
Shipments SQL Pavani		
Shipments Snowflake		
Shipments Teradata		
TFS Domain		
	Cancel	CONTINUE

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

Custom Report Definition						>
Please Specify The Query/Store O Inve Form Query O Function		ters)				
E.g. Select Brand, SUM(Dollars) as 70	ollars" from Sales where Store= OScor					
Manage Parameters			Manage Column			
PWWWEIERS	USENHLIER	HIDE	NAME	AT INIBUTE	DAID, TYPE	FORMAT
	No row(i) to show. Click here to edd row			No row(s) to show Click here to add ro		
					Cancel	DONE

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.

ease Specify The Query/Stored Procedure (Use @ For Parameters) Free Form Query Planction WiTH 6. discoled A5(SELECT L_discoled 2, "PD" A5 "pid", SUW, L_discoled 2, "Dollars CYNR1", SUW, L_discoled 2, "Units CYNR1" TROM C_discoled 2, "PD" 45 SELECT L_discoled 2, "PD" 45 SELECT	Custom Report Definition											
WITH 6. diarodec0.AS (SELECT L_diabolics/0.*PID*AS "pid", SUW(L_diabolics/0.*Dollars*) AS "DollarsCYNR1", SUW(L_diabolics/0.*Dollars*) AS "DollarsCYNR1" BELECT L_diabolics/0.*PID*AS "pid", SUW(L_diabolics/0.*Dollars*) AS "DollarsCYNR1", SUW(L_diabolics/0.*Dollars*) AS "UnitsCYNR1" WHERE (L_diabolics/0.*PID* SELECT L_diabolics/0.*PID* SELECT L_diabolics/0.*PID*<			neters)									
pid Manth mid Manth mid Image: Displayer of the second seco	SELECT L_distantex0.*PID* A5 "pin IRDM "thipmenter". "Distanter". WHERE (L_distantes0.*PID* = 45) GROUP BY L_distantes0.*PID* IELECT L_distantes0.*Pid* A5 pid*, L RDM G_distantes0.L_distantes	dimmaleeD				isCYNR1".	AS "Un	itsCYNR2				
Dollars Measures + 1576/2000	PARAMETERS	USURTILITER		HIDE			ſ	NAME	ALUS	AFTRIBUTE	TORMAT	
	D pid	Month	*		â	8.1		pid		Month +		
Units Units Measures + AdH0.0002						1		DollarsC	Dollars	Measures *	1514,840,00	
							- 0	0.0.4	Units	Measures +	A440.00-4	
						=		onsen				
						≣ L		oniserr			, 	

4.10.2 Manage Columns Section

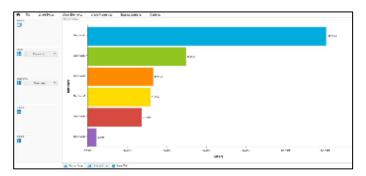
- In this section, the user needs to provide a mapping to the response of the query.
- The user can map a column to either pre-configured domain attribute or measure or custom or ignore.

- The user can provide a data type for measure & custom and format for measures.
- Custom \rightarrow 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 \rightarrow 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.

	and the second	apare -
		Base 2
and the second		
Station 1		NUMBER
Sector 1	$M_{\rm e}/M_{\rm e}/M_{\rm e}^{-1}$	$\{1,1,0,2,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,$
Sector 1		(0,10,200,0)
and the second		(0,0.0,0.0,0.0)
the base to		0.00540
10 March	140208	104035
inter the second		



4.11 Display Options

This menu option provides a variety of report display options:

🕇 Fie	Dataset Functions	Display Options	Options
Search Apple Expand 44	Collopse All	Report Filter Line Grid	> Tower Constituents v Developing v > remainer Measures
Continent Country Developing			

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

🕈 File Dat	aset Functions	Display Options	Opt	tions	
Search Attributes	Q) 🝟	Report	>	Manage Display Order	Develop
Espand Al	Colleges Al	Filter Line	>	Hide Attribute Values	(Second
Contry Contract		GrM	>	Obplay Specification	
Courtery				Display Source Line 🔷 🖌	
Developing Income Group UN Resson		UNENI =	. 054	Report Funter Option	IN ICEAE.

- 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.

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

÷.	File	Dataset Function	8	Display Options	Op	Bons
Se	erch Attribu	ene O,	-	Report	>	nows
	nd 44 Country	Collopse All	11	Fiber Line	>	Obplay Filter Line 🗸
	Condinent			Grid	>	Display Filter Attribute Name
	Courtery					Display User Filter Attribute Names 🛛 🖌
	Developing Income Group		-		_	

- 6. Display Filter Line: This option shows the filter line in the report. It will help the user to view the applied filter values.
- 7. 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.
- 8. 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:

ft File	Dataset Function	۰.	Display Options	Opt	lons
Search Apprila	0, I	1	Report	>	Nows
Expand 4	Collapse All	1	Filter Line	>	Continent V
Conducts			Grid	>	Column Width Options ->
Country		Piles:	y Mira, Jole, Levenda are	(Descel	Cell Wrap Options 💦 🔪 🐰
Developing Income Smo	9			: 104	Freeze Rows/Columns
UN Region		A		De	Custom Styles

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

- 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.

4.12 Report Options

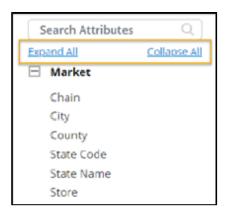
The report options menu has various options, including the following:

- 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.

4.13 Additional Features

4.13.1 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.



4.13.2 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.

Store Selling Change List								8 ē	< O Generate	so Previ
File Dataset Functions	Display Options	Options FILTERS	ROWS							PAGES
Search Attributes			Store	~	Trade Class 🗸	State N	me 🗸 🗄	City V	hain 🗸	PAGES
pand All	<u>Collapse All</u>	•	COLUMNS							-
Measure Groups Stubs			Measures						L	
Market		Filters: Jul-2021;								
Chain			TRADE CLASS	=	STATE NAME	≡ сіту	=	CHAIN	STORESELLING-CHG	▼↓≡
City		PATMAN REDEMPTION-WINDHAM	Convenience	-	Nebraska	NE-Colur		INDEPENDENT	- STORESELLING-CHG	1 4 =
County		VARSHITH US LLC SUNOCO	Convenience		Nebraska	NE-Linco		INDEPENDENT		1
Distributor State Code		THE BIG APPLE #1036								
State Code State Name			Resize Attribut	te Pan	el	×	lk	INDEPENDENT		
Store		ROSEMARY'S FLORIST & CUPCAK					Platte	INDEPENDENT		1
Store Size		DMF INT'L INC	Input Type	96	Ŧ		n	INDEPENDENT		1
Store-Address		CIGARET SHOPPER-BANGOR	Width	25		Auto	ord	INDEPENDENT		1
Trade Class		COWAN'S SERVICE					e	INDEPENDENT		1
Product		GOODNOW'S VARIETY, INC			_		efield	INDEPENDENT		1
Time		TWO BRIDGES REG. JAIL		Cancel	Clear	DONE	nd	INDEPENDENT		1
		MARITIME #12-WALDOBORO	express mark	815	connecticut	CI-IUIII	gton	INDEPENDENT		1
		KENCO QUIK MART	Supermarket		Connecticut	CT-West	Haven	INDEPENDENT		1
		HUBER'S MARKET	Convenience		New Hampshire	NH-Man	hester:	CASEY'S STOP & SHOP		1
		DANNY'S - LEWISTON	Convenience		New York	NY-KING	STON	CASEY'S STOP & SHOP		1
		WILSON FARMS XPRESS #584	Convenience		Utah	UT-Lehi		CASEY'S STOP & SHOP		1
		DISCOUNT DISCOUNT TOBACCO	Convenience		Utah	UT-Loga	1	CASEY'S STOP & SHOP		1
Measures		MAIN ST MKT	Convenience		New York	NY-BELN		7-ELEVEN		1
StoreSelling-Chg		OCS-ICE CREAM SHOPPE	Convenience		New York	NY-KING		7-ELEVEN		1
		SUTE AUTO INC	Convenience		New York	NI-KING		/*LEEYEIY		

- 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.

7)

4.13.3 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.

TRADIS	NOX5 Month v Near v Quarter v Chain v Oty v	
	State Code v State Name v Store Ste v Store v Manufacturer v	
	Nanuficture U., V Sub-Criegory V UPC V Criegory V Brand V	
	00UMes5	

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.

Collecter Al Collecter Al Messure Groups Stude Market Pitters (Ja-2021) Chain Store City Control County Store Distributor State Code Store Trade Class Product Time	Iceasures Iceasures E STATE NAME E CITY E CHAIN E Inience Nebraska NE-Columbus INDEPENDENT	PAIR PAIR
Measure Groups Studies Chain Chy County Distributor State Code Store Size Store Si	cLASS = STATE NAME = CITY = CHAIN = nience Nebraska NE-Columbus INDEPENDENT	
Chain City County Distributor State Code Store Store Store Store Store Store Store Store Store Store Store Address Trade Class Froduct Time Time TechCU QUIN, MART HUBER'S MARKET Convert	nience Nebraska NE-Columbus INDEPENDENT	STORESELLING-CHG ¥↓ ⊟ 1
City County Distributor State Code State Name Store Store Store Store Store State Code State Code State Code State Code State Code State Code Store State Code Store State Code Store Code Store Code State Cod	nience Nebraska NE-Columbus INDEPENDENT	E STORESELLING-CHG ▼↓ = 1
County Distributor State Code State Name Store Store Size Store Address Trade Class Product Time KentCO QUIK MART HUBER'S MARKET Convert		
Distributor State Code Store Store Store Size Store Size Store Address Trade Class Froduct Time RENCU QUIK MART HUBER'S MARKET Convert	V State Name V City V Chain V	
State Name Store Store Site Store-Address Trade Class Product Time RENCO QUIK MARKT HUBER'S MARKET Conver	V State Name V City V Chain V	
Store Size Store-Address Trade Class Product Time KENCU QUIK MARI Supern HUBER'S MARKET Conver		
Trade Class Product Time RENCU QUIK MART Supern HUBER'S MARKET Convert		
Product Time KENCU QUIK MARI Supern HUBER'S MARKET Conver		
Time KENCU QUIK MART Supern HUBER'S MARKET Conver		
KENCO QUIK MART Supern HUBER'S MARKET Conver		
HUBER'S MARKET Conver		Clear All DONE
	market Connecticut CI-West Haven INDEPENDENT	1
	nience New Hampshire NH-Manchester CASEY'S STOP & SHOP	1
DANNY'S - LEWISTON Conver	nience New York NY-KINGSTON CASEY'S STOP & SHOP	1
WILSON FARMS XPRESS #584 Conver	nience Utah UT-Lehi CASEY'S STOP & SHOP	1
DISCOUNT DISCOUNT TOBACCO Conver		1
Measures StoreSelling-Chg MAIN ST MKT Conver	nience Utah UT-Logan CASEY'S STOP & SHOP	1
OCS-ICE CREAM SHOPPE Conver	,	
Report View III Untitled1 V II New	nience New York NY-BELMONT 7-ELEVEN	1

4.13.4 Wrapping Grid Columns Header Text

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

A File Dataset Function	Distant Online		
File Detaset Function Search Attributes Q Collecte All Sure Sure Size	Blipflay Options Options Pagent Magent Magent Marcune Misr Une Grid Column With Optio		Carler V
boore-Address Trade Class Product Scient	Cell Wrap Dedons Cell Wrap Dedons Cell Tablunce E Distributor + Operfactor2 Custor Styles	2 Anto Wells 🗸	2015 01 + 11
Brand Fornity Calegory Distributor Manufacturer Manufacturer USL New Product	+ Derivative + Derivative3 23.79% + Derivative3 11.42% + Derivative3 8.12% + Derivative5 8.47%		
Sub Congrey UPC Time Month Quarter Year	+ Destrivator6 4.89%		
Moscures Distribution CV-NR	Bepart View Diver Tab		

There are three options with Fit to Window.

