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# About This Guide

This is an archived copy of the v23 documentation provided for Logi Info v23.3 and its service packs.

## **Notice: Archived Documentation**

This documentation is provided as a courtesy reference for a version of our software that is no longer under active development or support. The information contained herein is offered without warranties of any kind, either expressed or implied, including but not limited to warranties of accuracy, completeness, or fitness for a particular purpose.

While this archived material may assist with understanding historical functionality, please be aware that the software described is no longer maintained at this version level and may contain outdated or inaccurate information. Images may not reflect currently supported modules, support sites, or third party products. This software may not be compatible with current versions of previously compatible third party products.

To access and upgrade to current software solutions and receive ongoing support, please contact our customer support team. They can assist you in migrating to the latest appropriate software version that meets your needs. Our support team is available to help ensure a smooth transition to actively maintained alternatives that provide the functionality and reliability you require.

# Use InfoGo

**InfoGo** is a Logi application that provides a complete self-service reporting experience.

The following topics are intended for end-users of the application:

- [The InfoGo Home Page](#)
- Creating an Analysis
  - [About Analyses](#)
  - [Selecting Data](#)
  - [Creating Formula Columns](#)
  - [Filtering Rows](#)
  - [Showing, Hiding, Moving Columns](#)
  - [Sorting Rows](#)
  - [Grouping Rows](#)
  - [Aggregating Data](#)
  - [Controlling Paging](#)
  - [Formatting Data](#)
  - [Creating Charts and Gauges](#)
  - [Editing Chart Labels and Captions](#)
  - [Pivoting and Summarizing Data](#)
  - [Exporting Analysis Data](#)
  - [Adding to Your Visual Gallery](#)
- Managing and Sharing Your Work
  - [Organizing Work in Folders](#)
  - [Sharing Your Work](#)

- Collecting Visuals into Dashboards
  - [Dashboard Geography](#)
  - [Adding Visuals](#)
  - [Editing Visuals](#)
  - [Dashboard Settings](#)
  - [Tab Settings](#)
  - [Panel Settings and Placement](#)
  - [Dashboard Filters](#)
  - [Exporting Dashboard Tables](#)
  
- Building Reports
  - [About InfoGo Reports](#)
  - [Report Components](#)
  - [Report Design Mode](#)
  - [Report Settings](#)
  - [Component Settings](#)
  - [Download to PDF](#)
  - [Scheduling Report Delivery](#)
  - [Report Scheduling Details](#)
  
- Admin Tasks
  - [Designating a Global Main Page](#)
  - [Creating a Global Menu](#)
  - [Using the Data Manager](#)
  - [Bookmark Validation](#)
  - [Using the Schedule Manager](#)
  - [Using the Theme Editor](#)

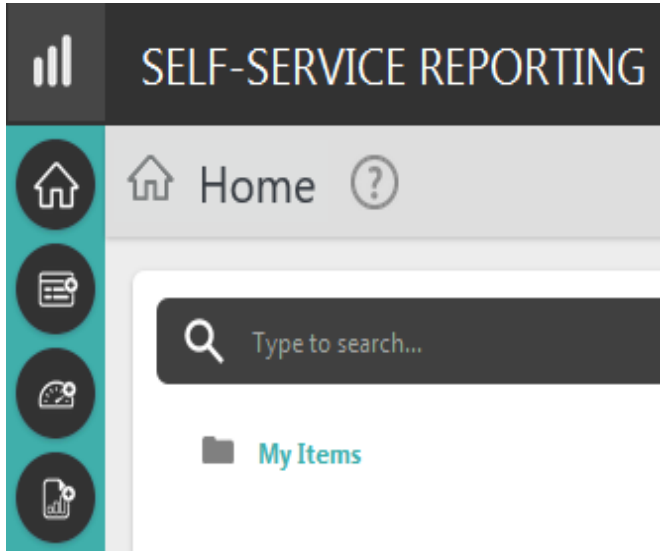
## About the InfoGo Application

InfoGo is a web application that's part of the Logi Info Self-Service Reporting Module (SSRM). It allows you to:

- Create charts, tables, and other visualizations of your data
- Save these "visuals" in your own gallery
- Combine them into Dashboards
- Place them in reports that can be shared with others
- Schedule reports for automatic generation and distribution

# InfoGo - Home Page

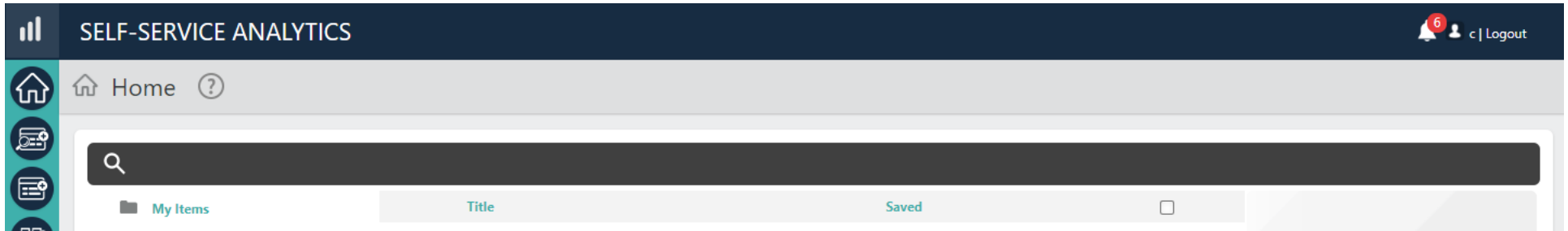
When you first launch InfoGo for this first time, you'll most likely see this page, or one similar to it:



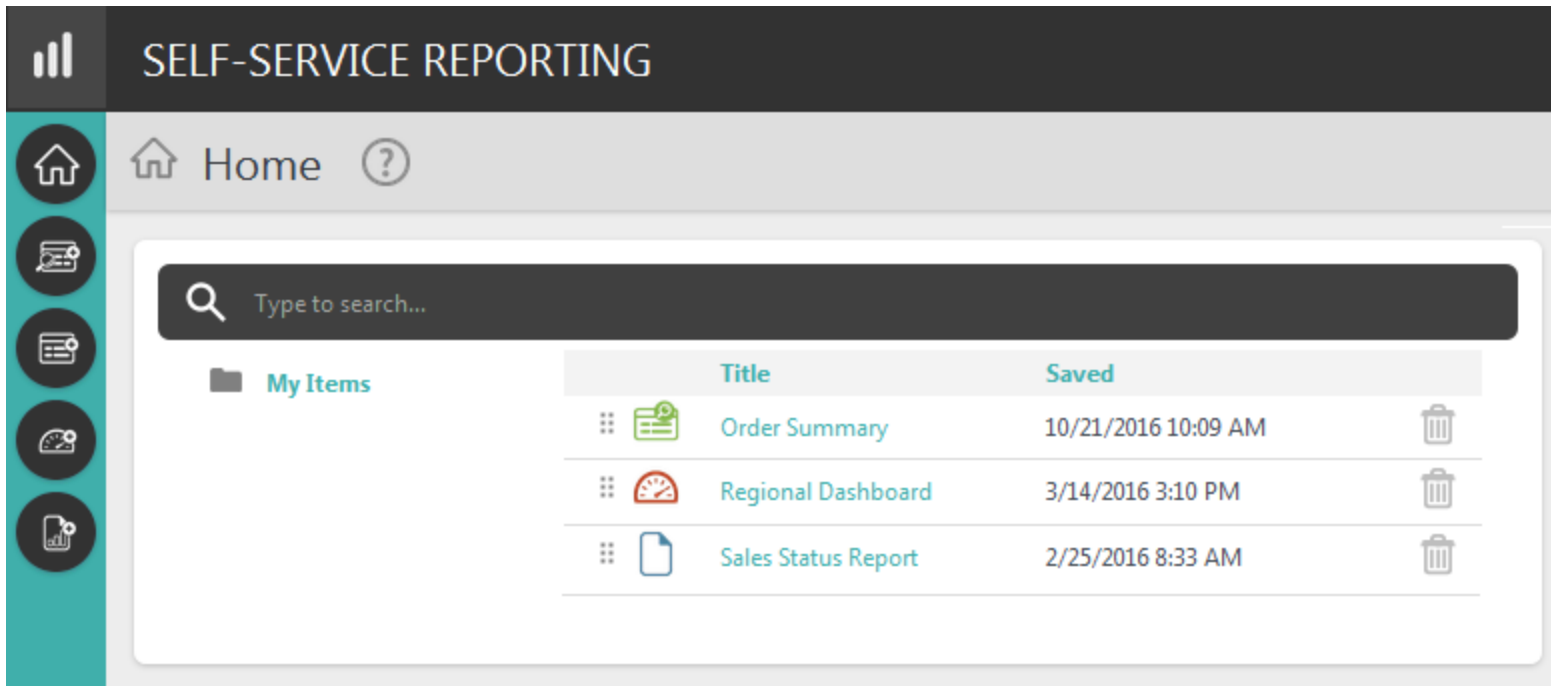
This is your **Home** page. The icons on the left side are menu options for different features in the application. The "Home" icon at the top of the menu will always return you to this page and the gray "Question Mark" icon displays help text describing the application features.

Your application may also include a different title at the top and, at the right-hand end of the title bar, you may also see a user icon with your name and a Logout link.

Additionally, you may receive updates on your SSRM Home Page if a new item has been shared with you since your last session, like below:

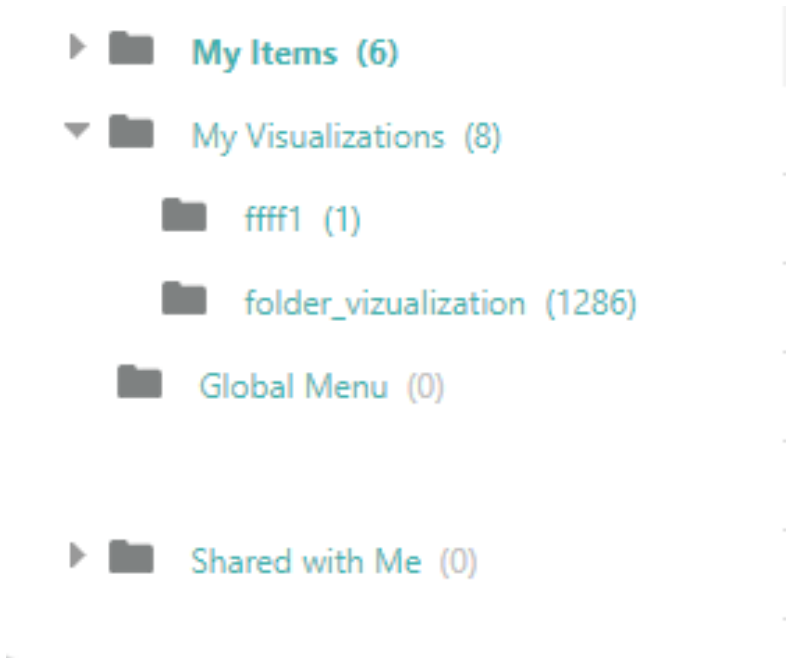


💡 If you've been designated as an *Administrative User*, you may see an additional icons and side menu items for special features.



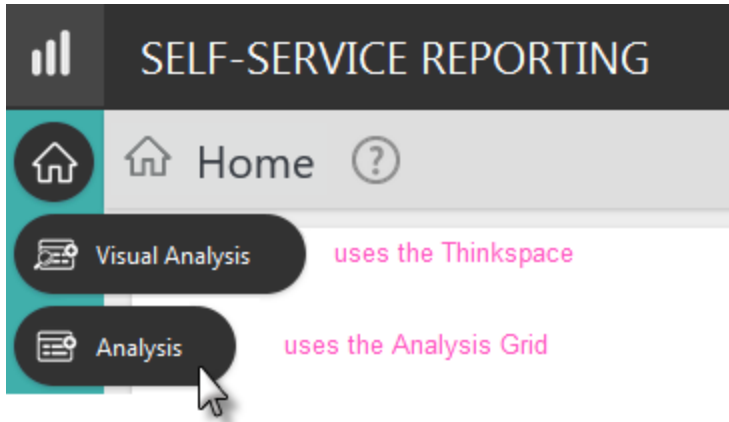
To use InfoGo, first create and save Analyses, and then build Dashboards and Reports with them. Once you begin to create analyses, Dashboards, and reports, they'll appear on the Home page, in the **My Items** folder, as shown above. Items in folders appear in the list shown and can be Analyses, Dashboard, or Reports.

If your application has been configured to show folder counts, as items are added to your folder(s), a folder count will appear next to them, shown below:



Sub-folders will also show item counts, but these numbers will not be factored into the parent folder count.


New items are created using the options in the menu on the left-hand side of the page (shown below) and added to the currently selected folder, rather than in the My Items folder.



Depending on the configuration of your application, you may see either or both of the **Visual Analysis** and **Analysis** options, shown above. Each uses a different tool to create an analysis.

As you work with these items, they're saved automatically. In subsequent sessions, you can re-open or delete them from this page. And, if scheduling or sharing has been enabled, you can schedule or share them from this page as well.


The **Search** feature lets you filter the list of folder contents, just by typing a name into it. You can also organize your work into other folders and share them, too.


 Does your application have different colors or font sizes than the examples shown here? The developer who configured your InfoGo application may have customized it to reflect your organization's branding, to be consistent with other applications, or for other reasons. The basic functionality of the application remains the same, however.








## InfoGo - About Analyses

The general purpose of this application is to let you easily *visualize* your data, so that you can understand it.

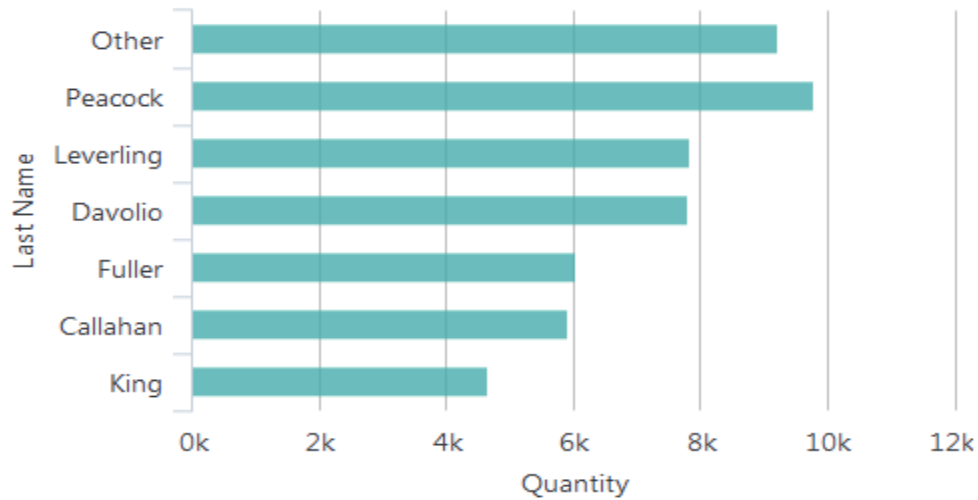
InfoGo lets you see your data in tables and charts, in a variety of arrangements. It allows you to perform a wide range of activities with your data, including sorting, grouping, and filtering.

 The standard tool for creating analyses is the **Analysis Grid**, which is discussed in detail in this topic. Your application may be configured to use another tool, the Discovery **Thinkspace**, to create visual analyses, in addition to, or instead of, the Analysis Grid.

Untitled Analysis 

 Data
  Formula
  Filter
  Add Chart
  Add Crosstab
 


 **Sum of Quantity by Last Name**   

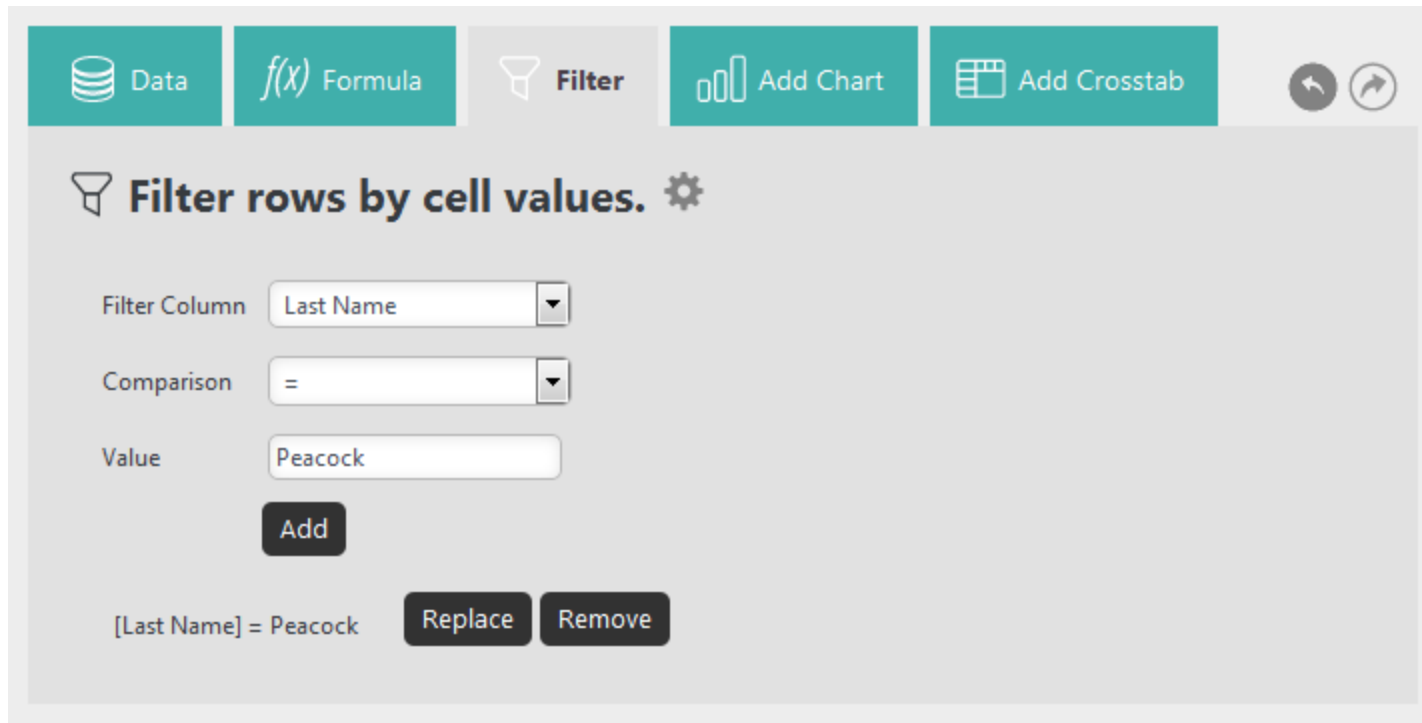


 **Table**   

Page

Last Name	Order Id	Customer Id	Order Date	Ship Country	Freight	Unit Price	Quantity
Buchanan	10248	VINET	7/4/1996	France	32.38	14	12
Buchanan	10248	VINET	7/4/1996	France	32.38	9.8	10
Buchanan	10248	VINET	7/4/1996	France	32.38	34.8	5
Buchanan	10254	CHOPS	7/11/1996	Switzerland	22.98	3.6	15

In the example analysis shown above, both a table and a chart are displayed in an Analysis Grid.



The Analysis Grid displays a set of tabs, or buttons, at the top that allow you to manipulate its data and visualizations. The visibility of specific controls is configured by the application developer and so you may or may not see the full set shown here.

When a tab is clicked, a configuration panel for that feature appears, as shown above. Clicking it again hides the panel.

Table

Last Name	Order Id	Cust	Order Date	Ship Country	Freight	Unit Price	Quantity
Peacock	10250	HANAR	7/8/1996	Brazil	65.83	7.7	10
Peacock	10250	HANAR	7/8/1996	Brazil	65.83	42.4	35
Peacock	10250	HANAR	7/8/1996	Brazil	65.83	16.8	15
Peacock	10252	SUPRD	7/9/1996	Belgium	51.3	64.8	40

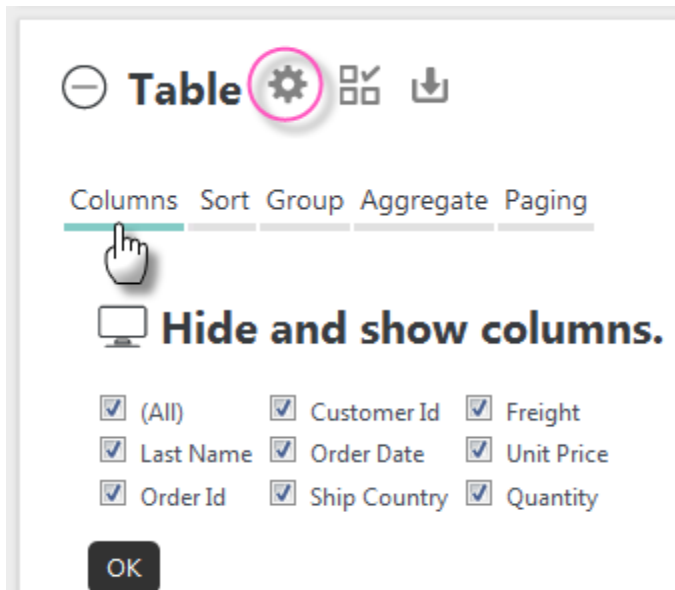
The **gear** icon, circled at the top of the image above, is used to access configuration details throughout the Analysis Grid. It can be used in the example above to *rename* of the analysis, or *duplicate* it. Duplicated items will appear in the My Items folder.

Duplicated items will be saved in the folder that contains the original item, rather than in the My Items folder.

**Undo/Redo** icons at the top near the tabs allow you to easily revert or reapply changes made.

**Visualization Panels**, shown above, contain either a table, a Crosstab Table, or a chart. Panels can be collapsed or expanded using the "+" and "-" icons. You can also rearrange their order by clicking your mouse near the top of a panel, and dragging it up or down.

Panels containing tables can display an **Export** icon for exporting the table data to Excel, CSV, or PDF. The visibility of the export icon and the export formats are under developer control, so you may or may not see the full set.



Clicking a panel's gear icon, circled above, will display or hide a configuration area for the specific visualization. The Table configuration area, for example, let's you control a variety of table features, which can be selected using the horizontal menu options.

Table [Settings] [Download]

1 2 3 4 5 6 7 8 9 10

LastName	Unit Price	Freight	Order Date	Country
Click column header for special menu	Sort A-Z	.3800	7/4/1996	UK
	Sort Z-A	.3800	7/4/1996	UK
	Filter	.3800	7/4/1996	UK
Suyama	Group	.6100	7/5/1996	UK
Suyama	Aggregate			K
Peacock	Sum			SA
Peacock	Average			SA
Peacock	Standard Deviation			SA
Leverling	Count			SA
Leverling	Distinct Count			SA
Leverling	Maximum	16.8000	41	SA
Peacock	Minimum	64.8000	51	SA
Peacock		2.0000	51	SA

Quantity	Unit Price	Freight
12	14.0000	32.3800
10	9.8000	32.3800

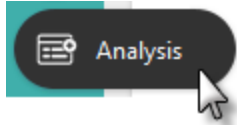
Drag columns into a different order using this handle

Resize columns widths using this handle

Table column headers contain a variety of features. When column header text is clicked, drop-down menus provide sorting, filter, formatting, grouping, and other options, as shown above. Options may differ depending on the type of data in the column. The availability of each option is configured by the application developer, so you may not see them all.

Table columns can also be *dragged* to rearrange the column *order* or to adjust their *widths*.

The analyses you create can be saved, viewed, combined, and even exported. They can be scheduled for regular production and shared with others. InfoGo makes all of this easy to do, so let's get started.

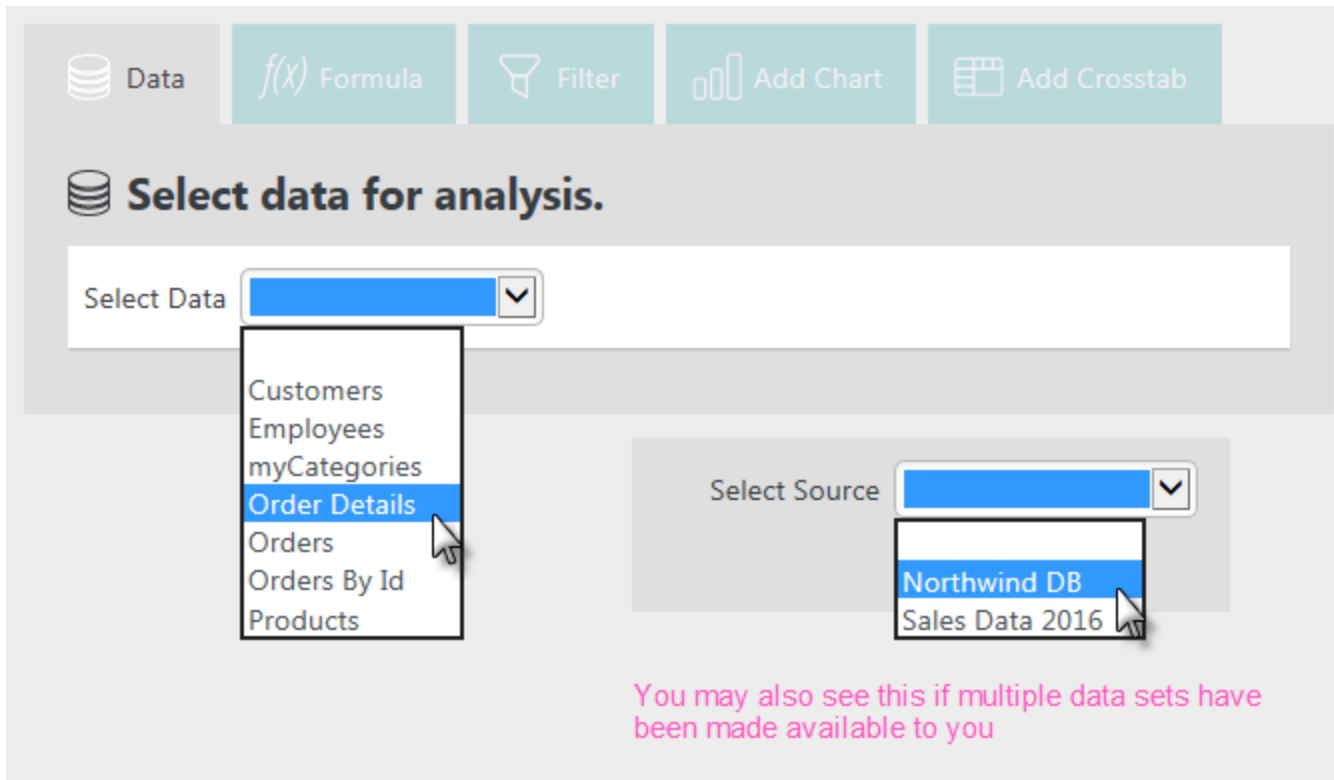


From the Home page, click the **Analysis** menu option. If you only have the **Visual Analysis** option, refer to "Use Discovery v3.2 with InfoGo" on page 212.

# InfoGo - Selecting Data

Depending on how your application has been configured, you may or may not see this feature. Skip this topic if you do not see a "Data" tab or button at the top of your Analysis Grid.

Click the "Data" tab or button to open its panel:



The first thing you'll need to do is select the Data Table or view you want to work with. The data source tables and views available to you have been determined by the application developer.

Your application may be configured for multiple data sources; if so, it will look like the example shown above, right. If that case, you'll need to select a data source first, then a table or view.

Data

$f(x)$  Formula

Filter

Add Chart

Add Crosstab

Select data for analysis.

Select Data Orders

- (All)
- Order ID
- Customer ID
- Employee ID
- Order Date
- Required Date
- Shipped Date
- Ship Via
- Freight
- Ship Name
- Ship Address
- Ship City
- Ship Region
- Ship Postal Code
- Ship Country

Select Data

Apply Column Selection

Column Selection

Table

1 2 3 4 5 6 7 8 9 10

Order ID	Customer ID	Employee ID	Order Date	Required Date	Shipped Date	Ship Via	Freight	
10248	VINET	5	7/4/1996	8/1/1996	7/16/1996	3	32.38	Vin Chi
10249	TOMSP	6	7/5/1996	8/16/1996	7/10/1996	1	11.61	Tor

Data Table

As soon as you select data, a Data Table will appear showing it. A set of column selection check boxes will also appear, as shown above. You can un-check the boxes for columns you *don't* want to include in your analysis work. If it's visible, click **Apply Column Selection** to update the table, otherwise the table may update automatically.

The screenshot shows the 'Data' tab selected. Below the navigation bar, there is a section titled 'Select data for analysis.' with a dropdown menu set to 'Orders'. A list of columns with checked boxes is displayed: (All), Order ID, Customer ID, Employee ID, Order Date, Required Date, Shipped Date, and Ship Via. An 'Apply Column Selection' button is visible at the bottom.


No Joins available

This screenshot is identical to the one above, but the 'Apply Column Selection' button is highlighted, and a dropdown menu is open below it. The dropdown menu lists three options: 'Orders - Customers', 'Orders - Order Details' (which is highlighted in blue), and 'Orders -> Order Details'.

Multiple Joins available

Your application may be configured to allow you to "join" different Data Tables. If so, you'll see additional data selection lists, as shown above, right.

By default, items like `Orders - Customers` indicate an *Inner Join*, while items like `Orders → Order Details` indicate a *Left Outer Join*. However, these designations can be customized by your application's developer and other Join types may be available.

 What's a "join"? A join combines two sets of data to produce a single dataset. Different types of joins produce different results. For example, an *Inner Join* selects all rows from both tables as long as there is a match between a column in both tables. A *Left Outer Join* selects all rows from the first table and adds rows from the second table that match a specified column value.



Data



Formula



Filter



Add Chart



Add Crosstab



## Select data for analysis.

Select Data

Orders



← Color coding

- |                                                 |                                                |                                       |                                           |
|-------------------------------------------------|------------------------------------------------|---------------------------------------|-------------------------------------------|
| <input type="checkbox"/> (All)                  | <input checked="" type="checkbox"/> Order Date | <input type="checkbox"/> Freight      | <input type="checkbox"/> Ship Region      |
| <input checked="" type="checkbox"/> Order ID    | <input type="checkbox"/> Required Date         | <input type="checkbox"/> Ship Name    | <input type="checkbox"/> Ship Postal Code |
| <input checked="" type="checkbox"/> Customer ID | <input type="checkbox"/> Shipped Date          | <input type="checkbox"/> Ship Address | <input type="checkbox"/> Ship Country     |
| <input checked="" type="checkbox"/> Employee ID | <input type="checkbox"/> Ship Via              | <input type="checkbox"/> Ship City    |                                           |

Select Data

Orders -> Order Details



← Color coding

- |                                   |                                                |                                              |
|-----------------------------------|------------------------------------------------|----------------------------------------------|
| <input type="checkbox"/> (All)    | <input type="checkbox"/> Product ID            | <input checked="" type="checkbox"/> Quantity |
| <input type="checkbox"/> Order ID | <input checked="" type="checkbox"/> Unit Price | <input checked="" type="checkbox"/> Discount |

Apply Column Selection

The screenshot shows a data table interface. At the top left, there is a minus sign icon, the word "Table", a gear icon, and a download icon. Below this is a pagination control showing a sequence of numbers from 1 to 10, with "1" highlighted. A pink arrow labeled "Color coding" points to the column headers of the table below. The table has seven columns: Order ID, Customer ID, Employee ID, Order Date, Unit Price, Discount, and Quantity. The first three columns (Order ID, Customer ID, Employee ID) have blue borders, while the last four columns (Order Date, Unit Price, Discount, Quantity) have red borders. The data rows are as follows:

Order ID	Customer ID	Employee ID	Order Date	Unit Price	Discount	Quantity
10248	VINET	5	7/4/1996	14	0	12
10248	VINET	5	7/4/1996	9.8	0	10
10248	VINET	5	7/4/1996	34.8	0	5
10249	TOMSP	6	7/5/1996	18.6	0	9

When you select data that joins tables, you'll see a color-coding scheme applied to the table that indicates where data came from. In the example shown above, table columns with a **blue** border came from the original table "Orders" while columns with a **red** border came from the selected join.

Once you've selected data, all of the other tabs or buttons at the top of the Analysis Grid become enabled.

Click the **Data** tab or button to hide the data selection controls.

## InfoGo - Creating Formula Columns

Click the **Formula** tab to use the feature that allows you to add calculated columns to the data.

Data
Formula
Filter
Add Chart
Add Crosstab

**f(x) Add a new column from a formula.** Formula Help 1

2 Name

4 Formula 
3 Insert a Column

5 Data Type 
3 Formula

6 Display Format 
Operator

**Add**

**Formula Columns:**

7 Order Value 
Replace Remove

Table ⚙️ 📄


⏪ ⏩ 1 2 3 4 5 6 7 8 9 10 ⏪ ⏩

Order ID	Customer ID	Order Date	Product ID	Unit Price	Quantity	Order Value
10248	VINET	7/4/1996	11	14	12	168.00
10248	VINET	7/4/1996	42	9.8	10	98.00
10248	VINET	7/4/1996	72	34.8	5	174.00

New columns are added at the right side of the table but can be relocated by dragging them. Here's how to use this feature:

1. Help constructing a formula is available via the **Formula Help** button.
2. Enter the **Name** for the column that will be added to the table.
3. **Insert** column names, functions, and operators into the Formula box by selecting them here.
4. And/or enter the formula by typing it into the **Formula** box. Column names should be enclosed within square brackets [ ] and typical math operator symbols, such as + - \* / should be used. You can always edit or delete anything in this space and you can enter formulas that don't contain data columns.
5. Specify the **Data Type** for the new column.
6. Specify a **Display Format**. Formatting options include numeric and date formats. Click **Add** to create the new column and refresh the table.
7. As **Formula Columns** are created, they're added to the Formula Columns list. Use the adjacent **Replace** and **Remove** buttons to manage the list. Columns that have been added are now included in the list of available columns (3) for use in other formulae.

Your application developer will have to advise you concerning which function set is valid in the Formula box. These can vary depending on the way in which data is retrieved from the data source. For example, in one scenario, JavaScript-style functions can be used, but in another only functions supported by the database server itself can be used. The help shown when you click the **Formula Help** button will provide useful information, based on the data source.

 To prevent creation of unmanageable tables, numeric type Formula columns are not available for use in a Crosstab Table as the Header Values Column or the Label Values Column.

When done, click the **Formula** tab or button to hide the panel.

# InfoGo - Filtering Rows

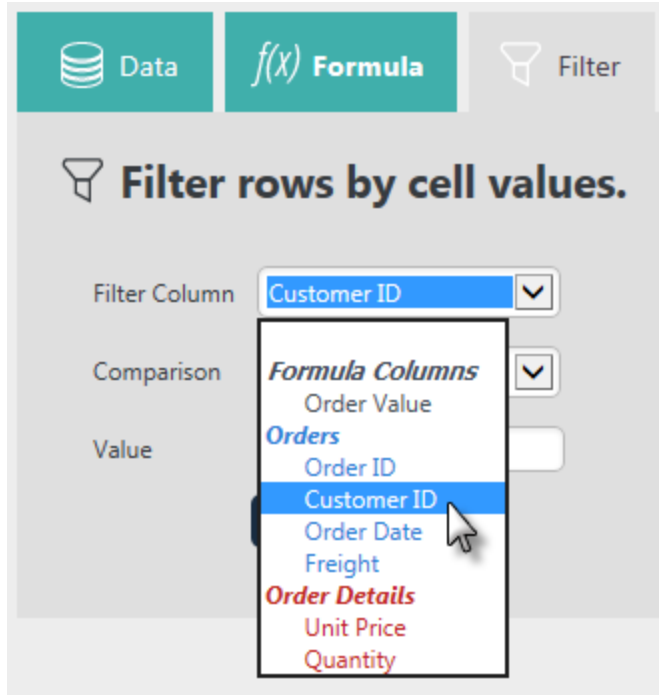
Click the **Filter** tab or button to use the feature that lets you *remove* InfoGo table rows that don't meet your criteria.

The screenshot shows the 'Filter' tab in the Logi Info v23.3 interface. The navigation bar at the top includes 'Data', 'Formula', 'Filter', and 'Add Chart'. The main content area is titled 'Filter rows by cell values.' and contains a form with the following elements:

- 1** Filter Column: A dropdown menu with 'Customer ID' selected.
- 2** Comparison: A dropdown menu with '=' selected.
- 3** Value: A text input field containing 'VINET'.
- Add**: A dark blue button to add the filter.
- 4** A list of filters showing '[Customer ID] = VINET' with a 'Replace' button and a trash icon.

Here's how to use this feature:

1. Select the **Filter Column** containing the values to be compared:



As shown above, you'll see that the options are grouped and color-coded to make it easier for you to identify them. If you created any Formula columns, they'll be in there, too.

2. Set the filtering criteria by selecting a **Comparison** operator from the list.

Comparison operators include = , < , > , < = , > = , *Not =* , *Starts With* , *Not Start With* , *Contains* , *Not Contains* , *Like* , *Not Like* . If the Filter Column is a date, then *Date Range* is available and some other options are not. The *Starts With* and *Contains* operators are useful for finding values at the beginning or within data and will work with both text and numeric data. The *Not Contains* and *Does Not Start With* operators work in the opposite manner. Comparison operators *In List* and *Not In List* allow comparison against a comma-separated list of values you enter in the Value text box.

Comparison operators *In List* and *Not In List* allow comparison against a comma-separated list of values you enter in the

Value text box.

When using *In List* or *Not In List* comparisons in filters, multiple values can be entered, separated by commas. However, the values themselves may *include* commas, causing incorrect comparisons.

To address this, values for these types of filters are now represented in the controls by visual "pills" that enclose the complete value, as shown above. The filter uses the complete string within the pill during its comparison operation.

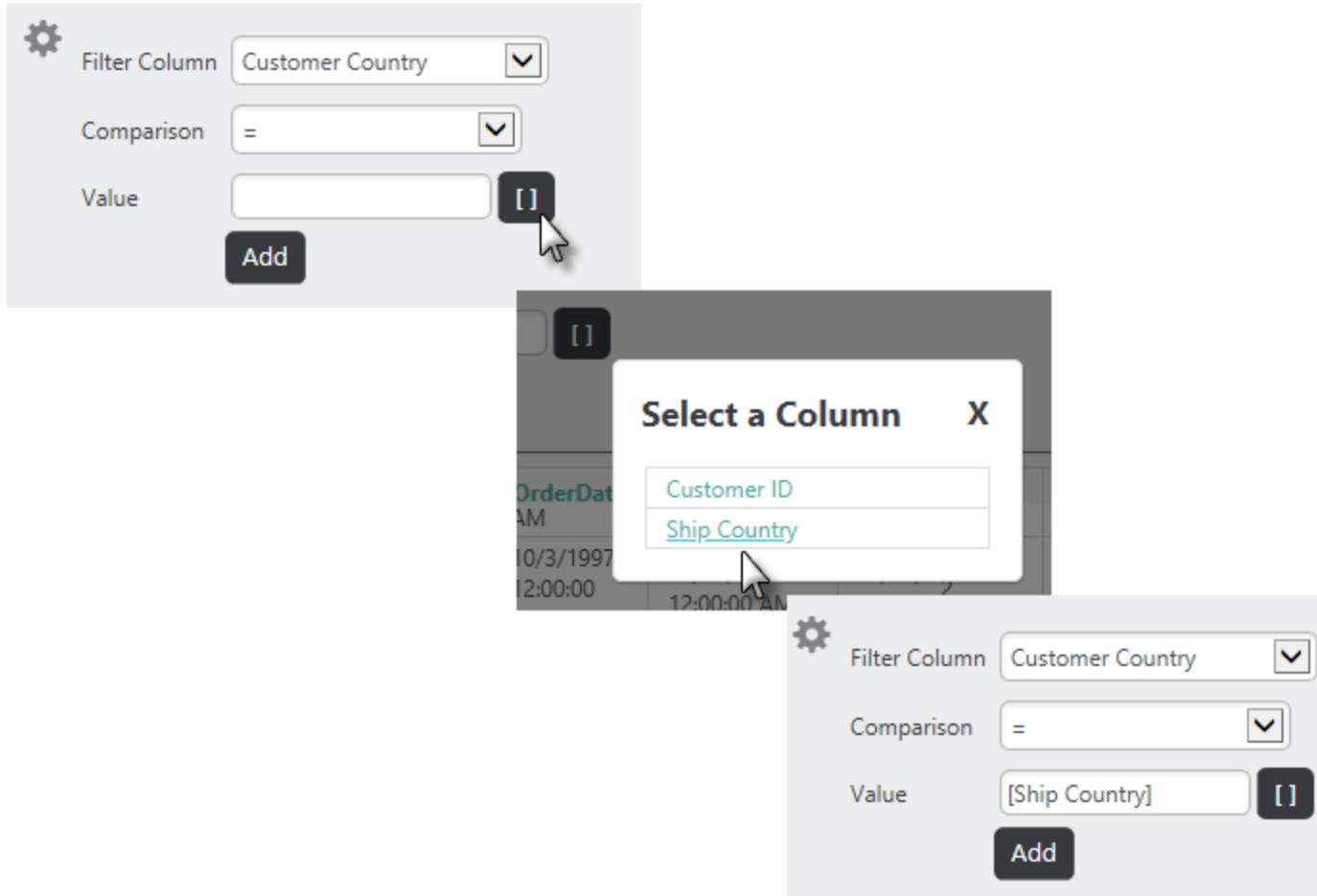
Position cursor inside pill...

... type in remaining text

Pills with included commas are created by entering the first part of the value and pressing comma. This creates a blue pill as shown above. Then place your cursor *inside* the pill and type the rest of the value. Press tab to exit the pill and repeat the

process for the next value, if desired.

The Filter feature is usually used to compare column data and a value you enter, but you can also directly compare the values in two data columns:



To do this, first select a Filter Column, as shown above, and a supported Comparison operator (= < > <= >= Not=). Then

select the second column from the list displayed when you click the **[ ]** button, or enter the column name within square brackets.

Depending on the comparison chosen, additional input controls may be displayed, for example, for date ranges. Or you may see a browse button that lets you select values for comparison from a pop-up list of choices.