A File Dataset Punction	8	Display Options Op	ions	
Search Amribuses Q	-	Report >	Fors	NAGES
Essand Al Collapse All Store Size	1	Elter Line 🔷 🗦	2010/05	
Store-Address		G18 🔷 🔿	Column Width Options 🗲 The To Window 🔰 No Weep	
Trade Clark			Contraction of the state of the	Quarter
Brand			Resor Result Default FullWap	2015 Q1 ÷
Brand Family	_	Discributor' \$1	Custom Styles	
Category Distributor			854,410 01 10,561,200	

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

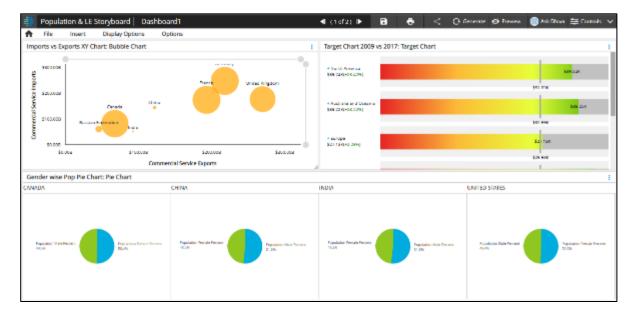
- 2. Two Line Wrap This wraps the text to a maximum of two lines. If the size of the text exceeds, it shows ellipses.
- 3. Full Wrap This wraps the complete text, and hence no ellipses are displayed.

4.13.5 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 rerendered 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.

Ø Preview	蕼 Controls	~
Dock		
Overlay		~



4.13.6 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.

ine Measures	Measure - GDP			×
METRIC	Metric	GDP Per Capita		-
	Format Meas	ure GDP Per C	apita	×
GDP Per Capita	Format	Sample		
	Number	&43,625.00		
	Currency Percentage Custom	Decimal Places Symbol Negative Number & -1,234.01 & (1,234.01)	2 & Attribute Type ers	*
		Cancel	Clear DO	NE

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	$\downarrow \equiv$
Ireland		€56,0	47.73
Sweden		54,5	608.12
United States		\$53,0	73.83
Singapore		52,7	705.00

4.13.7 Query settings

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

Query Settings		×
Break Dimension Queries		
Combine Queries	Never Partial O Where Possible	
Enforce Dimensional Referential Integrity		
Disable Caching		
* Max Inline Filter Values	10	
	Cancel RESET DON	IE

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.

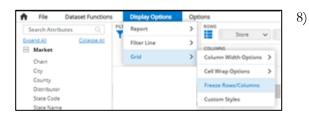
Disable Caching:

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.



4.13.8 Freeze Column Options

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



Freeze Rows/0	Columns			×
Row Number:	0	Column Nu	mber: 2	
		Cancel	Clear	DONE

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.

CONTINENT =	SINENANE Ξ	FOR CALLON TO MUCY \rightarrow \pm \equiv	SUPPERCAPITALS Ξ	олични сарпару — Ξ	MORED ODM MER CAMILLEY = Ξ	WORLD GOP PER
Ada	Umar Predech	205(051,666	\$916.74	\$071.03	\$10,229,10	
Ada	Maharaphora	116,581,379	\$2,091.54	\$2,000.58	\$10,229,10	
Aala	Guangdong Province	106,703,905	\$5,6/1.55	\$8,291,53	510,229,10	
Aola	Bhar	101,851,172	\$706.96	\$659.30	\$10,229,10	
Asia	Shandong Province	97,512,791	\$5,111,88	\$7,811,25	510,229,10	
Ada	Henan Province	94,628,347	\$4,930,23	\$4,712,28	\$10,229,10	
Ada	Werr Dengel	93,380,061	\$1,199.44	\$1,141.24	\$10,229,10	
Ada	Sichuan Province	81,582,458	\$4,580.20	\$4,365,68	510,229,10	
Aala	Jungau Province	79,400,569	\$11,010.82	\$10,441.25	\$10,229,10	
Asia	Madhya Praticsh	75,158,826	\$1,099.52	\$1,041,89	\$10,229,10	
Asia	Hebei Province	73,770,125	\$1,363,90	\$5,223,82	\$10,229,10	
Adla	Ternil Nadu	70,990,095	\$2,067.27	\$2,024.27	\$10,229,10	
Ada	Kajasthan	70,705,913	\$1,386.52	\$1,334.79	\$10,229,10	
/ala	Human Province	66,848,847	\$5,240.79	\$5,018,77	\$10,229,10	
Asia	Kamataka	62,500,598	\$2,146-22	\$2,072,76	\$10,229,10	
deter.	6 interest	61.005.450	(1.043.33	64,000,41	(10,220,40	

4.13.9 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.

Grid Custom Style	5	×
Row Style		Clear Row Sode
Column Style Hoader Style	Row Height 27	Auto
Cell Style	M Override Column Setting	
	First Row Stripe:	
	Background Color	
	Text Color	
	Stripe Size 1	Auto
	Second Row Stripe:	
	Deckground Color	
	Test Color	
	Stripe Size 1	Auto
	Central Clear Al	SAVE & APPLY

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

FILTERS		Grid Custom Style	15		×		PAGES
		Row Style Column Style	Row Height	Clear 27 Auto	Row Style		
CONTIN ≡		Header Style Cell Style	Override Column	Cutting		P PER CAPIT =	
Asia	Utter Pradesh	Cellocyte	Overnde Column	Setung		\$871.08	\$10,229.10
Asia	Maharashtra		First Row Stripe:			\$2,000.58	\$10,229.10
Asia	Guangdong Prov		Background Color			\$8,291.53	\$10,229.10
Asia	Bihar		Text Color			\$659.30	\$10,229.10
Asia	Shandong Provis		Stripe Size	1 Aut	0	\$7,811.25	\$10,229.10
Asia	Henan Province					\$4,712.28	\$10,229.10
Asia	West Bengal		Second Row Stripe:			\$1,141.24	\$10,229.10
Asia	Sichuan Province		Background Color			\$4,355.68	\$10,229.10
Asia	Jiangsu Province		Text Color			\$10,441.25	\$10,229.10
Asia	Madhya Pradesh		Stripe Size	1 Aut	0	\$1,041.89	\$10,229.10
Asia	Hebel Province					\$5,223.82	\$10,229.10
Asia	Tamil Nadu					\$2,024.27	\$10,229.10
Asia	Rajasthan					\$1,334.79	\$10,229.10
Asia	Hunan Province					\$5,018.77	\$10,229.10
Asia	Karnataka		Cancel Clear	All SAVE & A	VPPLY	\$2,072.76	\$10,229.10
Artis	Subset		61 805 15		012.22	£1.000.00	F10 220 10

4.13.10 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."

A File Dataset Functions	Display Options	Options		
Search Attributes O,	Country	Report Links		PAGES
Execut All College All	i comoy	Publish Locks	Ľ.	
E Country Continent		Clear Column Options		
Ountisted	Filters: Canada, China, India, Unio	Summarize		
Country	COUNTRY = POPUL	Result Query	POLATION REMALE PERCENTI-CY	
⁶ Undtled Developing	India	Query Settings	48.15%	
Income Group	China		48.50%	
UN Region	Canada	Display External ID	50.399	
World Bank Region	United States	Auto Refresh Report	50.56%	
		Apply Row or Column Functions		
Country Region State Code				
Scare Name				

Filters: Canada, China, In	dia, United States:							
COUNTRY ==	POPULATION MAL	E PERCENT-CY	ΨΞ	POPULATION FEMAL	E PERCENT-	cr ≡		
India		5	1.89%			48.15%		
China		Auto Refre	ch Dan	ort	_		×	
Canada		Auto Kerre	an kep	ore			^	
United States		Online Repor	t Update	e Frequency (Secon	ds):	10		
					Cancel	Clear	DONE	

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

A File Dataset Functions Display Options	Options	
Search Attributes Q. Starte Attributes Q. Country N	Churry W	
Contract. Sectorate.	COLUMNS	
Country Filters Canada, China, India, United	lant	
Developing maximum = sustaining	INVERSE LE ROPOLATION FRAME REPORT =	
Incorre Group UN Region	51.05% 40.15%	
World Eank Region Chine	51.50% 48.50%	
El State Canada	49.61% 59.89%	
Creamy Region Subte Craft Subt	3 Sectors Sect	
🗰 Report View 🔛 Pic O	art 👽 🔲 New lab	

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.

File Insert Display Options	Options	
Population Distribution: Report View	Rename Storyhoani	
COUNTRY = FOFULATION MALE FERCENT-CY	Rename Dashboard	E PERCENT-CY =
India	Manage User Filters	48.19%
Chara	Manage Dethboards	(8,50%
Canada		50.39%
United States	Publish Locks	50,56%
	Display External ID	
	Auto Refresh 58	

File	insert	Display Options	Option	16	
opulation Dis	tribution:	Report View			
COUNTRY E	ROPUL	TION MALE PERCENT-CY	$\downarrow \equiv$	POPULATION FEMALE PERCENTLCY	≡
India		、 、	51,85%	48.1	15%
China		\backslash	\$1,50%	48.5	50%
Canada			49,61%	50.3	39%
United States		$ \longrightarrow $	AD CORE	50.5	5896
		Data refr	esh		
		indicator			

4.13.11 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.

Search Amributes Q.	T	Rows	Protes Quarter
Store Store Store Store		COLUMAS Wessures	
Store Address Trade Cleas			Duanar 2015 Q1 Surt Descending
Product Energy Energy Distributes Wandesame Wandesame Wandesame Soli Composy UK Soli Composy UK	Distributors = Distri + Distributors = + Distrib	IBUTION-CHAIR 4 ≕ 42.35% 23.78% 11.47% 4.13% 3.4% 4.50%	✓ 2015 Q1 2015 Q2 2015 Q3 2015 Q4 2016 Q1 2016 Q2 2016 Q3 2016 Q4 2017 Q1
March Quarter Your Chear Group Meanures Distribution-CY-NR			
	Report View D No.	n Tab	

Quarter			٦
2015 Q1		<u>≣</u> ↑	
🗸 2015 Q1			
2015 Q2			
2015 Q3	- 1		
2015 Q4	- 1		
2016 Q1	- 1		
2016 Q2	- 1		
2016 Q3	- 1		
2016 Q4	- 1		
2017 Q1			

4.13.12 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.

Grid Custom Styles	×
Row Style Column Style Header Style	Create Custom Header(S) Clear Custom Headers ✓ Insert Custom Header ✓ Group Row Headers Row Group Name: ✓
Cell Style	Column Group Name: YEAR TO DATE
	Column Group Name
	Background Color
	Text Color
	Font Size 14 - Reset
	No. of Columns 3
	Column Group Name: QUARTER TO DATE 🔨 🧻
	Column Group Name Quarter To Date
	Background Color
	Text Color
	Font Size 14 - Reset
	Cancel Clear All SAVE & APPLY

			YEAR TO DATE		Q	UARTER TO DATE	
MANUFACTURER ↑ Ξ	YEAR $\uparrow\equiv$	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

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

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

Grid Custom Styles		×
Row Style Column Style	Text Color	- Auto
Header Style		
Cell Style	Height 29	Auto
	Padding Top 7	Auto
	Create Custom Header(S)	Clear Custom Headers
	🗹 Insert Custom Header 🛛 🗹 G	iroup Row Headers
	Row Group Name: MANUF	ACTURER ACROSS 🔨 💼
	Row Group Name Manu	ifacturer across years
	Background Color	
	Text Color	
	Font Size 14	- Reset
	No. of Columns 2	
	Column Group Name: YEA	r to date 🗸 💼
	Column Group Name: QUA	RTER TO DATE 🗸 🛅
	Cancel C	ear All SAVE & APPLY

MANUFACTURER	ACRC	SS YEARS			YEAR TO DATE		Q	UARTER TO DATE	
MANUFACTURER	$\uparrow \equiv$	YEAR	$\uparrow\!\equiv$	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

4.13.13 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.

Start:	05/31/2016	#	🔾 Default	Relative
ind:	09/30/2017		Default 🕻	Relative
Apply Filte	er Month			>
Month Value			Selected Value	
Advanced Se	arch		Advanced Sear	ch Results
Select All				Clear All
Sep 2017 Aug 2017 Jul 2017 May 2017 Apr 2017 Mar 2017 Feb 2017 Jan 2017 Dec 2016 Nov 2016 Oct 2016 Sep 2016 Aug 2016 Jul 2016 Jul 2016 May 2016 Apr 2016 Mar 2016 Feb 2016		> < >> «	Sep 2017 Aug 2017 Jul 2017 Jun 2017 May 2017 Apr 2017 Mar 2017 Feb 2017 Jan 2017 Dec 2016 Nov 2016 Oct 2016 Sep 2016 Aug 2016 Jul 2016 Jun 2016 May 2016	
Cascade			Exclude	Relative

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, Relat	ive); <u>more</u>	
MANUFACTURER $\uparrow \equiv$	YEAR $\uparrow \equiv$	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:

All Filters	×
Sep 2017, Aug 2017, Jul 2017, Jun 2017, 2017, Apr 2017, Mar 2017, Pel 2017, Jun Der 2019, Nez 2016, Der 2016, Sep 2016 2016, Jul 2016, Jun 2016, May 2016;	2017.
	DONE

4.13.14 Row/Column Functions

9) 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.

File Dataset Punctions	: Display Options	Options	
Search Attributes Q	nures	Report Links	
travel Al Outpac Al	· .	Publish Settings	1
Market Chain		Clear Column Options	
City		Summarize	
County Distributor	Distributor1	Query & Esternal App 💦 👌	51
State Code	Distributor2	Auto Refresh Report	98
State Name	Distributor3	Apply Row or Column Functions	26
Store Size	Distributor5	341/003/001413 S1/080	524
Store-Address	Diterributor4	\$27,255,867.21 81,005,	570
Trade Class	Distributor6	\$4,367,255.84 10,128;	165

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.

			APPLY ON		FUNCTION NAME		FUNCTION DES	SCRIPTION		
8	+		Rows		▼ Sum	-	Sum			Ō
8	+		Columns		✓ Average	Ψ.	Average			đ
w F	unct	tions	Display Bottom	r Column Functions	Display 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 $\downarrow \equiv$	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.

4.13.15 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.

$MANUFACTURER \uparrow \equiv$	$VCAR^-\dagger\equiv$	DOLLARS OF NR ==
5 Sort	2015	\$52,006,061.31
O Tooltip 🖌	2016	\$40,587,696.86
Unhide	2017	\$40,609,300.42
	2015	\$31,476,290.08
Y Filter	2016	\$40,273,949,11
HE Custom Width	2017	\$54,331,581,44
+ Auto Width	2015	\$8,125,639,30
K Reset Width	2016	\$5,395,310.71
Clear All	2017	\$4,602,416.44

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

Tooltip - Manufacturer	×
Display column headers	
🗄 🗵 Manufacturer	
Dollars-CY-NR	
🗵 🗵 Unit Share by Su	
Distribution CY	
Vear	
Units-CY-NR	
Dollar Share-CY	
Distribution by	- L
·	
Cancel Clear	DONE

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

малитасти	RER † =	YEAR TE	DOLLARS CY N	8 ≡	UNITS-CY-NR	Ξ	DISTRIBUTION CY/NR	=
неканет сс	MESKY	2015	\$52,006,8	61.51	167,884,	294	100.	22/6
HERSHEY O	Naradacta	N. HERSHEY CO	WPANY	5.86	152,617.	165	100.	10%
HERSHEY O		NP: \$52,006,051		1.12	124,235	230	100.1	1095
MARSING		VOUD CARAGONY	-CY-NE BAUBRIS B	1.56	35,702,	984	100.	9996
MARSING		2016	\$40,273,9	92.11	97,1977	425	100.	22/6
MARSING		2017	\$84,331,5	81.44	80,068.	680	100.	39%
NESTLE USA		2015	\$8,125,6	99.3D	24,428,	65	90.	7495
NESTLE USA		2016	\$5,395,3	10.71	16,488,	505	99.	5095
NESTLE USA		2017	\$4,632,4	16.44	13,228,	167	992	42.0

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

MANUFACTURER $\uparrow \equiv$	YEAR $\uparrow \equiv$
El Sort	2015
🕕 Tooltip 🖌 🖌	2016
 Unhide 	2017
_	2015
Y Filter	2016
🛏 Custom Width	2017
🔸 Auto Width	2015
💱 Reset Width	2016
Clear All	2017

The same configuration is carried forward to other grid visuals.

	VANUNACTURER		DOLLARS-CY-NR	UNITS-CY-N	1	DISTRIBUTION/CY-NR	DOLLAR SHARE-CY-NR	DISTRBUTION BY SUB CATEGORY-CY-NR	STORESELUNG-
	HERSHEV COME	ANY	\$52,000,RMI.31	167,88	4,294	100,0095	56,778	85.6%	
	MARS INC	Manuf	actures HERSHEY COW	ANY	254	100.00%	34,36%	84.52%	
2015	NESTLE USA	Unit St	-CY-NR: 552,006,861.31 have by Sab Category CY addar-CY-NR: 100,006	NR: 64.84%	\$25	55,74%	8.876	57,64%	
		_			_				
	WARKEURER		DOLLARS CY NR	UNITS OF N	4	DISTRIBUTION CY INF	DOLLAR SHARE OF MR	DISTRIBUTION REVER CATEGORY CY NR	STORESETTING
	HOTSHEVCOME	ANT	\$49,537,596,36	152,61	7,105	100.00%	52,03%	25.96m	
	MARSING		\$40,273,940.11	97,19		100.00%	42.30%	54,25%	
			\$5,395,310,71	16.49	8,503	99,539	5,67%	40.52%	
	NESTLE USA		ACROSSING.	- Contraction of the Contraction					

4.13.16 Foot Note Enhancement

Source : Shipments - 10 May 2020 - 28 May 2021

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.

earch Attributes Q	/ I T	E UPC V	📋 Trade Class 🗸 🗸		NAGES
lity Durity Inste Code		COLUMNS E Mecaurea	1		
rane Code Rane Name	URC	=	TRADE CLASS. =	DISTRIBUTION CV NR $-4 =$	
itane	MARS HALLOWEEN FUN SIZE	D5P 128/19.55 02-Each	Convenience	100.0296	
itare Stac	KISSES MILK CHOC 24/0/2 02	-bech	bopresa marketa	100.02%	
itore-Address Irade Clarg	100 GRAND HALLOWEEN FU	N SIZE 12/12/5 OZ Evidy	Express markets	100.00%	
roduct	BARY RUTH FUN SIZE 12/12/	07-Each	Express markets	100.00%	
rand	SWEETAITS VALENTINE HEAV	TS 24/14 02-Cach	Supermarket	100.02%	
and Family	TWIZZ PULL NIPEEL CHERKY	24/14 02-8ex	Supermarket	100.02%	
itogory stributor	BUTTERFINGER CRISP STD 24	41.4102 Box	Supermarket	100.02%	
anufacturer	WONK42010 8/1.05 07-5ad-		Express markets	99.23%	
anufacturer URL	SWEETARTS VALENTINE HEAD	875 24/14 02-Each	Express markets	99,73%	
sa Product	REESES SFIRE CUP REG BAG	2/3 02-Each	Express markets	99.23%	
rb Category PC	NERDS HOPE AMAS 24/02/02	Each	Express markets	99.23%	
me	I RANCH ASST GUMMIES PEG	BNS 12/7 OZ-Sach	Express markets	99.23%	
	ALMOND JOY MINIATURES PL	5 845 12/53 07-5ach	Express markets	99,73%	
easures	BUTTERFINGER VALONTING F	EART OK 12/002-Each	Convenience	90.0196	
tribution-CINR	100 GRAND HALLOWEEN FO	N 5125 12/12/5 OL2-Each	Convenience	98.91%	
	WONKA HARD 2 BND EASTER	RS EGG BAG 12/4/76 OZ Each	Conventionce	98,54%	

4.13.17 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.