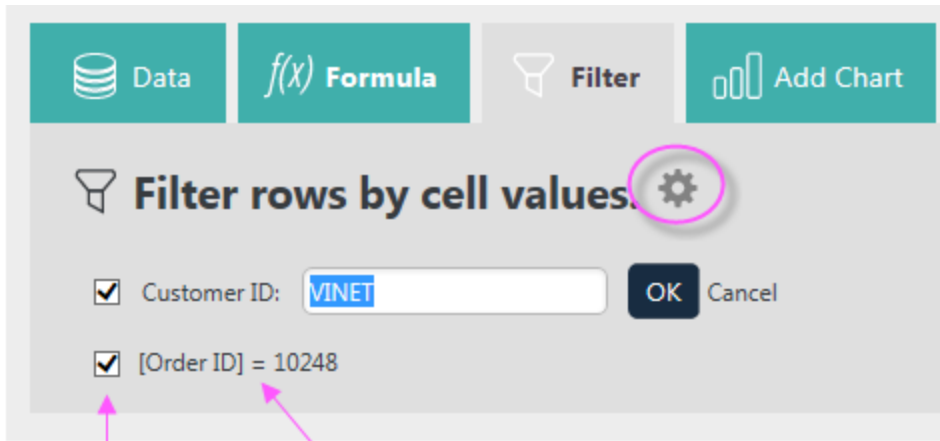
3. Enter a comparison **Value**. v23.1 The Value field uses a Quick Filter function. Enter characters to filter the list of available Values. Wildcard characters (\*, %) are *not* allowed in these values. Click **Add**. Rows that don't meet these criteria will be removed from the table.
4. As filters are created, they're added to the filter list. Use the adjacent **Replace** button and **Remove** icon to manage the list.

The screenshot shows a filter configuration panel titled "Filter rows by cell values." with a settings gear icon. It includes input fields for "Filter Column" (set to "Order ID"), "Comparison" (set to "="), and "Value" (set to "10248"). An "Add" button is below the value field. Below this, a filter list shows "[Customer ID] = VINET" and "[Order ID] = 10248" with "And" logic between them. Each filter has a "Replace" button and a trash icon. At the bottom right, there are controls for "Move up/down in filter order" (up/down arrows), "Remove parentheses" (minus sign in parentheses), "Enclose in parentheses" (plus sign in parentheses), and a "Remove All..." button. Annotations with arrows point to these controls and the filter list items.

Annotations:

- Click to toggle And/Or
- Click to load into controls
- Click to affect one filter
- Click to remove all filters
- Move up/down in filter order
- Remove parentheses
- Enclose in parentheses

If you add multiple filters, initially rows that meet *all* the conditions will be retained (an "And" situation). Clicking the *And* button in the Filters list, shown above, changes it to an *Or* button, so rows that meet *any* of the conditions will be retained. A set of four icons will also appear by the Remove icon. These can be used to re-order the precedence of the filters or to group them together in various arrangements using parentheses.



Click to disable the filter


Click to show simple controls


Once filters are configured, you can use the gear icon to collapse the Filter configuration area, as shown above. check boxes and filter descriptions will remain visible in the area. Uncheck a check box to disable a filter. If you click the description text, simple controls will appear, allowing you to change the filter value.




## Filtering by Dates

If the Filter Column selected is a **datatype** column, the interface presents different value controls:


 **Filter rows by cell values.** 


Filter Column  


Comparison  


Value      


Specific Date

 **Filter rows by cell values.** 

Filter Column  

Comparison  



Value  





- Today
- Yesterday
- Tomorrow
- Last Week Start**
- Last Week End
- This Week Start
- This Week End




Sliding Date




You may choose to filter on a **Specific Date** and Time and either type it in or select it from a pop-up calendar. Or, as shown above, right, you can filter using a **Sliding Date** value and select from a long list of relative dates (*Last Week End, Last Month Start, 90 Days Ago, Current Hour, Last Hour, etc.*)

 **Filter rows by cell values.** 



Filter Column  


Comparison  


Value      



    



Specific Date Range

 **Filter rows by cell values.** 

Filter Column  

Comparison  

Value     ← "Start" date

   ← "Stop" date

Sliding Date Range

If the Comparison option *Date Range* is chosen, as shown above, different value controls for Starting and Ending dates, which can be used in a variety of combinations are displayed.

You can also use a combination of specific and sliding date comparisons.

Selecting the **Customize...** button, or choosing **Customize...** from the drop-down menu allows you to customize the time frame for your analysis. This option is only available for use with date/time-type data when Sliding Date is selected.

Data Formula **Filter** Add Chart Add Crosstab

**Filter rows by cell values.**

Filter Column:

Comparison:

Value:

- This Quarter End
- Next Quarter Start
- Next Quarter End
- Last Year Start
- Last Year End
- This Year Start
- This Year End
- Next Year Start
- Next Year End
- 7 Days Ago
- 10 Days Ago
- 30 Days Ago
- 60 Days Ago
- 90 Days Ago
- 180 Days Ago
- 365 Days Ago
- Current hour
- Last hour
- Customize...

**Distinct Count of Order**

Order Id

Customer Id

Get Image

Upon selecting Customize... additional fields generate, with default values, where you can manipulate the data:

Data
Formula
**Filter**
Add Chart
Add Crosstab

**Filter rows by cell values.** ⚙️

Filter Column:

Comparison:

Value:

**Add**

**Replace**

💡 Usually *Start* and *End* is a range. You may need to change your Comparison value.

If you choose any value other than *Hour* in the drop-down list, the value *On* will be added to the Start/End drop-down list. The time picker only displays when Start, End, or On is chosen.

Data Formula Filter Add Chart Add Crosstab

**Filter rows by cell values.** ⚙️

Filter Column:

Comparison:

Value:

Specify a time by selecting the time picker:

Data Formula Filter Add Chart Add Crosstab

**Filter rows by cell values.** ⚙️

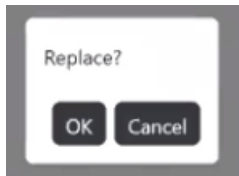
Filter Column:

Comparison:

Value:        ⌚



To apply the filter, select **Replace** and **OK**:



The filtered results reflect the sliding date and specified time.

When done, click the **Filter** tab to hide the panel.

# InfoGo - Showing, Hiding, and Moving Columns

You've selected which data columns to *include* in your working data set but you may not want to see them all. The **Columns** feature in the Table configuration area, which can be displayed by clicking the gear icon or by clicking any table column header, controls column display:

Data
 $f(x)$  Formula
Filter
Add Chart
Add Crosstab





Table   
Click to display/hide the configuration area

Columns Sort Group Aggregate Paging

**Hide and show columns.**

- (All)
- Order ID
- Customer ID
- Employee ID
- Order Date
- Order ID
- Unit Price
- Quantity
- Order Value

OK



1
2
3
4
5
6
7
8
9
10



Click column header to display drop-down menu

Order ID	Customer ID	Employee ID	Order Date	Ship Country	Unit Price
10248	VINET	5	7/4/1996	France	14
10248	VINET	5	7/4/1996	France	9.8
10248	VINET	5	7/4/1996	France	34.8
10249	TOMSP	6	7/5/1996	Germany	18.6
10249	TOMSP	6	7/5/1996	Germany	42.4
10250	HANAR	4	7/8/1996	Brazil	7.7
10250	HANAR	4	7/8/1996	Brazil	42.4
10250	HANAR	4	7/8/1996	Brazil	16.8
10251	VICTE	3	7/8/1996	France	16.8
10251	VICTE	3	7/8/1996	France	15.6

- Sort A-Z
- Sort Z-A
- Filter
- Group
- Aggregate
- Format
- Add Chart
- Add Crosstab
- Hide Column**

Click to hide this column and display the Columns configuration area

As shown above, you can remove a column from the table by un-checking it. The **(All)** check box makes working with lots of columns easier, and you'll need to click **OK** to refresh the table with any changes. Click the gear icon again to hide the configuration area.

When columns contain multiple cells with the same data, you can visually group contiguous cells by *merging* them:

To do this, click the column header text and select *Merge Duplicate Cells* from the drop-down menu, as shown above. The row lines dividing duplicate cell values will be hidden. Use the same steps to reverse the process.

Table

1 2 3 4 5 6 7 8 9 10

LastName	Quantity	Unit Price	Freight
Buchanan	12	14.0000	32.3800
Buchanan	10	9.8000	32.3800

Drag columns into a different order using this handle

Resize column widths using this handle

You can also rearrange the order, and change the widths, of table columns using two "drag handles" that appear when you hover your mouse over a column header, as shown above.

## InfoGo - Sorting Rows

This feature allows you to set the *sort order* of the table column data. You can display the **Sort** configuration area by clicking the gear icon and then the **Sort** item, or by clicking any table column header and selecting a Sort option from the pop-up menu.

Data
Formula
Filter
Add Chart
Add Crosstab

Table

Click to display/hide the configuration area

Columns Sort Group Aggregate Paging

**Hide and show columns.**

- (All)       Employee ID       Unit Price
- Order ID       Order Date       Quantity
- Customer ID       Order ID       Order Value

OK

⏪
⏩
1
2
3
4
5
6
7
8
9
10
⏭
⏮
⏯

Click column header to display drop-down menu

Order ID	Customer ID	Employee ID	Order Date	Ship Country	Unit Price
10248	VINET	5	7/4/1996	France	14
10248	VINET	5	7/4/1996	France	9.8
10248	VINET	5	7/4/1996	France	34.8
10249	TOMSP	6	7/5/1996	Germany	18.6
10249	TOMSP	6	7/5/1996	Germany	42.4
10250	HANAR	4	7/8/1996	Brazil	7.7
10250	HANAR	4	7/8/1996	Brazil	42.4
10250	HANAR	4	7/8/1996	Brazil	16.8
10251	VICTE	3	7/8/1996	France	16.8
10251	VICTE	3	7/8/1996	France	15.6

- Sort A-Z
- Sort Z-A
- Filter
- Group
- Aggregate
- Format
- Add Chart
- Add Crosstab
- Hide Column

Click to hide this column and display the Columns configuration area

Here's how to use this feature:

1. Select a **data column** to sort:

Columns Sort Group Aggregate Paging

### Order rows by cell values

Data Column

Order Direction *Order Details*  
 Unit Price  
 Quantity  
 Discount  
*Orders*  
 Order ID  
 Customer ID  
 Employee ID  
 Order Date

You'll see that the options are grouped and color-coded to make it easier for you to identify them. If you created any Formula columns, they'll be in there, too.

2. Select a sorting **orderdirection** - ascending or descending. Click **Add** to add the sort and refresh the table. The table will immediately be updated with the new sort. Repeat as desired for additional sorting.
3. As Sort Order columns are created, they're added to the list of sorts. Use the adjacent **Replace** and **Remove** buttons to manage the list.
4. You can also sort a column directly, by clicking its column header and selecting the sort in the menu that appears.

The InfoGo table rows will be re-displayed in the sort order you specify.

LastName ▼
Suyama
Suyama

If your application has been configured for it, an arrow, shown circled above, will appear beside the column header text to indicate that a sort is in effect and to show its order/direction.

⌵ ShipCountry ⌵
Be
Br
Br
n

Once a column has been sorted, the column header menu also allows you to change the order or remove the sorting, as shown above.

Click the **gear** icon to hide the configuration area.

## InfoGo - Grouping Rows

The **Group** feature in the Table configuration area, which can be displayed by clicking the gear icon or by clicking any table column header, lets you group table rows:

Table   

Columns Sort Group Aggregate Paging

## ><< Organize rows with grouping and sub-grouping

Grouping Column

Add

### Groups:

• Customer ID

Replace



### Detail Rows:

• Exclude Detail Rows

◀◀ 1 2 3 4 5 6 7 8 9 10 ▶▶

Customer ID	Order ID	Employee ID	Order Date	Ship Country	Unit Price	Quantity
AL		6	8/2		45.6	
		6	8/2		18	
		6	8/2		12	
		4	10/			
		4	10/			
		4	10/			
			1/1			
			1/1			
			3/1			
			3/16/1998	Germany	45.6	

Click column header and select options to group data or remove existing group

Date-type columns offer intelligent grouping options

Here's how to use this feature:

1. In the configuration area, select the **Grouping Column** for the first level of grouping from the list of columns. Depending in the column's data type, additional input controls may be displayed. Click **Add** to group the data and refresh the table. Repeat as desired to create sub-groups.
2. As groups and sub-groups are created, they're added to the Groups list. Use the adjacent **Remove** and **Replace** buttons to manage the list.
3. The **Exclude Detail Rows** check box can be used to hide the rows that have been grouped, "collapsing" each group into a single row in the table.
4. Grouping and un-grouping can be also be accomplished by clicking a column header in the table and then selecting the desired options from the context menu.

Click the gear icon to hide the configuration area.

# InfoGo - Aggregating Data

The **Aggregate** feature in the Table configuration area, which can be displayed by clicking the gear icon or by clicking any table column header, lets you calculate totals, averages, and other aggregations:

**Table** [Settings] [Columns] [Download]

Columns | Sort | Group | **Aggregate** | Paging

**Calculate totals, averages for top and grouped levels**

1 Data Column: Quantity

2 Aggregate Function: Sum

Add

**Aggregates:**

- DISTINCTCOUNT(Orders\_OrderID) [Replace] [Delete]
- SUM(Order\_Details\_Quantity) [Replace] [Delete]

**Layout:**

4 Results Positioning: Top

5

◀◀ 1 2 3 4 5 6 7 8 9 10 ▶▶

"Top" results positioning

Customer ID	Order ID	Employee ID	Order Date	Ship Country	Unit Price	Quantity
						Sum: 51317
VINET		5	7/4/1996	France	14	12
VINET		5	7/4/1996	France	9.8	10
VINET					34.8	5
TOMSP				ny	18.6	9
TOMSP				ny	42.4	40
HANAR					7.7	10
HANAR					42.4	35
HANAR	10250				16.8	15
					16.8	6
					15.6	15
		3	7/8/1996	France	16.8	20

Click column header and select options to aggregate or remove existing aggregations

"Bottom" results positioning

Distinct Count: 830					Sum: 51317
---------------------	--	--	--	--	------------

Here's how to use this feature:

1. Select the **Data Column** to be aggregated from the column list.
2. Select the **Aggregate Function**. Options include: *Sum, Average, Standard Deviation, Count, Distinct Count, Minimum, and Maximum*. Click **Add** to aggregate the data and refresh the table. The formatting of the aggregation will match that of the column.
3. As aggregates are created, they're added to the Aggregates list. Use the adjacent **Replace** and **Remove** buttons to manage the list.
4. Aggregate results appear in an extra table row that can be positioned at the top or bottom of the table, as shown above. If **Grouping** is in effect, aggregate values will also appear at each grouping level in the table.
5. Aggregating can also be accomplished by clicking a column header in the table and then selecting the desired options from the context menu.

Generally, columns with Null values are *excluded* from aggregations. However, your application may be configured to include them; check with the developer of your application for details.

Click the gear icon to hide the configuration area.

## Aggregate Awareness: Selecting the Order of Operations

If you're going to aggregate a Formula column (created by executing a calculation), the "order of operations" may be important. For example, should the Analysis Grid do the calculation first, then apply the aggregation, or apply the aggregation and then do the calculation? The choice can result in completely different results.

The Analysis Grid includes "aggregate awareness" and, upon detecting this situation, will prompt you to choose the desired order of operations. Here's how it works:

$f(x)$  Formula
Filter
Add Chart
Add Crosstab

⊖ **Table** ⚙️ ⬇️

⏪ ◀️ 1 2 ▶️ ⏩

OrderID	Quantity	UnitPrice	ShipCountry	TotalValue
10802	60	\$24.00	Denmark	\$1,440.00
10817	60	\$18.40	Germany	\$1,104.00
10845	70	\$9.00	Germany	\$630.00

In the example above, the TotalValue column is a Formula column, created using the formula [Quantity] \* [UnitPrice].

ShipCountry	TotalValue
Denmark	
Germany	
Germany	
Germany	
Germany	
Germany	
Germany	
Brazil	
Ireland	
Ireland	
Canada	
Germany	\$600.00
Canada	\$2,958.00
Brazil	\$1,080.00

ShipCountry	TotalValue
Germany	\$600.00
Canada	\$2,958.00
Brazil	\$1,080.00

We'd like to know the *average* TotalValue, so we click the TotalValue column header and select **Aggregate** → **Average**, as shown above.

ShipCountry	TotalValue
Denmark	\$1,440.00
Germany	
Germany	
Germany	
Germany	
Germany	
Brazil	
Ireland	
Ireland	
Canada	\$1,000.00
Germany	\$600.00

**Aggregation on Formula Columns** X

Calculate, then Average Add

`AVERAGE ([Quantity] * [UnitPrice])`

Average, then Calculate Add

`AVERAGE ([Quantity]) * AVERAGE ([UnitPrice])`

Cancel

Because the Analysis Grid knows that TotalValue is a Formula column, it will display the modal dialog box shown above, allowing us to decide which order of operations to use. This level of control ensures that you'll get the aggregation you expected, and is especially useful when working with complex formulas, such as per capita and pro rata calculations, with multiple columns.

# InfoGo - Controlling Paging

Click the Table's gear icon and then the **Paging** option item to control the pagination of your analysis table:

1

2

Table [gear icon] [grid icon] [download icon]

Columns Sort Group Aggregate Paging

◀▶

**Set the number of rows displayed per page.**

Show all rows

Show paging

Rows per Page

OK

◀◀ 1 2 3 4 5 6 7 8 9 10 ▶▶

Customer ID	Order ID	Employee ID	Order Date	Ship Country
VINET	10248	5	7/4/1996	France
VINET	10248	5	7/4/1996	France
VINET	10248	5	7/4/1996	France

Here's what you need to do:

1. Choose a paging option:
  - **Show all rows** will display all of the data at once in the table. *Caution:* Selecting all rows can result in a length delay while data is retrieved.
  - **Show paging** will display a fixed number of rows per page and display the paging controls.
2. If **Show paging** has been selected, enter the number of data rows to display per table page. Click **OK** to refresh the display.

These settings affect *all* tables simultaneously. Click the gear icon to hide the configuration area.

# InfoGo - Formatting Data

You can format the appearance of the data in the Table by clicking a **table column header** and selecting **Format** and then the desired option:

Ship Via	Freight	Ship Name	Ship Region	Ship Postal
3		evalier		51100
1		n		44087
2			RJ	05454-876
1				69004
2				B-6000
2	58.17	Hanari Carnes		05454-876
2	22.98	Chop- Centro		3012

3	148.33	Richter Supermar	Timespan	1204
			###,###,##0.00	
2	13.97	Wellington Impor	\$###,###,##0.00	08737-363
			_____	
3	81.91	HILARION-Abasto	Cell Colors	5022
			Color Spectrum	
1	140.51	Ernst Handel	Bar Gauges	8010
			Percent of Total	
3	3.25	Centro comercial Moctezuma	_____	05022
			Percent Decimal Places	
1	55.09	Otilies Käselader	_____	50739
			No Format	
2	3.05	Que Delícia		02389-673
3	10.00	Rattlesnake Canyon		07110

These options allow you to apply, or remove, a variety of standard data formats. More information about these formats is available in *Format Data*.

The Percent of Total format applies a calculation that determines each data value's percentage of the summed values and displays it as a percent.

When utilizing the Percent or Percent of Total formatting options you can further customize the decimal place by selecting **Percent Decimal Places**:


Sort A-Z		
Sort Z-A		
Filter	atico Ltda.	Ing. Gustavo Monc
Aggregate		
<b>Format</b>		
Add Chart		
Hide Column		
Merge Duplicate Cells		
353.07	Ernst Handel	
162.75	Ernst Handel	

258.64	Ernst Handel	
140.51	Ernst Handel	
146.06	Ernst Handel	
162.33	Ernst Handel	
360.63	Piccolo und r	
101.95	Ernst Handel	
126.38	Ernst Handel	Kirchengasse 6

Both a number string value and an empty value is considered valid input. If the value is not a number, it will be ignored. An "empty" value will remove the setting, and decimal places will return to the default value, zero or two.

Enter the desired decimal place and select **OK**:



 This setting is column-specific, meaning different columns with different percentage values can be customized to display different decimal places.

Two special format options insert visualizations right into the column:

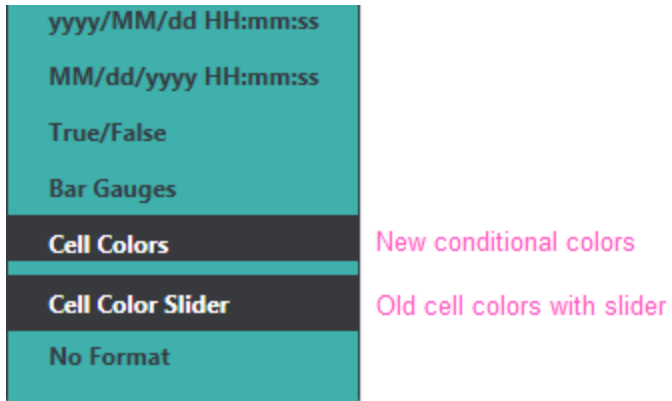
Unit Price	Freight	Order Date
Sort A-Z	3800	7/4/1996
Sort Z-A	3800	7/4/1996
Filter	3800	7/4/1996
Group	6100	7/5/1996
Aggregate	6100	7/5/1996
<b>Format</b>		
Add Chart		
Add Crosstab		
Hide Column		
Align Left		
Align Center		
Align Right		
Expanded Spaces		
###,###,##0.00		
\$###,###,##0.00		
Percent		
True/False		
<b>Bar Gauges</b>		
<b>Cell Colors</b>		
No Format		
16.8000	41	
64.8000	51	
2.0000	51	
27.2000	51	
10.0000	58	
14.4000	58	
16.0000	58	
3.6000	22.9800	7/11/1996

LastName	Quantity	Unit Price	Freight
Buchanan	12		32.3800
Buchanan	10		32.3800
Buchanan	5		32.3800
Suyama	9		11.6100
Suyama	40		11.6100
Peacock	10		65.8300
Peacock	35		65.8300

LastName	Quantity	Unit Price	Freight
Buchanan	12		32.3800
Buchanan	10		32.3800
Buchanan	5		32.3800
Suyama	9		11.6100
Suyama	40		11.6100
Peacock	10		65.8300
Peacock	35		65.8300

Selecting the **Bar Gauges** option will produce a horizontal bar gauge within the column, as shown above. The actual data value will appear in a tooltip if you hover your mouse over the gauge. Selecting the **Cell Colors** option will display the column value using an imbedded Cell Color Slider, as shown above. You can drag the slider in the column header to customize the color ranges.

The Cell Colors feature has been changed to allow you to apply conditional colors:



Its previous functionality is now represented by a new Format menu item, Cell Color Slider, as shown above.

## Select Colors for Data Values

X

Set the background color for table cells based on data values. Select values and colors. The color will be shown for cells matching the value. The asterisk (\*) is a wild card character.

Record Level Group Level

Values

Color



More

Color entire rows

OK

The menu's Cell Colors item displays the pop-up dialog box shown above, where you can select data value ranges and cell background colors. The Values field can be customized to match the boolean format.

You can also format conditional colors on the group level by selecting the **Group Level** tab:

## Select Colors for Data Values

X

Set the background color for table cells based on data values. Select values and colors. The color will be shown for cells matching the value. The asterisk (\*) is a wild card character.

Record Level Group Level

Group:

Grand-Total

Aggregate:

Count



Numeric values up to...Values

Color



More

Color entire rows

Add Group Condition

OK

Previously established grouping is available in the Group drop-down menu. Choose your **Group** and **Aggregate** using the drop-down menus.

Enter a numeric value in the field on the left and assign a color to the Count by entering a Hex code or using the Color Picker:

### Select Colors for Data Values X

Set the background color for table cells based on data values. Select values and colors. The color will be shown for cells matching the value. The asterisk (\*) is a wild card character.

Record Level Group Level

Group: Aggregate:

Customer Id Count

Numeric values up to...Values Color

<input style="width: 90%;" type="text" value="2"/>	<input style="width: 90%;" type="text" value="#CC0000"/>
<input style="width: 90%;" type="text" value="5"/>	<input style="width: 90%;" type="text" value="#F1C232"/>
<input style="width: 90%;" type="text" value="11"/>	<input style="width: 90%;" type="text" value="#6AA84F"/>
<input style="width: 90%;" type="text"/>	<input style="width: 90%;" type="text"/> <input type="checkbox"/>
<input style="width: 90%;" type="text"/>	<input style="width: 90%;" type="text"/> <input type="checkbox"/>

[More](#)


Color entire rows [Add Group Condition](#)

OK

Select **OK** to apply your changes.

Your Analysis Grid reflects the conditional colors applied to the cells, like below:

Customer Id	Order Id	Employee Id	Order Date	Required Date	Shipped Date	Ship Via	Freight	Ship Name	Ship Region
<b>Count: 122</b>									
<b>GREAL Count: 11</b>									
	10528	6	May	5/20/1997 12:00:00 AM	5/9/1997 12:00:00 AM	2	3.35	Great Lakes Food Market	OR
	10589	8	Jul	8/1/1997 12:00:00 AM	7/14/1997 12:00:00 AM	2	4.42	Great Lakes Food Market	OR
	10616	1	Jul	8/28/1997 12:00:00 AM	8/5/1997 12:00:00 AM	2	116.53	Great Lakes Food Market	OR
	10617	4	Jul	8/28/1997 12:00:00 AM	8/4/1997 12:00:00 AM	2	18.53	Great Lakes Food Market	OR
	10656	6	Sep	10/2/1997 12:00:00 AM	9/10/1997 12:00:00 AM	1	57.15	Great Lakes Food Market	OR
	10681	3	Sep	10/23/1997 12:00:00 AM	9/30/1997 12:00:00 AM	3	76.13	Great Lakes Food Market	OR
	10816	4	Jan	2/3/1998 12:00:00 AM	2/4/1998 12:00:00 AM	2	719.78	Great Lakes Food Market	OR
	10936	3	Mar	4/6/1998 12:00:00 AM	3/18/1998 12:00:00 AM	2	33.68	Great Lakes Food Market	OR
	11006	3	Apr	5/5/1998 12:00:00 AM	4/15/1998 12:00:00 AM	2	25.19	Great Lakes Food Market	OR
	11040	4	Apr	5/20/1998 12:00:00 AM		3	18.84	Great Lakes Food Market	OR
	11061	4	Apr	6/11/1998 12:00:00 AM		3	14.01	Great Lakes Food Market	OR
<b>HUNGC Count: 5</b>									
	10660	8	Sep	10/6/1997 12:00:00 AM	10/15/1997 12:00:00 AM	1	111.29	Hungry Coyote Import Store	OR
	10600	4	Jul	8/13/1997 12:00:00 AM	7/21/1997 12:00:00 AM	1	45.13	Hungry Coyote Import Store	OR
	10375	3	Dec	1/3/1997 12:00:00 AM	12/9/1996 12:00:00 AM	2	20.12	Hungry Coyote Import Store	OR
	10394	1	Dec	1/22/1997 12:00:00 AM	1/3/1997 12:00:00 AM	3	30.34	Hungry Coyote Import Store	OR
	10415	3	Jan	2/12/1997 12:00:00 AM	1/24/1997 12:00:00 AM	1	0.2	Hungry Coyote Import Store	OR
<b>LAZYK Count: 2</b>									

 To utilize this feature you must have an aggregation defined at the group level.

# InfoGo - Creating Charts and Gauges

This topic introduces how to create charts and gauges in InfoGo.

The following sections are covered in this topic:

- [Creating Charts](#)
- [Creating Gauges](#)
- [Data Forecasting](#)

## Creating Charts

Click the **Add Chart** tab to use the feature that lets you create charts and gauges. A separate Chart panel with its own configuration area will be displayed:

# Sum of Order Id by Order Date Quarter ⚙️ 📄 🗑️

Bar Line Curved Line Pie Scatter Plot Heatmap Gauge

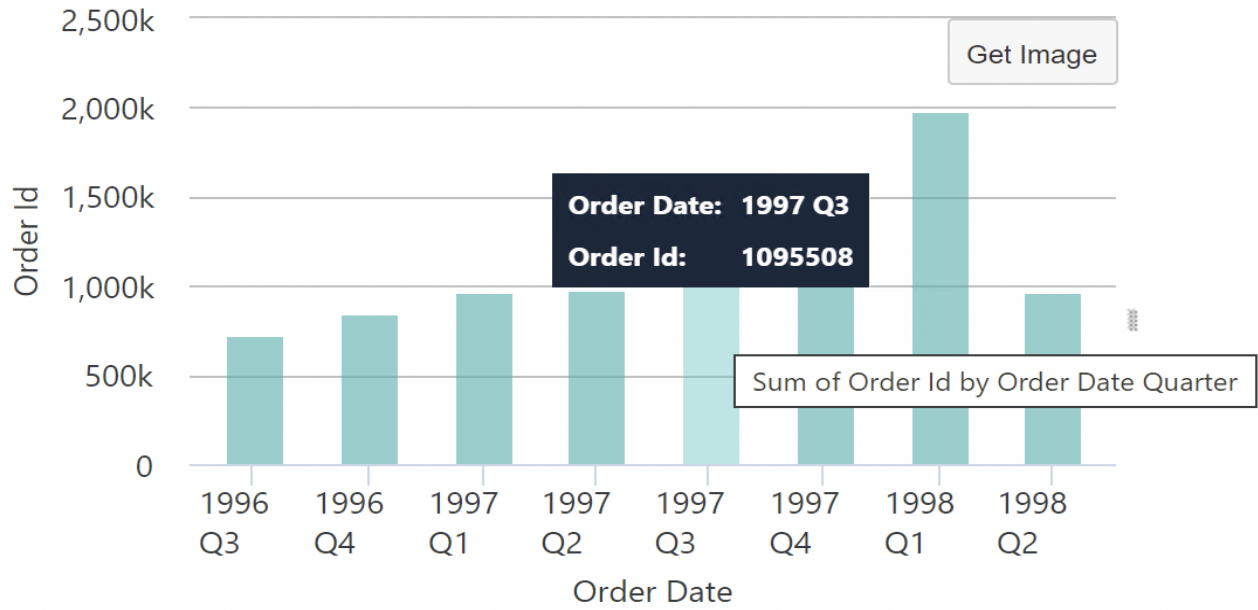
1 Label Column  by  [Format...](#) 2

3 Data Column   Show  [Format...](#)

4 Additional Column

5 Forecast

6 Bar Orientation



Here's how to use this feature:

1. Assuming a **Bar** chart was selected, select the **Label Column**. This provides data for the X-axis of the chart. If the column selected is a date-type column, an interval control (*Year, Quarter, Month, Day, Hour, Minute*) will be displayed. For text type columns, you can select the Label data sort order, A-Z or Z-A, in a sort control.
2. The **Format...** option, shown next to the Label Column and Data Column, allows you to format captions and labels for your charts. If you add an Additional Column(s), this option will also be available.
3. Select the **Data Column** (Y-axis data, the "height" of each bar). You'll see that the options are grouped and color-coded to make it easier for you to identify them. If you created any Formula columns, they appear in this column, too. You can also choose to show the actual data values on the chart.
  - Select a Data Aggregation function. Options include: *Sum, Average, Standard Deviation, Count, Distinct Count, Minimum, and Maximum*. Columns with Null values are *excluded* by default from aggregations.
  - Select whether or not to show the actual data values or legend as labels within the chart.
4. The **Additional Column** specifies a second data series that will be charted along with the Data Column values for comparison. Depending on the chart type, other controls will appear for use configuring a second series, including aggregation options and charting types. You can also choose to show the actual data value on the chart.
5. Data **Forecasting** is available for Bar, Line, Curved Line, and Scatter Plot charts that use Date/Time columns. See the section below for more information.
  - If your chart uses text-type columns, the **Relevance** option replaces Forecast. Relevance allows you to tune the data shown by *Automatic, Rank, and Percentage*.
6. **Bar Orientation** allows you to choose whether the bars are vertical or horizontal arrangements for Bar charts.

Depending on how your application is configured, you may see an "OK" button that applies all of your selection changes to the chart at once. Otherwise, your chart will be redrawn immediately as you make individual changes.

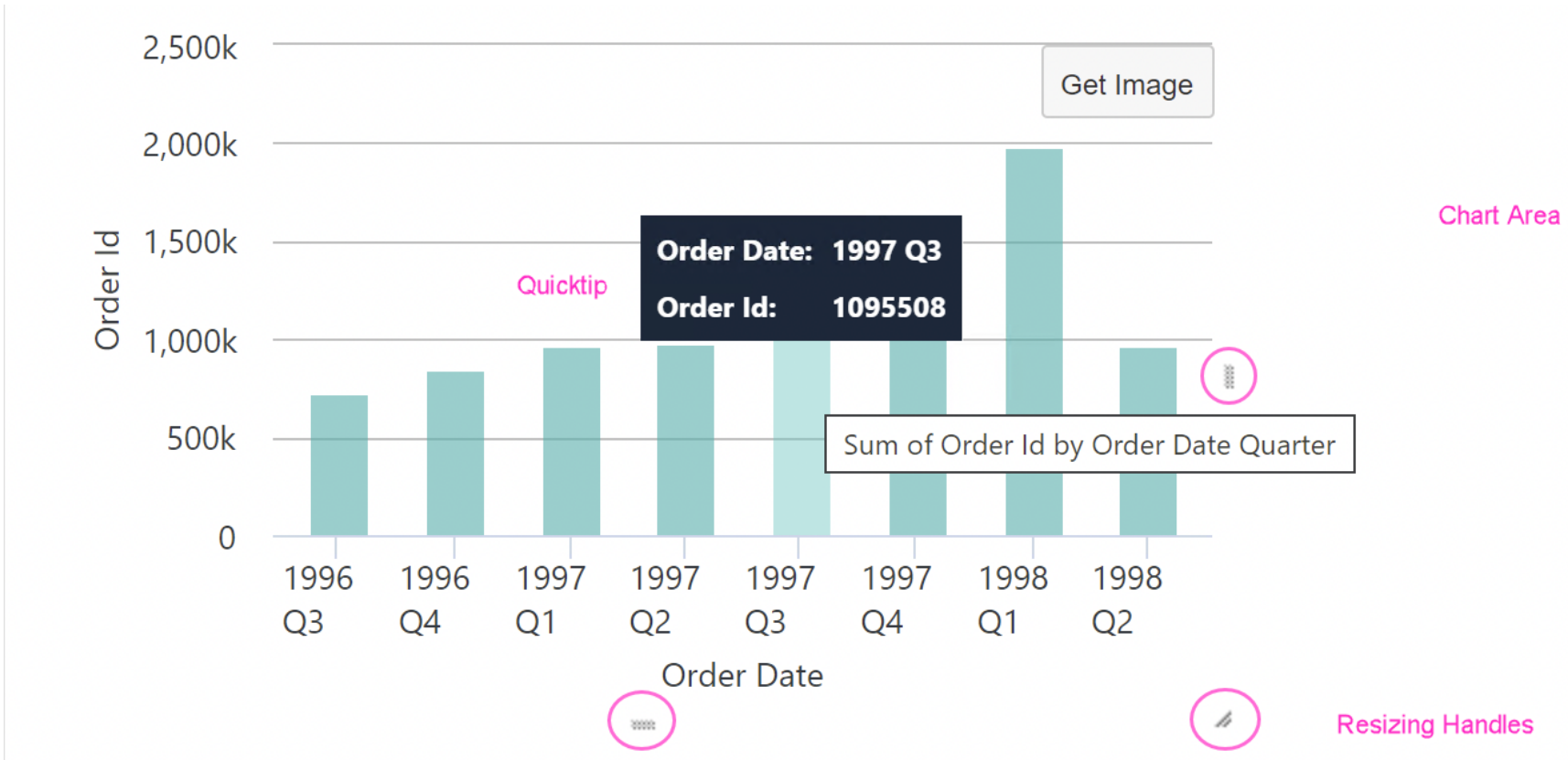
Hide the chart configuration area by clicking the **gear** icon, or delete the chart entirely by clicking the **trash can** icon, shown below:

## **Sum of Order Id by Order Date Quarter**

Bar Line Curved Line Pie Scatter Plot Heatmap Gauge

Charts are displayed in their own panels, so you can expand and collapse them using their "+" and "-" icons. You can also rearrange the order of chart and table panels by clicking with your mouse near the top of a panel, and dragging it up or down.

Charts will automatically include Quicktips, which appear when you hover your mouse over a data value, as shown below. In addition, "resizing handles" (circled below) will appear when the mouse is over the chart, allowing you to resize the chart by dragging them.



Unlike the chart shown above, Bar charts that are not time-oriented will automatically be shown in a horizontal format. This allows greater clarity in reading the "X-axis" label text.

**v23.1** If your Analysis Grid has been configured for it, you can utilize chart drillthrough capabilities. With drillthrough, selecting a section of the chart links to a detailed report of the data, as shown below:

**Multimedia content not  
available in this format**

 Scatter Plot and Gauges do not support drillthrough.

## Creating Gauges

Click the **Add Chart** tab to use the feature that lets you create charts and gauges. Then, select **Gauge** from list of available charts. A separate Chart panel with its own configuration area will be displayed:

☰ **Count of Order Id** ⚙️ 🗑️

Bar Line Curved Line Pie Scatter Plot Heatmap Gauge

Gauge Type

Data Column

Min

Goal-1

Goal-2

Max

OK



Get Image



Here's how to use this feature:

1. Choose a **Gauge Type**. Options include: *Arc*, *Balloon Bar*, *Bullet Bar*, and *Number*.
2. Select the **Data Column**. The options are grouped and color-coded to make it easier for you to identify them. If you created any Formula columns, they appear in this column, too.
  - Select a Data Aggregation function. Options include: *Sum*, *Average*, *Standard Deviation*, *Count*, *Distinct Count*, *Minimum*, and *Maximum*. Columns with Null values are *excluded* by default from aggregations.
3. Enter a **Min** value. If you do not enter a Min value, Info automatically applies Min value of 0.
4. Set up to two **Goals**. Your goals can be set using static values, or dynamically driven by percentages. The goal will be invalid if out of range. Set color thresholds for your goals by selecting the **color picker** and choosing a **color**. When using percentages, the following rules apply:
  - If percentage-value is used, the value cannot exceed 100% (and/or less than 0%).
  - If the percentage-value and absolute-value are mixed in Goal-1/2, Max, or GaugeRange-elements, the maximum value of all absolute-values is the maximum value. For example, if your settings are 10, 90%, 60, 70% and 80 respectively, the maximum value is 80, and the final range is ~ 10 ~ 56 (70%) ~ 60 ~ 72 (90%) ~ 80.
  - If ONLY percentage-value is used, the automatically-calculated-maximum-value will be taken as the maximum value. For example, if your settings are 10%, 90%, 60%, 70%, 80%, the automatically-calculated-maximum-value is 1000, and the final range is ~ 100 (10%) ~ 600 (60%) ~ 700 (70%) ~ 800 (80%) ~ 900 (90%).
5. Enter a **Max** value. If you do not enter a Max value, Info automatically applies a Max value to your chart. The color of the arc (in this example) is determined by which range contains the value. Set a color threshold for your Max value by selecting the **color picker** and choosing a **color**.

Depending on how your application is configured, you may see an "OK" button that applies all of your selection changes to the chart at once. Otherwise, your chart will be redrawn immediately as you make individual changes.

Hide the chart configuration area by clicking the **gear** icon, or delete the chart entirely by clicking the **trash can** icon.

Charts are displayed in their own panels, so you can expand and collapse them using their "+" and "-" icons. You can also rearrange the order of chart and table panels by clicking with your mouse near the top of a panel, and dragging it up or down.

Charts will automatically include Quicktips, which appear when you hover your mouse over a data value, as shown above. In addition, "resizing handles" (circled above) will appear when the mouse is over the chart, allowing you to resize the chart by dragging them.

## Data Forecasting

**Data Forecasting**, if included by your application developer, is available for Bar, Line, Curved Line, and Scatter charts.

☰ **Sum of Order Value by Order Date Quarter** ⚙️ 🗑️

Bar Line Curved Line Pie Scatter Plot Heatmap Gauge

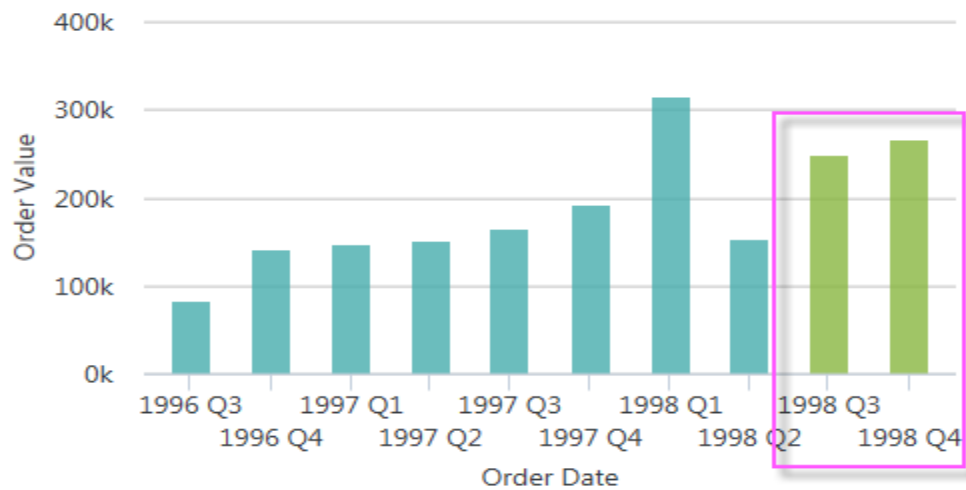
Label Column  by

Data Column   Show

Additional Column

Forecast  Type

Bar Orientation



If it's available, extra controls for it will appear in the Chart configuration panel, as shown above.

Data forecasting is the process of generating values based on events that have *not yet* occurred. "Prediction" is a similar but more general term. Forecasting refers to formal, statistical methods that use time series, cross-sectional, or longitudinal data to produce predicted data. Typically, forecasts are displayed most effectively on charts.

Forecasting analysis options, which may vary by chart, include:

- **Time Series**(Time Series Decomposition), consisting of data in a natural, time-related order with a strong interval, where the Label Column data is of DateTime-type and the Data Column is a number.
- **Regression**, using one of several regression analysis functions. Regression analysis is recommended when the focus is on a relationship between a dependent value and one or more independent values. Available analysis functions include:
  - *Linear* - used to calculate predictive values based on a trend line.
  - *Autoregressive*- used when attempting to predict an output of a system based on previous outputs. The estimation technique used is based on "Burg's" method.
  - *Exponential, Logarithmic, Polynomial, or Power* - non-linear types used to display the relationship between dependent and independent variables as a curvilinear function, which may provide more accuracy than a linear regression.

Click the **gear** icon to hide the configuration area.

More information about forecasting in InfoGo can be found in *Forecast Methodologies*.

# InfoGo - Editing Chart Labels and Captions

Every SSRM chart has the ability to format captions and labels for your Label Column, Data Column, and Additional Column(s) in some capacity. This topic discusses how to customize the label format and edit captions for the X- and Y-axis in your SSRM charts.

## Editing Captions

Axis caption formatting includes the ability to change the following:

- **Caption Content:** Enter the axis caption. To remove the caption, enter "".
- **Font Angle:** Enter a value between 1-360 to angle your caption.
- **Font Family:** Changes the font of your caption.
- **Font Size:** Changes the font size of your caption between 6-72 px.
- **Font Italic:** Select True or False to make your caption italicized.
- **Font Weight:** Changes the thickness of the caption font between Normal, Bold, Bolder, or Lighter. Note that the Font Family you choose may affect how the font weight displays.
- **Alignment Horizontal:** Select Left, Center, or Right to set your caption alignment.
- **Font Color:** Changes the font color and hue using a 'color picker'.