Measures	T	ROWS					
https://www.thehesheycompany.com/en_us/home.html HERSHEY COMPANY \$142,153,908.00 444,736,689 https://www.mers.com/ MARS INC \$106,081,821.23 268,968,925							
https://www.mara.com/ MARSINC \$106,081,821.23 263,968,925	MANUHACTURER URL	=	MANUFACTURER	$DOLLARS-CY-NR \downarrow \equiv$	UNITS-CY-NR =		
	https://www.thehersheycompany.c	com/en_us/home.html	HERSHEY COMPANY	\$142,153,908.09	444,736,689		
https://www.neatleusa.com/ NESTLE USA \$18,153,366,45 54,105,406	https://www.mars.com/		MARS INC	\$106,081,821.23	263,968,925		
	https://www.nestleusa.com/		NESTLE USA	\$18,153,366.45	54,195,495		
🗄 Report View 💿 New Tab							

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.

🔒 File Dataset Pur	nctions	Display Options	Op	dons					
Search Attributes	् 🏺	Report	>	Menufecturer U.			e-Address 😒 🦷 Brend Family 😒		PAG
Example1 College Store	eAU 1	FiberLine	>	COLUMNS					
Store Size		Grid	>	Column Width Options	>				
Store-Address Trade Class	66.7	NUTACTURES UR.	=	Cell Wrop Options	>	No Wrap 🖌	DRAND FAMILY	E DOLLARS 4 E	UNITS C. =
Product	he	pe //www.thehersheyco	m.,	Freeze Rows/Columns		Tull Wrap	REESES	\$1,631,836,35	4,851,210
Drand	hts	pa://www.thchorshoy.co	m.,	Custom Styles		ERG APPLE A1085	REESES	\$1,616,436,55	4,863,063
Drand Family	10	ps//www.thchenshop.co		HERSHEY COMPANY	TH	E BOTTLE SHOP	REESES	\$1,519,689,35	3,840,426
Category Distributor	he	ps://www.theher.shey.co	m.,	HERSHEY COMPANY	M	DISON CO. HEALTH DEET.	REESES	\$1,310,237,95	4,038,736

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

	MANUFACTURER	STORE-ADDRESS	BRAND FAMILY Ξ	DOLLARS ↓ Ξ	UNITS-C Ξ
https://www.thehersheycom	HERSHEY COMPANY	STROUDWATER TIRE/AUT	REESES	\$1,631,835.35	4,851,210
https://www.thehersheycom	HERSHEY COMPANY	THE BIG APPLE #1035	REESES	\$1,616,436.55	4,863,033
https://www.thehersheycom	H Confirmation			\$1,319,689.35	3,840,426
https://www.thehersheycom	н			\$1,310,237.95	4,038,736
https://www.mars.com/		option removes auto width setti	ng, Click Yes to remove	\$1,274,909.70	3,537,302
https://www.thehersheycom	H auto width and ap	ply cell wrap.		\$1,166,964.85	3,539,839
https://www.mars.com/	M			\$1,155,075.00	3,213,862
https://www.thehersheycom	н		Cancel YES	\$1,118,843.65	3,309,567
https://www.thehersheycom	HERSHEY COMPANY	CAIN POLE	REESES	\$1,117,570.60	3,417,541
https://www.thehersheycom	HERSHEY COMPANY	LJ'S EXPRESS	REESES	\$1,001,036.05	3,008,874

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

MANUFACTURER URL =	MANUFACTURER =	STORE-ADDRESS	BRAND FAMILY =	DOLLARS-CY-NR ↓ Ξ	UNITS-CY-NR =
https://www.thehersheycompa ny.com/en_us/home.html	HERSHEY COMPANY	STROUDWATER TIRE/AUT	REESES	\$1,631,835.35	4,851,210
https://www.thehersheycompa ny.com/en_us/home.html	HERSHEY COMPANY	THE BIG APPLE #1035	REESES	\$1,616,436.55	4,863,033
https://www.thehersheycompa ny.com/en_us/home.html	HERSHEY COMPANY	THE BOTTLE SHOP	REESES	\$1,310,680.35	3,840,42
https://www.thehersheycompa ny.com/en_us/home.html	HERSHEY COMPANY	MADISON CO. HEALTH DEPT.	REESES	51,310,237.95	4,038,73
https://www.mars.com/	MARS INC	STROUDWATER TIRE/AUT	MBMS	\$1,274,909.70	3,537,30
https://www.thehersheycompa ny.com/en_us/home.html	HERSHEY COMPANY	B & A VARIETY - TURNER	REESES	\$1,166,064.85	3,530,83
https://www.mars.com/	MARS INC	THE BIG APPLE #1035	M&M'S	\$1,155,075.00	3,213,86
https://www.thehersheycompa ny.com/en_us/home.html	HERSHEY COMPANY	BANGOR NEWS & GIFT	REESES	\$1,118,843,65	3,309,56
https://www.thehersheycompa ny.com/en_us/home.html	HERSHEY COMPANY	CAIN POLE	REESES	\$1,117,570.60	3,417,54
https://www.thehersheycompa ny.com/en_us/home.html	HERSHEY COMPANY	LI'S EXPRESS	REESES	\$1,001,036.05	3,008,87
https://www.mars.com/	MARS INC	THE BOTTLE SHOP	M&MIS	\$986,256.75	2,709,10
https://www.mars.com/	MARS INC	STROUDWATER TIRE/AUT	SNICKERS	\$060,850.25	2,834,37

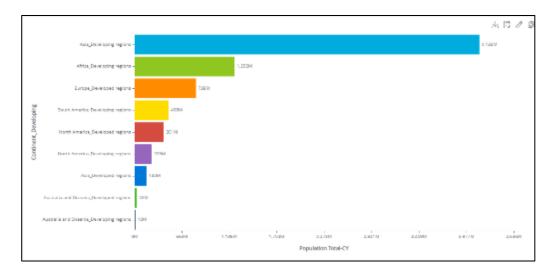
4.13.18 Expression KPI's/Scaling

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:

		POPULATION TOTAL $\downarrow \equiv$
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:

	Measure - Population Total	×		×
VETRIC	Vietric Population	Trool +		
E E Papulation Total	Format Measure Populat	tion Total X	w More 🗖	
	Pormat Bample			
	Number 0.005			
	Carrency Percentage Custom Farme	st #J##0.00181		
	Curren			
	Carro	al Chur DORF		
	0	anod Char Cons	Canod DOM	
Define Measures	Measure - Popu	ulation Total	×	
METRIC	Metric	Population Total		
🗄 🖻 🔲 Population Total	Data Type	Finat		- More 🗇 🗖
	Name	Population Total		
	Versus	CY	*	
			-	
	Versus	CY		
	Versus Ignore Filters	CY Select Select	*	
	Versus Ignore Filters Ignore Labels	CY Select	*	
	Versus Ignore Filters Ignore Labels Format	CY Select Select ACPOID_CIT_Reset	*	

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."

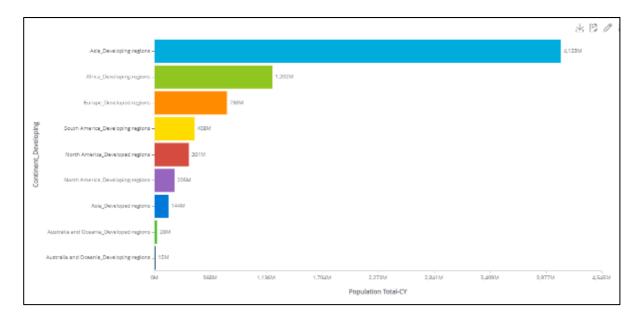
Clear

Cancel

Cancel

×

		POPULATION TOTAL \downarrow \equiv
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



4.13.19 Running Report Offline

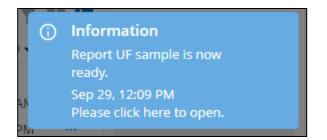
This feature is useful for long-running reports, and the user does not want to be In front of the system until the execution is completed. It allows the user to trigger the execution in the backend, cache the report data, and will notify the user when ready.

kot fications		Folder			28 October 2019
Downloads		Folder		* Star	
□ > All Types Of Assets	Pavani	Folder		Sep 🕖 Into	Huge Data
Shipments	Percetti	Folder		Sep 🖌 Kenama	Last Updated
i > III Balative filters Reports	Bayani	Folder		SAD 🥕 Publish	28 October 2019
Context Test Cases	Payan	Folder		500 📋 Delete	
DSEColumn Options Display Options	Ferreni	Folder		Sep ± Export	Shipments
Access Log	Pavani	Folder		Sep	Last Updated
Gobal Demographics	Parkate	Folder		bep 🐯 Schedule	28 October 2019
🔲 📖 Se Column options	Bayani	Report	00:00	Sep 💹 Edit Report	
Untitled Report1	Payani	Report	00:00	Sop 🧱 Set As Default	Word Cloud
Untitled Report	Paratti	Report	00:00	Sep 🔂 Run as offline	Last Updated
🔲 🥅 Ivst 2	Pryani	Report	00:00	Sep	07 August 2020
🔲 🔠 Detault REport-Footer	Pavani	Report	00:00	Sep 27. 05/32 PM	
atorioty cidi 21					NEW

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

	Pavani	Report	00600	Sep 27, 07:21 PM
Information				
Requested asset will run	offine, you will rec	evela notification w	then ready.	Sep 27, 05:34 FM
				Sep 27, 05(29 PM
			OK	5ep 27. 05/24 PM
				Sep 27, 05:17 RM
	Pavani	Folder		Sep 27, 05:17 PM

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.



4.13.20 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".

Measure - Units		×
Versus	СҮ	-
Duration	NR	•
Ignore Filters	Select	•
Ignore Labels	Select	•
Format	<u>#,##0.00%</u> Auto	
Filters	Select Filters	
Condition	None 💌	
Select Function	Percent Of	× •
Exclude Attributes	State Name x	× •
Cumulative	Yes	× -
Sort Order	Desc	× •
		-
	Cancel Clear	DONE

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

STATE NAME =	$DOLLARS-CY-NR \downarrow \equiv$	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	\$5,244,354.44	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%

	$DOLLARS-CY-NR \ \ \downarrow \equiv$	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	9.0546
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%
Ohia	\$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

4.13.21 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.

Export Store Selling Report					
Export As					
• Excel					
CSV					
PPT					
PDF					
Visuals	Current Visual	•			
Pages	All Pages	•			
Send Via:	☑ File Share				
Export All Level Data for Nested Hierarchy					
	Cancel DON	IE			

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.

Schedule Store	Selling Report			×
Schedule Settin	gs Export Settings	-		
Export As				
PPT				
PDF				
 Excel 				
CSV				
Offline				
Visuals	Current Visual	-		
Pages	All Pages	-		
Send Via:				
Email SMS	File Share			
Export All Level Dat	a for Nested Hierarchy			
			Cancel	DONE

4.13.22 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.

Filter Actions And Appearance	×
Control Type	
 List Box 	
 Dropdown 	
No List Search	
Date Search	
Mandatory	
Single Select	V
Display Filter Values in Report Title	v
Generate Report on Selection	
Display In Top User Filter Panel	
Relative	
Select User Filter Values	
Display User Filter Name as	
Week Start Date	Auto
Cancel	DONE

UF values are displayed in the UF area as below:

UF-Week Start Date		
Select Week Start Date		≣↓
1/17/2022		
1/10/2022	- 1	
1/03/2022		
12/27/2021		
12/20/2021		
12/13/2021		
12/06/2021		
11/29/2021		
11/22/2021		
		J

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

4.13.23 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.

		METRIC	NAME	VERSUS		DURATION				
1	□ (Distribution v	Distribution-CY-NR	CY	Ŧ	NR	Ŧ	More	٥	8

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.

METRIC	NAME	VERSUS	DURATION		
Distribution 👻	Distribution-CY-YTD	۲ ۲	YTD	Ŧ	More 🗇 💼

4.13.24 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.

Ш.	i percent of test	Admin	Report	00:00	Dec. 14, 01:36 PM ***
	> IIII K44++	Admin	Folder		Move to
ξLI.	XY Bin Boundaries	Admin	Folder		* Star
10	Null Vs Empty	Admin	Tolder		
	> IIII the Share Target	Admin	Folder		() Info
ξLL.	III WeekStart Date as UP	Admin	Report	00:00	/ Heneme
10	sb1 of test	Admin	Storyboard	00:01	A Publish
	IIII Report Link pop op changes	Admin	Report	00:00	Delete
÷ 🗆 -	Early as UF with Infloce	Admin	Report	00:00	
10 I	> Data limit handling	Admin	Folder		🛃 Export
$i \square i$	22.0.0.17	Admin	Folder	_	🤗 Schenhale
10	> UserFiber Override	Admin	Folder		😤 Schedule On Reload
ŧΠ.	🖽 23160-8ug	Admin	Report	00:00	🔯 Silit Report
1 D - 1	Nelative filters Reports	Admin	Folder		
: 🗆 🛛	v Shipments	Admin	Folder		Set As Default
1	V III Reports	Admin	Folder		Bun as offline
с п .	IIII store selling report	Admin	Report		Jan 21, 01:00 PM

4	Store Selling Report								8	•	\sim	0.6	enerate 🧍	SF Proview	🕞 /ok DH	ve 至Cons	rab '
÷.	Rie Dataset Punctio	ns Display Options Opt	ons														
5		Tents T Harth V	EONIS	Store	×	Inade Class	v	Stats Name	¥	Cty	¥	Chal	n v		MAGES	Venufacturer	r v
Β	Open		roluv	Measures													
	Seve	Pillers, Seys 2017;													Nendatare HERSHEY CO	MPANY	-
	Seve Aa	STORE	= 1	FRADE CLASS	=	STATE NAME	_	CITY	=	CHWN		=	STORESEU	ING CHS	$\forall \ b =$		
	Export	PATMAN REDEMPTION-WINDHAM		Convenience	_	Nebradka	_	NE-Columbus		INDEPEND	ONT	-			1		
	Publish	WHSHITH US ELC SUNDED		Lonvenience		Nobreake		Nb-Uncoln		INDEPEND					1		
	Schedule	ROSEMARY'S FLORIST & CUPCAKE		Conventionce		Nebraska		NE-North Plat	ke .	INDEPEND	ent				1		
	Schedule On Reload	DMP NTHING	4	Convenience		New Hampshire	•	NH-Redin		INDEPEND	ENT				4		
1±1	Print	CO-RET SI IOPPONGANGOR		Convenience		New Hampshire	•	NII-Concord		INDEPEND	ONT				1		
	Time	COMMAN'S SERVICE	0	Convenience		New Hempshire	c -	NH-Seens		INDEPEND	ENI -				1		
		GOODNOWS WRIETY INC		Constantienter		New Harmohn		NH West-Beld		INDEPEND	ENT				4		

Schedule On Reload Store Se	lling Repo	rt	×
Frequency: On Reload		ort As: ache	Ŧ
Send Via: Email SMS EFle Share Select Group(s): Users Groups	٥	Always On Alert	
C. Select All Admin Chonumer 1 Consumer 2 Governor, 1 Governor, 1 Governor, 1 Broducer, 1 Broducer, 1 Broducer, 2 UberWanager	> > > > > > > > > > > > > > > > > > > >	Consumer-1 Consumer 2	Q, Clear All
		Cancel	DONE

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.

4.13.25 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.

Search Attributes Q
Expand All Collapse All
E Day
Date
Day
Hour
Minute
Month
Month Year
🛛 Week Start Date 🛛 🗸 🗸
Add User Filter
 Manage Groups
Manage Lists
Manage Conditional Lists
Query
+ Report
1 Storyboard

Please choose the "Date Search" option.

Filter Actions And Appearance
Control Type
List Box
Dropdown
No List Search
 Date Search
Mandatory
Single Select
Display Filter Values in Report Title
Generate Report on Selection
Display In Top User Filter Panel
Select User Filter Values
Display User Filter Name as

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.

Advano	ed Search			×
Start:	12/31/2018	60	🗿 Default	 Relative
Endt	02/14/2022	(11)	🖸 Detsuit	Belative

The Applied UF range is displayed in the filter line.

admin 162 producer1 4.7 admin2 1.7	Weeks	Nows		r v)	Notes I
Himsey (Response 1221) (2017) [[Range: from 1221] (2017) Level 1 of the constant conjecture) and J = admin 162 producer1 47 udmin2 1.7			100 (c)	1
echina III.2 producer1 A.7 udmm2 11.7	North (Renge Provide	NTE (2010) TH 2014	10172		
aroducer1 4./ John 2 1.7	INFR =	LACIN-DD	анамноводал	$\Rightarrow =$	(Range: From 12/31/2010; To 2/14/2022
sdm2 1.7	admin			16.2	
	producer1			4.7	
	admin2			1.7	
usernenager 0.1	usermanager			0.1	

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

4.13.26 Report linking enhancements

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

ink On:				
JINK ON:	💿 Attribute 🛛 🔵 Measure Cel	Is		
.ink To:	📀 Report/Storyboard 🛛 🔵 Sta	atic URL	Attribute	
Report/Storyboard:	Select Report/Storyboard			
ATTRIBUTE NAME	FILTER VALUES		PASS FILTE	R VALUE
☑ Category	All	× *	🗿 Yes	No
Chain	None	Ψ.	Yes	No No
🗌 en-manf	None	Ŧ	 Yes 	No No
Pass Report Filters	& User Filters			
Report Link Filters : Ca	tegory, Chain and en-manf.			

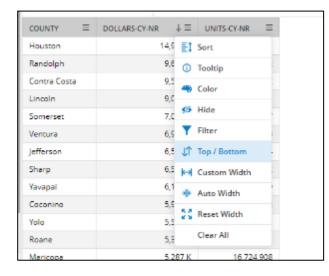
• The behavior of the target report: When the user navigates to the target report via a link, the passed filters from the source will override both regular report filters and user filters of the target report.

4.13.27 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'

Top / Botto	×	
Type : Value : 1	☑ Top ☑ Botto	om 20

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

COUNTY =	Dollars-cy-Nr $\downarrow \equiv$	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 К	6,060
Thurston	2 K	3,780
Woodward	0 K	300

4.13.28 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.

Search Attributes		ROWS				
xpand All Collapse Al	T	Store_State	N 🗸			
Quarter		COLUMNS Measures				
Year		i inteasures				
Product	State Name: California;				1	
Brand Brand Family	STORE		TRADE CLASS	CHAIN NAME	DOLLARS-CY-NR $\downarrow \equiv$	UNITS-CY-NR =
Category	THE BIG APPLE #1035	Large	Express markets	INDEPENDENT	\$9,542,733.70	30,185,712
Manufacturer	CLIPPER MART #9	Large	Express markets	INDEPENDENT	\$5,571,966.10	18,680,471
Manufacturer URL	HANNAFORD #223-WESTBROOK	Large	Supermarket	INDEPENDENT	\$3,153,723.40	8,514,799
New Product	OHIO STREET CONVENIENCE	Large	Supermarket	INDEPENDENT	\$2,770,279.60	8,089,578
Sub Category UPC	TWO SISTER COUNTRY STORE	Large	Express markets	BIG APPLE FUNDRAISING, INC.	\$2,025,754.40	5,357,229
Market	HANNAFORD #345-NO WINDHAM	Large	Supermarket	BIG APPLE FUNDRAISING, INC.	\$1,771,061.90	5,147,756
Chain	SUGAR CREEK #166	Large	Express markets	INDEPENDENT	\$1,666,491.05	4,540,857
City	CAPTAIN D'S	Small	Supermarket	INDEPENDENT	\$1,648,142.24	4,543,080
County Distributor	REDI MART #53	Large	Supermarket	INDEPENDENT	\$1,456,423.92	4,008,241
State Code	BARGER'S AUTO & TRUCK REPAIR	Medium	Express markets	INDEPENDENT	\$1,450,158.90	3,750,524
State Name	JUST A BUCK	Medium	Express markets	BIG APPLE FUNDRAISING, INC.	\$1,197,395.50	3,436,979
Store Store Size	RIVERBEND # 1	Medium	Express markets	INDEPENDENT	\$1,194,725.00	3,092,454
Store-Address	SEASHELL FOOD MART	Medium	Supermarket	INDEPENDENT	\$891,340.70	2,650,674
Trade Class	COURT STREET MARKET	Large	Express markets	INDEPENDENT	\$867,959.90	2,958,949
	SUPER 7 FOOD MART	Medium	Convenience	INDEPENDENT	\$732,981.75	1,728,927
Measures Dollars-CY-NR	ARROW MART #10	Large	Supermarket	INDEPENDENT	\$679,151.52	2,058,676
Units-CY-NR	RITE AID #3296	Medium	Express markets	BIG APPLE FUNDRAISING, INC.	\$640,196.45	1,932,280
				NIDEDENIE -		4 755 665

- 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.
 - o 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.

FILTERS 0	ROW	5					PAGES	
Y Sub Category 🗸		All Stores_Store 🗸						
	COLU	MNS					0	
		📕 Sub Category 🗸 📕 M	easures					
Filters: Bulk Candy;								
						BULK CANDY		
ALL STORES_STORE	≡	ADDRESS =	CITY	Ξ	STATE CODE =	DOLLARS-CY-NR ↓ Ξ	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.

FILTERS Category V	COLUMNS	LUMNS							
Iters: Bulk Candy;									
+ 1 ALL STORES_STORE	≡				DOLLARS-CY-NR				
		ADDRESS =	сіту 🔳	STATE CODE =	BULK CANDY $\downarrow \equiv$				
- 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.