For this example, we're going to change the 'Order Id' caption's size, weight, and color.

1. To access this feature, select **Format...** in your chart:

☰ **Sum of Order Id by Order Date Year** ⚙️ 🗑️

Bar Line Curved Line Pie Scatter Plot Heatmap Gauge

Label Column: Order Date by Year [Format...](#)

Data Column: Order Id Sum Show Value [Format...](#)

Additional Column:

Forecast: Off

Bar Orientation: Vertical



A Format dialog window appears, shown below:

## Format



### Caption Label

Caption Content

Order Id

Font Angle

Font Family

Segoe UI

Font Size

14

px

Font Italic

Font Weight

Normal

Alignment Horizontal

Font Color

#363B42



OK

2. To change the size, select the **Font Size** drop-down menu:

## Format



Caption Label

Caption Content

Order Id

Font Angle

Font Family

Segoe UI

Font Size

14

px

Font Italic

Font Weight

Alignment Horizontal

Font Color

6

8

9

10

11

12

16

18

24

30

36

48

60

72

Normal

3B42

OK

3. Choose the desired **size**. For this example, we're going to select size **14** font.
4. Then, select the **Font Weight** drop-down menu:

## Format

X

Caption Label

Caption Content

Order Id

Font Angle

Font Family

Segoe UI

Font Size

14

px

Font Italic

Font Weight

Normal

Alignment Horizontal

Normal

Font Color

Bold

Bolder

Lighter

OK

5. Choose the desired **weight**. We want our caption to be **Bold**.
6. To change the color, enter a Hex #, or choose a color by selecting the **Color Picker**:

## Format

X

### Caption Label

Caption Content

Order Id

Font Angle

Font Family

Segoe UI

Font Size

14

px

Font Italic

Font Weight

Bold

Alignment Horizontal

Font Color

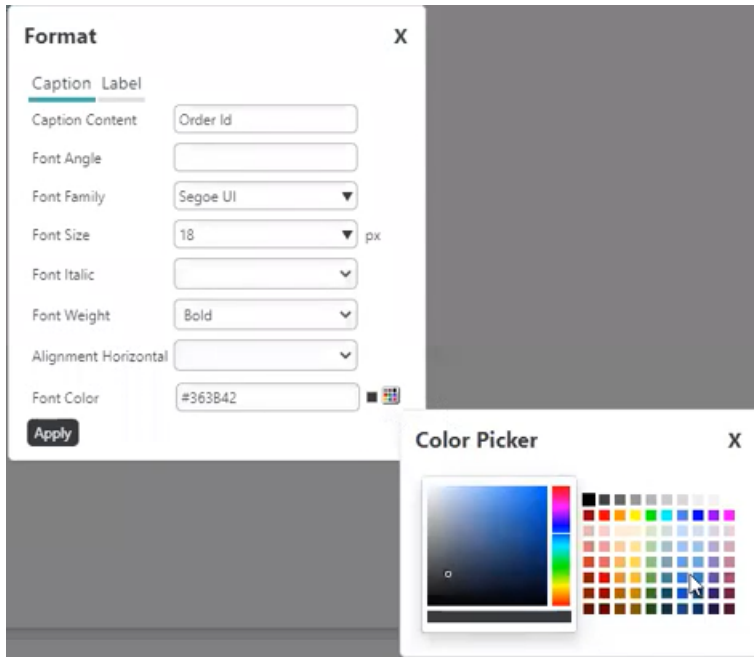
#363B42



OK

The Color Picker dialog displays.

7. Choose the desired caption **color** from the list of available colors. Change the shade of the color by moving the cursor to the left of the color panel, shown below:



8. When you're done making changes, select **OK**:

## Format

X

### Caption Label

Caption Content

Order Id

Font Angle

Font Family

Segoe UI

Font Size

14

px

Font Italic

Font Weight

Bold

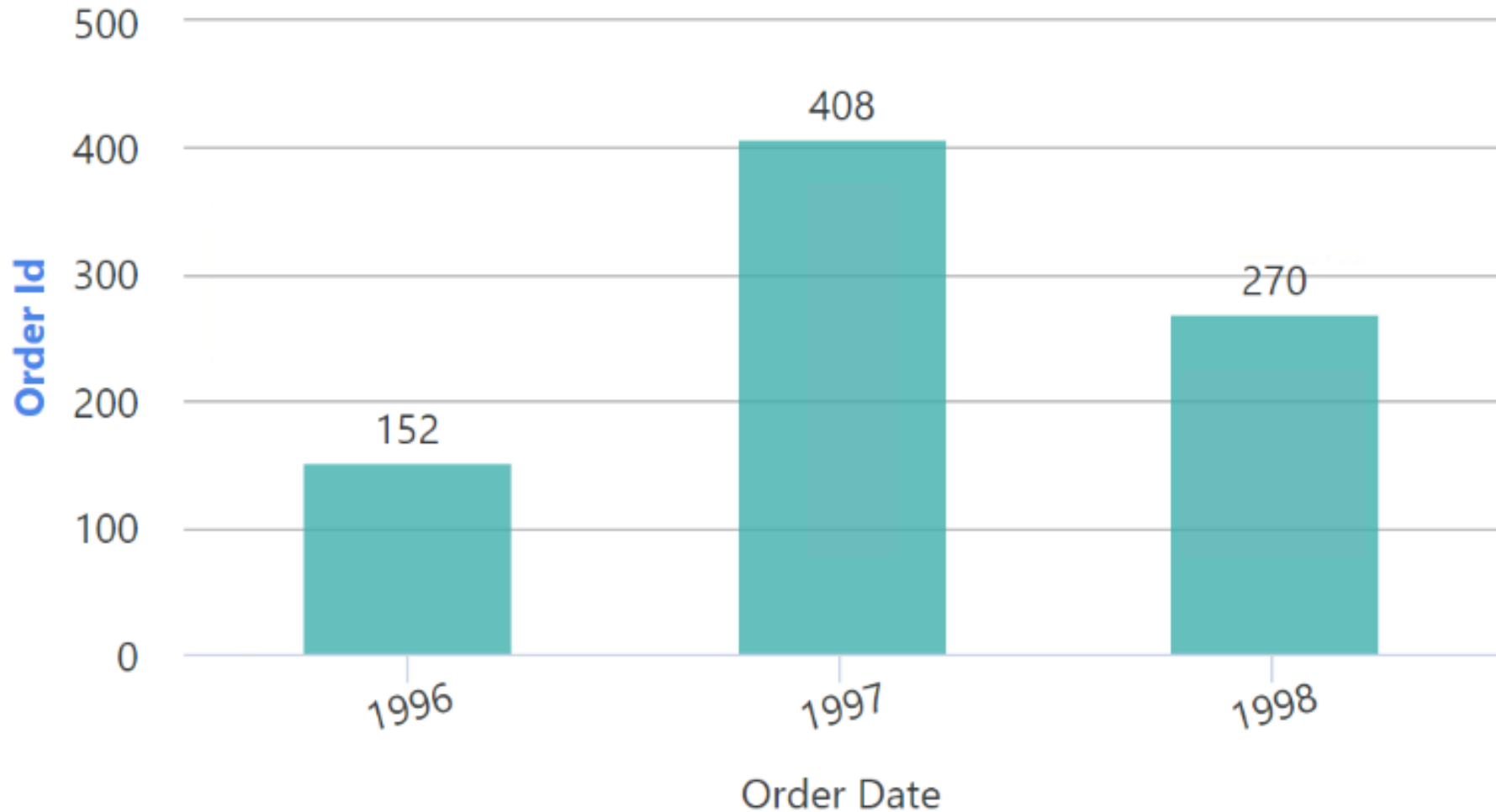
Alignment Horizontal

Font Color


#363B42

OK

You chart automatically reflects the changes, shown below:



Since we edited the 'caption' our changes only applied to the words 'Order Id' (for this example). To change the format of the values represented in the Y axis (5M, 4M, 3M in this example), follow the steps in the section below.

 Changing the chart type resets all formatting; however, changing the value in the Label, Data, or Additional Column does not reset formatting.

## Editing Labels

Axis label formatting includes the ability to change the following:

- **Format:** Changes the data format.
- **Font Family:** Changes the font of your label.
- **Font Size:** Changes the font size of your label between 6-72 px.
- **Font Italic:** Select True or False to make your label italicized.
- **Font Weight:** Changes the thickness of the font between Normal, Bold, Bolder, or Lighter. Note that the Font Family you choose may affect how the font weight displays.
- **Font Angle:** Enter a value between 1-360 to angle your label.
- **Font Color:** Changes the font color and hue using a 'color picker'.

For this example, we're going to change the 'Order Id' label's format and font angle.

1. To access this feature, select **Format...** in your chart:

### Sum of Order Id by Order Date Year ⚙️ 🗑️

Bar Line Curved Line Pie Scatter Plot Heatmap Gauge

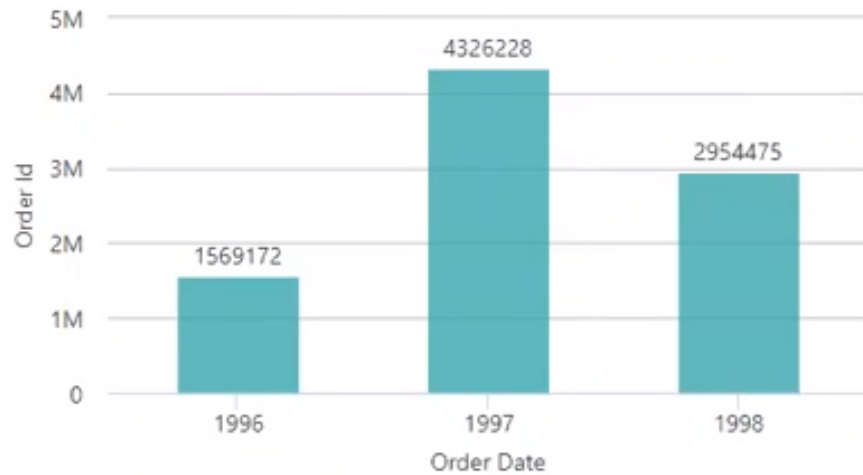
Label Column: Order Date by Year [Format...](#)

Data Column: Order Id Sum Show Value [Format...](#)

Additional Column:

Forecast: Off

Bar Orientation: Vertical



A Format dialog window appears, shown below:

## Format

X

### Caption Label

Caption Content

Order Id

Font Angle

Font Family

Segoe UI

Font Size

14

px

Font Italic

Font Weight

Normal

Alignment Horizontal

Font Color

#363B42

OK

2. Select the **Label** tab to edit the Data Column's label:

## Format

X

Caption Label

Format

yyyy



Font Family

Segoe UI



Font Size

14



px

Font Italic



Font Weight

Normal



Font Angle

15

Font Color

#363B42



OK

3. To change the format, select the **Format** drop-down menu:

## Format

X

Caption Label

Format

yyyy

Font Family

Expanded Spaces

Font Size

yyyy/MM/dd

MMM

px

Font Italic

yyyy/MM/dd hh:mm:ss tt

yyyy/MM/dd HH:mm:ss

Font Weight

MM/dd/yyyy

MM/dd/yyyy hh:mm:ss tt

Font Angle

MM/dd/yyyy HH:mm:ss

Font Color

MM/dd/yyyy HH:mm:ss

OK

4. Choose the desired **format**, or enter your own format in the field. For this example, we're going to enter '**yyyy**'.
5. Next, we'll edit the angle of the label by entering a value (1-100) in the **Font Angle** field:

## Format



### Caption Label

Format

yyyy



Font Family

Segoe UI



Font Size

14



px

Font Italic



Font Weight

Normal



Font Angle

15

Font Color

#363B42



OK

6. When you're done making changes, select **OK**:

## Format

X

Caption Label

Format

yyyy

Font Family

Segoe UI

Font Size

14

px

Font Italic

Font Weight

Normal

Font Angle

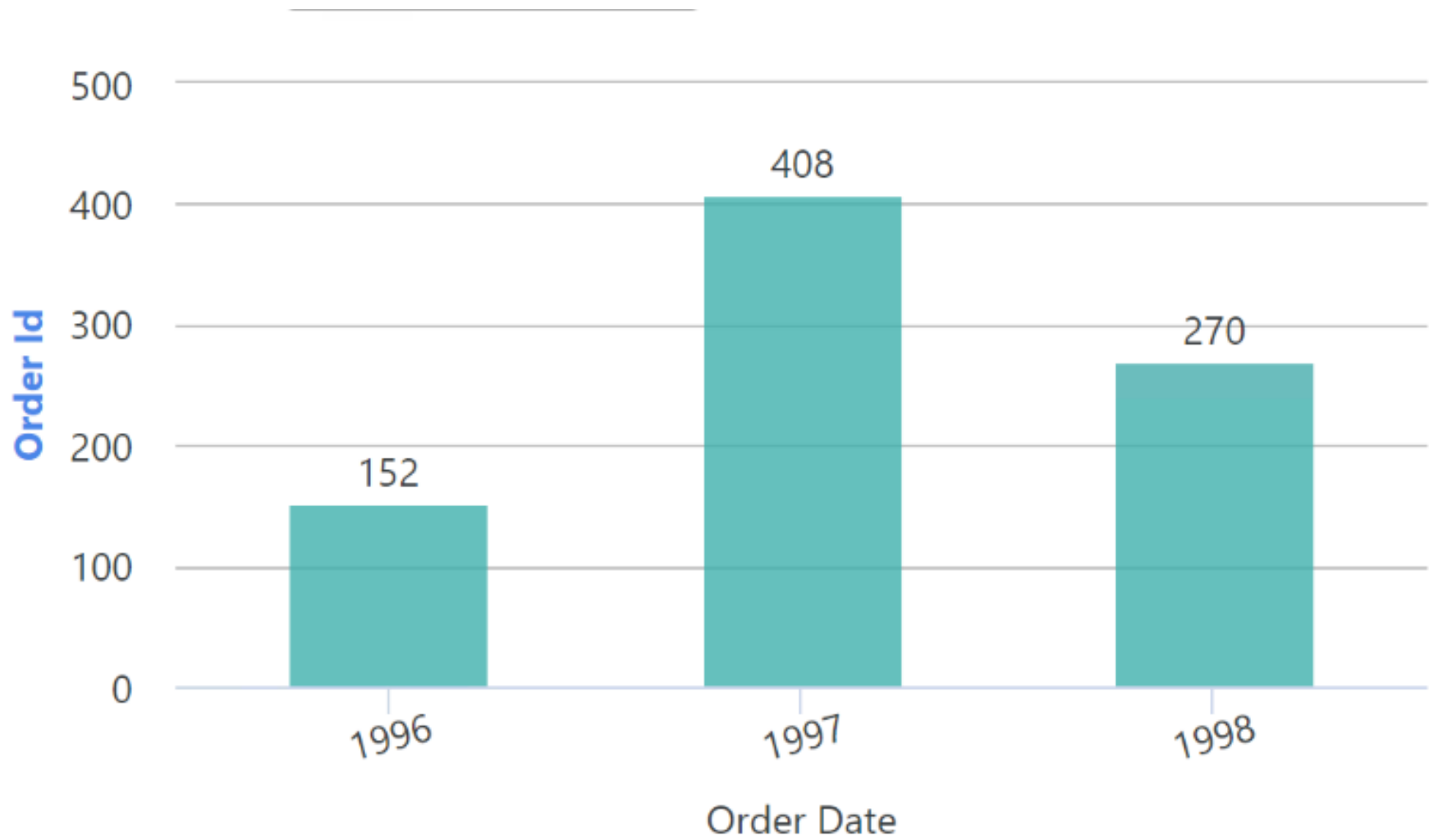
15


Font Color

#363B42

OK

You chart automatically reflects the changes, shown below:



 Changing the chart type resets all formatting; however, changing the value in the Label, Data, or Additional Column does not reset formatting.

# InfoGo - Pivoting and Summarizing Data

Click the **Add Crosstab** tab to use the feature that lets you create a crosstab (also known as a "pivot") table:



Data



Formula



Filter



Add Chart



Add Crosstab



**Order Date by Ship Name on Sum of Order Id**

- 1 Header Values Column  by
- 2 Label Values Column
- 3 Secondary Label Column
- 4 Extra Label Column
- 5 Aggregate Values Column
- 6 Aggregate Function
- 7 Summary Function
- 8 Compare Label Columns

Ship Name	1996	1997	1998
Alfreds Futterkiste		10643	
Alfred's Futterkiste		21394	32798
Ana Trujillo Emparedados y helados	10308	21384	10926
Antonio Moreno Taquería	10365	52974	10856
Around the Horn	20738	74763	43753
Berglunds snabbköp	30942	106137	54359
Blauer See Delikatessen		42206	32867
Blondel père et fils	30922	73901	10826

Here's how to use this feature:

1. Select the **Header Values Column**, whose values will be shown *horizontally*, as column headers, across the top of the Crosstab Table. 💡 To prevent unmanageably wide tables, *numeric* columns in the original data and numeric Formula columns are not available for use here. Additional controls may appear depending on the data type of the selected column.
2. Select the **Label Values Column**, whose values will be shown *vertically*, in the left-most column of each row. 💡 To prevent unmanageably long tables, *numeric* columns in the original data and numeric Formula columns are not available for use here.
3. Select the **Secondary Label Column**, whose values will be shown *vertically*, as column headers, after the Label Values Column. This column is used to group Value Columns and Label Columns together. 💡 To prevent unmanageably long tables, *numeric* columns in the original data and numeric Formula columns are not available for use here.
4. Select the **Extra Label Column**, whose values will be shown
5. Select the **Aggregate Values Column**, whose values will be *aggregated* to produce the contents for the rest of the table cells.
6. Select the **Aggregate Function** to be applied to the column selected in Step 3. Options include *Sum, Average, Standard Deviation, Count* and *Distinct Count, Minimum, and Maximum*.
7. Select a **Summary Function** to display a summary result.
8. Check the **Compare Label Columns** check box to cause the difference between column values to be displayed, along with a cell shading indicator.

If it exists, click **OK** to generate the Crosstab Table, in its own panel; otherwise the table will be generated automatically as you make changes.

The Summary Function and Label Column Comparison features provide interesting ways to analyze the data:

Summary Function

Compare Label Columns

Order Date	Total Sum	ALFKI	ANATR	ANTON
	22,970,955	129,621	106,954	180,350
1997	11,226,917	64,025	42,634	148,273
1998	7,563,014	65,596	43,704	21,712
1996	4,181,024		20,616	10,365

Using a Summary Function

Compare Label Columns

Reverse Compare Colors

Order Date	ALFKI	ANATR	ANTON	AROUT
1997	64,025	42,634 -33.41%	148,273 247.78%	191,959 29.46%
1998	65,596	43,704 -33.37%	21,712 -50.32%	76,586 252.74%
1996		20,616	10,365 -49.72%	51,859 400.33%

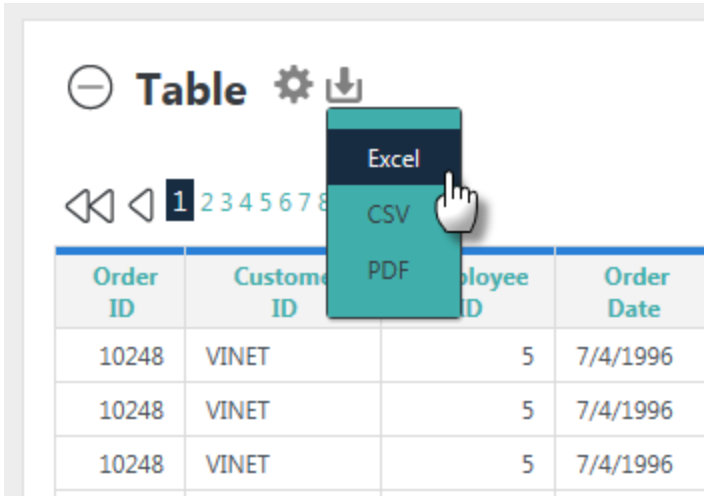
Comparing Label columns using color

As shown above, summarizing the data totals the rows and columns, inserting a row and column to display the results. Comparing Label columns can produce color spectrum backgrounds or directional arrows, and can display the value differences as values or percentages, in the cells.

Click the **gear** icon to hide the configuration area.

# InfoGo - Exporting Analysis Data

InfoGo tables include three **Export** functions, available by clicking the **export** icon:



Depending on your application's configuration, you may see some, all, or none of the Export options. When present, they allow you to export the table's data, as follows:

	A	B	C	D	E	F
1	Order ID	customer ID	Employee ID	Order Date	required Da	Freight
2	10248	VINET	5	7/4/1996	8/1/1996	32.38
3	10249	TOMSP	6	7/5/1996	8/16/1996	11.61
4	10250	HANAR	4	7/8/1996	8/5/1996	65.83
5	10251	VICTE	3	7/8/1996	8/5/1996	41.34
6	10252	SUPRD	4	7/9/1996	8/6/1996	51.3
7	10253	HANAR	3	7/10/1996	7/24/1996	58.17
8	10254	CHOPS	5	7/11/1996	8/8/1996	22.98

**Excel** - The data is exported into an .xlsx or .xls file, as raw data. The file can be viewed in Excel (if installed on your computer) or can be saved to your file system. InfoGo Table column headers are exported into the first row of the Excel worksheet, as shown above, and numbers are exported as text. Unless however, if your application has been configured for it, the report title and filter information display in the first row. Depending on your application's configuration, the data may be formatted and specific worksheet column widths may be set.

```
"Order ID","Customer ID","Employee ID","Order Date","Required Date","Freight"
"10248","VINET","5","7/4/1996","8/1/1996","32.38"
"10249","TOMSP","6","7/5/1996","8/16/1996","11.61"
"10250","HANAR","4","7/8/1996","8/5/1996","65.83"
"10251","VICTE","3","7/8/1996","8/5/1996","41.34"
"10252","SUPRD","4","7/9/1996","8/6/1996","51.3"
"10253","HANAR","3","7/10/1996","7/24/1996","58.17"
"10254","CHOPS","5","7/11/1996","8/8/1996","22.98"
```

**CSV** - The data is exported into a .csv file, as raw data. The file can be viewed in Notepad (or any text editor) and in Excel (if installed on your computer) or can be saved to your local file system. InfoGo table column headers are exported into the first row. Unless however, if your application has been configured for it, the report title and filter information display in the first row. All fields are enclosed in double-quotes and separated by commas.

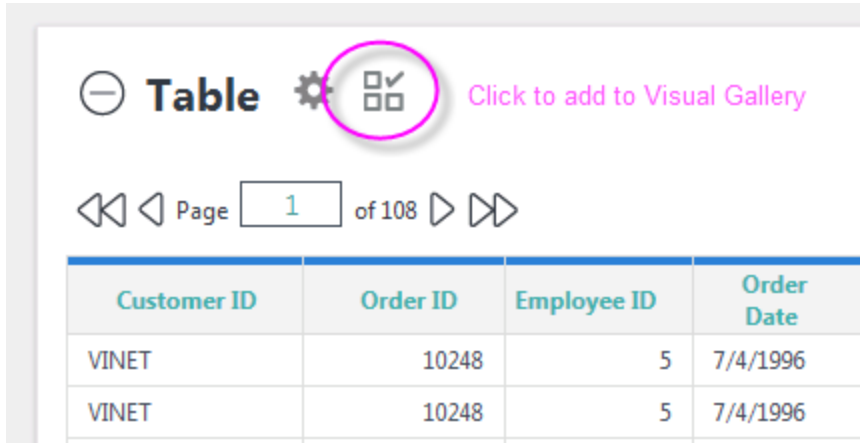
Page: 1 of 24 Automatic Zoom

Order ID	Customer ID	Employee ID	Order Date	Required Date	Freight
10248	VINET	5	7/4/1996	8/1/1996	32.38
10249	TOMSP	6	7/5/1996	8/16/1996	11.61
10250	HANAR	4	7/8/1996	8/5/1996	65.83
10251	VICTE	3	7/8/1996	8/5/1996	41.34
10252	SUPRD	4	7/9/1996	8/6/1996	51.3
10253	HANAR	3	7/10/1996	7/24/1996	58.17
10254	CHOPS	5	7/11/1996	8/8/1996	22.98

**PDF** -An image of the table is exported into a temporary .pdf file. This file can be viewed in your browser using the Adobe Acrobat plug-in, similar plug-ins, or, in some cases, native browser technology. Viewers usually let you save the export as a file, if desired, or print it. Table headers will be displayed at the top of each PDF page. Unless however, if your application has been configured for it, the report title and filter information display at the top of the page.

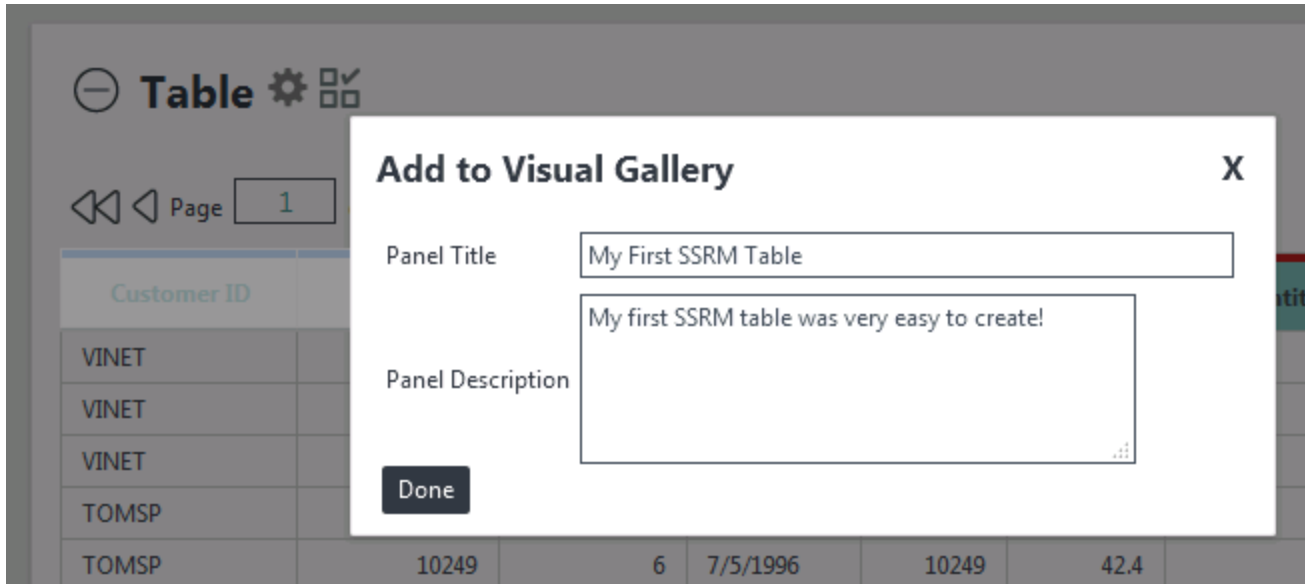
# InfoGo - Adding to Your Visual Gallery

As you created tables and charts, you probably noticed that each panel included an **Add to Visual Gallery** icon.



The screenshot shows a table interface. At the top left, there is a minus sign icon, the word "Table", a gear icon, and a square icon with a checkmark. This square icon is circled in pink, and a pink text label "Click to add to Visual Gallery" points to it. Below the table title is a pagination control showing "Page 1 of 108" with navigation arrows. The table itself has four columns: "Customer ID", "Order ID", "Employee ID", and "Order Date". It contains two rows of data.

Customer ID	Order ID	Employee ID	Order Date
VINET	10248	5	7/4/1996
VINET	10248	5	7/4/1996



When you click the icon, you'll be prompted for a title and description. These, and a thumbnail image of your visual, are stored in your personal *Visual Gallery*.

You can see and manage your Visual Gallery when using either of the Home page Design options. You use the visuals from your gallery when creating Dashboards and Reports.

## Visualizations as Bookmarks

InfoGo now stores visualizations as bookmarks, not in Gallery or Extra Gallery files. Information about migration of existing gallery items into bookmarks can be found in *Upgrading the Self-Service Reporting Module*.

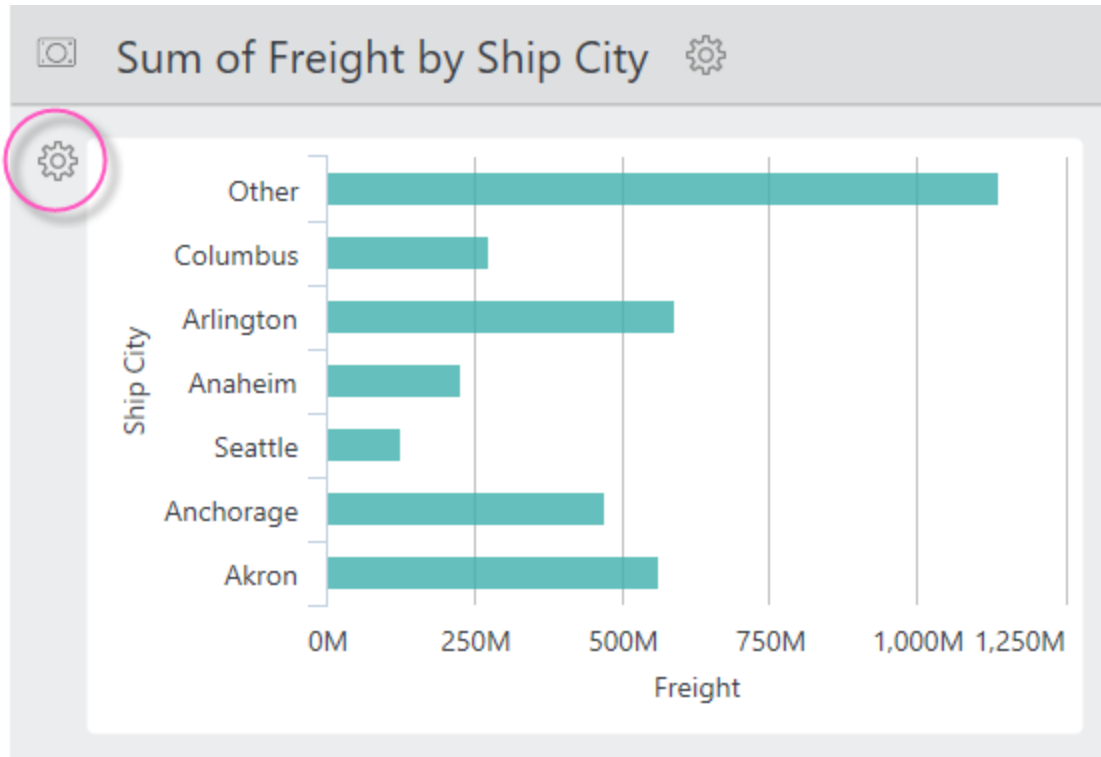
Home ?

Search

- My Items
- My Visualizations

	Title	Saved			
	Sum of Freight by Ship City	8/7/2019 9:48 AM			<input type="checkbox"/>
	Order Details 1996	8/5/2019 10:56 AM			<input type="checkbox"/>
	Total Value by Sales Person	8/5/2019 10:56 AM			<input type="checkbox"/>
	Employee Orders	8/5/2019 10:56 AM			<input type="checkbox"/>
	Sales Rep Totals by Customer	8/5/2019 10:56 AM			<input type="checkbox"/>

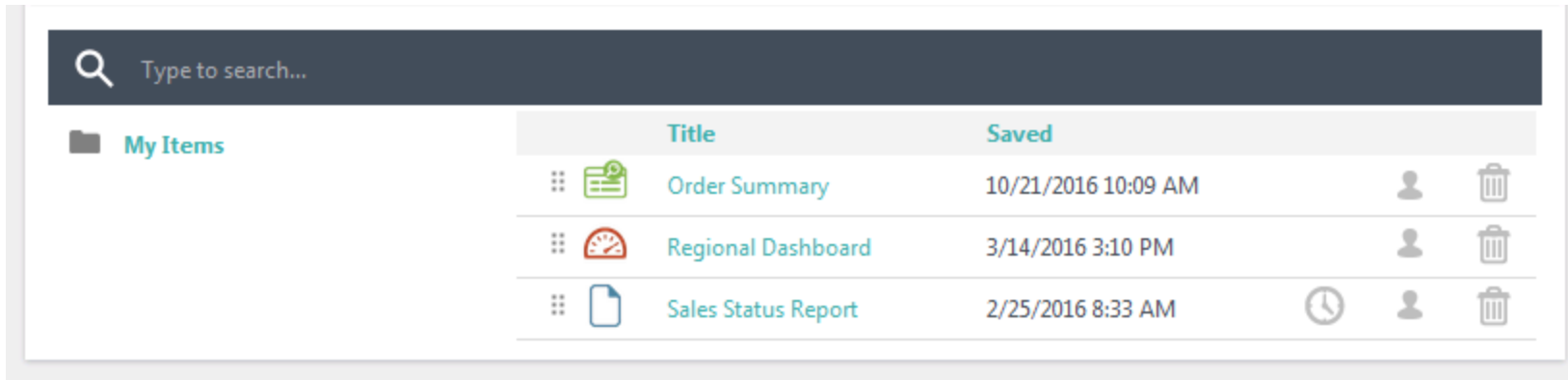
Stored visualizations appear in the *My Visualizations* folder, as shown above, and/or in its sub-folders. If Sharing has been enabled, you can share visualizations with other users. Click a visualization's title to view it:



In the visualization viewer, you can rename, duplicate, or delete the visualization. Click the **gear** icon shown circled above to edit the visualization in a pop-up panel.

# InfoGo - Organizing Work in Folders

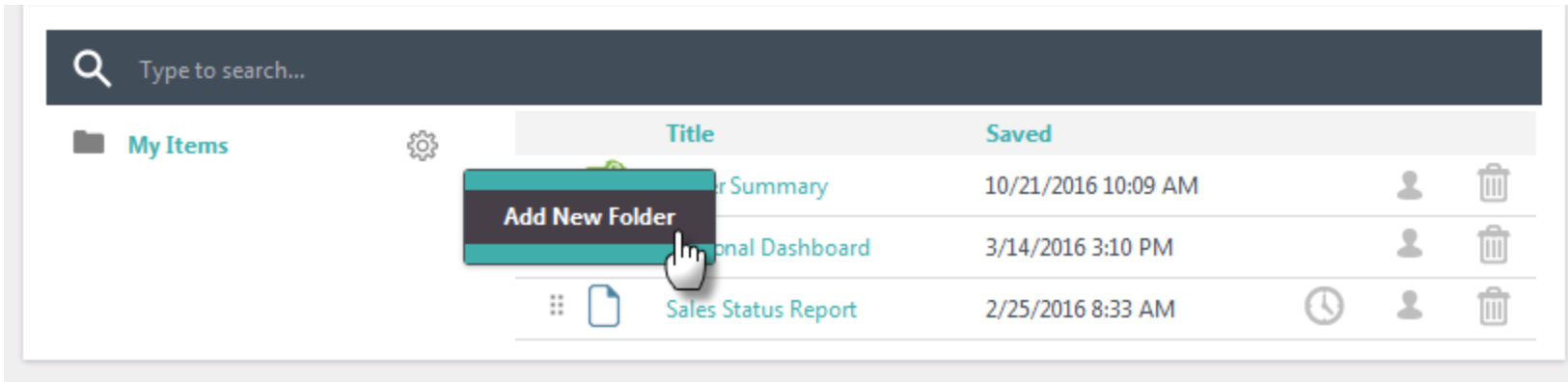
Once you create an analysis, Dashboard, or report, it first appears as an item in the list on the InfoGo Home page:



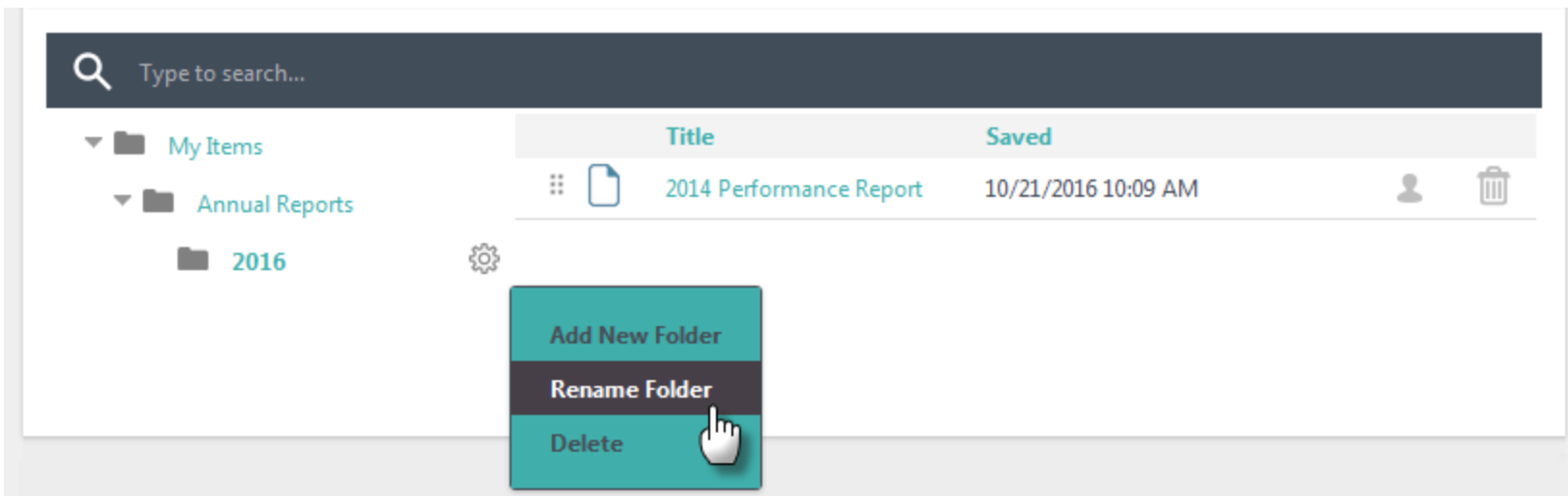
List items include icons at the right end that allow you to schedule, share, or delete the item, as shown above.

The items have been automatically filed in a folder called **My Items**, which you can see on the left above. This is your private folder and it may be all you need for organizing your work.

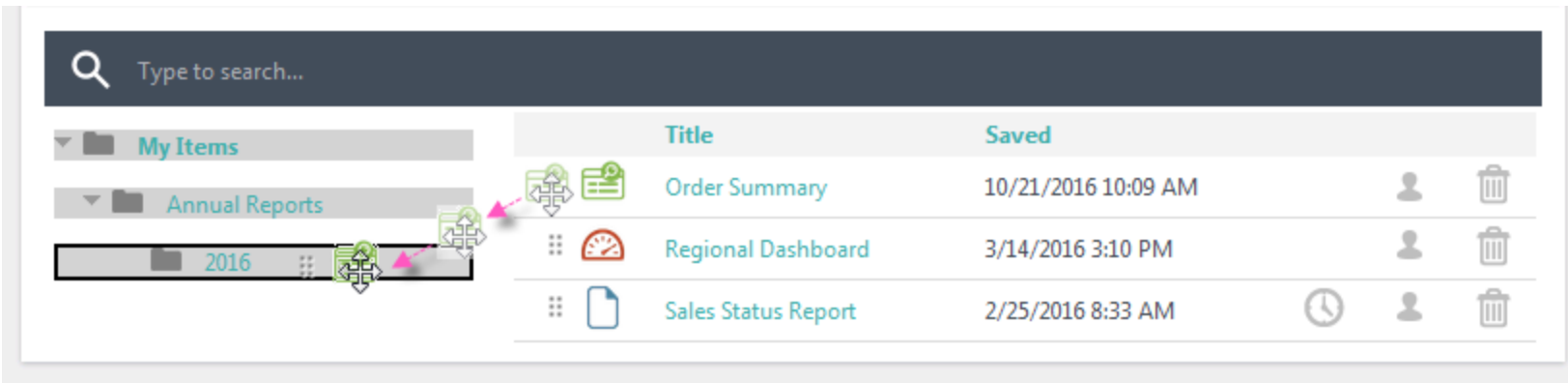
Visualizations will be stored in a new folder named **My Visualizations**.



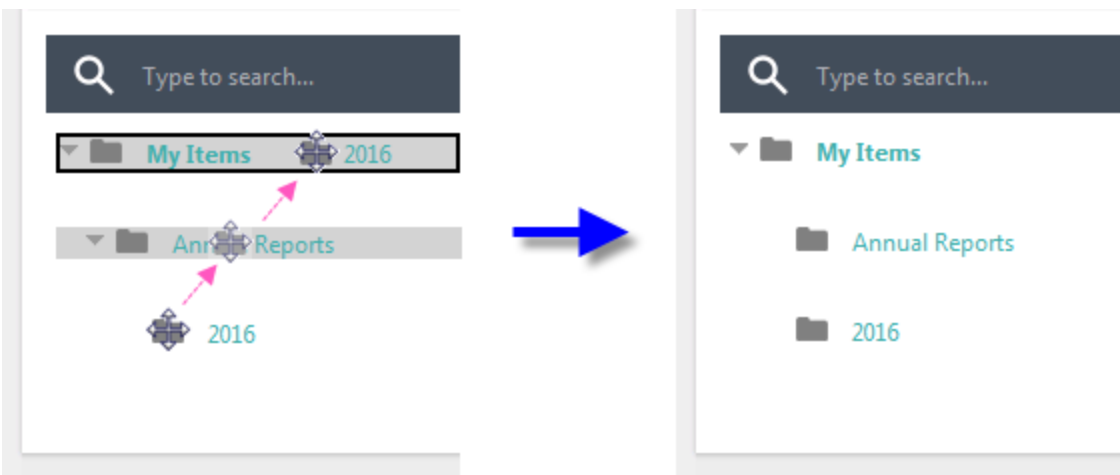
However, you can create *sub-folders* and move your items into them, for more organizational flexibility. As shown above, hovering the mouse cursor over a folder entry will cause a gear icon to appear and clicking it will let you add a new folder beneath it.



In the example above, we've added two levels of sub-folders. Click a folder to see what's in it and its name will be shown in **bold** text to indicate that it's the "current" folder. Hover over it and click its gear icon to create sub-folders, rename the folder, or delete it and its contents.



To move an item from one folder to another, just drag its "drag" icon - - to the desired folder, as shown above. Then click the destination folder to see the moved item.