4.13.29 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.

earch	Search Everything			Q
NAME		OWNER	TYPE	LAST ACCESSED 🕹
~	Last Accessed		Folder	
>	💓 Store Selling Change List	Admin	Report	Nov 08, 12:53 PM
>	Imports vs Exports XY Chart	Admin	Report	Sep 06, 08:22 PM
>	🔠 Continent-Country-State-Map	Admin	Report	Sep 06, 08:22 PM
>	💓 🔠 Life Expectancy Target Chart	Admin	Report	Sep 06, 08:22 PM
>	🔠 Rural Urban Electricity	Admin	Report	Sep 06, 08:22 PM
>	Access Log	Admin	Folder	Nov 08, 06:19 PM
~	Shipments	Admin	Folder	Nov 08, 06:18 PM
>	Reports	Admin	Folder	Nov 08, 12:53 PM
>	Analyze	Admin	Folder	Sep 06, 08:22 PM
>	Explore	Admin	Folder	Sep 06, 08:22 PM
>	Global Demographics	Admin	Folder	Sep 06, 08:22 PM
lame:	Imports vs Exports XY Chart			× •

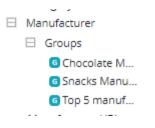
- A button labeled "Open in New Tab" is added to the asset selection pop-up that appears when the user clicks the "Open" option from the menu.
- When a report is selected, the "Open in New Tab" option is enabled.
- Upon clicking "Open in New Tab," the selected report is opened in a new tab, allowing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

4.13.30 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.

4.13.31 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 parameter, 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.

Со	onfig	gure Filters To	p 5 Brand	Families	5	×	
	_	511 TEO		47770		_	
	~	FILTER		ALIRI	BUTE NAME	1	
	\checkmark	Manufacturer		Manu	lfacturer		
			Cancel	Reset	Clear	DONE	

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 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.

File Dataset Function	Display Options FILTERS	Options © ROWS				PAGES	
Search Attributes	Month	Brand Family					Manufacturer
pand All Collapse All	•	COLUMNS					
Measure Groups Stubs		Measures					
III Studs						Manufacturer	
Month	Filters: Jul-2021;		_			HERSHEY CO	MPANY -
Quarter	BRAND FAMILY =	DOLLAR SHARE-CY-NR \downarrow \equiv	Manage Focus Attri	butes		×	
Year	REESES	19.28%					
Brand	KIT KAT	6.59%	FOCUS ATTRIBUTE	ATTRIBUTE NAME	REPLACEMENT ATTRIBUTE(S)		
Brand Family	HERSHEY MILK	2.72%	Brand Family	Brand Family	Chain, Trade Class, City	🖌 🗙 👘	
Category	HERSHEY ALMOND	2.68%					
 Manufacturer Manufacturer URL 	PAYDAY	2.63%					
New Product	ICE BREAKERS	1.69%					
Sub Category	COOKIES N CREME	1.66%					
UPC	ALMOND JOY	1.66%					
Market	ASSORTED	1.42%					
	WHATCHAMACALLIT	1.38%					
	CADBURY	1.25%					
	TWIZZLERS	1.13%					
	MR GOODBAR	1.09%					
	YORK	1.01%					
Measures Dollar Share-CY-NR	JOLLY RANCHER	0.89%			Cancel Clear	DONE	
Contrastance Chief	ZERO	0.76%					
	Report View	0.67%					

• 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.

File Dataset Functions	Display Options	Options			
Search Attributes Q Expand All Collapse All It Measure Groups It Stubs	FILTERS Month	COLUMNS	nd Family 👻		C PAGES Manufacturer V
Time Month	Filters: Jul-2021;				Manufacturer
Quarter	BRAND FAMILY =	DOLLAR SHARE-CY-N	r ↓ ≡		
Vear T Product	REESES		19.28%		
Product Market	KIT KAT		6.59%		
	HERSHEY MILK		New Joseffers Options	×	
	HERSHEY ALMOND		Navigation Options	×	
	PAYDAY		Replace: Brand Family with Chain		
	ICE BREAKERS		Replace: Brand Family with Trade Class		
	COOKIES N CREME		Replace: Brand Family with City		
	ALMOND JOY		1.00%		
	ASSORTED		1.4296		
	WHATCHAMACALLIT		1.38%		
	CADBURY		1.25%		
	TWIZZLERS		1.1396		
	MR GOODBAR		1.09%		
Measures	YORK		1.01%		
Dollar Share-CY-NR	IOLLY RANCHER		0.89%		
	ZERO		0.76%		
	MOUNDS	ew Tab	0.67%		

• 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.

Create Report Riters; Jul-2021; HERSHEY MILL TRADE CLASS Supermarket Convenience Express markets	K DOLLAR SHARE-CY-NR ↓ Ξ 2.91% 2.90%
TRADE CLASS Supermarket Convenience	DOLLAR SHARE-CY-NR 4 2.911 2.901
Supermarket Convenience	2.91%
Supermarket Convenience	2.91% 2.90%
Convenience	2.91% 2.90% 2.60%
Express markets	2.604
🔢 Report View 🗄 I	New Tab
Source : Shipments - 28 Octo	

- 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.

4.15 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.

Search Attributes xoand All Collaose All Measure Groups Stubs		ROWS				
I Measure Groups			Data Bars Doll	ars-CY-NR	×	listributor 🗸 🗸
		COLUMNS	Display:	Inline Separate Column	Show Bar Label	
E Time			Name:	Data Bars_Dollars-CY-NR		
Product			Position:	O Left O Right		Ŧ
	BRAND FAMILY = DOLLA	ars-cy-nr ↓ = Units-C	Bar Appearance			
	REESES	\$22,530,783.09				
Category	SNICKERS	\$12,956,911.99	Fill:	Gradient Fill 👻		
	M&M'S	\$12,446,820.45	Border:	No Border 👻		
Manufacturer URL	KIT KAT	\$10,814,453.30			-	
New Product	TWIX	\$7,932,428.85	Negative Bar Appe			
Sub Category	ASSORTED	\$6,206,414.15	Fill:	0	Apply same color as positive bar	
	MILKY WAY	\$5,880,987.22	Border:	\bigcirc	Apply same border color as positive bar	
I	JOLLY RANCHER	\$3,079,951.17	Axis Settings			
	3 MUSKETEERS	\$3,004,388.25	Select axis position	in cell to change the appearance of bars for r	negative values:	
	TWIZZLERS	\$2,920,889.80	Automatic (display	ay at variable position based on negative valu	ues)	
1	ICE BREAKERS	\$2,741,475.40	O Cell Mid Point			
,	ALMOND JOY	\$2,738,573.40	O None (show neg	ative bars in same direction as positive)		
	YORK	\$2,285,151.70				
	BABY RUTH	\$2,207,821.00				
Measures Dollars-CY-NR	HERSHEY MILK	\$2,092,068.00				
	MR GOODBAR	\$1,904,505.00			Cancel Clear DELETE DONE	
	SWEETARTS	<1 847 444 75	5 091 462			

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

4.16 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.

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county	INDEPENDENT	IN	IN-RICHMOND	MOBIL MART				
State Code	7-ELEVEN	GA	GA-Atlanta	P & S SNAX SALES INC				
State Name								
store	INDEPENDENT	MT	MT-Libby	S & V GROCERY				
	INDEPENDENT	ID	ID-Twin Falls	DEAD RIVER CO				
Store-Address Trade Class	INDEPENDENT	SC	SC-Columbia	RITE AID #3897				
Product	BIG APPLE FUNDRAISING, INC.	ME	ME-SKOWHEGAN	MADISON CO. HEALTH DEPT.				
	INDEPENDENT	MN	MN-Mankato	WISCASSET QUIK-STOP				
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	7-ELEVEN	GA	GA-Macon	SHOPRITE #241				
Manufacturer Manufacturer URL	INDEPENDENT	SC	SC-Greenville	CORSETTI'S 202-WINDHAM				
	7-ELEVEN	TN	TN-KINGSTON	CLOWERS GROCERY				
	WAVES	IN	IN-RICHMOND	NOURIA ENERGY				
UPC	INDEPENDENT	MO	MO-Bolivar	MILLER DRUG WESTGATE				
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	INDEPENDENT	MN	MN-Sauk Rapids	PATHWAY VINEYARD CHURCH				
	INDEPENDENT	MI	MI-KINGSTON	WILMINGTON DUCHESS #245				
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4.17 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 "Configure Label Null Values Display" 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

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May-2021	\$2,047.00					
Apr-2021	\$3,027.00					
Mar-2021	\$1,570.00					
Feb-2021	\$1,740.00					
Jan-2021	\$1,624.00					
Dec-2020	\$2,240.00					
Nov-2020	\$1,792.00					

• 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.
- 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 inbuilt 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.

			Rows		
#	Tupo	Variant	(X- Axis)	Columns (Y-Axis)	Comments
1	Type 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
		Stacked			
10	Line	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	Крі		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

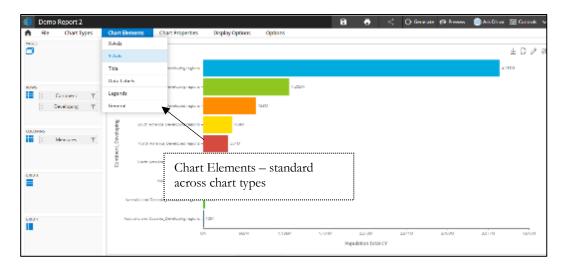
Each chart type has a set of properties (options) that can be enabled by selecting the Chart Properties menu item. An example of the property view for a Combo chart is shown below:

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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.

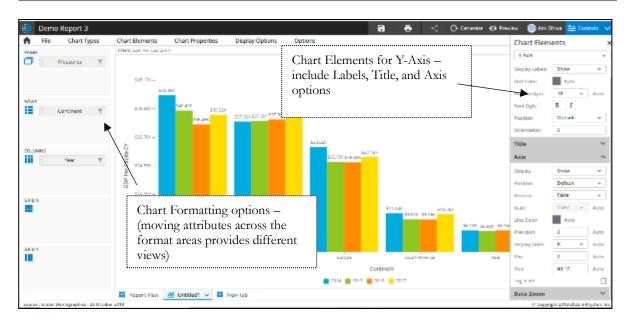
5.4 Chart Elements

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



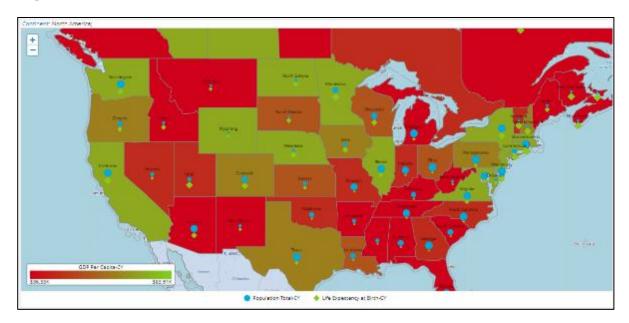
- X & Y-Axis: This element allows the customization of X and Y-Axis labels and min/max values. In the case of bi-scale, ad Y2-Axis would also appear. Some charts may not have X or Y-axis elements (e.g., Tile chart). NOTE: Axis scaling is based on IQR and extreme data value may not be shown per scale (i.e., the scale may not cover extreme values). Users should adjust manually if required.
- 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 preconfigured. 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.