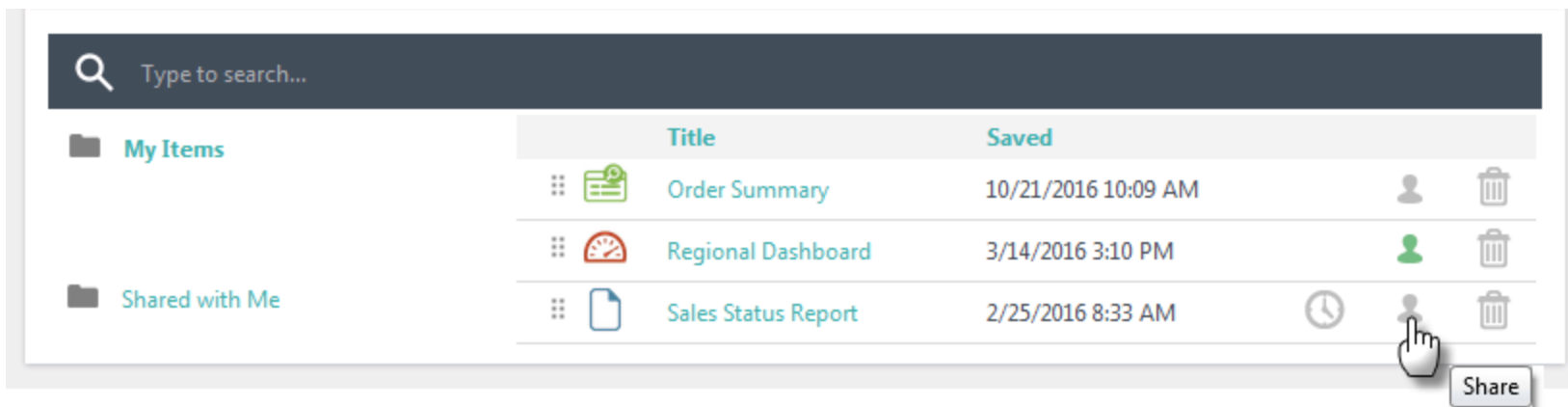
You can even drag a folder (and all its contents) into another folder, as shown above.

# InfoGo - Sharing Your Work

You may want to *share* your work with other InfoGo users. Sharing is an *optional* InfoGo feature that may have been enabled by your InfoGo developer.

## Sharing Individual Items

Individual reports, Dashboards, analyses, and visualizations that appear in your folders can be shared.







In the list of items in a folder, each item has a "Share" icon. A gray Share icon means the item has not been shared with anyone, and a green one means it has. Click the icon to manage sharing.

As a content creator, you can now manage access for content shared with other users at the bookmark level. Access types include "Read" or "Interactive". Upon selecting the share icon, new access types will be shown in the sharing pop-up window:

### Share Multiple Grouping Crosstab

Find  All ▾

Show Shared Only

User/Group		Role	Read	Interactive <sup>?</sup>
	George	George	Executive	<input type="checkbox"/>
	John	John Steel	Executive	<input checked="" type="checkbox"/>
	Presidents	Presidents	Executive	<input type="checkbox"/>
	Thomas	Thomas Hardy	Executive	<input type="checkbox"/>

Close

 Sharing permissions are only available when the constant `goSharePermissionEnable` is set to "True".

In the Share panel, shown above, you can select users or user groups to share this item with. You can identify who this item has already been shared with by selecting the "Show Shared Only" check box.

Using the drop-down filter control, you can filter the list to see *Groups*, *People*, or *All* users with whom you can share this item. Depending on how the application has been configured, you may or may not see a list of users like the one above. If not, start typing a name in the Find text box and matching user names will be displayed for you.

If you are sharing a report, selecting the "Interactive" permission allows the user to schedule the report. Granting an "Interactive" permission when sharing a Dashboard or Analysis allows the user to drill-to and apply filters to the shared content; however, they will not be able to save these changes to the original content, as this can only be done through specific security roles. Note that you must select at least one access type to share content. Selecting the "Interactive" permission automatically selects the "Read" check box, as well. You can edit these permissions by checking/unchecking the corresponding check boxes. Deselecting the "Read" check box will automatically uncheck the "Interactive" check box (if it was selected), and in this case, would unshare the

content entirely. Schedules launched by the shared user will be removed if their permission changes to "Read". Likewise, if the report or folder is unshared with that user, schedules launches by the shared user will be removed.





Select the **question mark** icon next to the Interactive permission to expose a permission description:

Find  All ▾

Show Shared Only

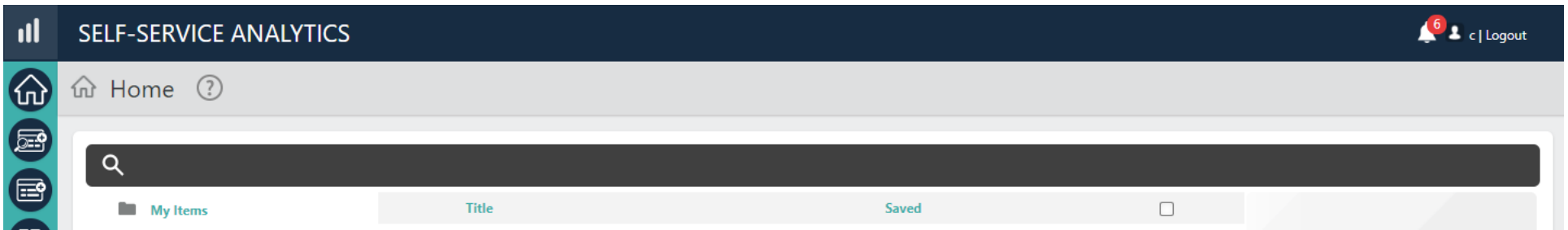
---

Analysis: "**Interactive**" permissions allow users to change column size and selection, apply grouping and aggregations, change paging, apply sorting, duplicate, and export content.

User/Group	Role	Read	Interactive <span>?</span>
 George	Executive	<input type="checkbox"/>	<input type="checkbox"/>
 John	Executive	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
 Presidents	Executive	<input type="checkbox"/>	<input type="checkbox"/>
 Thomas	Executive	<input type="checkbox"/>	<input type="checkbox"/>

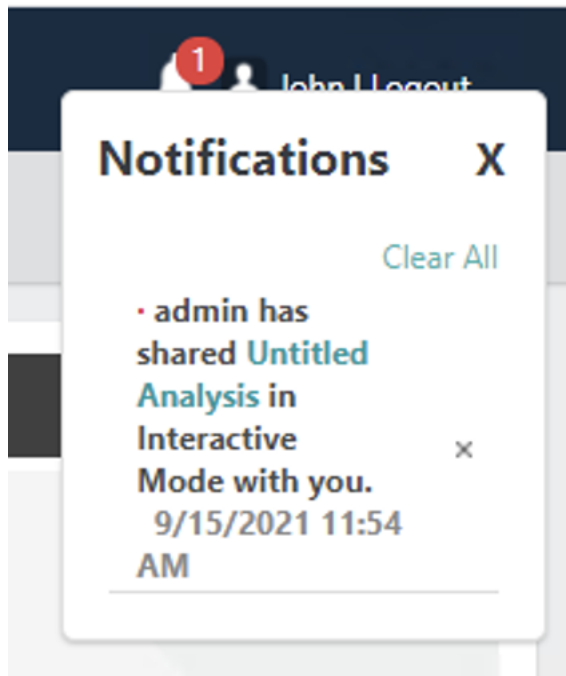
Close

If your application has been configured for it, you will receive a notification on the SSRM Home Page when an item is shared/un-shared with you:



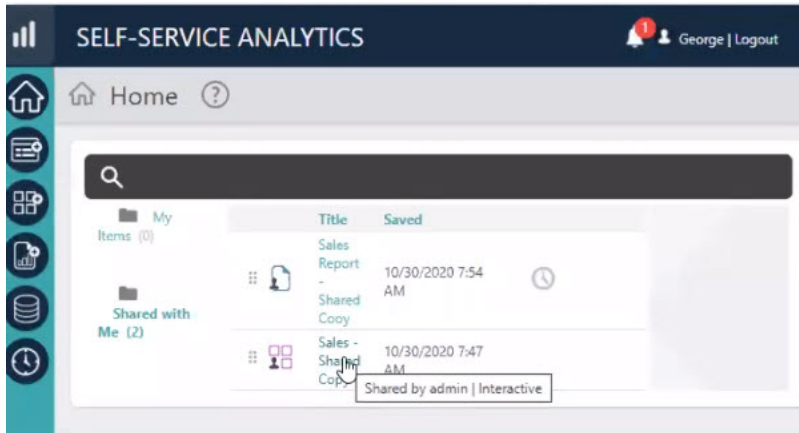
The screenshot shows the top navigation bar of the 'SELF-SERVICE ANALYTICS' application. On the right side of the bar, there is a notification bell icon with a red badge containing the number '6', followed by a user profile icon and the text 'c | Logout'. Below the navigation bar, the 'Home' page is visible, featuring a search bar and a 'My Items' section with a 'Title' column and a 'Saved' status indicator.

Selecting this notification will display information about the author, the shared item, and your permission. Select the **shared item** to access it:

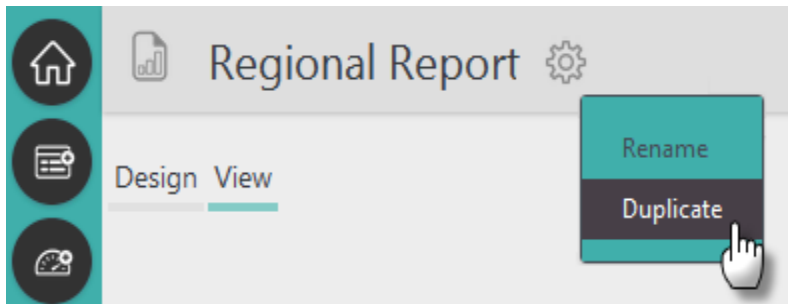


You can also access items that are shared with you in the "Shared with Me" folder. Select this folder to see its contents.

Hovering over an item in this folder exposes a tooltip that indicates who shared the item with you, as well as your permissions as a shared user:



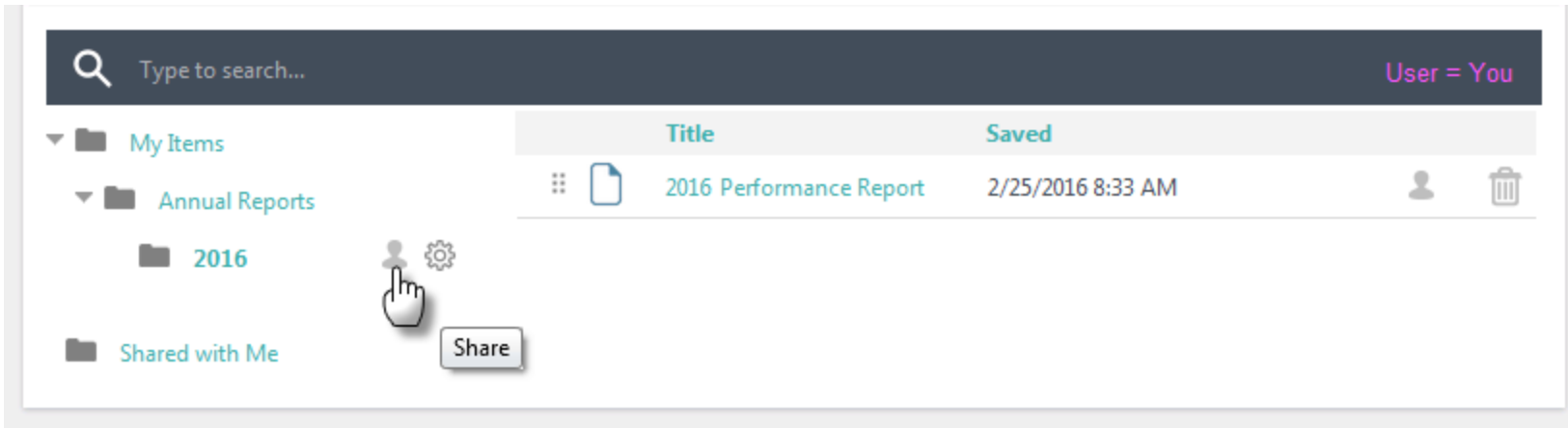
Unless you've been given a special role as a "Report Manager", you can't *edit* items that have been shared with you. You can, however, open them and use the item's gear menu to duplicate it. This will save a copy of it to your "My Items" folder, where you can open and edit the copy.



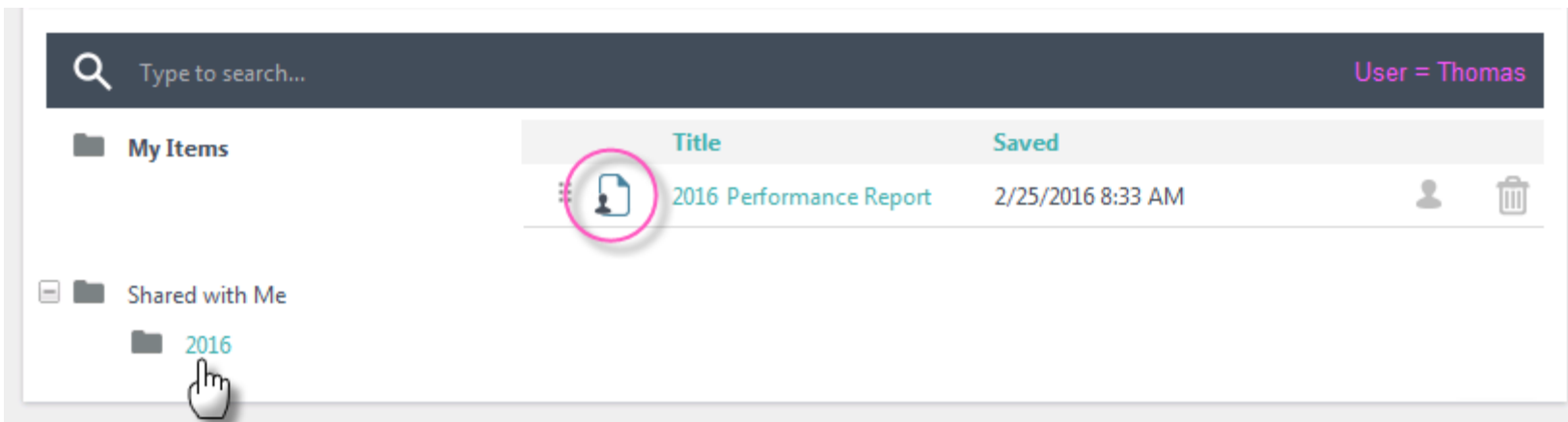
💡 The additional option *Delete* may be available, depending on your permissions.

## Sharing Entire Folders

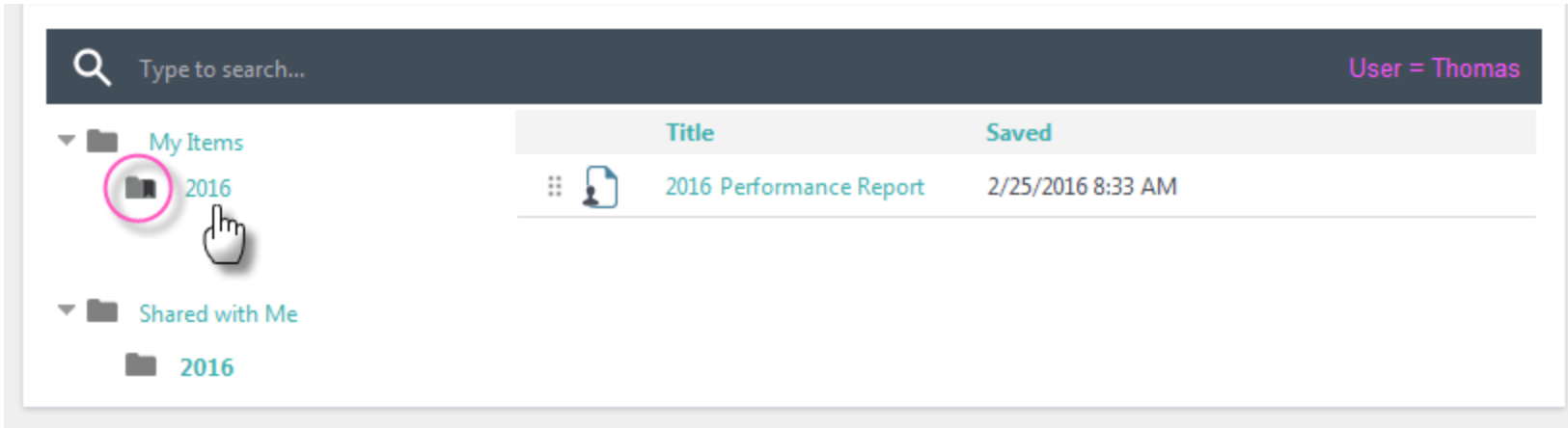
In much the same way you share items, you can share entire folders and their contents.



If sharing is enabled, folders will have a Share icon, too, and clicking it will allow you to share it. The same icon color code (gray = not shared, green = shared) apply here. If you shared the "2016" folder with user "Thomas", then...

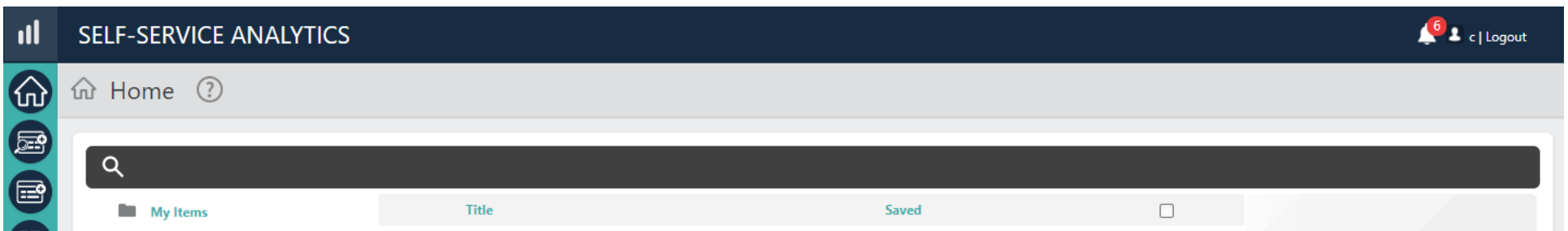


... he would see the folder and its contents, as shown above. Notice that the item's icon (circled above) indicates that it's shared. Any new items you moved into your 2016 folder later on would also show up in his shared 2016 folder.

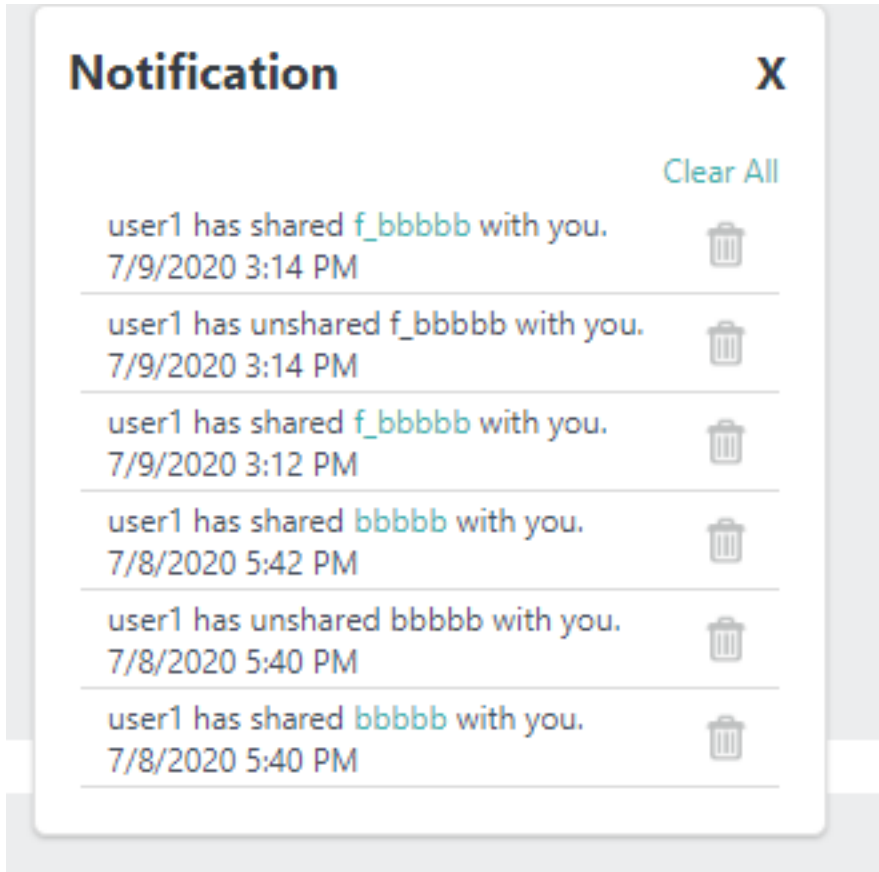



Finally, you can also drag a folder from your **Shared with Me** folder into one of your other folders. This creates a "folder short-cut" with a special icon, as shown above, which can save you the trouble of having to drill-down through many levels of shared folders to get to a folder you use often.

On the other hand, if a folder has been shared with you, you will received a notification on the SSRM Home Page, like below:



Selecting this notification will display information about the author and the shared folder. Select the **shared item** to access the folder:



 The bell icon and notification message will only display if your application has been configured to enable notifications. For more information, see [Configuring InfoGo Constants](#).

## Editing Shared Content

You and other users who have been given a specific security role can edit a report or Dashboard shared with you by others. With these roles, you can access the underlying Dashboard or report visualizations that are shared with you and make changes. When the changes are saved, the updated visualizations will be visible to anyone with whom the Dashboard or report has been shared. Note that these permissions allow you to edit and even remove content created by other users; if you wish to only edit *your* version, it is best to create a duplicate. Also, if two users are editing the shared content simultaneously, the last version to be saved will take priority.

This provides a shared approach to authoring, wherein a user can create a visualization and an administrator or interactive user can update it to meet corporate standards and then "promote" it for consumption by everyone.



The "Interactive" permission is different from edit, as it does not support saving changes back to original bookmark.

# InfoGo - Dashboard Geography

An InfoGo Dashboard consists of a collection of visuals (charts, gauges, and tables):

Regional Dashboard

Dashboard Tabs

Western Region
Eastern Region

**Total Value by Sales Person** Dashboard Panel

Last Name	Total Value
Suyama	75k
Peacock	220k
Leverling	210k
King	140k
Fuller	175k
Dodsworth	80k
Davolio	200k
Callahan	135k
Buchanan	75k

**Order Details 1996** Dashboard Panel

Page 1 of 108

Order ID	Customer ID	Employee ID	Last Name	Order Date	Discount
10248	VINET	5	Buchanan	7/4/1996	0
10248	VINET	5	Buchanan	7/4/1996	0
10248	VINET	5	Buchanan	7/4/1996	0
10249	TOMSP	6	Suyama	7/5/1996	0
10249	TOMSP	6	Suyama	7/5/1996	0
10250	HANAR	4	Peacock	7/8/1996	0
10250	HANAR	4	Peacock	7/8/1996	0.15
10250	HANAR	4	Peacock	7/8/1996	0.15
10251	VICTE	3	Leverling	7/8/1996	0.05
10251	VICTE	3	Leverling	7/8/1996	0.05
10251	VICTE	3	Leverling	7/8/1996	0
10252	SUPRD	4	Peacock	7/9/1996	0.05
10252	SUPRD	4	Peacock	7/9/1996	0.05
10252	SUPRD	4	Peacock	7/9/1996	0
10253	HANAR	3	Leverling	7/10/1996	0
10253	HANAR	3	Leverling	7/10/1996	0
10253	HANAR	3	Leverling	7/10/1996	0
10254	CHOPS	5	Buchanan	7/11/1996	0.15
10254	CHOPS	5	Buchanan	7/11/1996	0.15
10254	CHOPS	5	Buchanan	7/11/1996	0

**Employee Orders** Dashboard Panel

Employee	Order Count
Peacock	10
Davolio	6
Fuller	4
Callahan	3
King	3
Suyama	2
Buchanan	2
Dodsworth	1

They're placed into Dashboard **panels** and, if your application is configured for it, can be grouped on Dashboard **tabs**, as shown above.

## InfoGo - Adding Visuals

When you create a new Dashboard, or when you change tab settings, the Visual Gallery will be displayed.

The Dashboard Tab's gear menu includes an option to add a visualization from the Visual Gallery.

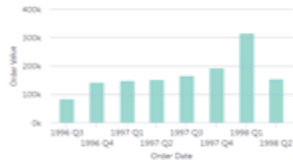
**Visual Gallery**

X

Find

Gallery

Sort By



**Sum of Order Value by Order Date Quarter**

Created: 2/12/2016 10:18 AM

This Bar Chart shows the quarterly order values over time from 1996 - 1998

Add

Delete from List

Visuals in your gallery can be deleted.



**Average of Total Value**

Created: 9/16/2015 11:53 AM

Add

Visuals in optional shared galleries may be configured so they cannot be deleted.



**Total Value by Customer ID**

Created: 9/16/2015 11:47 AM

Add

Delete from List



**Total Value by Order Date**

Created: 9/16/2015 11:46 AM

Add

Delete from List

...or [Create Visuals](#) and Add to Visual Gallery

Done

As you can see above, it's a collection of all of the visuals saved in the gallery. You can recognize them from their thumbnail images, and from the titles and descriptions entered when they were saved.

The **Find** control lets you filter the displayed visuals by typing in the full or partial title of a visual, and the **Sort** control lets you set the display order of the visuals by *Newest* or *Oldest*, or by *Title* alphabetically.

If your application has been configured for *multiple* galleries, at first you'll see *all* of their visuals combined into one big collection. You'll also see the **Gallery** selection list, which allows you to filter the displayed visuals by gallery.

Each visual has an **Add** button that adds it, as a new panel, in the Dashboard. You can add several new panels, one after another, if desired. Once a visual has been added, its button disappears and "Added" is displayed.

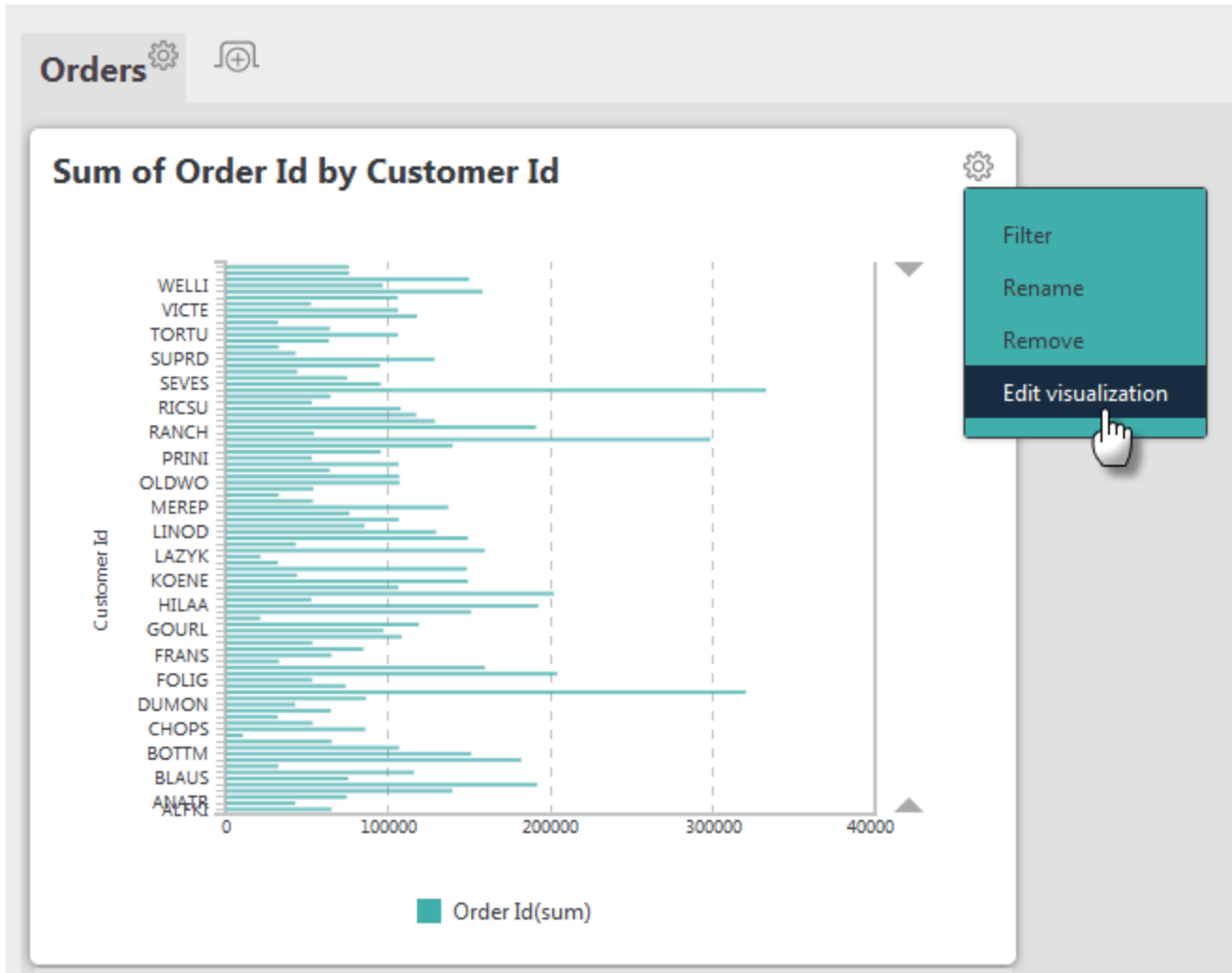
Panels can be removed from the Dashboard using a control on the panel itself (see "InfoGo - Panel Settings Placement" on page 150). If a panel is removed, its visual will appear in the gallery with its Add button displayed again.

Each visual from *your* gallery also has a **Delete from List** button, which deletes it from the gallery. If multiple galleries are in use, visuals from them may or may not have this button, depending on whether their creator configured the gallery to be "read-only".

Use the **Done** button to close the Visual Gallery.

# InfoGo - Editing Visuals

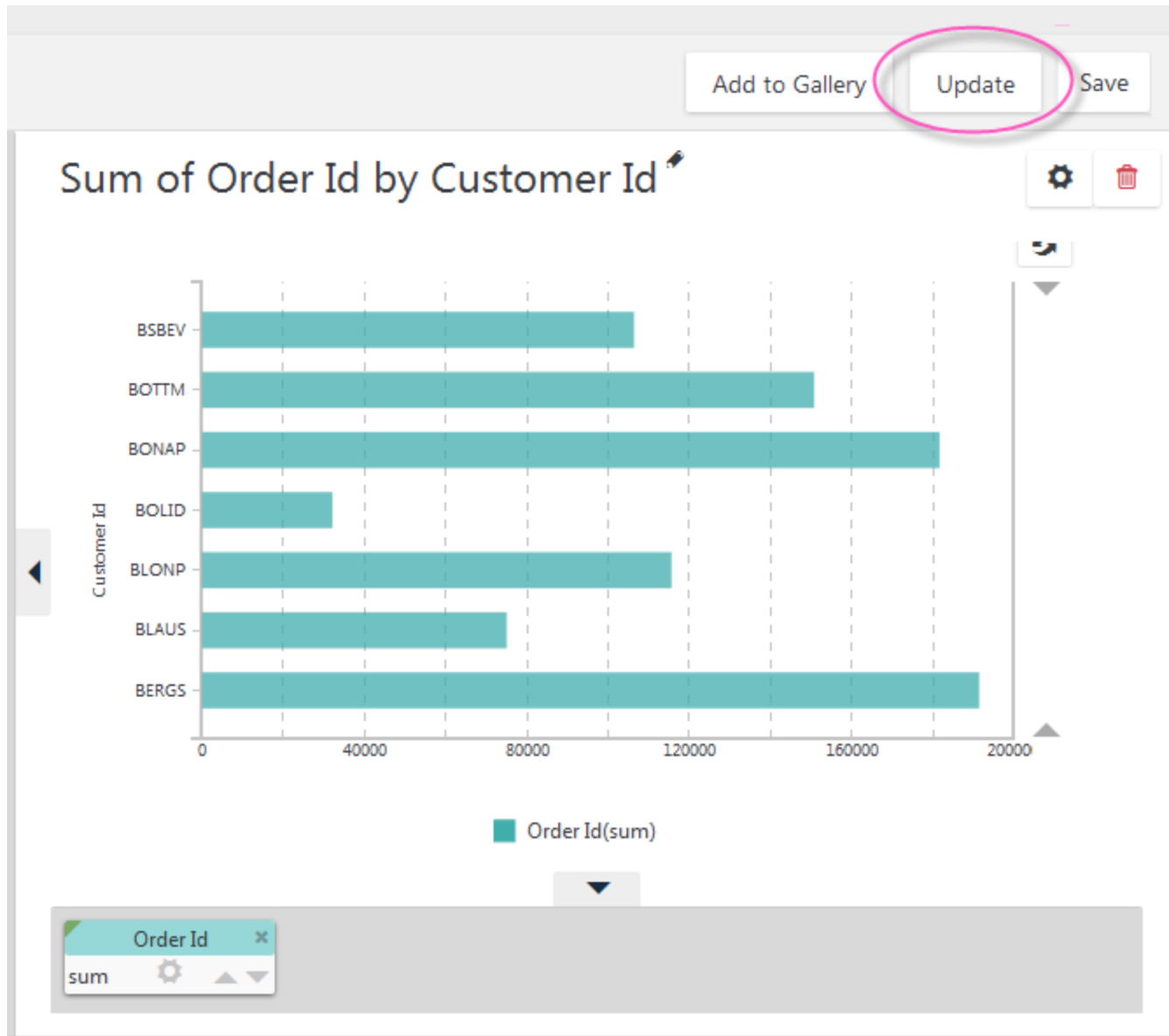
You can **edit** visuals generated by *Thinkspace analyses* directly from their Dashboard panels.



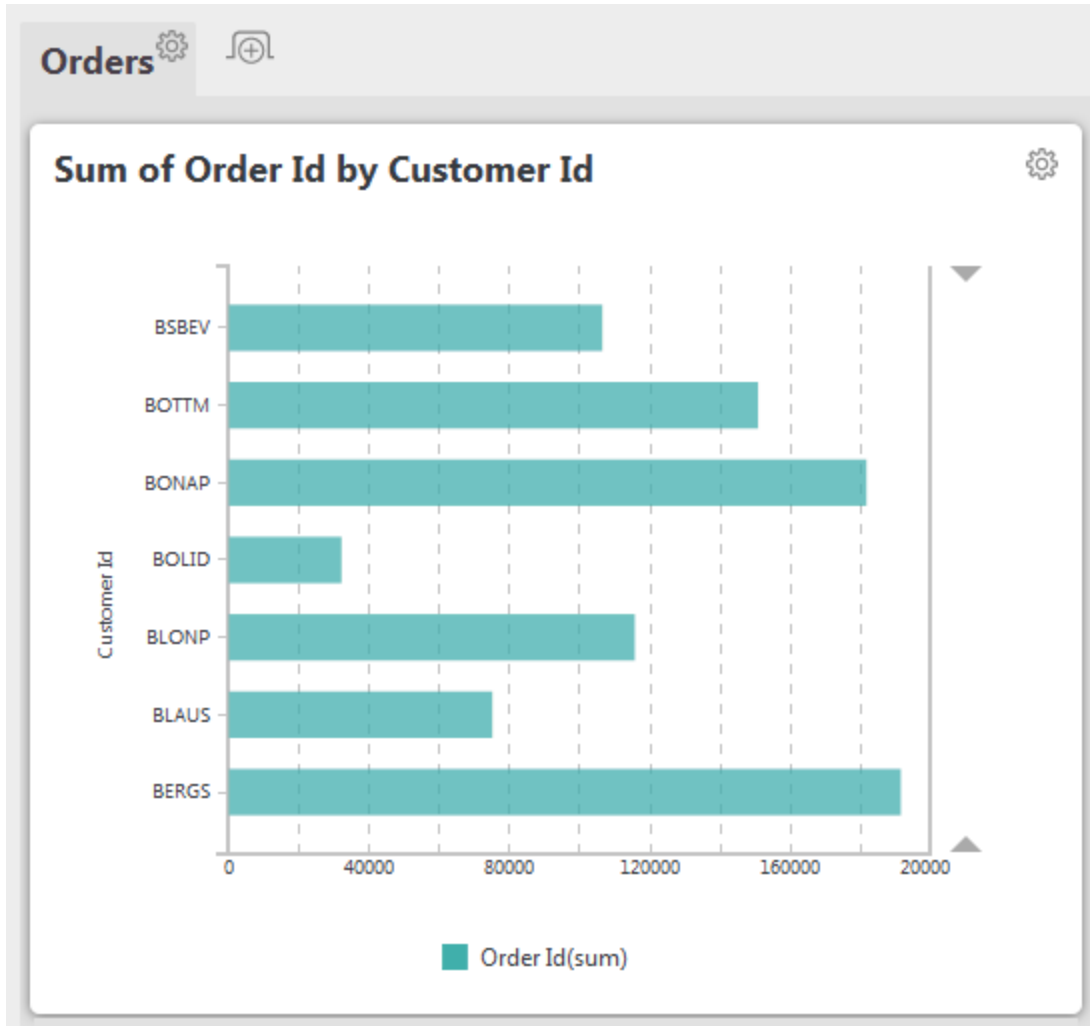
For example, you can click the Dashboard panel's gear icon and select the "Edit visualization" menu option, as shown above.



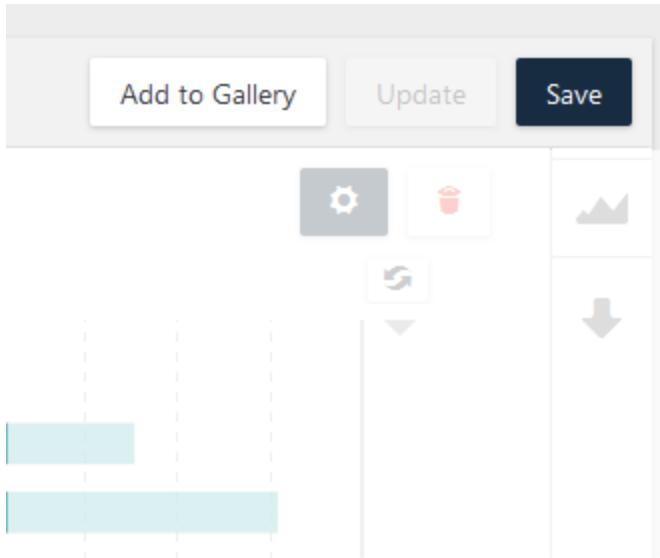
The Thinkspace will be displayed, with the Dashboard panel's visual loaded into it, as shown above.



You can then make changes to the visual. In the example above, we filtered the data down to Customer IDs that start with "B". Click **Update** to save your changes and return to the Dashboard...



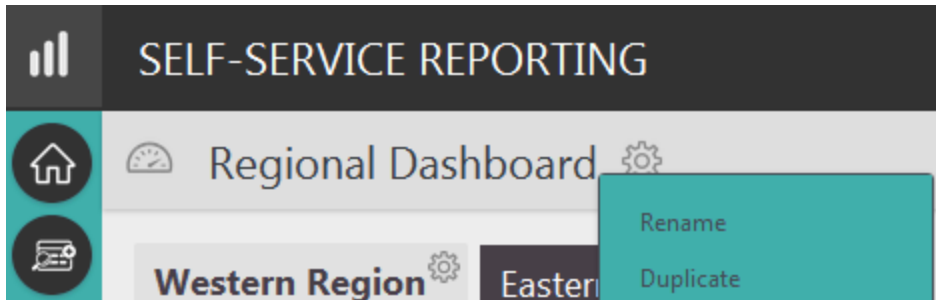
... where, as shown above, the Dashboard panel will be refreshed with the edited visual.



When you're editing the visual in the Thinkspace, depending on how your application is configured, you may also have the option to add the edited version to your Visual Gallery and/or to save it for use in a later session, using the two buttons shown above.

# InfoGo - Dashboard Settings

Dashboard settings are configured by clicking the **gear** icon next to the Dashboard title:



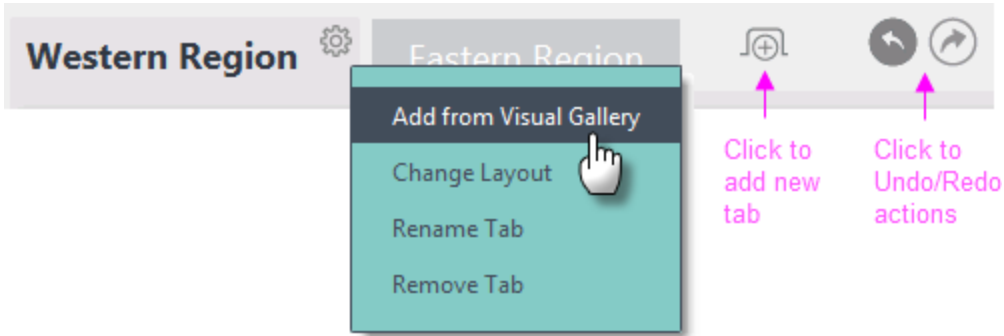
The available options, shown above, allow you to change the Dashboard title, or to save a copy of the Dashboard into your My Items folder.

Duplicated items will be saved in the folder that contains the original item, rather than in the My Items folder.

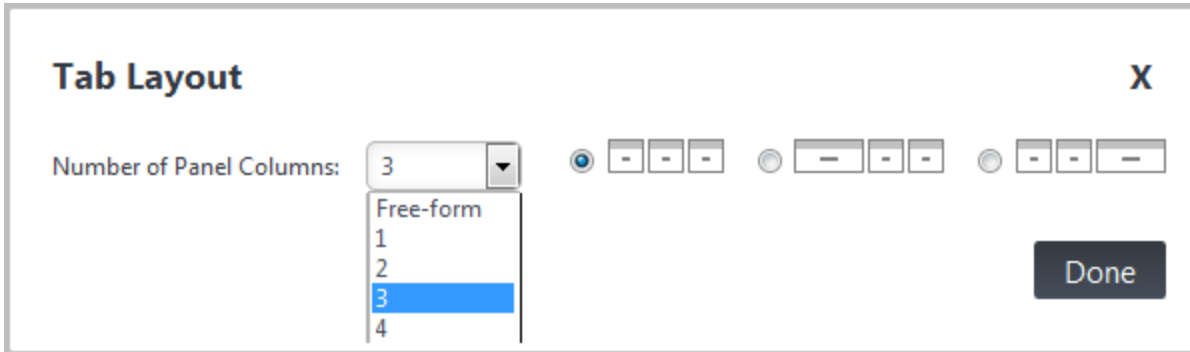
Additional options *Delete* and *Set as Global Main Page* may be available, depending on your permissions.

# InfoGo - Tab Settings

Dashboard Tab settings are configured by clicking the gear icon next to the active tab title:



The available options, shown above, allow you to add visuals from the Visual Gallery, change the panel layout, rename the tab, or remove it altogether. Nearby icons let you add a new tab and undo/redo actions.

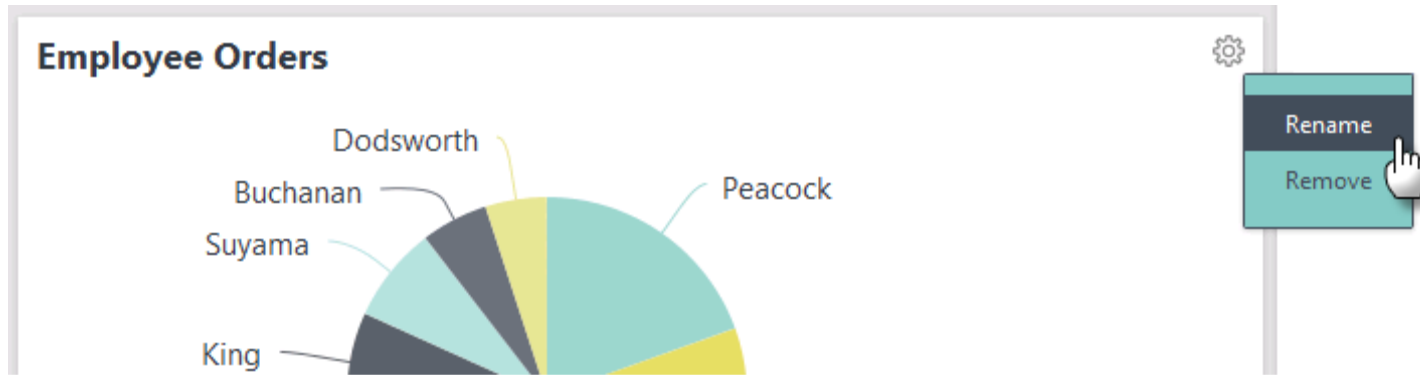


Tab layout, by default, is three columns of equal width, as shown above. Panels will fit into one of these columns. You can select up to eight columns, in equal or unequal widths.

You can also select a *Free-form* layout instead of using columns - this allows you to place panels in any arrangement, even overlapping.

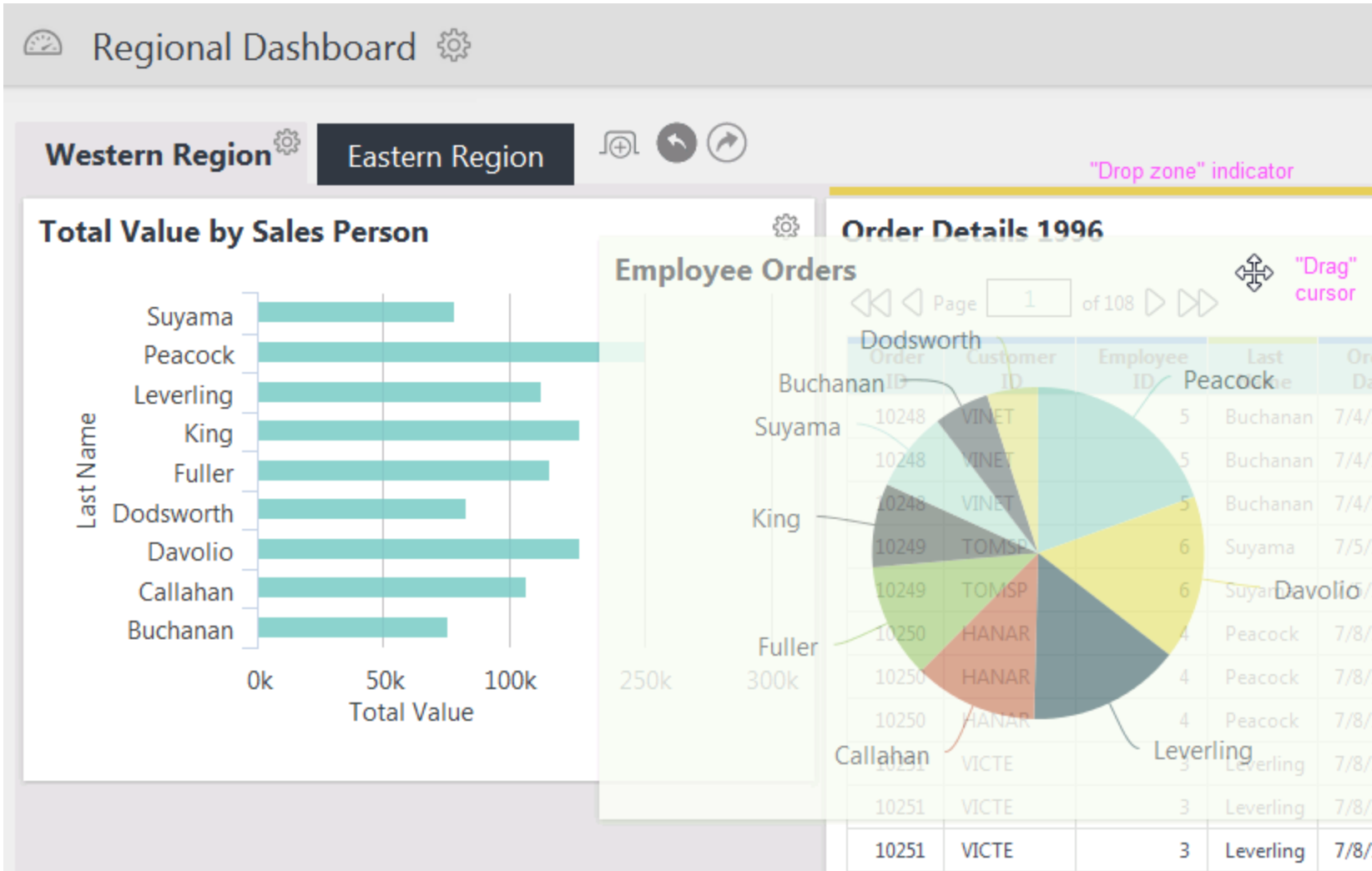
# InfoGo - Panel Settings Placement

Each Dashboard panel has its own settings icon:



The available options, shown above, allow you to change the panel title, or remove the panel from the Dashboard.

The setting menu now includes an option to edit the panel contents.



As shown above, panels can be re-arranged by dragging their title bar areas. When you do, the cursor changes to a *drag* cursor and a "drop zone" indicator (a yellow bar) will appear as you drag the panel toward a new location. If the drop zone is above or

between other panels, they'll move when the panel is dropped. The tab's layout setting controls where panels can be dropped, in columns or free-form.

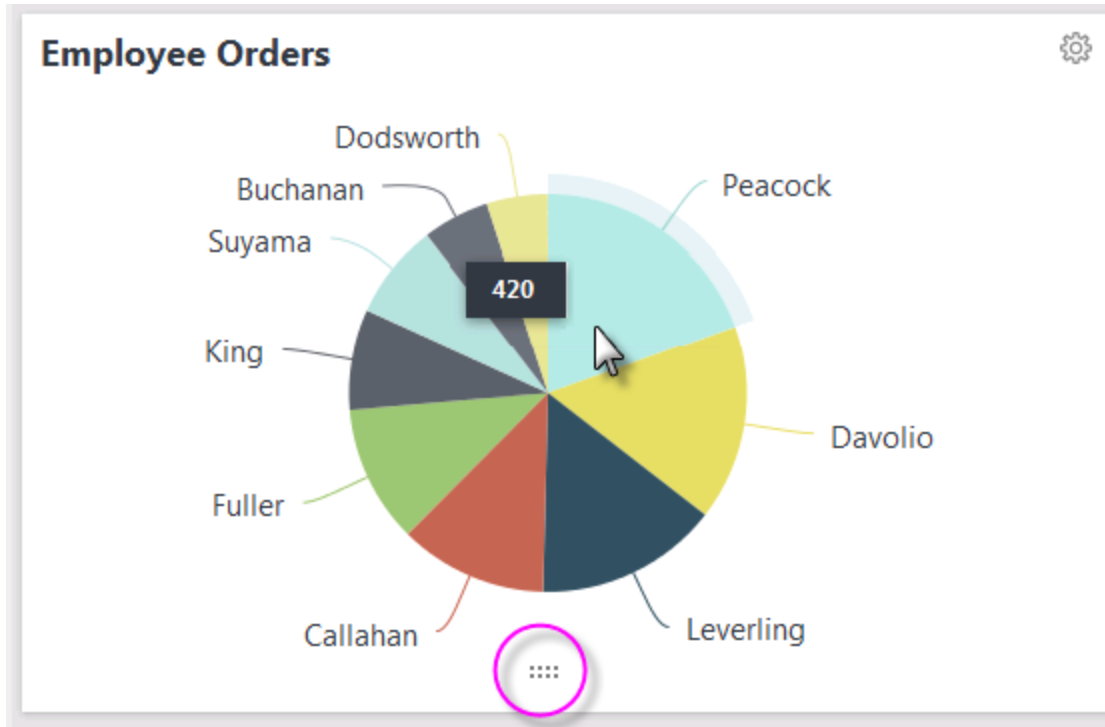
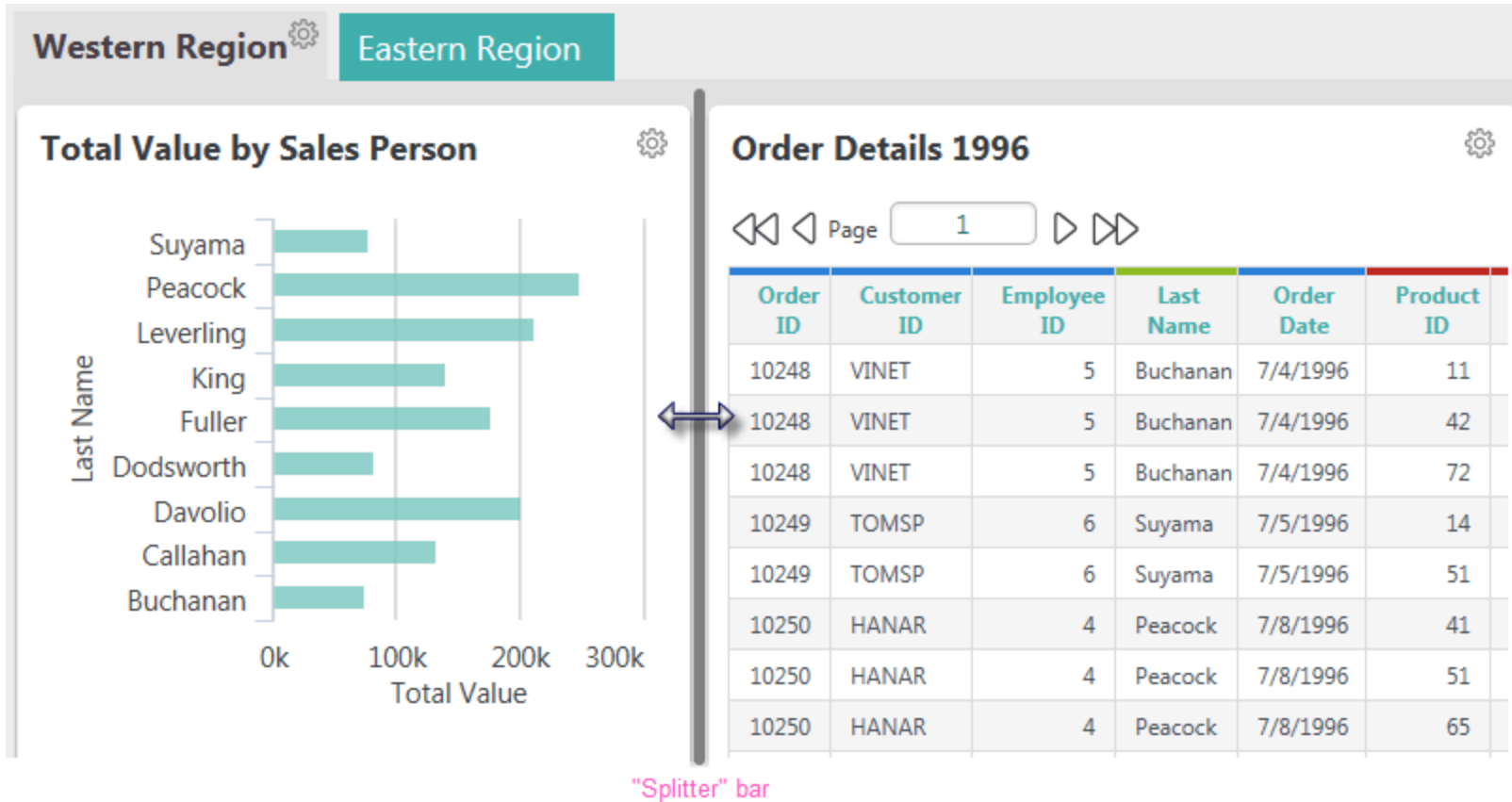


Chart resizing handle

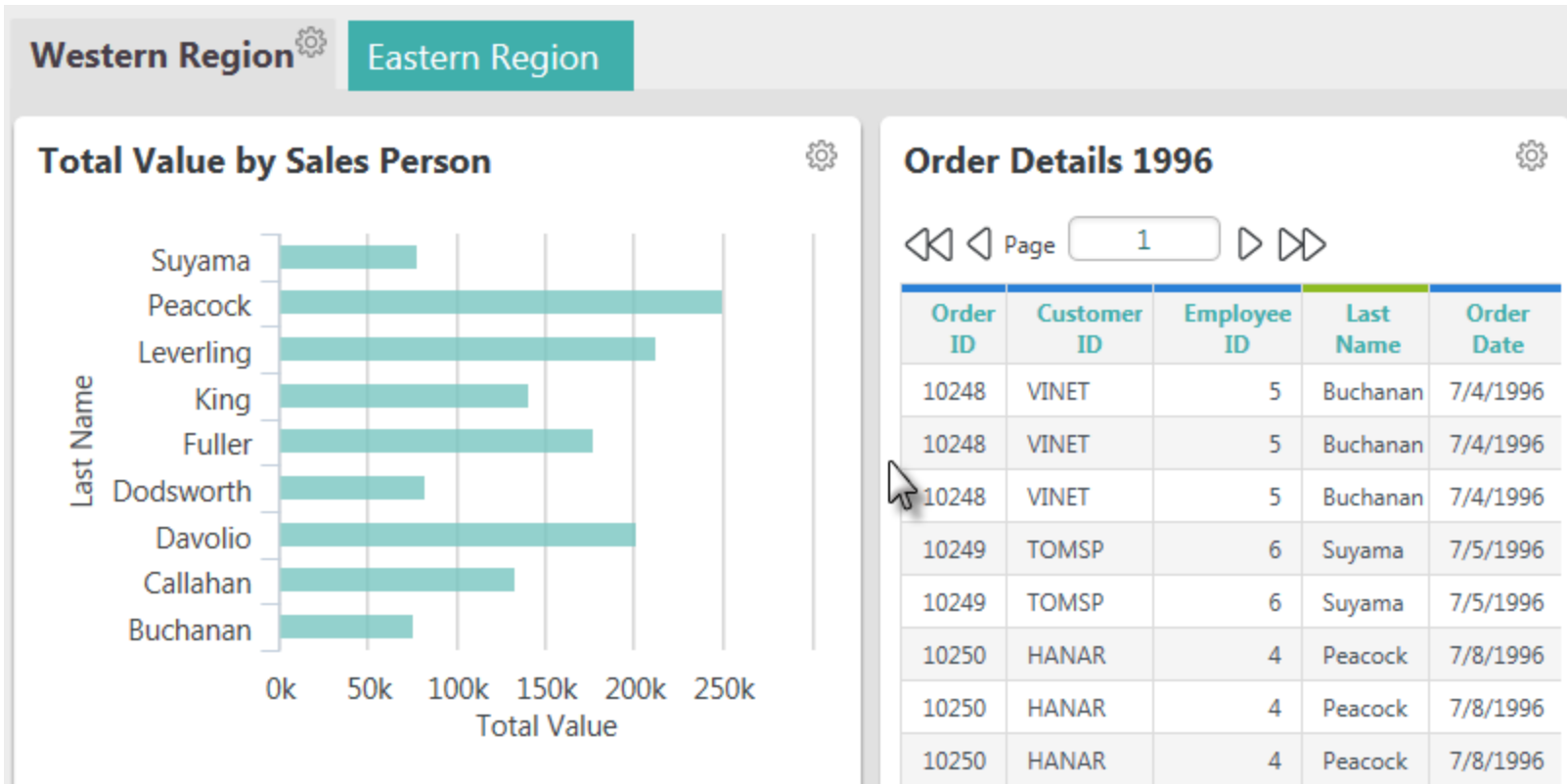
When the mouse cursor is hovered over a chart in a panel, a vertical resizing handle will appear. This can be used change the chart height and, if the chart is made tall enough, the panel itself will expand vertically, too.

The widths of layout columns (and therefore panels) in Dashboards that are configured to be adjustable can be changed using the "splitter" bar:



"Splitter" bar

Hover your mouse cursor over the vertical space between two Dashboard panels, as shown above, and a gray splitter bar will appear, as shown above.



Drag the bar right or left to the adjust panel widths, then drop the bar at the desired location. Visualizations that don't have their Width attributes set will automatically adjust to match the change in panel widths.

# InfoGo - Dashboard Filters

Your application may have been configured to allow dynamic filtering of the data in Dashboard panels, individually and globally.

## Filtering Individual Panels

If panel filtering has been enabled, clicking the panel's gear icon will display a pop-up menu that has a *Filter* option:

Orders  


### Orders Table

◀◀ 1 2 3 4 5 6 7 8 9 10 ▶▶

OrderID	Cust ID	Shipped	Freight	Ship Country
10248	VINET	7/16/1996	32.3800	France
10249	TOMSP	7/10/1996	11.6100	Germany
10250	HANAR	7/12/1996	65.8300	Brazil
10251	VICTE	7/15/1996	41.3400	France
10252	SUPRD	7/11/1996	51.3000	Belgium
10253	HANAR	7/16/1996	58.1700	Brazil
10254	CHOPS	7/23/1996	22.9800	Switzerland
10255	RICSU	7/15/1996	148.3300	Switzerland
10256	WELLI	7/17/1996	13.9700	Brazil
10257	HILAA	7/22/1996	81.9100	Venezuela
10258	ERNSH	7/23/1996	140.5100	Austria
10259	CENTC	7/25/1996	3.2500	Mexico
10260	OTTIK	7/29/1996	55.0900	Germany
10261	QUEDE	7/30/1996	3.0500	Brazil
10262	RATTC	7/25/1996	48.2900	USA
10267	FRANK	8/6/1996	208.5800	Germany




Filter


Renam 

Remove

**Panel Filter** Simple view X

  [ShipCountry] = Germany

**Panel Filter** Design view X

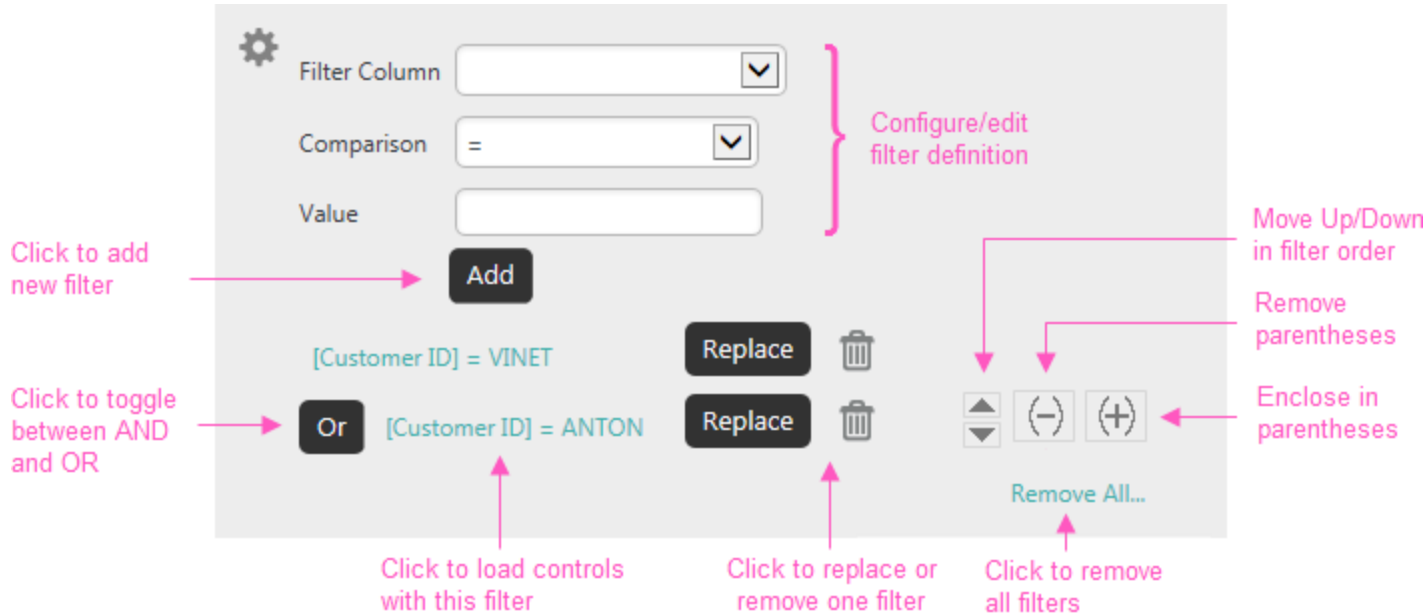
 Filter Column  ▼

Comparison  ▼

Value

**Add**

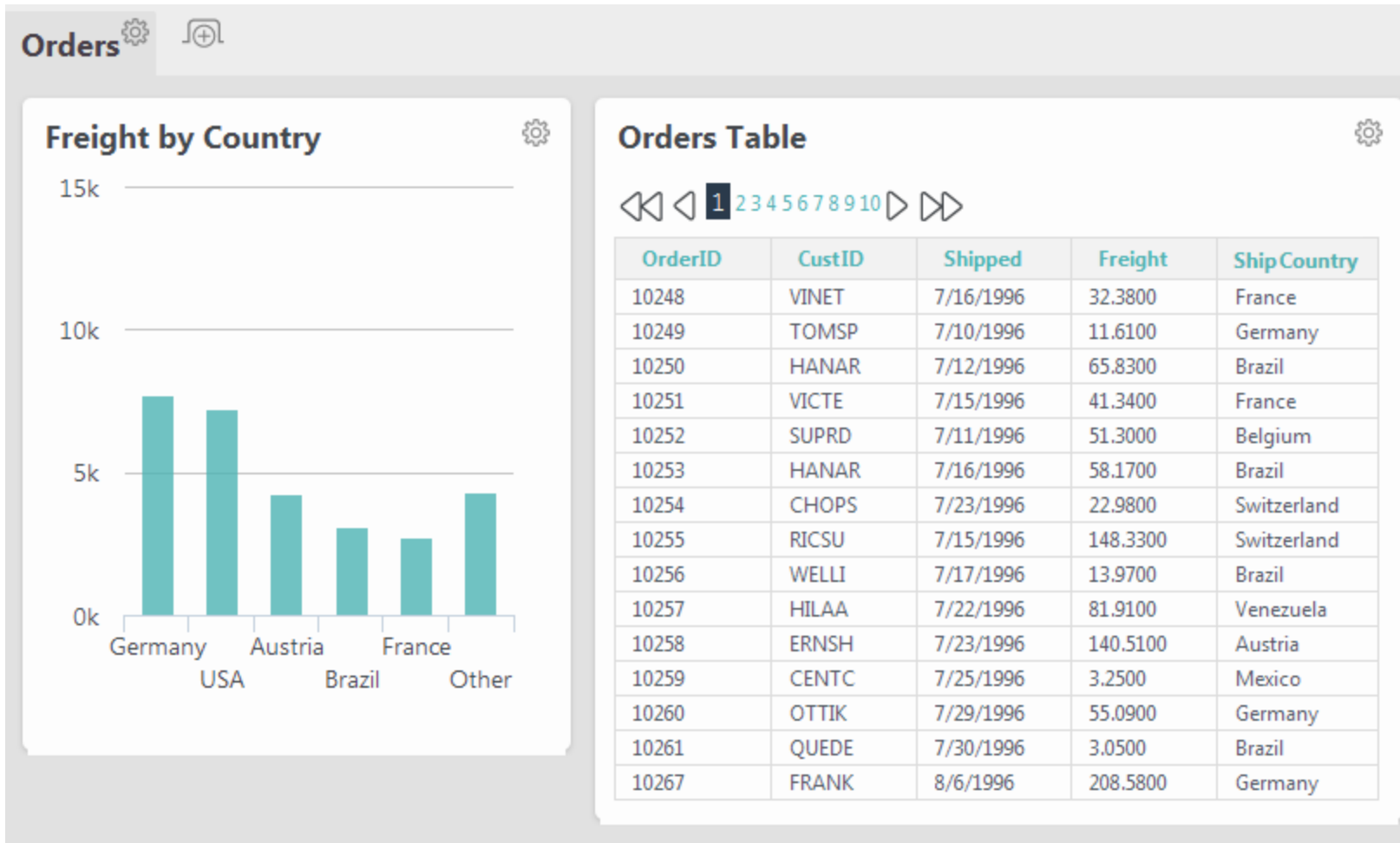
This option will open the **Panel Filter** panel, as shown above. The controls displayed in it will depend on the view mode, *Simple* or *Design*, configured by your application developer.



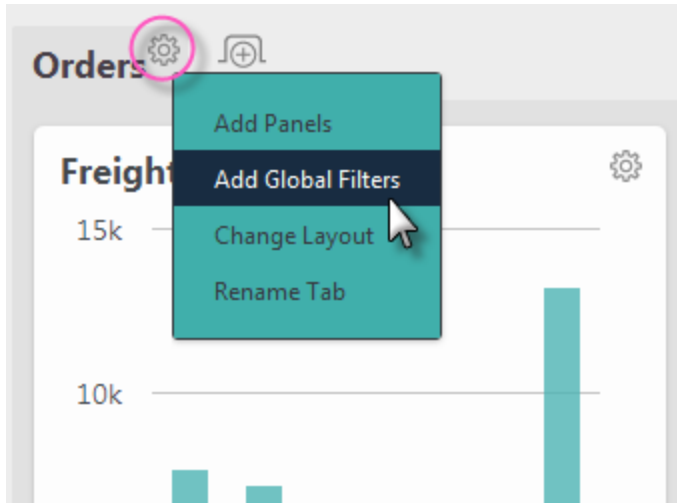
In Design view, you can define and combine filters, using the controls shown above. Adding, changing, or removing filters will immediately filter the data in the Dashboard panel accordingly.

## Adding a Global Filter



You can also add a "global" filter, one that affects the data used in *multiple* Dashboard panels at once. This type of filter functionality is automatically available when multiple Dashboard panels have been configured for filtering.




The example Dashboard shown above has two panels, each of which has been configured for filtering and whose visualizations use data from the ShipCountry column.




You can create a global filter by clicking the gear icon for the Dashboard tab, as shown above, and selecting the *Add Global Filters* pop-up menu option.

**Orders**  

 [ShipCountry] = Germany


Simple filter view


**Global Filter** X


  [ShipCountry] = Germany

Complex filter view

**Global Filter** X




Filter Column  


Comparison  

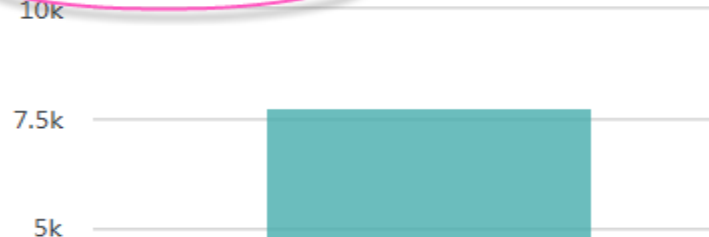
Value


**Add**


[ShipCountry] = Germany **Replace** **Remove**

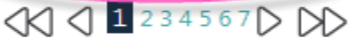
**Freight by Country** 

 [ShipCountry] = Germany



**Orders Table** 

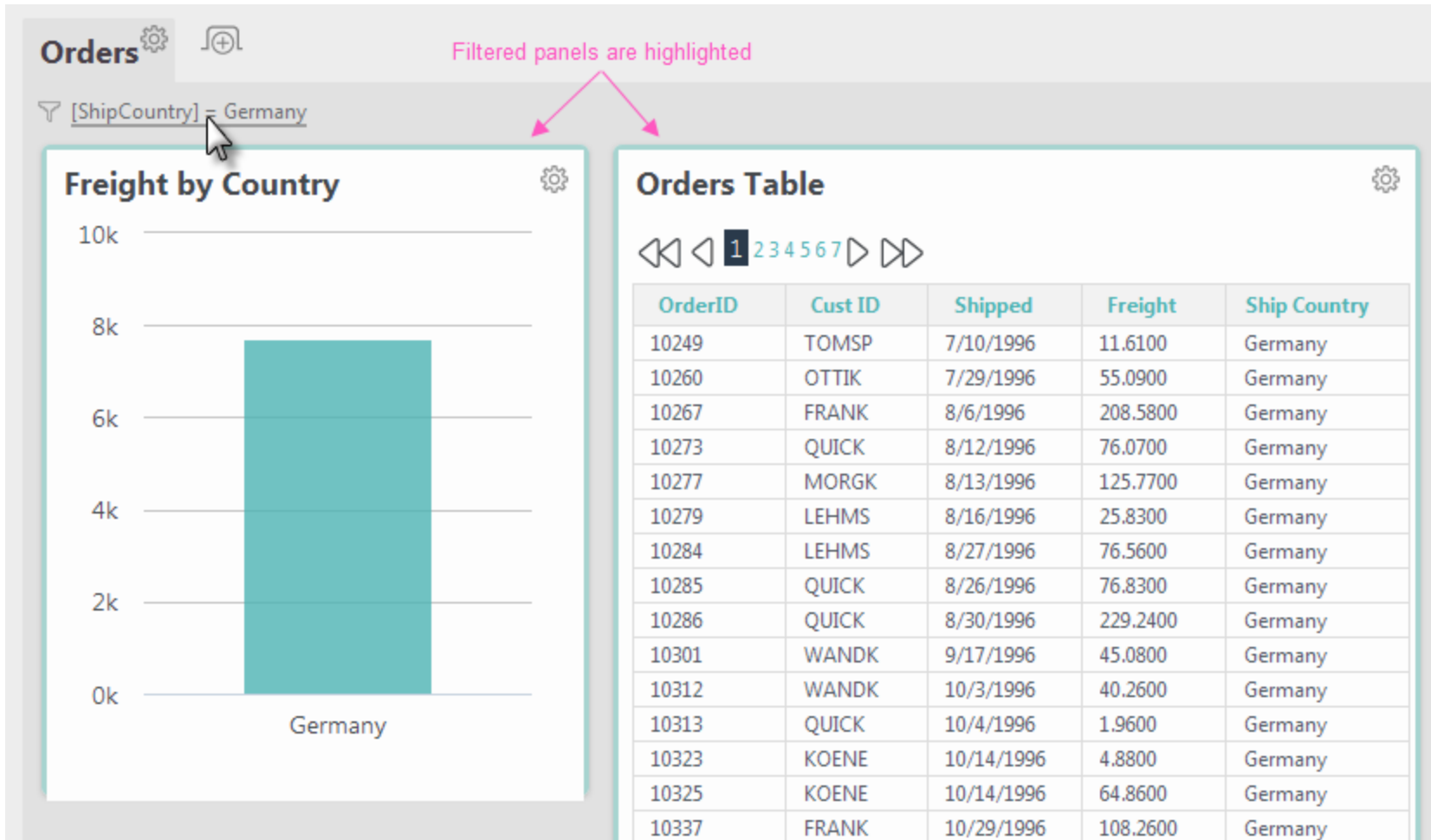
 [ShipCountry] = Germany



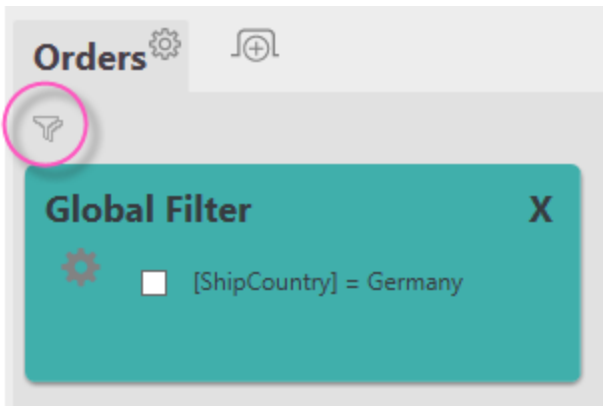
OrderID	Cust ID	Shipped	Freight	Ship Country
10249	TOMSP	7/10/1996	11.6100	Germany
10260	OTTIK	7/29/1996	55.0900	Germany
10267	FRANK	8/6/1996	208.5800	Germany

The **Global Filter** panel will be displayed, as shown above. The controls displayed in it will depend on the configured view mode and have been explained earlier. Once a filter has been created, Dashboard panels with visualizations whose data includes the filter's data columns will be filtered; those that do not include the filter's columns will not be filtered.

Filter descriptions, circled above, will be added to each filtered panel and can be clicked to re-open the Global Filter panel.



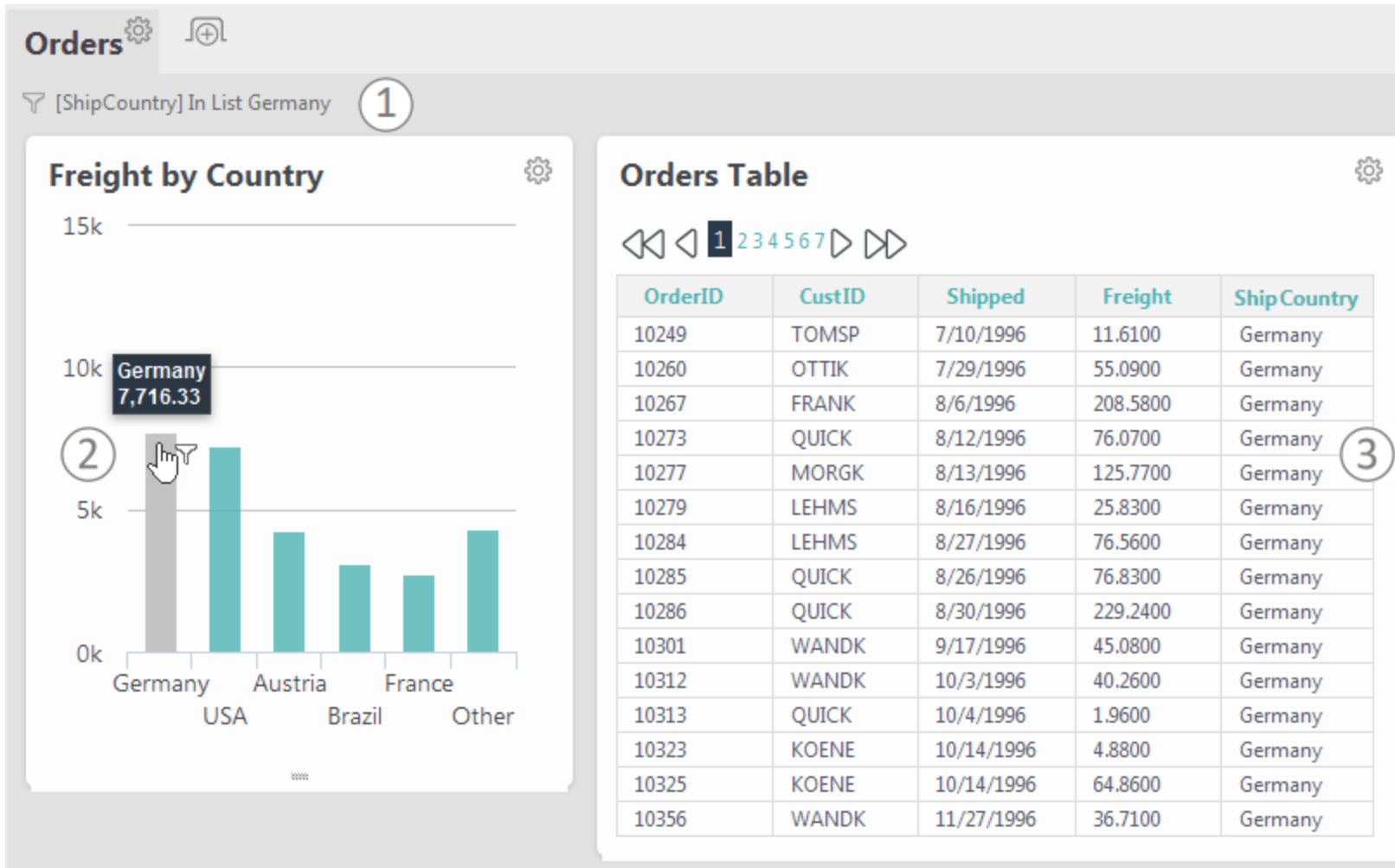
A global filter description will also appear at the top of the tab and can be used as a link to re-open the Global Filter panel. In addition, when you hover your mouse cursor over this description, the panels affected by the filter will be highlighted, as shown above.



When the Simple view mode is used, filters can be disabled by unchecking their check box. This causes the global filter description to be removed, but a filter icon, circled above, remains as an indicator that a global filter is defined and available for use. Clicking the icon will re-open the Global Filter panel.


## Global Filtering using Chart Data Points

If your application has been configured to allow it, you can also create a global filter in a Dashboard by selecting data points in a chart:




Once again, we have an example with two Dashboard panels, one with a chart and one with a table, shown above. When you click a bar in the chart, a global filter is created automatically and three other things happen:


1. A Filter Description appears at the top of the Dashboard tab. This can be clicked to edit the global filter.
2. The color of the selected chart bar changes to indicate it's included in a filter.
3. The data for the table in the second panel is filtered.

 This is different from the previous global filtering example because the chart that was clicked is *not* filtered.


Clicking the same chart bar a second time will cancel the filter related to that data. Clicking another bar will add additional criteria to the global filter.

Orders 

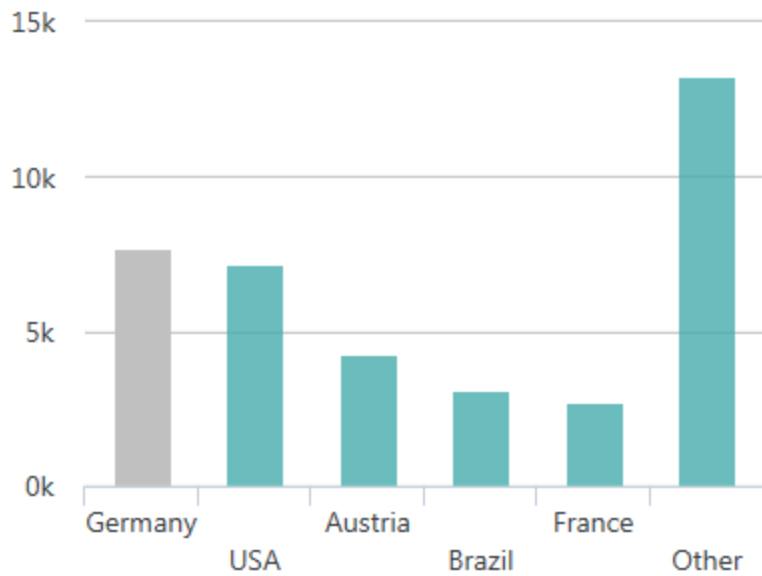


 [ShipCountry] In List Germany

**Global Filter** X

  [ShipCountry] In List Germany

**Freight by Country** 



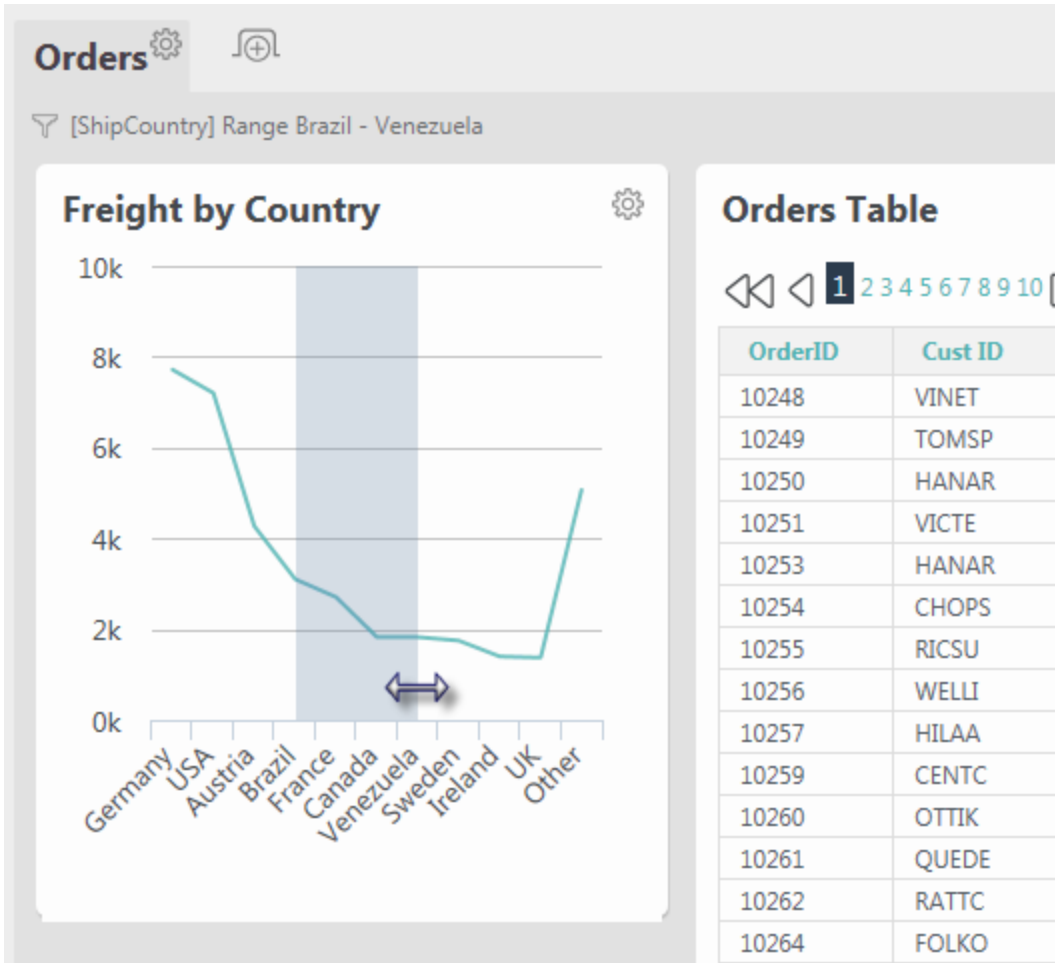
**Orders Table** 

 [ShipCountry] In List Germany

◀◀ 1 2 3 4 5 6 7 ▶▶

OrderID	Cust ID	Shipped	Freight	Ship Country
10249	TOMSP	7/10/1996	11.6100	Germany
10260	OTTIK	7/29/1996	55.0900	Germany
10267	FRANK	8/6/1996	208.5800	Germany
10273	QUICK	8/12/1996	76.0700	Germany
10277	MORGK	8/13/1996	125.7700	Germany
10279	LEHMS	8/16/1996	25.8300	Germany
10284	LEHMS	8/27/1996	76.5600	Germany
10285	QUICK	8/26/1996	76.8300	Germany
10286	QUICK	8/30/1996	229.2400	Germany

Clicking the Filter Description at the top of the Dashboard tab will cause the automatically-generated Global Filter panel to be displayed. As before, the controls displayed in it will depend on the view mode, Simple or Design, configured by your application developer (only Simple mode is shown above).