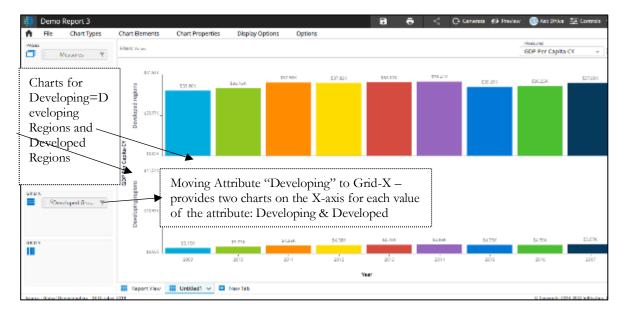


11) Map Properties enable the map formatting with markers, colors, gradient colors, size of the markers, and more.

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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."

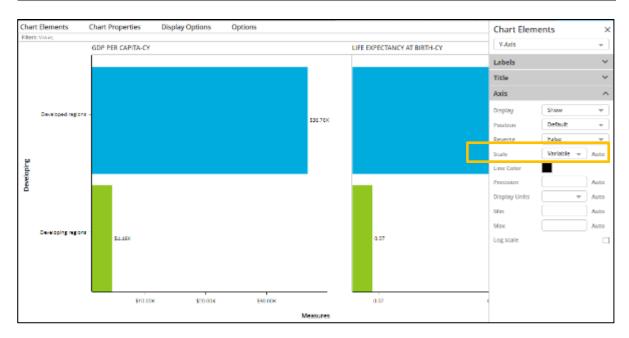
Let us consider if there are two measures set up in a report, and the user wants to view the variations in Grid Y. By default, the variable scale is applied.

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Users can change the option to fixed based on the requirement

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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.

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- 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.
 12)

6 CREATING A NEW STORYBOARD

6.1 Overview

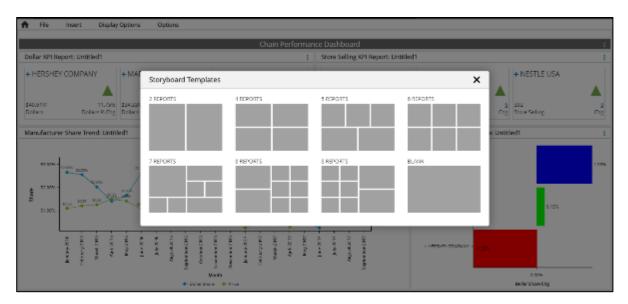
Storyboards are a collection of dashboards – which are collections of report objects. A storyboard may contain one or more dashboards (unlimited but recommended to be less than 20) – and a dashboard may contain one or more report objects (limited to space availability on the Dashboard). Report objects 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.

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6.3 Dashboard "Widget" Object Properties

6.3.1 Sizing & Formatting a Dashboard Widget

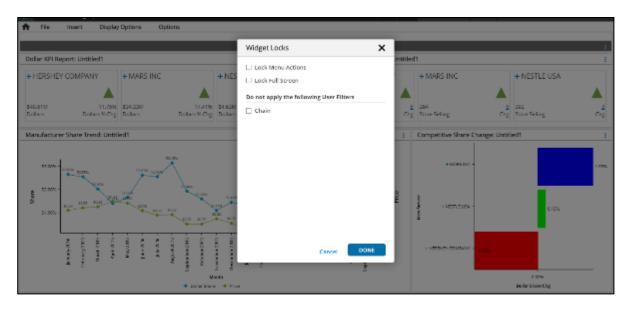
Every object on a Dashboard (report, chart, or static header) is termed as a "widget" – and can be formatted in terms of background color, size, etc. To change the size of a widget: (a) click on the widget header and using the lower right hand-corner (folded page icon) re-size as required, or (b) pressing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

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- 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

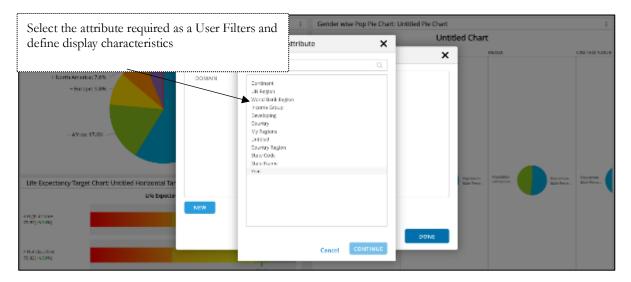
6.3.3 Grid column options for the widget in the storyboard

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.

SB Column option:: Report View Image: Column option:: Col	📑 Untitled Storyl	board Dar	shboard1		
NAMURACIURE T = YEAR T = DOLLARS-CANE E UNITS-CANE E HERG-FY COMPANY 2015 \$17,000 \$1,8527 Toulitis Toulitis HERG-FY COMPANY 2015 \$14,8527 Toulitis Toulitis MARS INC 2015 \$21,216 \$12,857 Toulitis NARS INC 2015 \$21,216 \$105 \$101 NARS INC 2015 \$31,216 \$106 \$108 NESTLE USA 2015 \$10,125 \$17 Toul / Units NESTLE USA 2016 \$22,025 \$10 / Units \$108 NESTLE USA 2017 \$46,622 \$10 / Units \$108 NESTLE USA 2017 \$46,622 \$108 \$108 NESTLE USA 2017 \$46,622 \$108 \$108 * Auns Width \$1000 \$1000 \$1000			Options 0	ptions	
HERG-EV COMPANY 2015 \$17,000 \$1,500 \$1,500 \$1,500 HERG-EV COMPANY 2018 \$18,500 \$18,500 \$100 \$100 HERG-EV COMPANY 2017 \$41,600 \$100 \$100 \$100 MARS INC 2015 \$21,476 \$100 \$100 \$100 MARS INC 2016 \$42,278 \$100 \$100 \$100 NESTLE USA 2015 \$31,125 \$1 \$100 \$100 NESTLE USA 2016 \$51,258 \$1 \$100 \$100 NESTLE USA 2017 \$4652 \$1 \$100 \$100 NESTLE USA 2017 \$4652 \$1 \$4,000 \$4,000 NESTLE USA 2017 \$4,652 \$1 \$4,000 \$100					- 1
IERE EV COMPANY 2018 \$18,533 Toulity HERSEEV COMPANY 2017 \$43,600 Color MARS INC 2015 \$21,416 Color MARS INC 2016 \$42,275 Toulor NARS INC 2015 \$31,125 Toulor NESTLE USA 2016 \$51,225 Top / Domon NESTLE USA 2016 \$51,255 Top / Domon NESTLE USA 2017 \$46,2275 * NEDILE USA 2015 \$51,255 Top / Domon NESTLE USA 2017 \$46,627 * NESTLE USA 2016 \$51,256 * * MART NAT 2017 \$46,627 * *					=
HEISPLEY COMMANY 2017 543,600 Color MVAS INC 2015 531,476 Indee MVAS INC 2016 543,275 Indee MARS INC 2016 543,275 Title MARS INC 2015 511,125 Title MESTLE USA 2015 511,255 Top / Second MESTLE USA 2015 512,255 IN Current Witch MESTLE USA 2017 54,652 Auno Witch Statest Statest Statest Statest	HERSHEY COMPANY	2015			IK.
MARS INC 2015 531,476; Clear MARS INC 2016 542,273; Illide MARS INC 2017 \$11,125; Their NESTLE USA 2015 \$11,125; If Top / Dertown NESTLE USA 2017 \$4,632; WK Current Witth NESTLE USA 2017 \$4,632; # Auna Witth CUSA 2017 \$4,632; # Reset Witth	LEBSE EX COMPANY				1
MARS INC 2016 543.2783 Initial MARS INC 2017 \$31(114) T Tillal NESTLE USA 2015 \$11(126) IT Top / Gentom NESTLE USA 2015 \$11(126) IT Top / Gentom NESTLE USA 2017 \$4462) # Auso Width Structure Structure \$1000 \$1000	HERSHEY COMPANY	2017	\$40,600.	- Color	1.
NMART IN 2010 SAR225 MART IN 2017 \$11(11) T NESTLE USA 2015 \$1(12) If Top // Demon NESTLE USA 2015 \$1(12) If Top // Demon NESTLE USA 2015 \$1(12) If Top // Demon NESTLE USA 2015 \$1(2) If Top // Demon NESTLE USA 2017 \$4632 # Auna Width \$2(12) Baset Width \$2(12) Baset Width	MARS INC			and the second s	
NESTLE USA 2015 S1,135 LT Top / Bortown NESTLE USA 2016 S2,285 WK Curron Witch NESTLE USA 2017 S4,632 + Auro Witch St Reset Witch	MARS INC		546.0720		1
NESTLE USA 2016 SRUBB: BK Curron Witch NESTLE USA 2017 S4.632 Auro Witch Curron Witch		2017			
NESTLE USA 2017 \$4.632 🛊 Auno Width	NESTLE USA	2015	\$8,125/	🞝 Top / Bottom	
Auto Width	NESTLE USA				
	NESTLE USA	2017	\$4,682.	🕴 Auto Widsh	
Clear All				🚼 Repet Width	
				Clear All	

6.4 Storyboard User Filter Specification

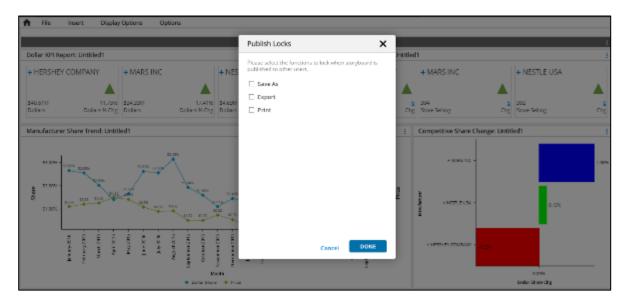
Storyboard User Filters enable: (a) selecting a specific user filter and (b) the dashboards to apply it. Multiple User Filters can be specified using the "New" option.