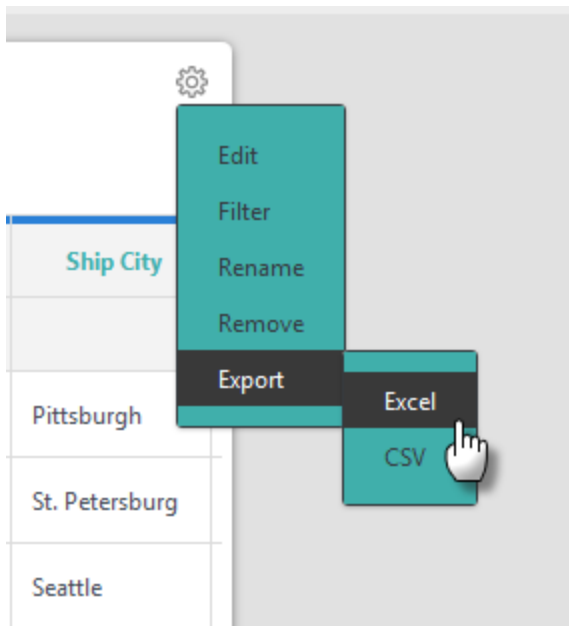


For chart types that support it, you can also create a global filter by dragging the cursor to select a range of values, as shown in the Line chart above. This will create a global filter that includes the selected range of values.

# InfoGo - Exporting Dashboard Tables

If your Dashboard panel contains a table or Crosstab Table, you can export its data to an Excel or CSV file.

To export the data, click the Dashboard panel's **gear** icon to display a drop-down menu with an Export option, as shown below. Select the desired **export type**, Excel or CSV, and specify the file location and name when prompted.



The exported data will be affected by any global or panel filters that have been applied.

# InfoGo - About InfoGo Reports

An InfoGo report displays an arrangement of components that convey the information you want to see.

Visuals from the Visual Gallery can be included in reports and charts in them are fully functional in a report: their animation, hover highlighting, quicktips, etc. work just as they did in an analysis.

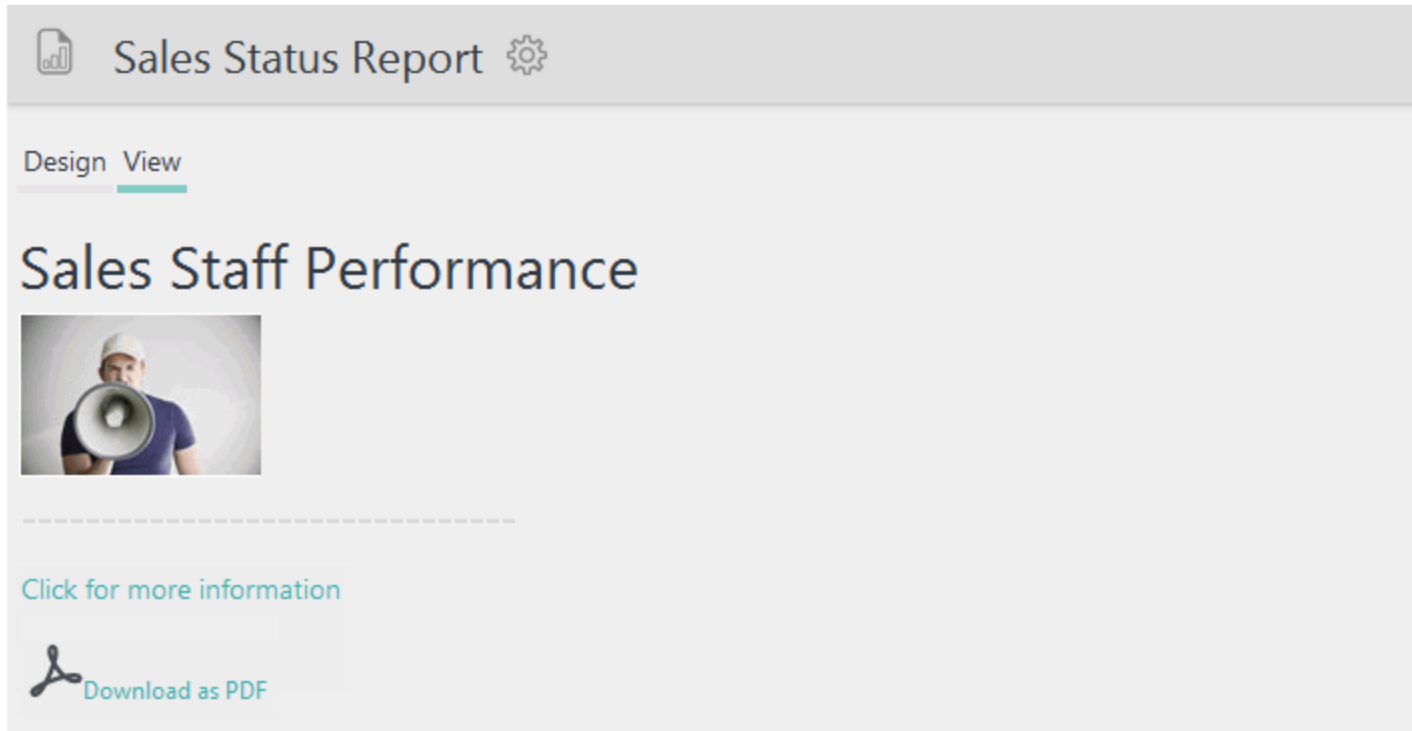
Each time the report is run or refreshed in the browser, its visuals will retrieve data from their databases and display it. The report is therefore a "snapshot" of the data as it was at the time the report was last refreshed.

Reports you create are automatically saved and will appear in the list of resources in the My Items folder on the Home page.



From the Home page, click the **Design Report** option.

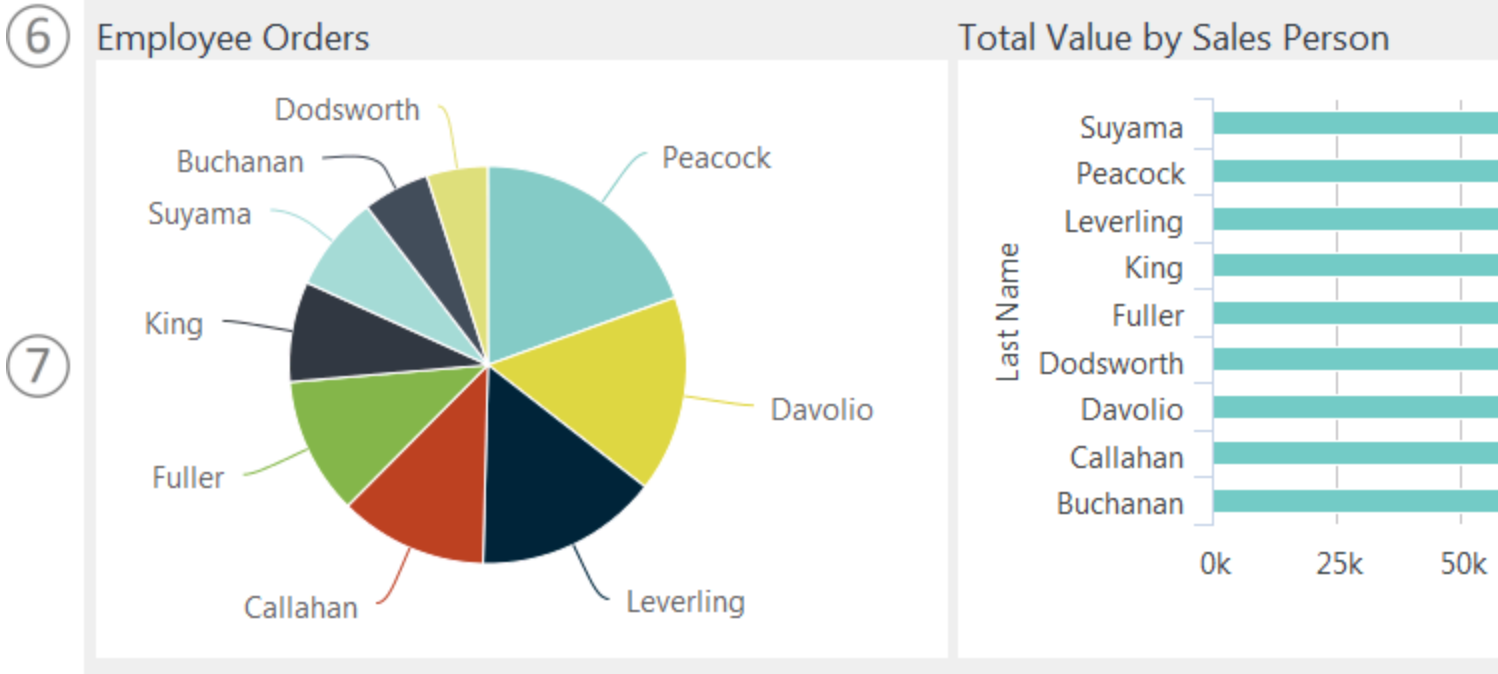
# InfoGo - InfoGo Report Components

Let's meet the building blocks of an InfoGo report.



The screenshot shows a report component titled "Sales Status Report" with a gear icon for settings. Below the title, there are two tabs: "Design" and "View", with "View" being the active tab. The main content area displays the following elements:

- ① **Sales Staff Performance**
- ② 
- ③ -----
- ④ [Click for more information](#)
- ⑤  [Download as PDF](#)



A report can use any of the following components:

1. **Text** - You can enter text to be displayed in the report. Various font attributes like *size* can be set as desired.

Dates and times entered here will be internationalized, based on the configuration of the Globalization element's User Culture attribute in the `_Settings` definition.

2. **Image** - You can upload an image for display in the report.
3. **Line Space** -You can add blank lines to provide vertical spacing (dotted line only shown above for clarity).
4. **Link** - You can add links to other reports or web pages.
5. **PDF Link** - You can add a link that will download the report to PDF format.

6. **Split Row** - You can add an empty row that's divided into multiple columns, then drag content into them.
7. **Visual** - You select a visual from your Visual Gallery for display in the report.

You may have as many of these components in your report as you'd like.

## InfoGo - Report Design Mode

Just under the report title, you can see the Design and View links, which let you switch modes. When you elect to create a new report (from the Home page), it starts in Design mode but you can switch modes at any time. In Design mode, the components in the report will appear in a series of panels:

Design View Click to switch between Design and View modes

1

- New Split Row
- Add Space
- New Visual
- New Text
- New Image
- New Link
- New PDF Link

## Sales Staff Performance

2

3

Click for more information

Download as PDF


4

### Employee Orders

### Total Value by Sales Person

Suyama	<div style="width: 100%; height: 10px; background-color: #009682;"></div>
Peacock	<div style="width: 95%; height: 10px; background-color: #009682;"></div>
Leverling	<div style="width: 75%; height: 10px; background-color: #009682;"></div>
King	<div style="width: 85%; height: 10px; background-color: #009682;"></div>
Fuller	<div style="width: 70%; height: 10px; background-color: #009682;"></div>
Dodsworth	<div style="width: 90%; height: 10px; background-color: #009682;"></div>

Design mode, shown above, lets you build or modify your report.

1. **Component Toolbox** - Components appear on the left. Drag them onto the report canvas to add them.
2. **Re-arrange** components on the canvas by clicking their drag icon -  - and dragging them into a new location.

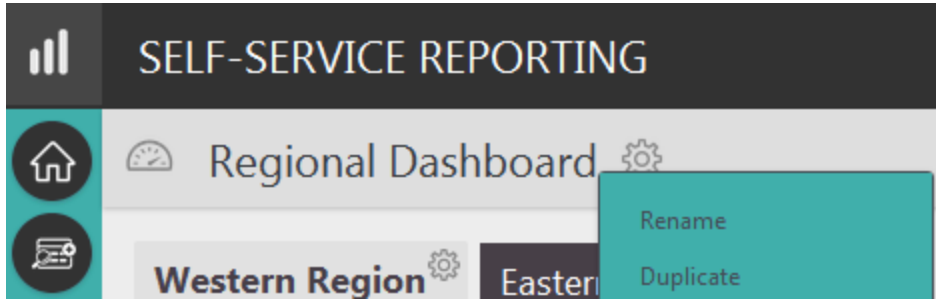
When you do this, the cursor changes to a *Drag* cursor and a "Drop Zone" indicator (a yellow bar) will appear as you drag the component toward a new location. If the drop zone is above or between other components, they'll move when the component is dropped.

3. **Configure** component settings or delete them by clicking the gear or X icons.
4. **Add/Remove columns** for the Split Row component by clicking the Columns icon.

When you drag a Visual component onto the canvas, the Visual Gallery will be displayed and you can select one or more visuals to be inserted into your report. Chart animation, resizing, hover highlighting, and quicktips will all be active in the report. Each selected visual will be inserted into its own separate panel.


# InfoGo - Report Settings

Report settings are configured by clicking the **gear** icon next to the report title:



The available options, shown above, allow you to change the report name or save a copy of the report into your My Items folder.

Duplicated items will be saved in the folder that contains the original item, rather than in the My Items folder.

 The name shown here identifies the report *inside* of the InfoGo application and on the Home page resources list. However, it is *not* included (nor is the gear icon) when the report is downloaded as a PDF document.

Additional options *Delete* and *Set as Global Main Page* may be available, depending on your permissions.

# InfoGo - Component Settings

Each component has its own settings, which are displayed by clicking the component's gear icon:

**Settings**
X

☰ ☰ ☰ **B** *I*

Click for more information

Font Size:

Font Color:

URL:

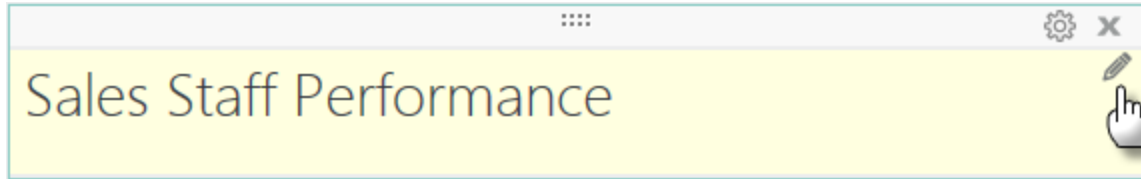
Target:

Border Settings
 

Thickness:

Color:

As you'd expect, the settings will be different for different components. The settings for the **Link** component are shown above.



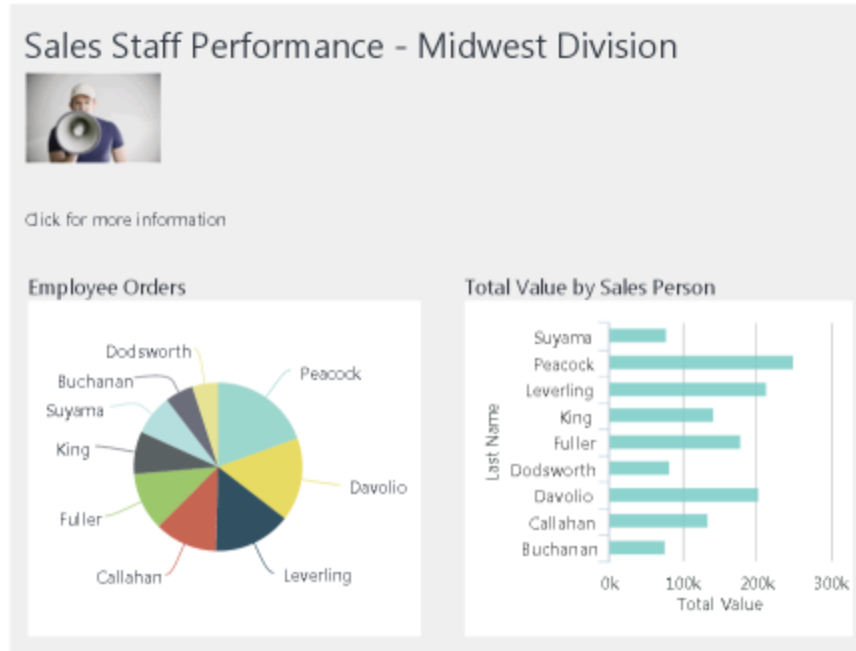
The **Text** component has a similar Settings panel, however, for quick text-only changes you can edit the text in place. Just hover your mouse cursor over the right end of the component, as shown above, to makes its special Pencil icon appear, then click it to edit the text.

# InfoGo - Download PDF

If you choose to include a "PDF Link" component, you should be aware of what the PDF version of the report will look like.



Viewed in InfoGO

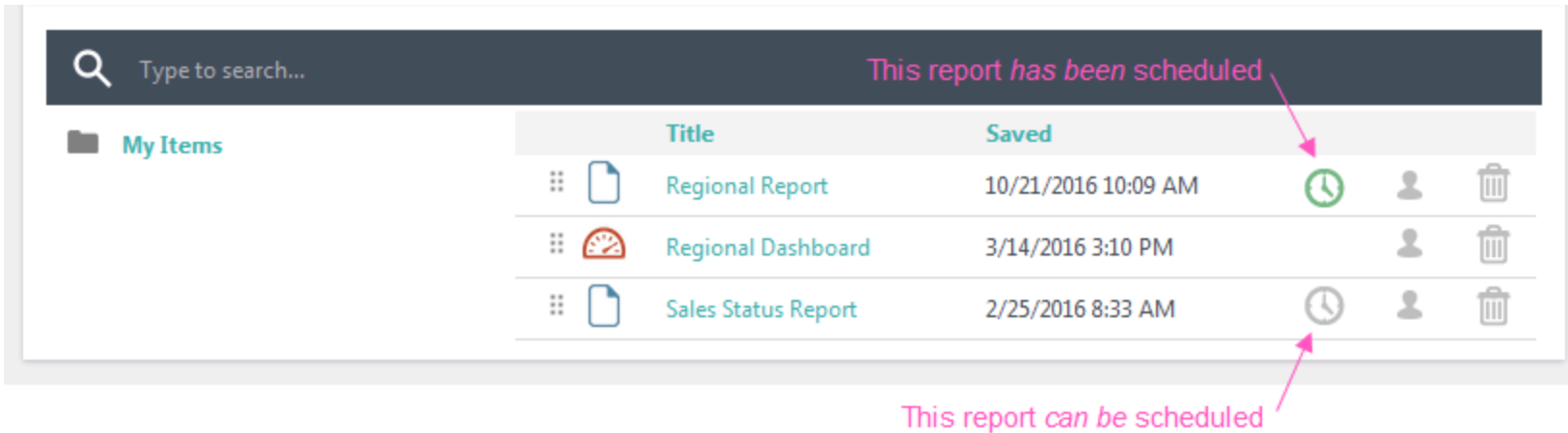


Downloaded as a PDF document

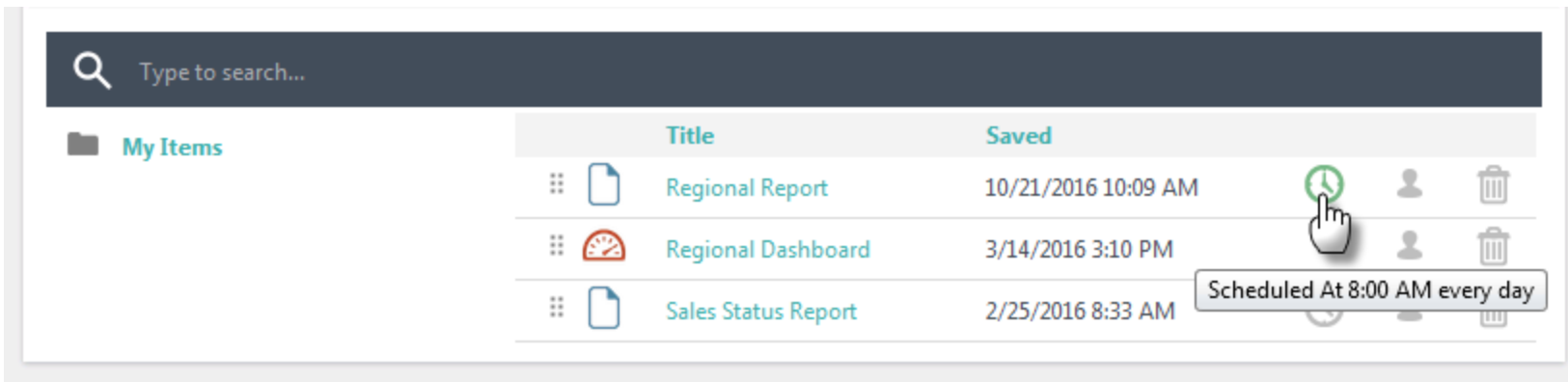
When the report is converted into a PDF document, the internal InfoGo report name, the Design and View links, and the PDF Link component itself are removed. The example above shows the differences. This means you'll most likely want to include a Label at the top of the report, as its *title*, if you plan to use the PDF Link component.

# InfoGo- Schedule Report Delivery

Reports can be scheduled for automatic generation and delivery via email as a PDF attachment. Dashboards and analyses cannot be scheduled. Scheduling is an *optional* InfoGo feature that may have been enabled by your InfoGo developer.



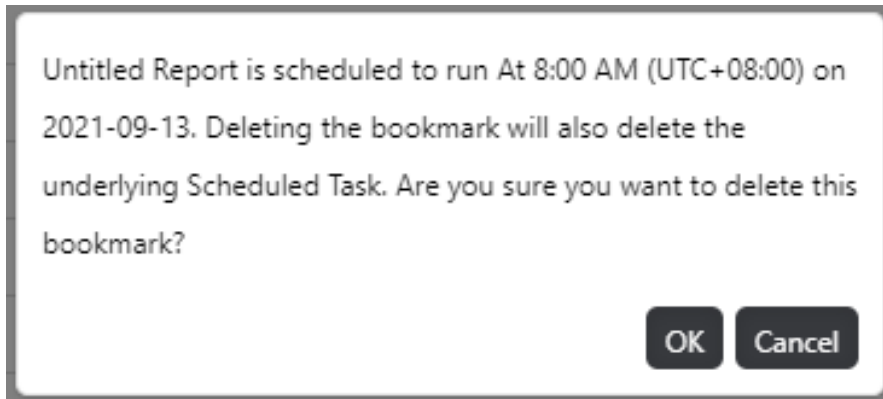
It's easy to see if scheduling is enabled for each item in your Home page list. If it is, a clock icon will appear, as shown above. If not, no icon will appear. When reports have already been scheduled, a green clock icon appears.




If a report *has been* scheduled, the details are displayed in a tooltip made visible by hovering your mouse cursor over the green clock icon, as shown above. If a report has been shared with you, the tooltip will also include your Permission Type. If your permissions are "Interactive", you have the ability to schedule the report.

Select a **report** and click its **clock** icon to set up or change its delivery schedule.

Select the **trash can** icon to remove a bookmark and corresponding schedule. Upon selecting the trash can icon, Info generates a confirmation dialog box that lists the time and date the bookmark is set to run and asks if you still want to delete the bookmark:



To proceed, select **OK**. Otherwise, select **Cancel**.

 Schedules launched by the shared user are removed if their permission changes to "Read". Likewise, if the report or folder is unshared with that user, schedules launches by the shared user are also removed.

For more information, see "InfoGo - Reporting Scheduling Details" on the next page.

# InfoGo - Reporting Scheduling Details

To schedule a report, you need to provide the delivery details and report generation frequency in the Schedule panel:

The screenshot shows a 'Schedule' dialog box with the following fields and options:

- From:** Text input field.
- To:** Text input field with links for [Add Cc](#) and [Add Bcc](#).
- Subject:** Text input field containing 'Analysis Grid Rapid Excel'.
- Format:** Dropdown menu set to 'Excel'.
- Export Data Preference:** Radio buttons for 'Formatted' and 'Rapid' (selected).
- Orientation:** Dropdown menu set to 'Portrait'.
- Message:** Large text area for a custom message.
- Schedule:** Dropdown menu set to 'Once'.
- Start Time:** Time input field set to '08:00' with a clock icon.
- Run On:** Date input field set to '2023-03-16' with a calendar icon.
- Time Zone:** Dropdown menu.

At the bottom of the panel are three buttons: 'Done', 'Run Now...', and 'Remove...'. A close button 'X' is in the top right corner, and a settings gear icon is in the bottom right corner.

Provide the following schedule details:

- **From** - Enter your email address (or the email address you want to appear as the "Sent From" address).
- **To** - Enter the email address of the report recipient. Separate multiple addresses with a semi-colon (;).
  - The characters accepted in the To, Cc, and Bcc fields are: **!#\$%&'+-^`~**
- **Subject** - Enter a brief subject description.
- **Format** - Select the format for the report: PDF, Excel, or Web Mail.
- **v23.1 Export Data Preference** - If your application has been configured for it, selecting "Excel" from the Format drop-down triggers an additional Export Data Preference option. Options include: Formatted and Rapid.
- **Orientation** - Select the orientation for the report: Portrait or Landscape.
- **Message** - Enter the text of the email message, included when the PDF or Excel format option is chosen.
- **Schedule** - Select the **Start Time**, **Run On** date, and **Time Zone** to customize the delivery of the report. These options change depending on the initial selection and are described in more detail below.
- **Done** - Select **Done** to save the settings.

If you're editing a schedule, two more buttons display:

- **Run Now...** - Select **Run Now...** to generate and deliver the report immediately.
- **Remove...** - Select **Remove...** to remove this scheduled occurrence.

💡 Schedules launched by the shared user are removed if their permission changes to "Read". Likewise, if the report or folder is unshared with that user, schedules launches by the shared user are also removed.

You can also click the **X** icon to close the panel, without saving any changes, at any time.

## Schedule Options: Once

This option generates and delivers the report exactly one time:

Schedule:

Start Time:

Run On:

Time Zone:

**Time Picker** X

Hour						Minute		
00	01	02	03	04	05	00	05	10
06	07	08	09	10	11	15	20	25
12	13	14	15	16	17	30	35	40
18	19	20	21	22	23	45	50	55

- **Start Time** - Format must use the *24-hour* clock. You can select it from the Time Picker by clicking the **clock** icon (selected time can be made more exact by editing it once it's in the input control).
- **Start Date** - Format must be *YYYY-MM-DD*. You can select it from a Calendar by clicking the **calendar** icon.
- **Time Zone** - An optional feature to customize the time zone for report delivery. If your application has been configured for it, a default time zone displays. If not, select the **Time Zone** drop-down to set desired time zone.

💡 The date picker highlights the current date (default), as well as the selected date.

## Schedule Options: Minutes, Hours, Daily

This option generates and delivers the report every X minutes, hours, or days:

Schedule: Minutes ▾

Every: 01


Start Time: [ ] ⌚

Start Date: 5 [ ] 📅

End Date

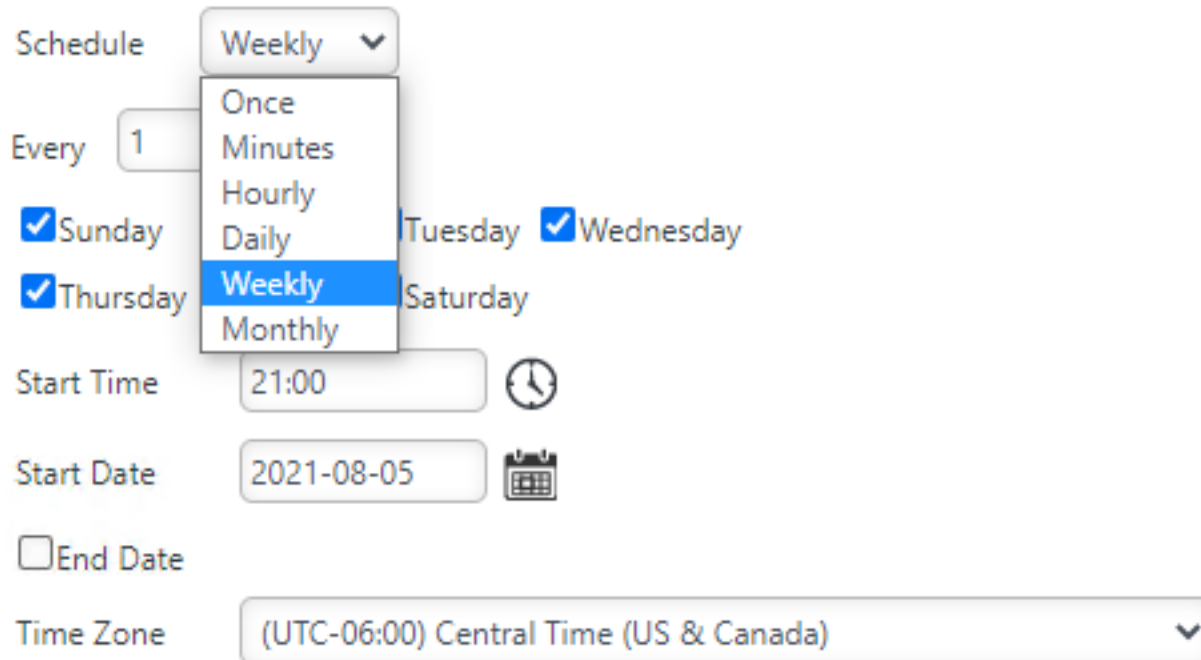
Time Zone: (UTC-06:00) Central Time (US & Canada) ▾

- **Every** - Select the interval of minutes, hours, or days desired. Use caution if selecting minutes; repetitive short time intervals may impact server performance.
- **Start Time** - Format must use the *24-hour* clock. You can select it from the Time Picker by clicking the **clock** icon (selected time can be made more exact by editing it once it's in the input control).
- **Start Date** - Format must be *YYYY-MM-DD*. You can select it from a Calendar by clicking the **calendar** icon.
- **End Date** - An optional date for stopping the scheduled deliveries. Format must be *YYYY-MM-DD*. You can select it from a Calendar by clicking the **calendar** icon.
- **Time Zone** - An optional feature to customize the time zone for report delivery. If your application has been configured for it, a default time zone displays. If not, select the **Time Zone** drop-down to set desired time zone.

 The date picker highlights the current date (default), as well as the selected date.

## Schedule Options: Weekly


This option generates and delivers the report at various weekly intervals, on specific days of the week:



The screenshot shows a scheduling configuration form. The 'Schedule' dropdown menu is open, showing options: Once, Minutes, Hourly, Daily, Weekly (highlighted), and Monthly. The 'Every' field is set to 1. The 'Days' section has checkboxes for Sunday, Thursday, Tuesday, Wednesday, and Saturday, all of which are checked. The 'Start Time' is 21:00, 'Start Date' is 2021-08-05, and 'Time Zone' is (UTC-06:00) Central Time (US & Canada). There is an unchecked 'End Date' checkbox.

- **Every** - Select the interval of weeks desired.
- **Days** - Use the check boxes to specify the exact days desired.
- **Start Time** - Format must use the *24-hour* clock. You can select it from the Time Picker by clicking the **clock** icon (selected time can be made more exact by editing it once it's in the input control).

- **Start Date** - Format must be *YYYY-MM-DD*. You can select it from a Calendar by clicking the **calendar** icon.
- **End Date** - An optional date for stopping the scheduled deliveries. Format must be *YYYY-MM-DD*. You can select it from a Calendar by clicking the **calendar** icon.
- **Time Zone** - An optional feature to customize the time zone for report delivery. If your application has been configured for it, a default time zone displays. If not, select the **Time Zone** drop-down to set desired time zone.

 The date picker highlights the current date (default), as well as the selected date.


## Schedule Options: Monthly


This option generates and delivers the report on specific days in specific months:

Schedule

Day n of the month(s).  
 Last day of the month(s).  
 The nth weekday of the month(s)

January    February    March    April  
 May    June    July    August  
 September    October    November    December

Start Time  

Start Date  

End Date


Time Zone

---

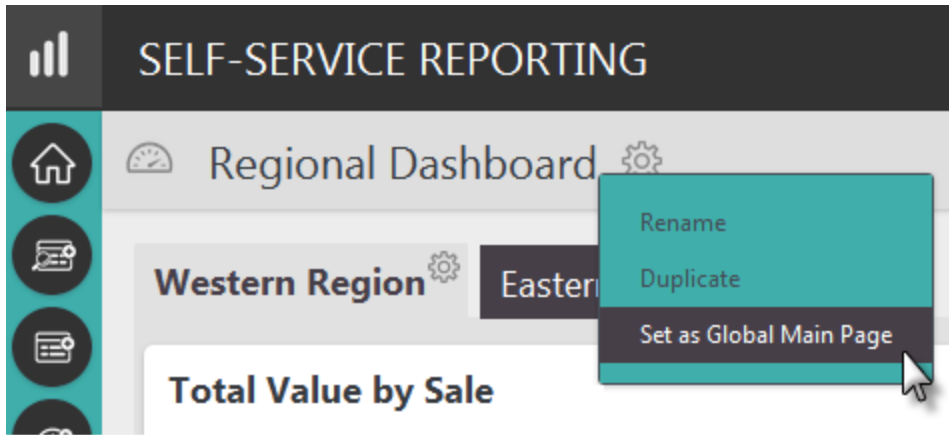
- **Day N of the Month** - Enter a specific day number, 1-31, for report delivery in each of the selected months. Ensure that the day number actually exists in each selected month (non-existent days will be skipped). - or -
- **Last day of the month(s)** - Select for report delivery on the last day of each month. - or -
- **Nth Weekday** - Select first, second, third, fourth, or last specific day of the week for report delivery in each of the selected months.
- **Start Time** - Format must use the *24-hour* clock. You can select it from the Time Picker by clicking the **clock** icon (selected time can be made more exact by editing it once it's in the input control).

- **Start Date** - Format must be *YYYY-MM-DD*. You can select it from a Calendar by clicking the **calendar** icon.
- **End Date** - An optional date for stopping the scheduled deliveries. Format must be *YYYY-MM-DD*. You can select it from a Calendar by clicking the **calendar** icon.
- **Time Zone** - An optional feature to customize the time zone for report delivery. If your application has been configured for it, a default time zone displays. If not, select the **Time Zone** drop-down to set desired time zone.

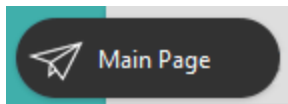
 The date picker highlights the current date (default), as well as the selected date.

# InfoGo - Designating a Global Main Page

If you've been designated as an Administrative User, you may be able to set a "global main page", which will be the starting page all users will see (rather than the Home page) when they first run the application.



To do this, navigate to a Dashboard or report that you want to be the global main page and click its main gear icon. You'll see the **Set as Global Main Page** option, as shown above. Once the main page is set, the same option becomes **Unset as Global Main Page** to reverse the process, if desired.

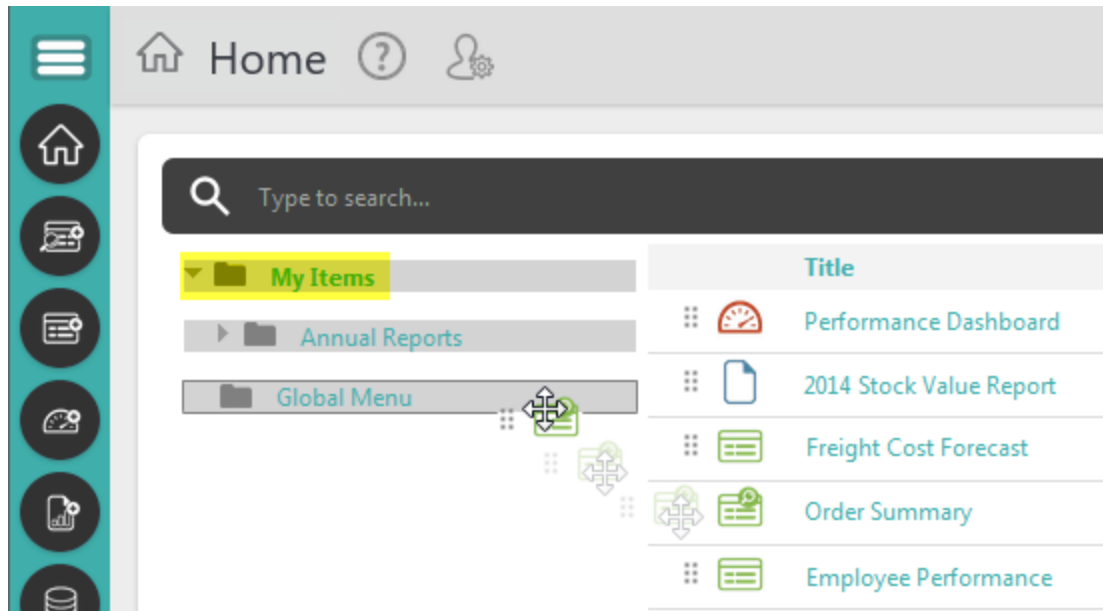


Once a main page has been set, the Main Page option will appear at the top of your menu, as shown above. You may need to refresh the page or close and restart your browser in order to see it.

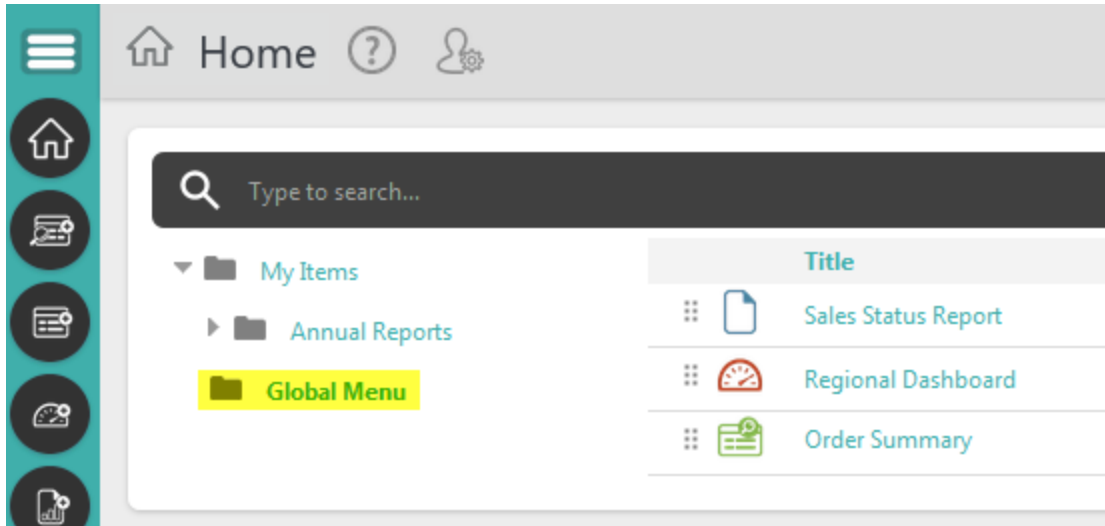
If the Dashboard or report set as the global main page has been, or is subsequently, shared with others, they too will see it as their starting page.

## InfoGo - Creating a Global Menu


If you've been designated as an Administrative User, you may be able to configure a "global menu", which is a menu of links to selected Dashboards, reports, and analyses, that's available to all users.

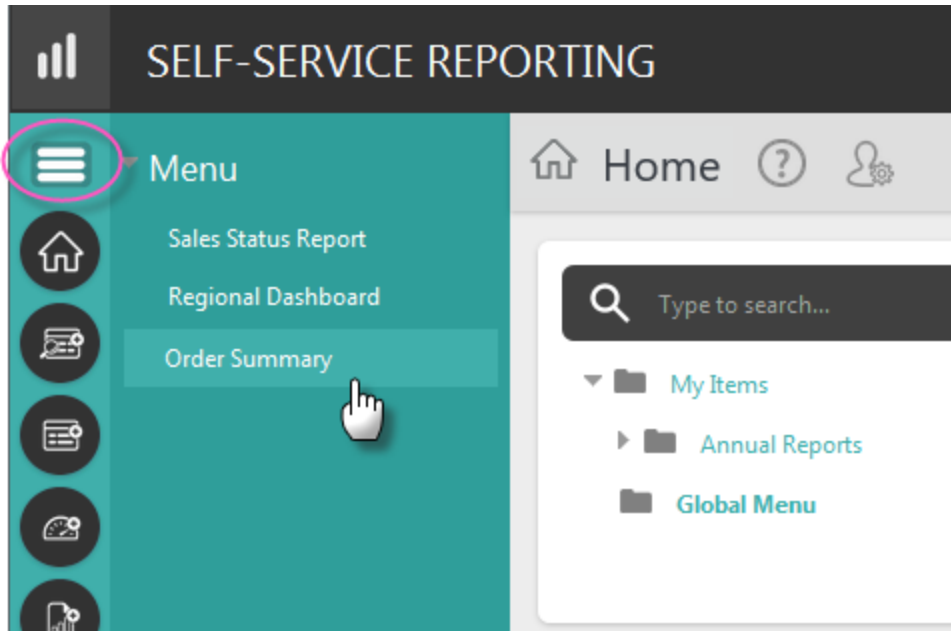


If you have the necessary security permission, you'll see a "Global Menu" folder in you folder list. You can drag resources into, just like any other shared folder, as shown above.




If you select the Global Menu folder, you'll see its contents and can manage them just like any other folders.

 Remember that items in this folder are *not* copies of, or links to, items in other folders. To remove them from the global menu *without deleting them*, drag them back to the folder they came from.

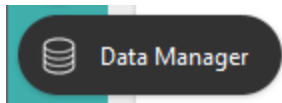


Once items have been dragged into the Global Menu folder and your browser has been refreshed, a "hamburger" icon will be available at the top of the side-bar menu, as shown above. When *any* user clicks it, a menu of links to the items in the Global Menu folder will slide out from the left, as shown above (your developer may have given it a title other than "Menu"). Click the icon again to close it.

 Other users don't need a specific security permission to use the menu but you'll need to *share* the Global Menu folder with them in order for them to see it. Resources in the menu are automatically available to other users without the need to explicitly share them, but they can't be modified beyond a simple resizing of charts.

## InfoGo - Using the Data Manager

If you've been designated as an Administrative User, you may be able to use the **Data Manager** tool to manage the data that you and others use in analyses.



If you have the proper permission, you'll see the Data Manager option, shown above, in the menu. Click it to go to the Data Manager page.

||| **SELF-SERVICE REPORTING**

🏠 **Data Manager**

📄 **Data Source Connections**

The Metadata Builder helps add data source connections and also build Metadata files. Metadata files describe data sources' tables and columns so that applications can make it easy for end users to select data for analysis.

**To start**, add a new Data Source Connection, then add a new Metadata Definition.

**Actions:** Add a New Data Source Connection

**Connections**

	Connection ID	Data Source Type	Server	Database	Metadata Definitions
<span style="font-size: 24px;">🔧</span> <span style="font-size: 24px;">🗑️</span>	connNWLocal	SqlServer	(local)\SQLEXPRESS	northwind	metaNW <span style="font-size: 24px;">📄</span> <span style="font-size: 24px;">🗑️</span> <span style="font-size: 24px;">➕</span> <a href="#">Add New</a>

When the Data Manager page opens in InfoGo, it looks like the example shown above. Detailed instructions for using it to create and manage data connections and metadata are available in *Use the Web Metadata Builder*.

If the metadata changes, such as the removal of a column, after analyses have been created, a warning about the missing column will be displayed, instead of the expected visualization.

A new Bookmark Validation tool is available that allows developers or system distributors to identify broken bookmarks and find solutions to fix issues after applying any database, metadata, or security change. For more information, see "InfoGo - Bookmark Validation" on the next page.

# InfoGo - Bookmark Validation

SSRM bookmarks are stored on the server. The bookmark stores what kind of visualization (Crosstab Table, chart, etc) and references a column(s) from the metadata. The metadata defines where the column is coming from, such as what data tab is used for grouping and security for columns. To run a bookmark successfully, you need the bookmark definition and metadata to match. One potential problem can occur when a user edits a column on the metadata side, but since there is no direct link to the bookmark, the bookmark doesn't recognize that there is a change in the metadata, which results in an error. By using the bookmark validation tool, every change made in the metadata is checked in the server to verify that it matches and pulls out what doesn't match in the results file. The results file identifies which bookmarks have an error and what kind of error. For example, a data type change or a missing data column and where the column is being used.

This independent tool is available for both Java and .NET and designed to run in command line/console. This application uses two required arguments and two optional arguments, described below:

Argument Name	Output Value
-s: <folder>	Use to set your application folder path
-f: <file	Use to set the output report file path and file name
-m:[all]-basic]	Use to set the Check All or only USED columns. This is optional and the default is 'all'.
-ol:[all error]	Use to set the output level. This is optional and the default is 'all'. If set to 'error', only the error messages are included in the results file; anything that has passed will not be included.

```
PS C:\InfoGo> .\BookmarkValidator.exe -s:"C:/Program Files/Logi Analytics/InfoGo/" -f:"C:/InfoGo/result.txt" -ol:
error -m:basic
PS C:\InfoGo> |
```

```
PS C:\JavaInfoGo\WEB-INF\lib> java -cp ".\*" BookmarkValidator.JavaEE.BookmarkValidator -s:"C:/Program Files/Logi Analyt
ics/InfoGo/" -f:"C:/InfoGo/result.txt" -ol:error -m:basic
PS C:\JavaInfoGo\WEB-INF\lib> java -cp ".\*" BookmarkValidator.JavaEE.BookmarkValidator -s:"C:/Program Files/Logi Analyt
ics/InfoGo/" -f:"C:/InfoGo/result.txt" -ol:error -m:basic
```

```
D:\ReportDev\VB\BookmarkValidator\bin\Debug>BookmarkValidator.exe
This application uses two required arguments and two optional arguments!
-s:<folder>      use to set your application folder path
-f:<file>        use to set the output report file path and file name
-m:[all|basic]   use to set the Check All or only USED columns. This is optional and the default is `all`.
-ol:[all|error] use to set the output level. This is optional and the default is `all`. If set to `error`, only
the error messages are included in the results file; anything that has passed will not be included.
```

If you are an existing user, you can access a download link to the zip folder for the .NET version [here](#) and the Java version [here](#). If you are a new user, you automatically receive the bookmark validation tool in your BIN folder when you install Info v14.0. You can run this directly from the folder, but you must specify application path, where the bookmark is stored, and what kind of error you are looking for.

Below is an example of the Readme file exe for .Net users:

2. this tool is designed to run in command line/console, '-s:<folder>' is used to set 'appPhysicalPath', '-m:all' or '-m:basic' is to set 'model' (default is 'all'), '-f:<file>' is to set 'outputfile' , '-ol:[all|error]' is used to set the output includes 'PASSED' (if -ol:all) or not (default is 'all')

Example : BookmarkValidator.exe -s:"C:/opt/tomcat/YourApp" -m:all -f:/myfolder/result.txt

Notice 1: Please sure "\_settings.lgx" is exist in "<appPhysicalPath>\\_Definitions\" and can be read.

Notice 2: 'basic' only validate the column be used as/in :

(AG) Filter

Dashboard Panel Filter

Dashboard Global Filter

Data Table Column

Data Table's Sort

Data Table's Group

Data Table's Aggregate (and Custom Aggregate)

Crosstab's Header Values column

Crosstab's Label Values column

Crosstab's Aggregate Values column

Crosstab's Extra Label column

Chart's Label column, Data Column, Additional Column(s) (and X-Axis Column, Y-Axis Column)

Heatmap's Label column, Size column, Color Column

Gauge's Value column

(Dashboard) Chart's Drill Column

Formula and if this formula is used as/in above.

LinkURL and if it owner is used as/in above

Notice 3: It is recommended to quote the parameter value with quotation marks, like this : `-s:"C:/-opt/tomcat/YourApp"`

Notice 4: short path is supported, like this : `-s:"../YourApp"`

**Below is an example of the Readme file jar for Java users:**

1. Please sure following jars have been added to/in classpath

> Must:

J2EE.Helpers.jar J2SE.Helpers.jar.jar Microsoft.VisualBasic.jar mscorlib.jar

System.Configuration.jar System.jar System.Xml.jar rdNewtonsoft.Json.Net20Java.jar

System.Data.jar

> Optional :

LogiDataEngine.jar , LogiSTUB.jar, and Jars for DB driver(such as cdata.jdbc.mysql.jar)

Notice0: These jars can be found in YourApp/WEB-INF/lib

Notice1: the jars listed optional are ONLY required If using FileToDatabaseMapping.

Notice2: If you wish to use Oracle then the LogiSTUB.jar needs to be replaced by ojdbc8.jar. Logi does not provide this. This have to be downloaded from Oracle(<https://www.oracle.com/database/technologies/jdbc-ucp-122-downloads.html>). The reference to LogiSTUB.jar in the BookmarkValidator.sh needs to be updated as well.

Notice3: If the jar is missing, an error message will be output in the console

Notice4: BookmarkValidator.bat is just an example for all jars in 'lib'.

2. this tool is designed to run in command line/console, '-s:<folder>' is used to set 'appPhysicalPath', '-m:all' or '-m:basic' is to set 'model' (default is 'all'), '-f:<file>' is to set 'outputfile' , '-ol:[all|error]' is used to set the output includes 'PASSED' (if -ol:all) or not (default is 'all')

Example : ./BookmarkValidator.sh -s:/opt/tomcat/YourApp -m:all -f:/myfolder/result.txt

Notice 1: Please sure "\_settings.lgx" is exist in "<appPhicalPath>\\_Definitions\" and can be read.

Notice 2: 'basic' only validate the column be used as/in :

(AG) Filter

Dashboard Panel Filter

Dashboard Global Filter

Data Table Column

Data Table's Sort

Data Table's Group

Data Table's Aggregate (and Custom Aggregate)

Crosstab's Header Values column

Crosstab's Label Values column

Crosstab's Aggregate Values column

Crosstab's Extra Label column

Chart's Label column, Data Column, Additional Column(s) (and X-Axis Column, Y-Axis Column)

Heatmap's Label column, Size column, Color Column

Gauge's Value column

(Dashboard) Chart's Drill Column

Formula and if this formula is used as/in above.

LinkURL and if it owner is used as/in above

Notice 3: It is recommended to quote the parameter value with quotation marks, like this : `-s:"/opt/tomcat/YourApp"`

## Output Formatting

Once you run the bookmark validation tool, a results file generates that describes any errors that may need manual intervention.

Below is an example of a results file showing the Bookmark Name, Bookmark Type, Column, Visualization Type, and Error:

```

Error-2:Used in [Table Column], "Unit Price"(connNorthwindMetadata2.Order Details.UnitPrice) : cannot be found in table
My Visualizations
user name : John
My Items
Error 1
Bookmark Name - UnitPrice Analysis
Bookmark Type - Analysis
Column - Order Details.Unit Price
Visualization Type - Table
Error - Used in table, Column

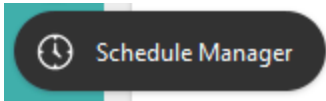
Error 2
Bookmark Name - UnitPrice Analysis
Bookmark Type - Analysis
Column - Order Details.Unit Price
Visualization Type - (Chart) Sum of Unit Price
Error - Used as a Data Colum

UnitPrice Analysis,JohngoCollection_d55338f0-8fdd-4143-a3bd-13eb87ed2651.xml,AnalysisGrid, John, ERROR(1)
Error-1:Used in [Table Column,Aggregate Values Column,Data Column], "Unit Price"(connNorthwindMetadata2.Order Details.UnitPrice) : cannot be found in table
UnitPrice Dashboard,JohngoCollection_bac1a959-ef6e-4c00-aa1b-6ceaafee6ef7.xml,Dashboard, John, ERROR(3)
Error-1:In "Table Of New Tab", Used in [Table Column], "Unit Price"(connNorthwindMetadata2.Order Details.UnitPrice) : cannot be found in table
Error-2:In "Sum of Unit Price by Product Name Of New Tab", Used in [Data Column], "Unit Price"(connNorthwindMetadata2.Order Details.UnitPrice) : cannot be
Error-3:In "Product Name by Ship Country on Sum of Unit Price Of New Tab", Used in [Aggregate Values Column], "Unit Price"(connNorthwindMetadata2.Order Deta
UnitPrice Report,JohngoCollection_ce70539b-1951-46bf-a398-42a7ad3b6828.xml,ReportAuthor, John, ERROR(1)
Error-1:In "ChartCanvas(Sum of Unit Price by Product Name )", Used in [Data Column], "Unit Price"(connNorthwindMetadata2.Order Details.UnitPrice) : cannot b
UnitPrice 2 Analysis,JohngoCollection_5d199d73-7b11-4116-b030-045f914388b9.xml,AnalysisGrid, John, ERROR(1)
Error-1:Used in [Table Column], "Unit Price"(connNorthwindMetadata2.Order Details.UnitPrice) : cannot be found in table
UnitPrice2 Dashboard,JohngoCollection_feb3f90c-f55c-4b05-9b08-c0edc058c383.xml,Dashboard, John, ERROR(1)
Error-1:In "UnitPrice 2 Of New Tab", Used in [Table Column,Global Filter], "Unit Price"(connNorthwindMetadata2.Order Details.UnitPrice) : cannot be found in
My Items>Product
My Visualizations
Product Name by Ship Country on Sum of Unit Price,JohngoCollection_rdCustomDashboardPanel_b8198dd1227e49ed8d8addf14288a5bd.xml,Visualization, John, ERROR(1)

```

# InfoGo - Using the Schedule Manager

If you've been designated as an Administrative User, you may be able to use the **Schedule Manager** tool to manage the report delivery schedules users create.



If you have the proper permission, you'll see the Schedule Manager option, shown above, in the menu. Click it to go to the Schedule Manager page.

The screenshot shows the 'SELF-SERVICE REPORTING' interface. The 'Schedule Manager' section is active, displaying a search bar and a table of report schedules. The table has columns for Title, Owner, Last Run, Status, and Next Run. Two reports are listed: 'Sales Status Report' and '2016 Stock Value Report'. The 'Sales Status Report' has a status of 'Success' (green checkmark), while the '2016 Stock Value Report' has a status of 'Failed' (red X and bug icon). Both reports have a 'Next Run' date and time. A hand cursor is pointing at the 'Schedule Manager' icon in the left sidebar.

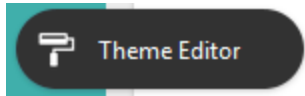
Title	Owner	Last Run	Status	Next Run
Sales Status Report	Lee	9/28/2016 8:00 AM	✓	10/27/2016 12:00 AM
2016 Stock Value Report	Lee	9/14/2016 8:00 AM	✗	9/28/2016 8:00 AM

The Schedule Manager, shown above, lists *all* reports that *all* users have scheduled for delivery and lets you manage them centrally. The list of reports includes:

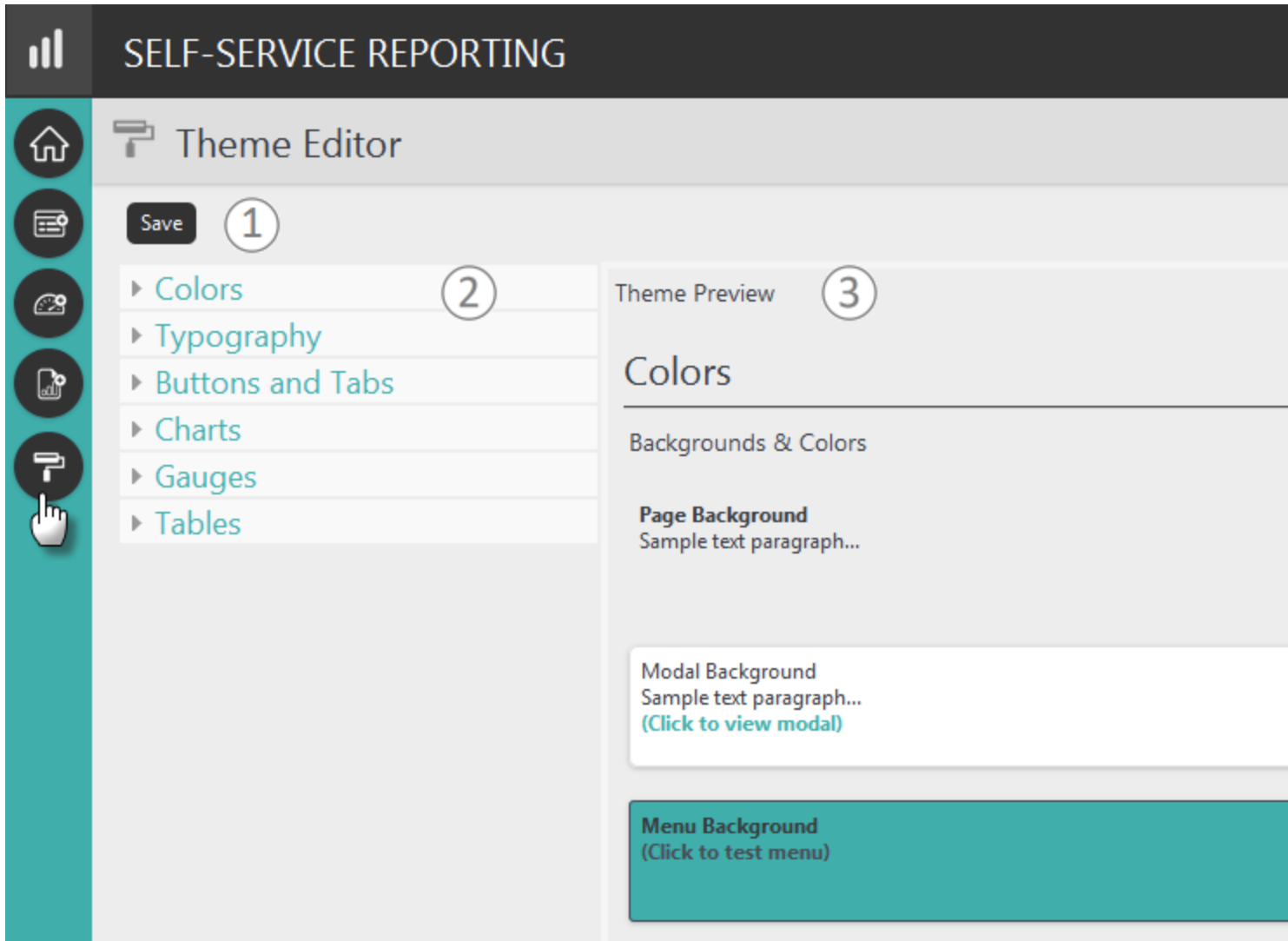
- **Title** and **Owner** - The report title and its owner (the user who created the report and scheduled it).
- **Last** and **Next Run** - The date and time of the last attempted report run and of the next scheduled run.
- **Status** icons - These indicate whether the last scheduled report run was successful (green checkmark) or not (red hashed checkmark). If a run failed and an error message was generated, a gray Debug icon will also appear and you can click it to see the message.
- **Clock** icon - Clicking this icon displays the schedule details so you can review and edit them, if necessary.
- **Information** icon - Clicking this icon expands the row downward and displays basic information about the schedule for this item.

## InfoGo - Using the Theme Editor

The InfoGo application uses a *theme* to specify its colors and appearance. If you've been designated as an Administrative User, you may be able to use the **Theme Editor** tool to customize the theme in use.



If you have the proper permission, you'll see the Theme Editor option, shown above, in the menu. Click it to go to the Theme Editor page.



The image above shows the Theme Editor, which has these features:

1. **Save** button - saves all changes made. However, the Theme Editor may have been configured by your application developer so that this button does not appear and each change made is saved *automatically*.
2. **Styling Categories** - presented as expandable sections, with detailed options.
3. **Theme Preview** - the panel immediately shows the effects of any changes made.

Let's look at one of the styling categories:

## Theme Editor

Save

- ▶ Colors
- ▶ Typography
- ▼ Buttons and Tabs

### Buttons

Background Color: #303137

Font Color: #FFFFFF

Hover Background Color: #473E4C

Hover Font Color: #FFFFFF

Button Border Color: RGBA(255,255,255,0.5)

### Tabs

Active Background Color: #E1E1E1

Active Font Color: #473E4C

Inactive Background Color: #473E4C

Inactive Font Color: #FFFFFF

### Theme Preview

#### Buttons and Tabs

Normal Button: Button Normal, Button Hover

Input Button: Input Normal, Input Hover

Small Button: Small Normal, Small Hover

#### Tabs

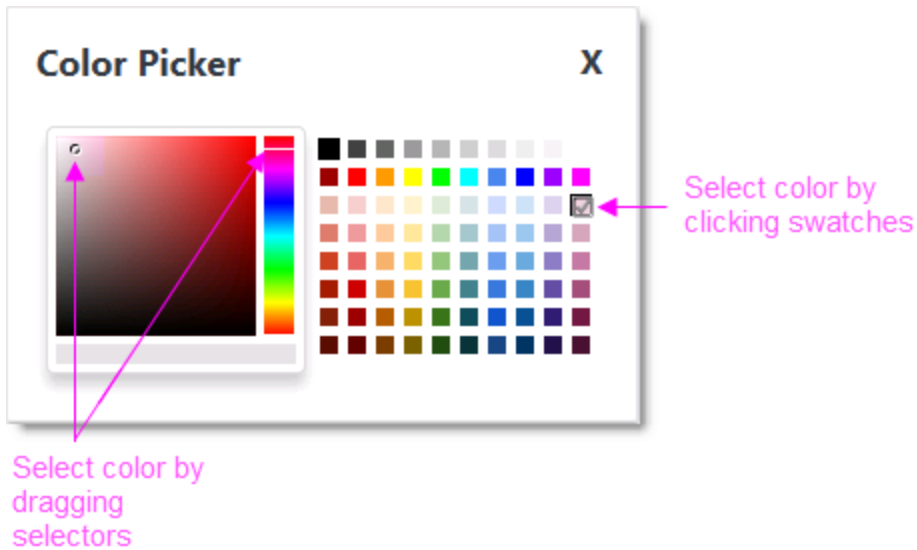
Tab Panel 01, Tab Panel 02

#### Tab Containers (super-elements tabs only)

Selected, UnSelected

Selected Tab Content

In the image above, the **Buttons and Tabs** category has been expanded and the controls are visible. Color option controls allow you to enter a color by name, as a decimal RGB value, as a hex RGB value preceded by a pound sign (e.g. #112233), or by using the Color Picker. The currently-selected color is shown by the small square (circled above) next to the **Color Picker** icon.



You can click the Color Picker icon to open a pop-up panel with a palette of color selections, shown above.

Once you've made any desired changes, click the **Save** button to save any changes (unless your InfoGo developer turned on the auto-save mode mentioned earlier).

# Use Discovery v3.2 with InfoGo

InfoGo is a Logi application that provides a complete self-service reporting experience. This topic is intended for end-users who'll be using the Discovery Module v3.2 with the InfoGo application.

The following topics discuss use of the Discovery Module v3.2 with InfoGo:

- [About Visual Analyses](#)
- [Selecting Data](#)
- [Saving Your Analysis](#)
- [Adding Visualizations to Your Gallery](#)
- [Exporting Data to a CSV File](#)

## About the InfoGo Application

InfoGo is a web application that's part of the Logi Info Self-Service Reporting Module (SSRM). It allows you to:

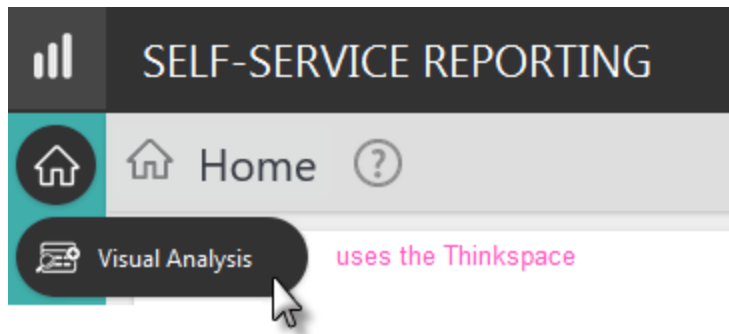
- Create charts, tables, and other visualizations of your data
- Save these "visuals" in your own gallery
- Combine them into Dashboards
- Place them in reports that can be shared with others
- Schedule reports for automatic generation and distribution

For information about the other features of the InfoGo application, see ["Use InfoGo" on page 14](#).

# About Visual Analyses

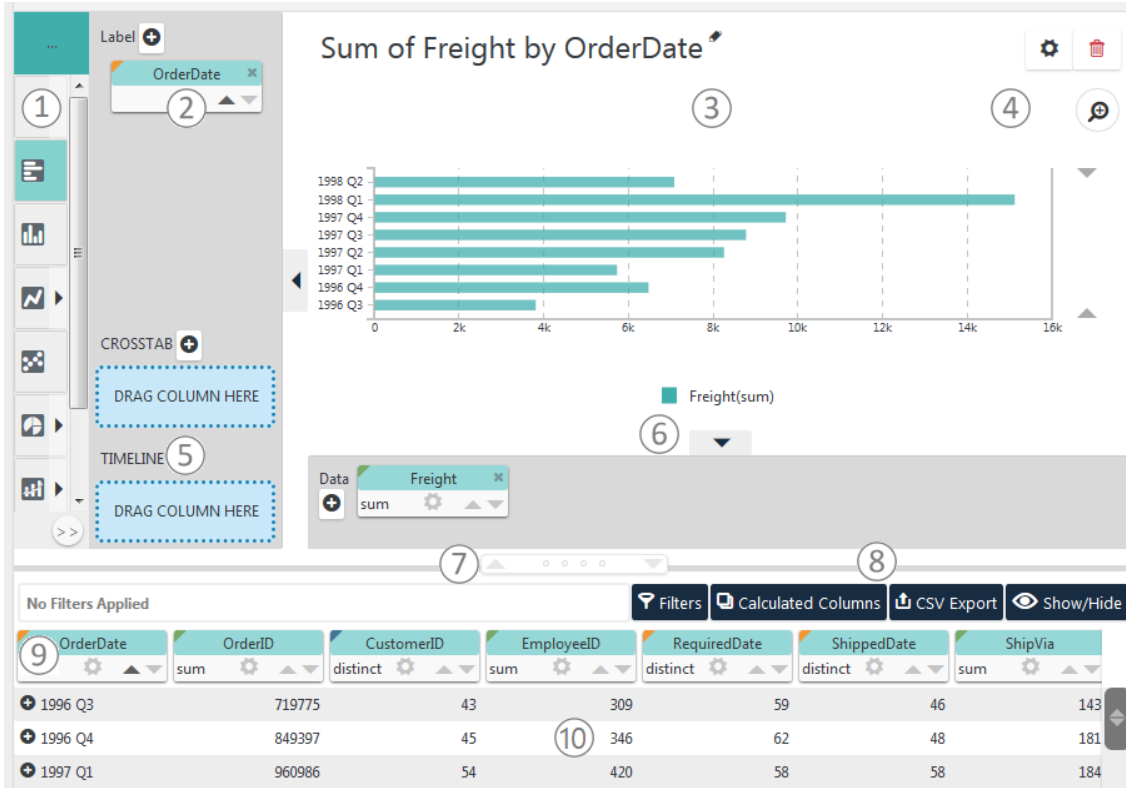
InfoGo lets you see your Data Tables and charts, in a variety of arrangements. It allows you to perform a wide range of activities with your data, including sorting, grouping, and filtering it.

💡 The standard tool for creating analyses is the **Analysis Grid**, which is *not* discussed here. This topic, and other related topics, discuss the use of an alternate tool, the Discovery **Thinkspace**.



If your InfoGo application is configured to use the Thinkspace, you'll see the option shown above in your Home page menu.

The Thinkspace provides an advanced, easy-to-use interface for quickly creating analyses. It's smart, too: "best-fit" charts are automatically suggested by a built-in "recommendation engine" and data is organized automatically to make easier to use.



The user interface consists of two main areas, as shown above. The upper area displays the charts and tables you create and the lower area displays your data in a simple table. Here are some more details, keyed to the numbers in the image above:

1. **Visualization Menu**- Click to select a visualization appropriate for your data and to easily switch between types.
2. **Pills** - Column "pills" in X- and Y-axis "drop zones" identify the data columns used to create the visualization.
3. **Visualization** - A Chart, Crosstab Table, or other visualization is displayed here when you select its data.
4. **Settings** icons - Click to control the legend (may also have other purposes), delete the visualization, or choose selection modes.
5. **Extra Columns** drop zones - Dropping column pills here to create a Crosstab Table or a Timeline Chart.

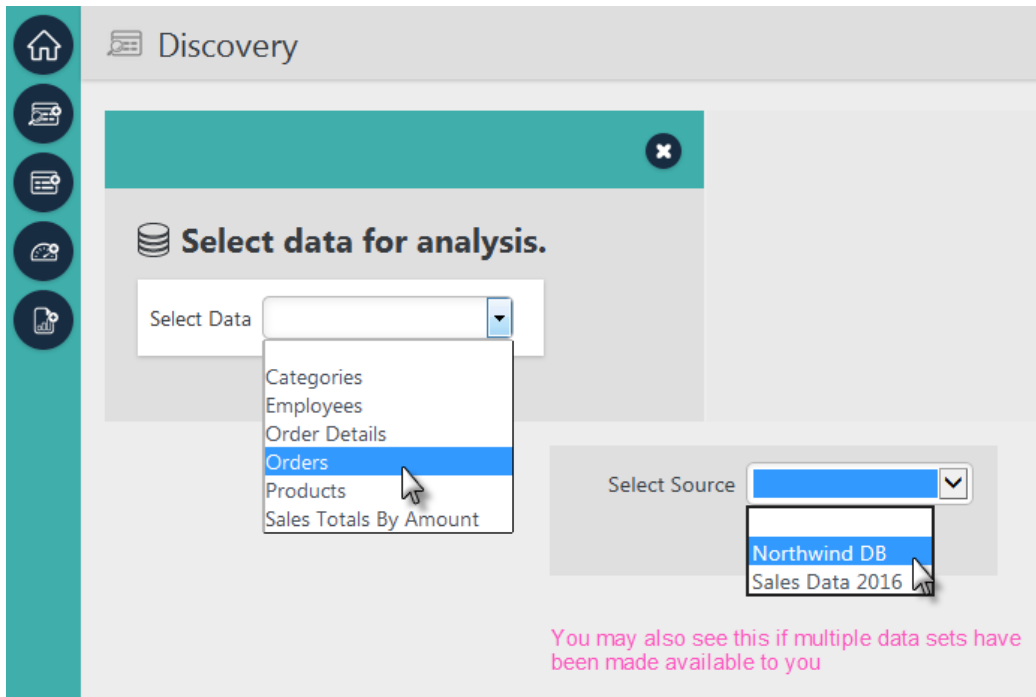
6. **Show/Hide** arrows - Click to show/hide pill drop zones; allows you to see a larger view of the visualization.
7. **Table Resizer** - Click arrows or drag dots to change the number of table *rows* shown.
8. **Data Enrichment** - Click to open drop zone and controls for creating data filters, calculated columns, and do more. Once created, filters are listed in adjacent area.
9. **Column Pills** - Pills appear at the top of each column of data in the table; they contain sorting, filtering, and other controls.
10. **Data Table** - Data available for analysis appears in a table here. It's pre-selected by your application developer and may be restricted by security permissions assigned to you.

Individual controls are discussed in detail later on and other referenced documents.

The analyses and visualizations you create in InfoGo can be saved, viewed, combined, and even exported. They can be scheduled for regular production and shared with others.

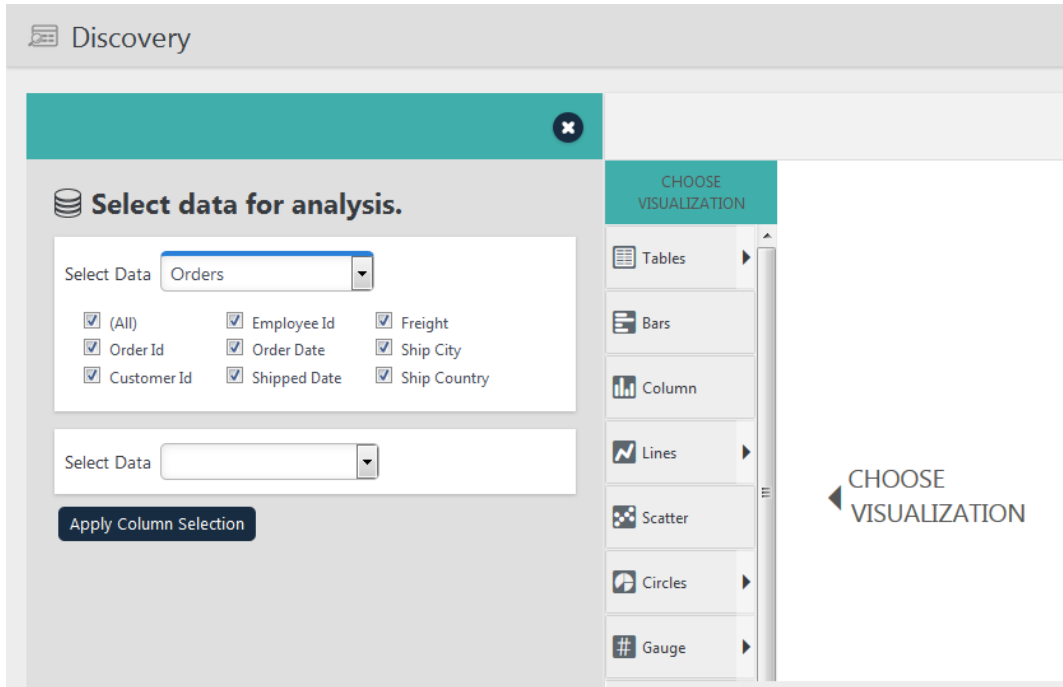
# Selecting Data

Depending on how your application has been configured, you may or may not see this feature. Skip this topic if you do not see a "Select data for analysis" panel right away.



The first thing you'll need to do is select the Data Table or view you want to work with. The data source tables and views available to you have been determined by the application developer.

Your application may be configured for multiple data sources; if so, it will look like the example shown above, right. If that case, you'll need to select a data source first, then a table or view.




As soon as you select a table or view, a set of column selection check boxes will appear, as shown above, left.

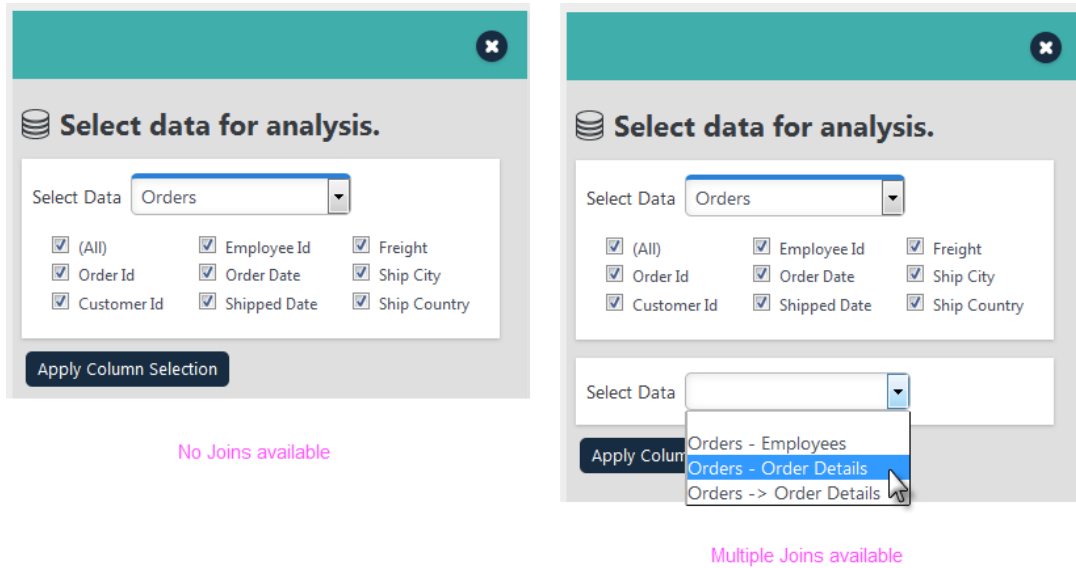
A table showing the data you selected and some icons will appear in the right section of the page, as shown above.

You can un-check the check boxes for columns you *don't* want to include in your analysis work. If it's visible, click **Apply Column Selection** to update the table after you select columns; if it's not visible, the table will update automatically.




Changing the selected columns will *reset* the Thinkspace, removing any visualizations or customizations that may currently exist.

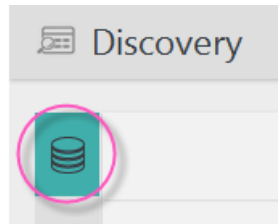
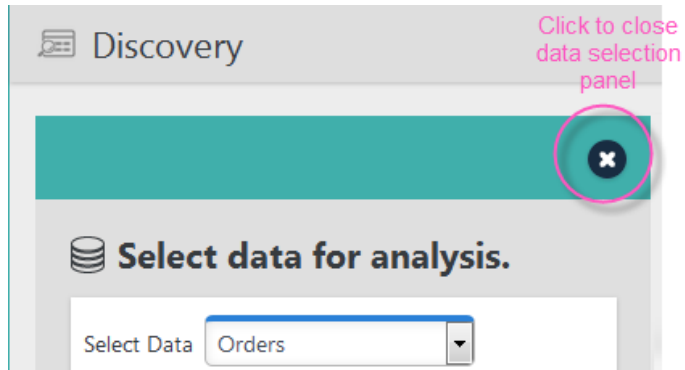
 Your InfoGo application may have been configured so that you do not need to select columns. In that case, the check boxes shown above for column selection will not be displayed and *all* columns will be available by default.



Your application may be configured to allow you to "join" different Data Tables. If so, you'll see additional data selection lists, as shown above, right.

By default, items like `Orders - Customers` indicate an *Inner Join*, while items like `Orders → Order Details` indicate a *Left Outer Join*. However, these designations can be customized by your application's developer and other Join types may be available.

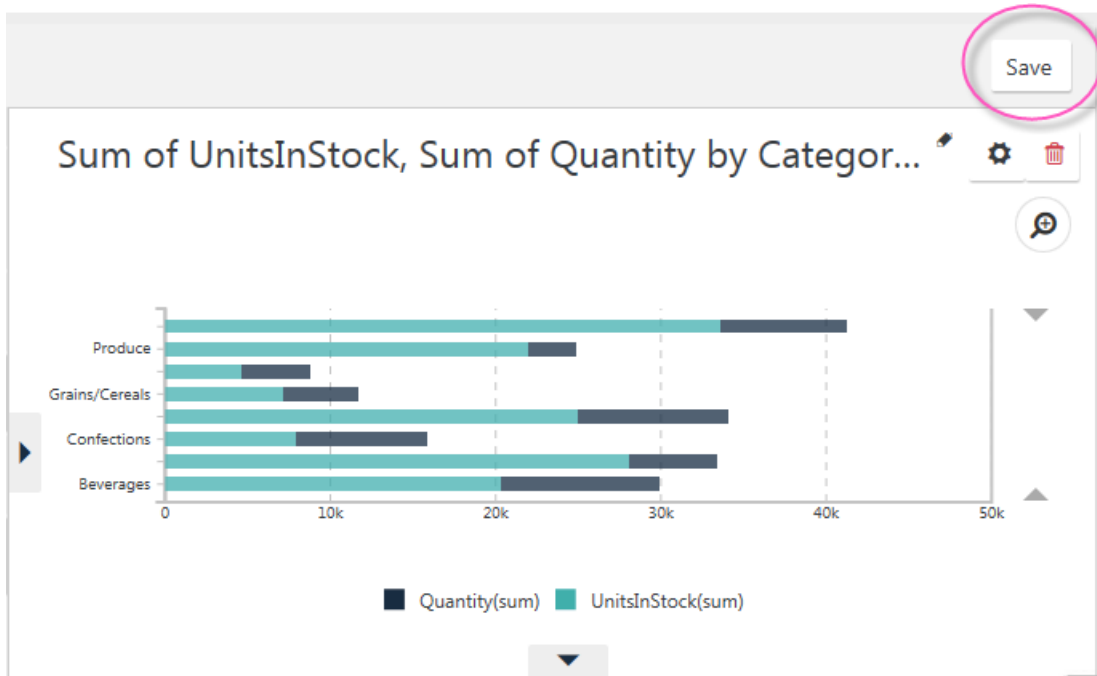
 What's a "join"? A join combines two sets of data to produce a single dataset. Different types of joins produce different results. For example, an *Inner Join* selects all rows from both tables as long as there is a match between a column in both tables. A *Left Outer Join* selects all rows from the first table and adds rows from the second table that match a specified column value.




Click the "X" icon to close the data selection panel. Once it's closed, a database icon, shown above right, will appear and you can click it to re-open the data selection panel if needed.

## Saving Your Analysis

The Thinkspace includes an optional feature that lets you save the settings and visualizations you've created and re-use them in a later session.

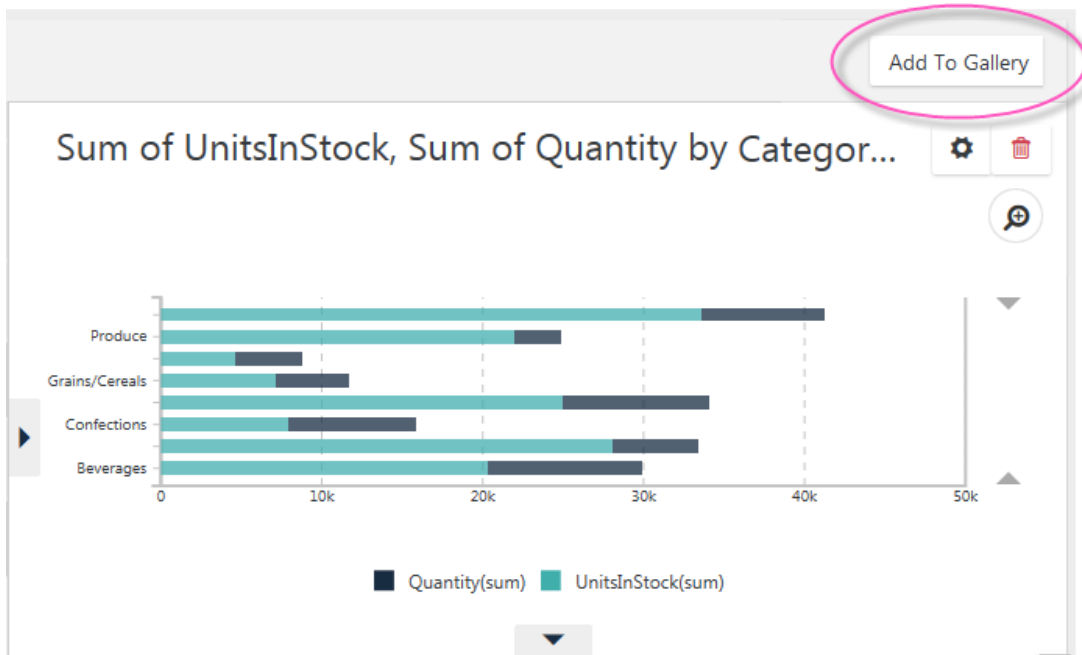


If your application has been configured for this feature, the Thinkspace will display a **Save** button, as shown above. Click it to save your settings and the visualization.

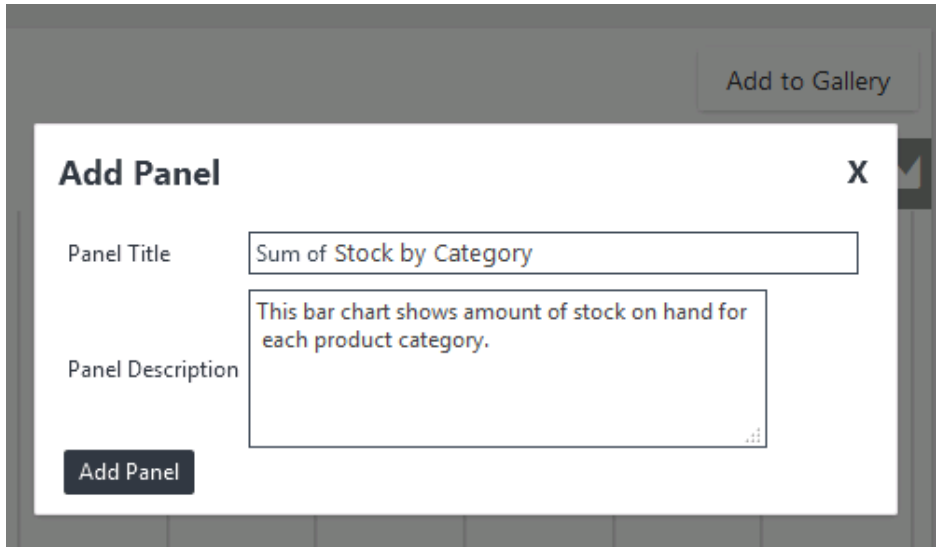
 If you change the data selection, or return to the Home page, without saving your analysis, the Thinkspace will be reset and you'll lose your visualization.