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

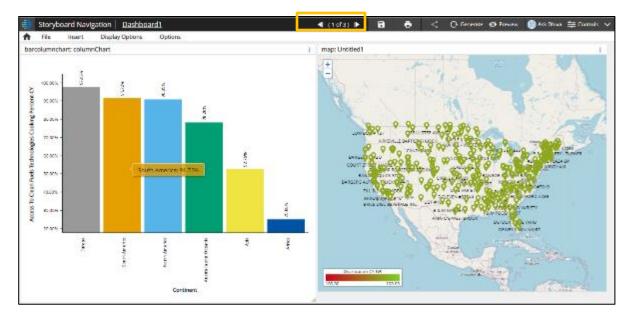
Storyboard Publish locks can be applied to Save As, Export, and Print options, which would not be available to the receiving users if locked.

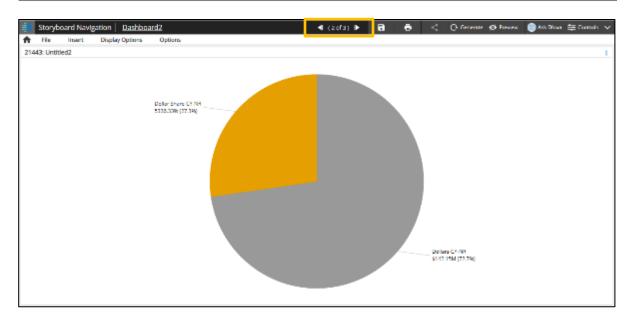


6.6 Dashboard Navigation

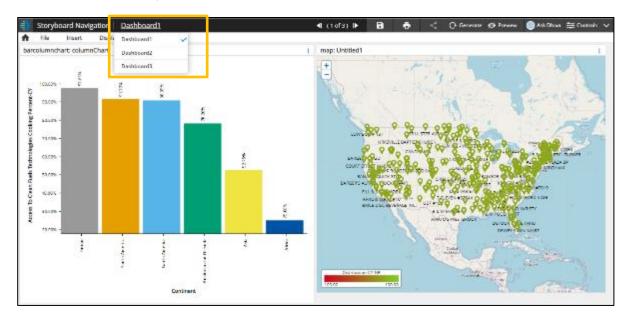
The user can navigate through the dashboards in a couple of ways.

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.

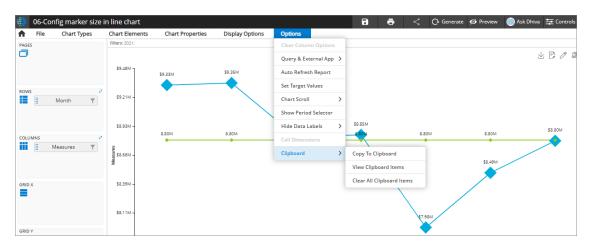


Now clicking on the Dashboard3 link would navigate the user to Dashboard 3.



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."

🖡 Dhiva	Rechercher tout	Q.	Recherche Avancée		French 👻 🍈 🗈	emander Dha	∽ 🖻 ± 0 8 (
J. Trier Part	Dernier ocols w Domainane Tous les	domaines 🔻			filtres 3	r 💷 🔳	Domaines de
DM		PROPRIÉTAIRE	TYPE	DERMIÈRE HEURO	D'EKÉC DERNIER ACCÈS 4		données
> lig pe	imier acclis		Dossier				
S No	offications		Dossier				Access Log
E 18	échargements		Dossier				Demišre mise šijour 26 April 2021
i 🗆 🔉 🏢 sila	sbal Demographics	Admin	Dossier		Apr 25, 10:19 AM		
i	pments	Admin	Dossier		Apr 26, 10:49 AM		
n > 🖿 🔺	inalyte	Admin	Dossier		Apr 21, 08:34 PM		Global Demographics
	cess Log	Admin	Dossler		Apr 21, Dit 13 PM		Demière mise à jour
🗆 🔛 Col	for Conditions Test	Admin	rapport	00:00	Apr 26, 10:41 AM		28 October 2019
🗆 🗄 Sar	nple Report	Admin	napina L	00:01	Apr 25, 10:40 AM		
🗆 💷 pag	ge filter	Admin	rapport	00:00	Apr 25, 10:40 AM		Shipments
🗆 🗐 Sur	mmary Test	Admin	rapport	00:01	Apr 28, 05:89 PM		Demière mise kjour
🗆 🔠 det	fault cascade	Admin	rapport	00:00	Apr 23, 12:08 PM		28 October 2019
i i i i i i i i i i i i i i i i i i i	d Layout	Admin	repport	00:00	Apr 21, 12:43 PM		

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.

Dhiva Search Everything		Advanced Search			English	English	
🕂 Sort I	By: Last Accessed + Domains: All Domains +				Filters: 🝸 🔡		
INNE		OWNER	TYPE	LAST EXECUTIO	LAST ACCESSED +		
~	Last Accessed		Folder				
	III Store Selling Report	Admin	Report	00:00	Feb 11, 10(11 AM	••	
	III Untitled Report	Admin	Report	00:00	Feb 11, 10:11 AM	••	
	III Ufe Expectancy Target Chart	Admin	Report	00:00	Feb 10, 06(25 PM	••	
	Fopulation & LE Storyboard	Admin	Storyboard		Move to		
	Imports vs Exports XV Chart	Admin	Baport				
	Not fications		Folder		🖈 Star		
	Cownloads		Folder		🕖 into		
iΠ.	temporary	Admin	Folder		/ Reneme		
$\Box \sim$	in clobal Demographics	Admin	Folder		> Fublish		
	V Breportx	Admin	Folder		1 Delete		
įΠ.	III Ufe Expectancy Target Chart	Admin	Report	00:00	-		
	Imports vs Exports XY Chart	Admin	Report		± Export		
	III Continent-Country-State-Mep				Schedule		
in -	🔠 Rural Urban Electricity	Select Schedu	le by		Schedule On Relaad		
	[1] Metric Frends Combo Chart				Edik Report		
10	III GDP & Life Expectancy Global Map		pressing on the				
in -	III Service imports Vs Exports Bubble Charts	"ellipse" for the desired asset.		📒 Set As Default			
	World Region-Country-State			Run as office			
						1	

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

	Schedule Sample Re	port		×
	Schedule Settings	Export Settings		
	Frequency: One Time Start Day:	~ 0	gger: Always 🔵 On Alert ne Of Day:	t
Schedule frequency and users (or Groups) to schedule to	07/14/2024 Select Group(s):	1		AM 👻
1	•	Q		Q
	Select All			Clear All
	Admin Consumer-1 Governor-1 Producer-1 Producer-2 superadmin test_user	> < >> «	Consumer-1	•
			Cancel	DONE

Schedule Sampl	e Report			×						
Schedule Settin	gs Export Settings									
Export As										
PPT										
PDF										
• Excel										
CSV										
Offline										
Visuals	Current Visual	-								
Pages	All Pages	-								
Send Via: 🗹 Email 🗌 SMS										
			Cancel	DONE						

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.

Users Groups			
Q			Q
Select Al			Clear All
Consumer-1 Consumer-2 Governor-1 Producer-1 Producer-2	> < >> «	Producer-1 Producer-2	
Send e-mail notification.			

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.

Store Selling Change Lis	Chart Elements Chart Pro	Publish Store Selling Change L	ist	×	8	e <	G Generate	Ø Preview	두 Controls 🗸
PAGES	Filters: jui-2021;	Users Groups			and the				
	+ LOW BOS BR				Timbe to permit			Québec	
	•	Select All		Clear All	atom ph		Ottawa		
ROWS Store Y Trade Class Y State Name Y Chun W COLUMIS Measures Y	Portant BARGERS CITIGO PUGLIV WIG	Consume-2 Consume-2 Governor-1 Producer-1 Producer-2	Consume-1 Consumer-2	1 10 10	Wedenian Lose Viceon Minister Chirago Ilanus indone	Detroit GRACE ENERG SPEARE KINGS ON ALE	MAIN ST MKT MAIN ST MKT NO VIENNE ST SUNOCO NA PETRUSUMION	HUESA AAKE RUS BE AABE NA I WALDOEDRO LIQUO MAAT II	
GRID X	san iteo BOCK		~		Merriphis Tennesse Ritte A Manness Manness Manness Manness	Charlotte-			
		Send e-mail notification.			ROURPNELINC	REEKMALR	=12		
GRID Y	StoreSelling:	Look at the Corner Store				Fiends DEWEYS	MINI MART		
	Report View <u>III</u> Untitled1		Cancel	DONE			_		

- 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.

≣↓ Sort By:	Last Accessed 👻 Domains: All Domains 👻				Filters: 🝸	
NAME		Export 01-Expor	rt Multiple Tabs Of a 🗙	LAST EXECUTI	LAST ACCESS 🕹	
~ 1 4	Last Accessed					
	III 01-Export Multiple Tabs Of a databook	Export As		00:01	Jul 14, 09:25 PM	
	16-Aggregate results of multiple lists	Excel		00:02	Jul 14, 09:25 PM	
	06-Config marker size in line chart			00:00	Jul 14, 09:09 PM	
	02-Datetime Relative Sort	CSV		00:01	Jul 11, 03:39 PM	
	1234	PPT		00:00	Jul 11, 02:38 PM	
	Notifications					
	Downloads	PDF				
	Dhiva_4.1 Demo	Visuals	Current Visual 👻		Jul 14, 09:25 PM	
	Shipments				Jun 28, 12:23 PM	
	1234	Pages	All Pages 👻	00:00	Jul 11, 02:38 PM	
		Send Via:				
		Email SMS				
			Cancel DONE			
		_				

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.

Export Export A	ll Level Data	×
Export As		
• Excel		
CSV		
PPT		
PDF		
Visuals	Current Visual	•
Pages	All Pages	-
Send Via: Email SMS Export All Level Dat	a for Nested Hierarchy	
	Cancel DOI	NE

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

Export 01-Expor	t Multiple Tabs Of a 🗙
Export As	
• Excel	
CSV	
PPT	
PDF	
Visuals	Current Visual 💌
Pages	All Pages 👻
Send Via:	
	Cancel DONE

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.

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.

Choose PPT Template	Executive Storyboard		×
Choose Template Black	ireyTemplate	▼	
DASHBOARD	MASTER SLIDE NAME	SLIDE LAYOUT NAME	
HERSHEY Corporate KPIs	lon	▼ Title and Content	-
Relative Performance	lon	← Title and Content	•
		Cancel Reset Clear	DONE

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

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
Grustereu	Column	2000
	Line	50000
Stacked	Area	50000
	Bar	2000
	Column	2000
XY	Bubble	50000
$\Lambda 1$	Scatter	50000
Tile		100
Target		100
Gauge		100
	Line	500
Radar	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):

13) 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	Dataset time		
(Long-term only)	 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.

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- 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 preconfigured 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.