# Adding Visualizations to Your Gallery

The Thinkspace includes an optional feature that lets you create a visualization in the Thinkspace and then add it as a new panel in an existing Logi Dashboard in another report, or add it to a Visual Gallery.



If your application has been configured for this feature, the Thinkspace will display a button like the one shown above. It may say "Add to Gallery" or "Add to Dashboard" or something similar, depending on how the application was configured.



Add to Gallery

**Add Panel** X

Panel Title

Sum of Stock by Category

Panel Description

This bar chart shows amount of stock on hand for each product category.

Add Panel

Just before the visualization is saved, you'll be prompted for the **Panel Title** and an optional description for display. These will appear in the Visual Gallery next to a small thumbnail image of the visualization.

### Visual Gallery X

Find  Gallery  Sort By

---

**Sum of Stock by Category**  
Created: 2/18/2016 10:54 AM  
This bar chart shows amount of stock on hand for each product category.

Visuals in your gallery can be deleted.

---

**Average of Total Value**  
Created: 9/16/2015 11:53 AM

Visuals in optional shared galleries may be configured so they cannot be deleted.

---

**Total Value by Customer ID**  
Created: 9/16/2015 11:47 AM

---

**Total Value by Order Date**  
Created: 9/16/2015 11:46 AM

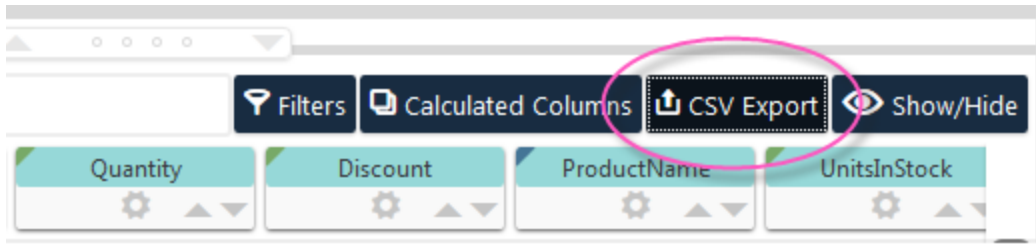
---

...or Create Visuals and Add to Visual Gallery


The new visualization thereafter appears in the Visual Gallery, as shown above, just like any other resource, with a special icon. Visualizations created with other analysis tools include a thumbnail image. Visualizations can be removed from your gallery entirely, using the available controls.

## Exporting Data to a CSV File

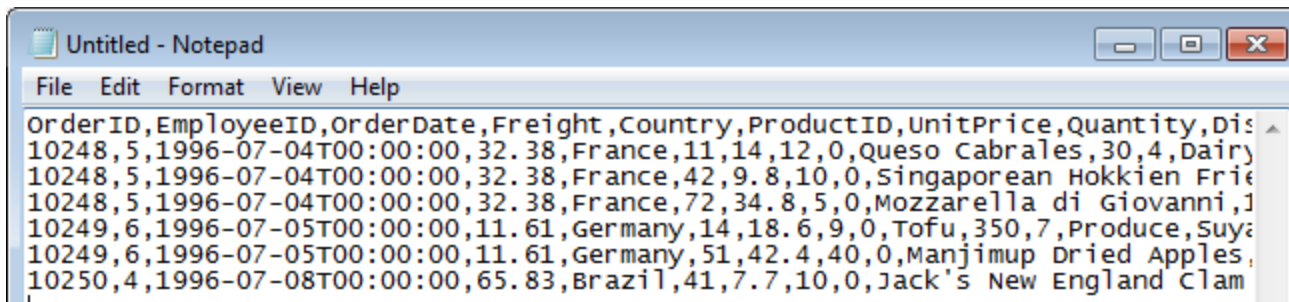
The Thinkspace includes a feature that allows you to export the data in your table to a file in standard Comma-Separated Values (CSV) format.



Click the **CSV Export** button circled in the image above to initiate an export. All columns and all rows in the table will be exported.

 This export occurs at the browser, so attempting to export a very large number of rows might take a long time, or your browser may crash.

If you have an application, such as Excel, configured for CSV files, you'll be prompted to open or save the file.



Your table data will be exported, as shown above, with column names in the first row.

# Get Started with the Discovery Module 3.2

The Discovery Module is an add-on module for Logi Info that enables special elements in Logi Info and provides an embedded discovery experience that works directly with data sources.

The following topics discuss getting started with Discovery Module 3.2:

- [Configure a Connection](#)
- [Create a Dataview](#)
- [Create a SuperWidget](#)
- [Use the SuperWidget in Your Application](#)

## About the Discovery Module



Advanced features discussed here work with Logi Info v12.5 and later. Earlier and later Info versions may not support them; consult the [Release Notes](#) for specific details. SuperWidgets, for example, have been deprecated in Logi Info v12.6.

The purpose of this topic is to help new Logi Info + Discovery Module users understand how the products can be used. It assumes that Logi Info and the Discovery Module have already been installed and licensed. There are three ways that you can approach using the products:

### Thinkspace in SSRM - InfoGo Application

If you have both the Discovery Module (DM) and the Self-Service Reporting Module (SSRM) with its ready-made **InfoGo** application installed with Logi Info, then the DM's **Thinkspace** element is optionally available in InfoGo and can be used by end-users to create analyses. DevNet provides complete documentation for configuration and use of the Thinkspace with the SSRM.

## Thinkspace with Metadata in Your Custom Info Application

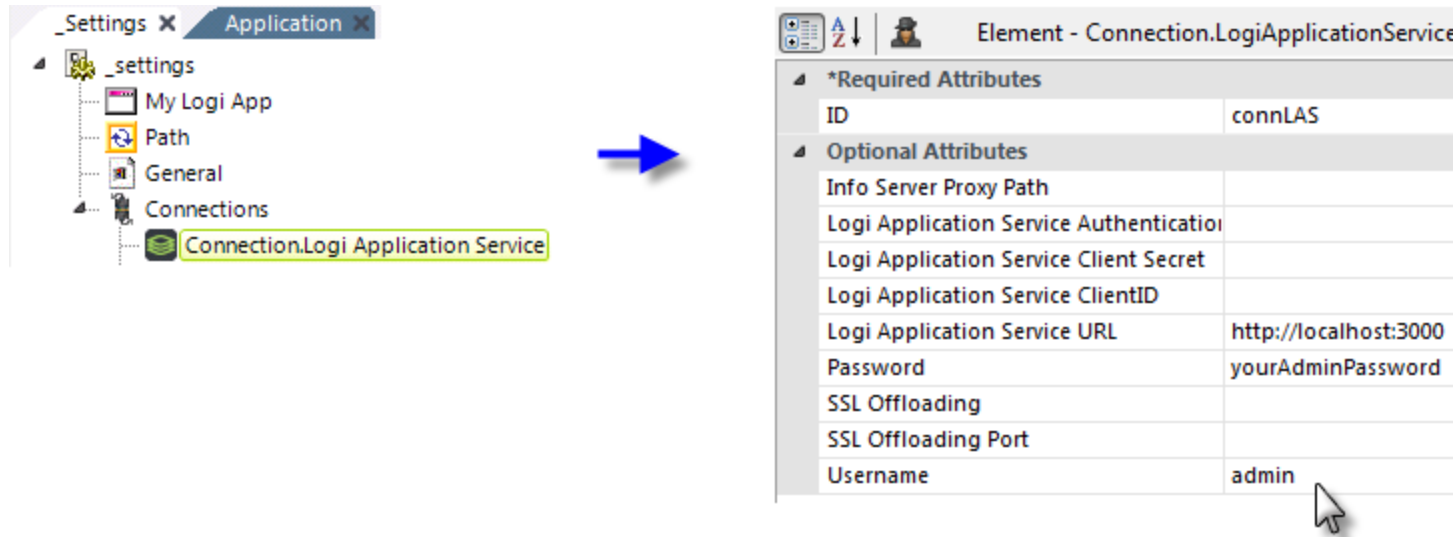
You can also use the DM's Thinkspace element directly in your own custom Info application, using the **Active Query Builder** and **Metadata** elements, to provide users with access to the desired data. Metadata files are built using the Metadata Builder tool and they provide a standard approach to enumerating all of the database objects that will be available to users. Or, you can just use direct SQL queries to get the data. For more information, see *Use the Web Metadata Builder*.

## Logi Services in Your Custom Info Application

A more advanced approach, using the new Logi services technology, is also available and we encourage you to use it.

# Configure a Connection

Launch Logi Studio and open, or create, an application for this exercise. Ensure the application version is 12.5 SP1+.

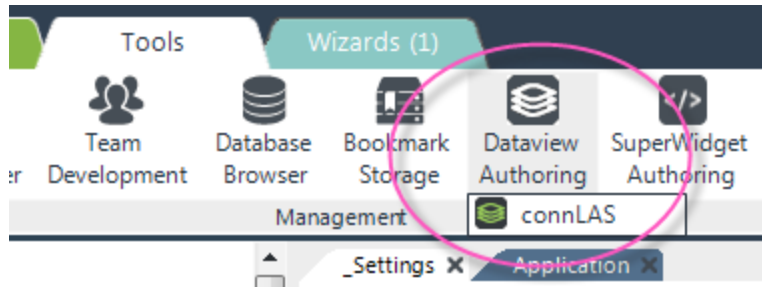


Add a **Connection.Logi Application Service** element to your `_Settings` definition to connect to the Logi Application Service, as shown above. This element will only be present in Studio *after* Logi Platform Services is installed. Set the attributes as shown above, using the "connLAS", "http://localhost:3000", and "admin" values. Enter your own admin password and remember it for later use.

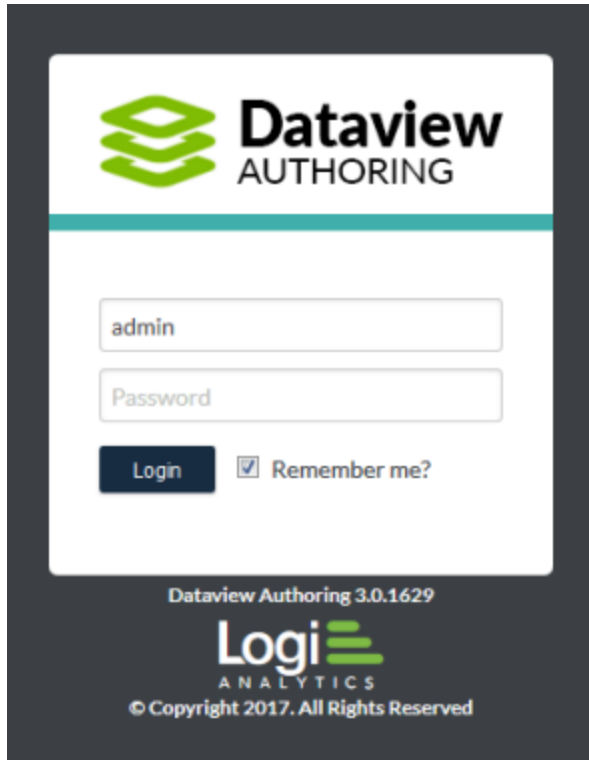
# Create a Dataview

Logi Platform Services technology provides you with an advanced means of data retrieval based on the "Dataview", a definition that specifies data connection information, query details, and data enrichment details.

To create and manage Dataviews, you use the **Dataview Authoring** tool in Logi Studio (or, assuming a default installation, browse it directly using <http://localhost:3000/Datahub/Account/Login>). We'll use an abbreviated process to help you quickly create your first Dataview.



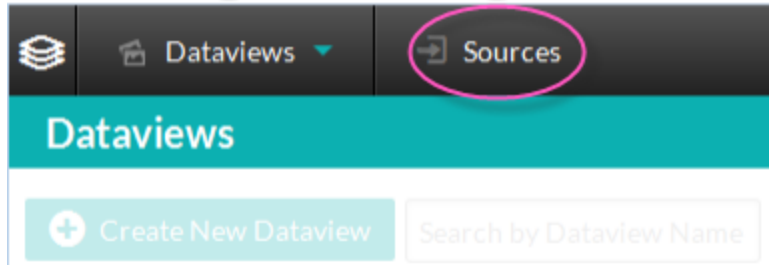
Run the Dataview Authoring tool, on Studio's Tools tab, shown circled above. This menu item will only be visible if Logi Platform Services has been installed. Click once to display the list of connections, then click the connection in the list. The tool will open in your default browser:



You'll be presented with the *Login* page, shown above. Enter the "admin" user name and the password you supplied when configuring the Connection.Logi Application Service element. Click **Login** to access the tool.

## Create a Data Source

You'll see the Dataviews home page in your browser.



A connection to data is called a "Source" and, in this exercise, we'll create a new Source based on a SQL database. Click the **Sources** menu item, shown circled above.

**Add Source** ✕

①  Database  Application

② Data Provider: Microsoft SQL Server

③ New Source Name: Northwind

④ Server Name: yourDBServer

⑤ User Name: yourDBUserName

⑥ Password: yourDBPassword

⑦ Database Name: Northwind Get list

⑧ Port Number: 1433

Visible to:  Only Me  Everyone

⑨ Test Source Cancel Save

The **Add Source** panel, shown above, will appear. 💡 There will be different fields presented depending on the Data Provider selection. Skip down to the next example if using an MS SQL Server Named Instance. Otherwise, select or provide the required information, as follows:

1. **Database** - Select the Database radio button, making the fields shown above visible.
2. **Data Provider** - Select the desired database or provider type. There are several MS SQL Server options, allowing for its different security schemes.
3. **New Source Name** - Give the source an arbitrary name for easy recognition later in the list of sources.
4. **Server Name** - Enter the database server name or IP address.
5. **User Name** and **Password** - Enter the credentials required to access the database.
6. **Database Name** - Enter the target database name (or, for Oracle, the "Service Name").

For Microsoft SQL Server, MySQL, and PostgreSQL providers, you can use the **Get List** button to select the database name from a list.

For some providers, an *Advanced Options* link will be shown, allowing you to set special configuration options, such as Schema Name or Warehouse Name, specific to that provider.

7. **Port Number** - Enter the Port number for the connection. The default port number for the provider will be displayed.
8. **Visible To** - Select *Everyone* for this exercise.
9. **Test Source** - Click the button to attempt to make the connection specified and provide a status message. In addition to indicating either success or failure, any existing Source with the *exact same* specifications will be identified so you can decide whether to use it instead or proceed to save your new Source.

Click **Save** to save your new Source.

## Working with a SQL Server Named Instance

If you're trying to connect to a named instance of Microsoft SQL Server, such as `yourDBServer\SQLEXPRESS, 8484` then the example connection shown above will not work. You may have noticed that the Data Providers selection list includes several Microsoft SQL Server variants. One of them is *Microsoft SQL Server Named Connection* and here's an example configuration for it:

**Add Source**
✕

Database   
  Application

Data Provider: Microsoft SQL Server Named Connection ▼

New Source Name: Northwind

Server Name: yourDBServer

Instance: SQLEXPRESS

User Name: yourDBUserName

Password: ●●●●●●●●

Database Name: Northwind ▼

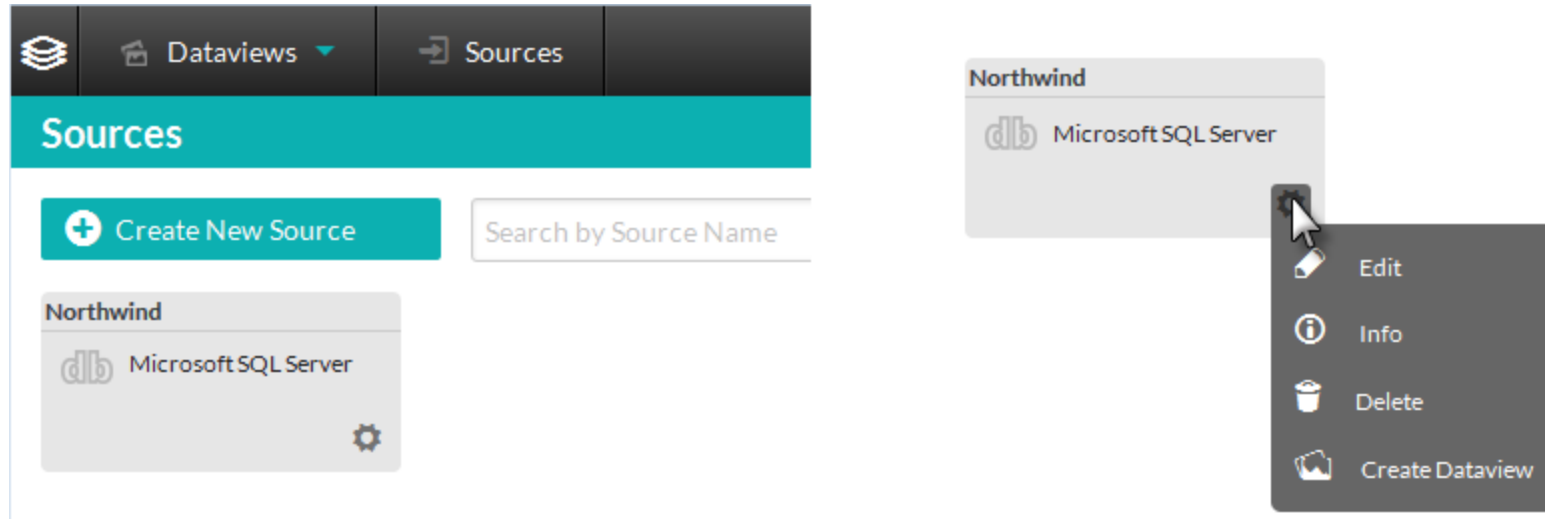
- Advanced Options

☞
Port Number: 8484

Test Source
Cancel
Save

= yourDBServer\SQLEXPRESS,8484

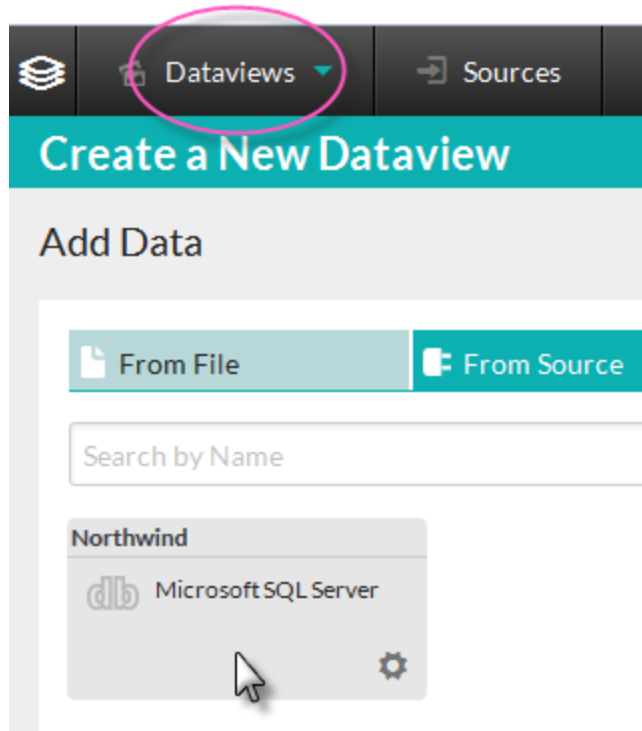
The example above shows how a complex SQL Server connection ID is parsed and placed appropriately in the Add Source panel. You have to expand the **Advanced Options** area to access the Port Number input.



Once you've created a Source, it will appear on the *Sources* page as a graphic "pill", as shown above. You can click a pill's gear icon to edit it, delete it, etc. This source can be used multiple times for different Dataviews.

## Author a Dataview

Now that you have a data Source, you can author a Dataview.



In your browser, click the **Dataviews** menu item at the top of the page, shown circled above, and *Create a New Dataview* in the drop-down menu. You should see your connection pill in the new dataviews page. Click the pill and the **Dataview Configuration** tab will appear:

Cancel Reset Save

5 X ↶ 📄

### Add Data

#### Sources in Use

1 Northwind  
db Microsoft SQL Server

+

#### Objects in Northwind

Search by Name Show All

Objects in Use

4 Customers Click to filter

Available Objects

2 Categories

Employees

Invoices

Orders

#### Columns in Customers All None

Search by Nam Show All

CustomerID

CompanyName

ContactName 3

ContactTitle

Address

City

Region

PostalCode

Country

Phone

Fax

CompanyName

ContactName

Region

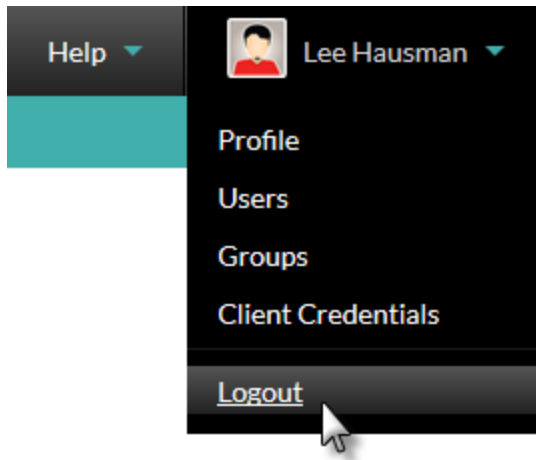
Country

4

Follow these steps, keyed to the image shown above, to select data for the Dataview:

1. **Sources in Use** - This panel displays the data Source selected for use by this Dataview.
2. **Available Objects** - This is a list of available data objects that haven't been selected yet. Click an object here to select it. When you do, its columns will appear in the Columns panel.
3. **Columns** - Click some of the object's columns to select them (click again to unselect).
4. **Objects in Use** - This panel appears when you select a column and its data object is placed in the "Objects in Use" list. At the same time, a pill representing the column is added to the table at the bottom of the page.
5. **Action Icons** - Click the *Save* icon to save your Dataview. Other icons let you *Reset* all selections to their defaults or *Cancel* Dataview creation.


When you click the **Save** icon, you'll be prompted to provide a name for your Dataview. After the new Dataview is saved it will immediately loaded from the data source. The **Dataview Status** tab will be selected and you'll see the object details and a few rows of data in the table at the bottom of the page.

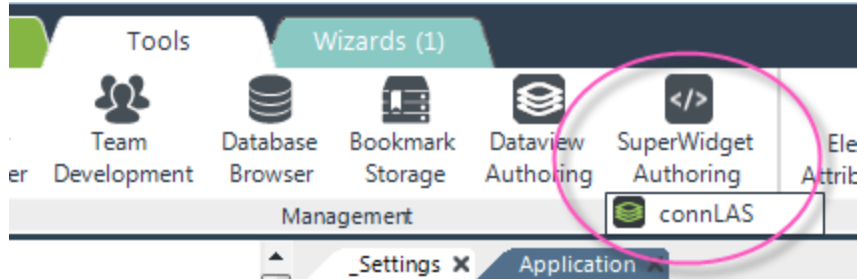


This Dataview can be used multiple times for different widgets. You can repeat the process to create additional Dataviews if you'd like; otherwise hover your mouse over your name in the upper-right corner of the page and select **Logout** from the drop-down

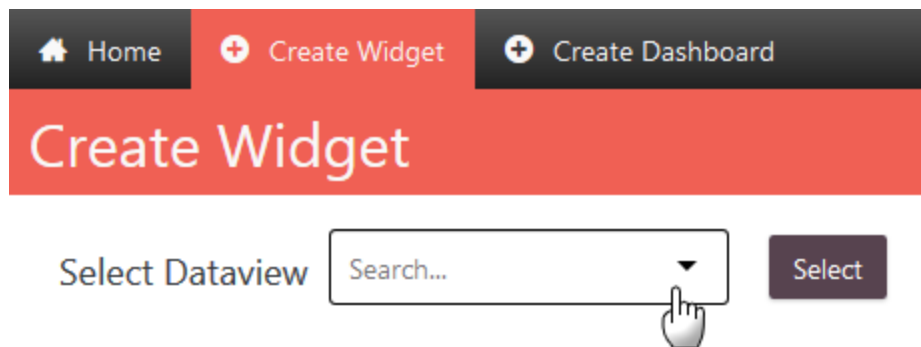
menu. To keep this exercise brief, we've done the bare minimum. There are many additional features available when authoring Dataviews, including filtering, joins, and custom objects, and they're fully described in "Dataview Authoring" on page 414.

# Create a SuperWidget

 SuperWidgets have been deprecated in Logi Info v12.6. Now you're ready to build a visualization using the Dataview you just created.



On Studio's Tools tab, you'll find the **SuperWidget Authoring** menu item, circled above. As before, click it once to display the list of connections, then click the "connLAS" connection in the list. The tool will open a *Login* page in your default browser. Enter the "admin" user name and the password you supplied when configuring the Connection.Logi Application Service element. Click **Login** to access the tool.



You'll see the Widgets Home page. Click the **Create Widget** tab, shown above. Select a Dataview from the list and click **Select**.

[Home](#)
[+ Create Widget](#)
[+ Create Dashboard](#)

Save Thinkspace
Properties Editor
Done

Select Dataview  Select

Untitled Thinkspace Add To Infoboard Update

- CHOOSE VISUALIZATION
- Tables
  - Bars
  - Column
  - Lines
  - Scatter

◀ CHOOSE VISUALIZATION

Filters
Calculated Columns
CSV Export
Show/Hide

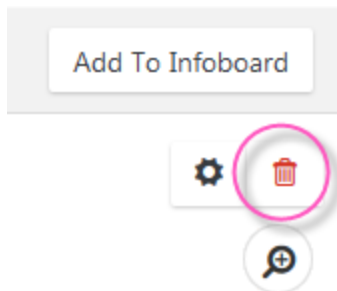
CustomerID	CompanyName	ContactName	ContactTitle	Address	City
PQTJH	Wintinax	Patrice Morales	International Cust...	56 Nobel Street	Philadelphia
SDXXP	Grojubower	Cherie Morton	Prepaid Customer	39 White Milton Road	Fremont

The Thinkspace tool will open, with the data from the Dataview you selected, as shown above. Detailed instructions for using the Thinkspace can be found in "Use the Thinkspace - 3.x" on page 250. For this exercise, create a quick little visualization by clicking dragging a Data Table column pill...

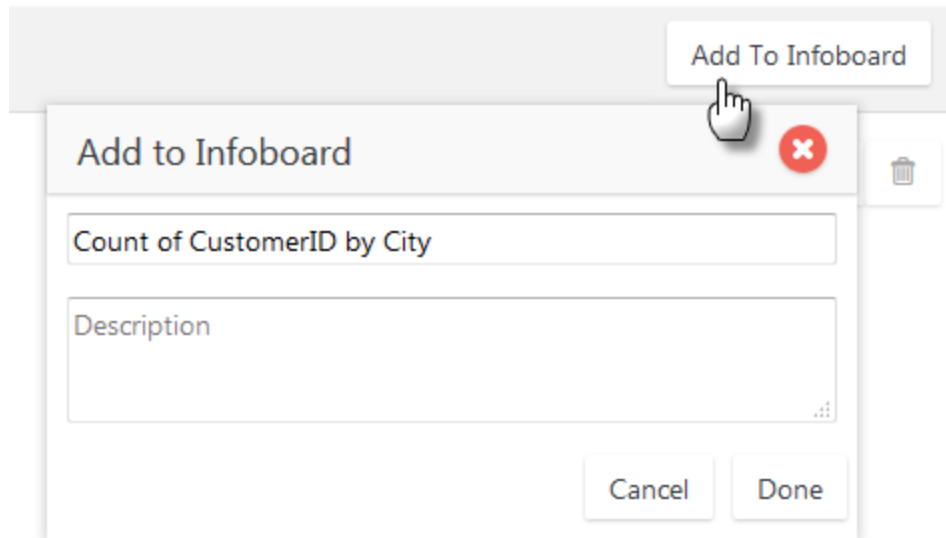
No Filters Applied Filters

CustomerID CONNECT	CompanyName CONNECT	ContactName CONNECT	ContactTitle CONNECT	Address CONNECT	City CONNECT
PQTJH	Wintinax	Patrice Morales	International Custo...	56 Nobel Street	Philadelphia
SDXXP	Grojubower	Cherie Morton	Prepaid Customer	39 White Milton Road	Fremont
NEQWU	Unanodex Interna	Melanie Wong	Technical Customer	965 Old Freeway	Virginia Beach

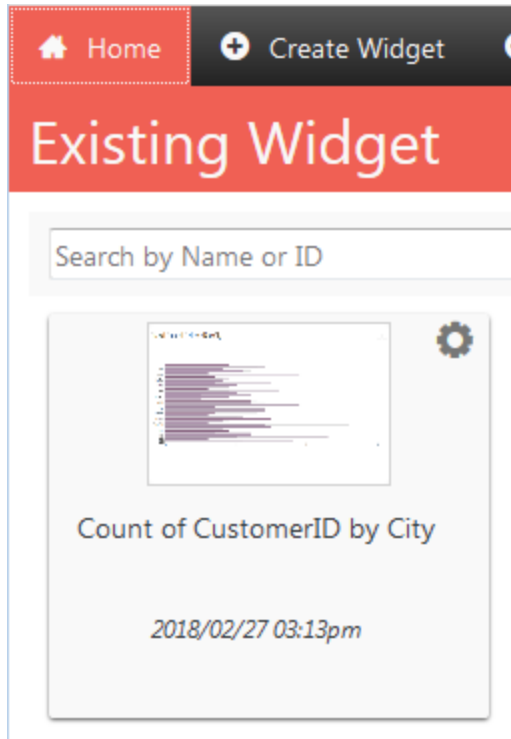
... and dropping it onto another pill, as shown above. The Thinkspace will create a visualization based on the data.



If you really dislike the visualization and want to try dragging and dropping other columns, click the **trash can** icon in the upper-right corner of the visualization to delete it and start over.



When you're ready, click **Add to Infoboard**, as shown above, then accept the suggested title or provide your own, and click **Done**.



You'll be returned to the Home page and you should see a pill representing your widget, as shown above. This widget can be used multiple times in different applications.

# Use the SuperWidget in Your Application

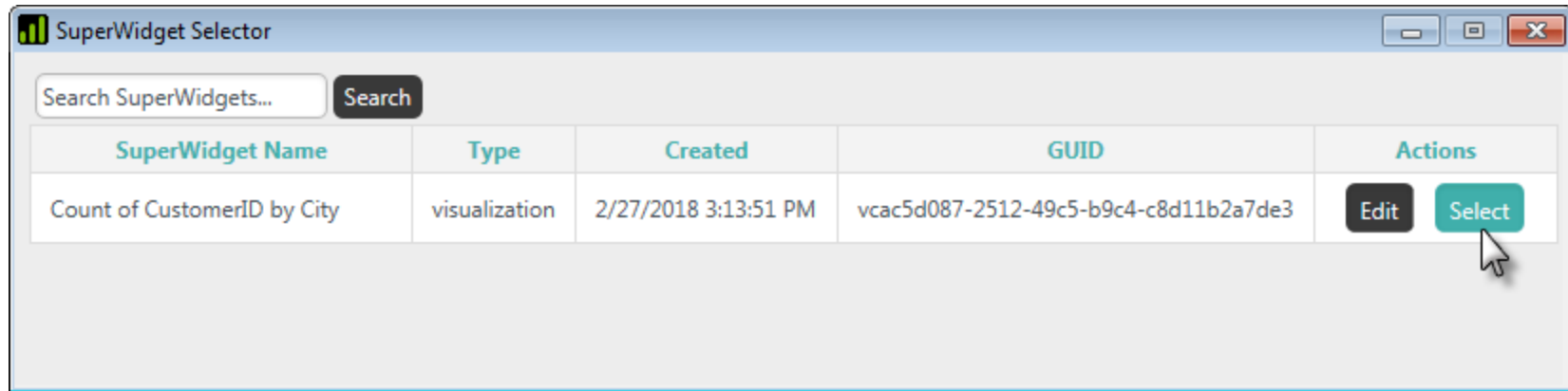
SuperWidgets have been deprecated in Logi Info v12.6. Now you're ready to use your widget in the Logi Info application.

The screenshot illustrates the configuration of a SuperWidget element. On the left, a report definition tree shows a 'SuperWidgetTest' application containing an 'Arizona' report. The 'Body' of the report includes several 'New Line' elements, a 'Logi SuperWidgets Rule', two 'IblParagraph' elements, and a 'SuperWidget' element highlighted in green. A blue arrow points from this 'SuperWidget' element to the configuration table on the right.

The configuration table, titled 'Element - SuperWidget', lists the following attributes:

*Required Attributes	
ID	swCustID_by_City
Logi Application Service ID	connLAS
Widget Config ID	
Optional Attributes	
Height	400
Security Right ID	
Width	600

Add a **SuperWidget** element in an appropriate place in your Logi report definition, similar to the example above. Configure the SuperWidget appropriately and click the browse button at the end of the **Widget Config ID** attribute value to display the Super-Widget Selector dialog box:

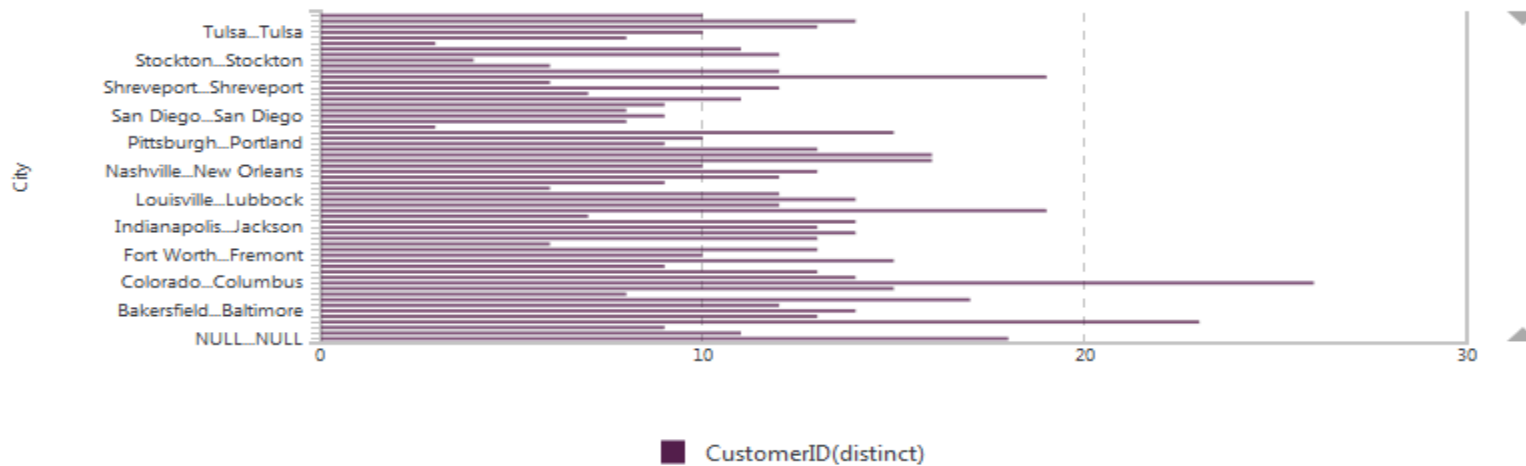


This dialog box contains an entry for every widget you build with the SuperWidget Authoring tool. Select the one you just made and the dialog box will close and the widget's GUID will be filled-in back in the attribute value.

# Logi SuperWidgets Rule

Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed do eiusmod tempor incididunt ut labore et dolore magna aliqua. Ut enim ad minim veniam, quis nostrud exercitation ullamco laboris nisi ut aliquip ex ea commodo consequat. Duis aute irure dolor in reprehenderit in voluptate velit esse cillum dolore eu fugiat nulla pariatur. Excepteur sint occaecat cupidatat non proident, sunt in culpa qui officia deserunt mollit anim id est laborum.

## Count of CustomerID by City



Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed do eiusmod tempor incididunt ut labore et dolore magna aliqua. Ut enim ad minim veniam, quis nostrud exercitation ullamco laboris nisi ut aliquip ex ea commodo consequat. Duis aute irure dolor in reprehenderit in voluptate velit esse cillum dolore eu fugiat nulla pariatur. Excepteur sint occaecat cupidatat non proident, sunt in culpa qui officia deserunt mollit anim id est laborum.

Save and browse your report and, as in the example above, your visualization widget should be included. Notice that the widget is fully-functional, with live Explorer features, and is not embedded in an iFrame.

You should be aware that the widget is sensitive to the **Logi Theme** being used in your application and may display with different colors or fonts as a result. The *Arizona* theme, downloadable from DevNet, was used in these examples.

To keep this exercise brief, we've done the bare minimum. There are many additional features available when authoring Super-Widgets, including a Dashboard widget and the ability to embed a visualization with the complete Thinkspace, and they're fully described in "SuperWidgets" on page 375.

# Use the Thinkspace - 3.x

The **Thinkspace**, part of the Discovery Module, is a Logi Info element that allows you to enjoy a rich, highly-interactive analysis experience.

The following topics are intended for end-users who'll be using the Thinkspace in a Logi application:

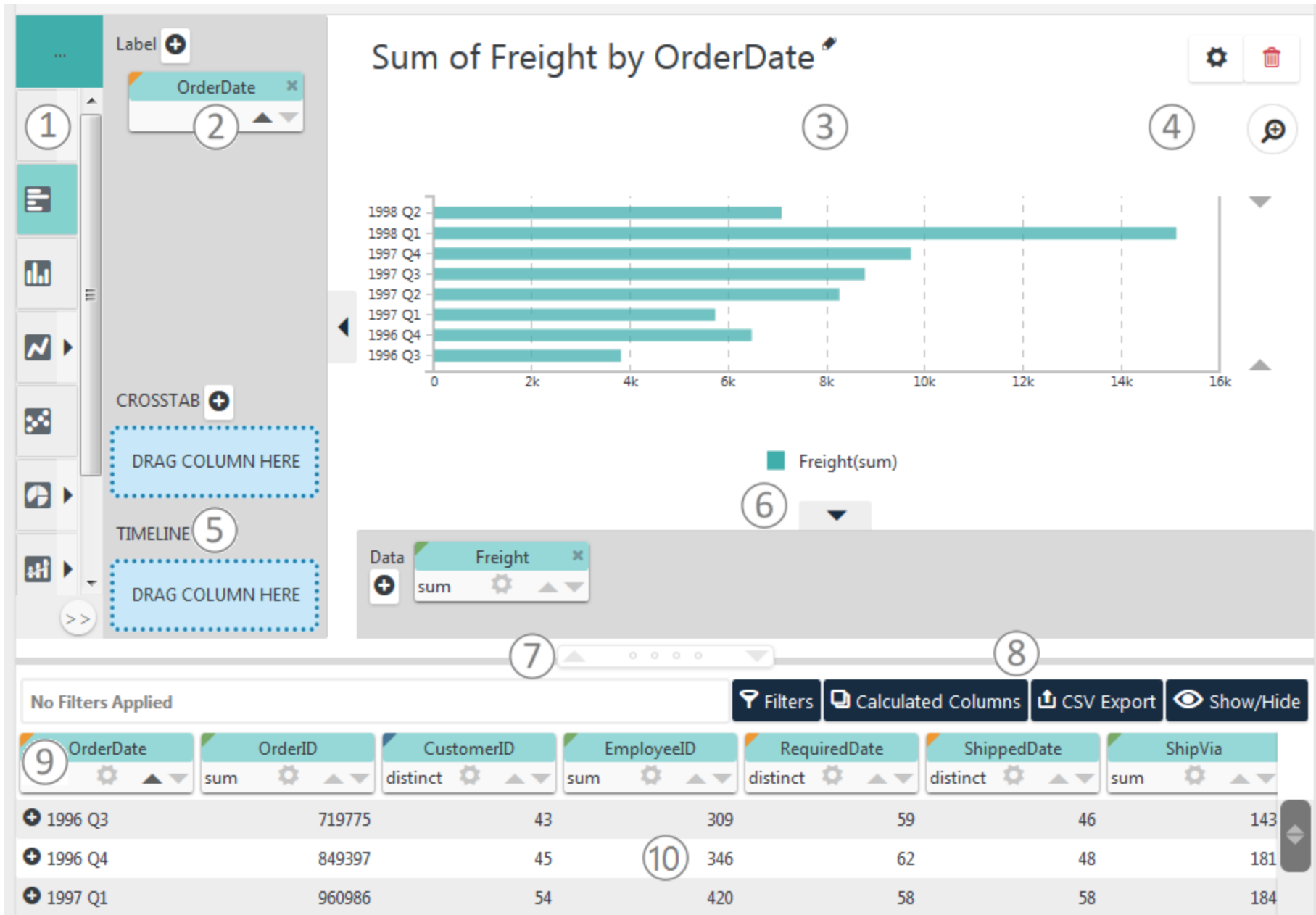
- [Your First Chart in Three Easy Steps](#)
- [Additional Thinkspace Features](#)
- [Saving Your Visualizations](#)
- [Adding Your Visualizations to Dashboards and Galleries](#)
- [Exporting Data to CSV File](#)

Other Discovery Module 3.x user topics include: "Thinkspace Columns" on page 268, "Thinkspace Charts" on page 304, and "Thinkspace Crosstabs " on page 353.

## About the Thinkspace

 Advanced features discussed here may require Logi Info v12.5. Earlier and later Info versions may not support them. Consult the [Release Notes](#) for specific details.

The **Thinkspace** provides you with an advanced, easy-to-use interface so that you can quickly create your own data analyses. It's smart, too: "best-fit" charts are automatically suggested by a built-in "recommendation engine" and data is organized automatically to make it easier to use.



The user interface consists of two main areas, as shown above. The upper area displays the charts and tables you create and the lower area displays your data in a simple table. Here are some more details, keyed to the numbers in the image above:

1. **Visualization Menu** - Click to select a visualization appropriate for your data and to easily switch between types.
2. **Pills** - Column "pills" in X- and Y-axis "drop zones" identify the data columns used to create the visualization.
3. **Visualization** - A Chart, Crosstab Table, or other visualization is displayed here when you select its data.
4. **Settings** icons - Click to control the legend (may also have other purposes), delete the visualization, or choose selection modes.
5. **Extra Columns** drop zones - Dropping column pills here to create a Crosstab Table or a Timeline Chart.
6. **Show/Hide** arrows - Click to show/hide pill drop zones; allows you to see a larger view of the visualization.
7. **Table Resizer** - Click arrows or drag dots to change the number of table *rows* shown.
8. **Data Enrichment** - Click to open drop zone and controls for creating data filters, calculated columns, and do more. Once created, filters are listed in adjacent area.
9. **Column Pills** - Pills appear at the top of each column of data in the table; they contain sorting, filtering, and other controls.
10. **Data Table** - Data available for analysis appears in a table here. It's pre-selected by your application developer and may be restricted by security permissions assigned to you.

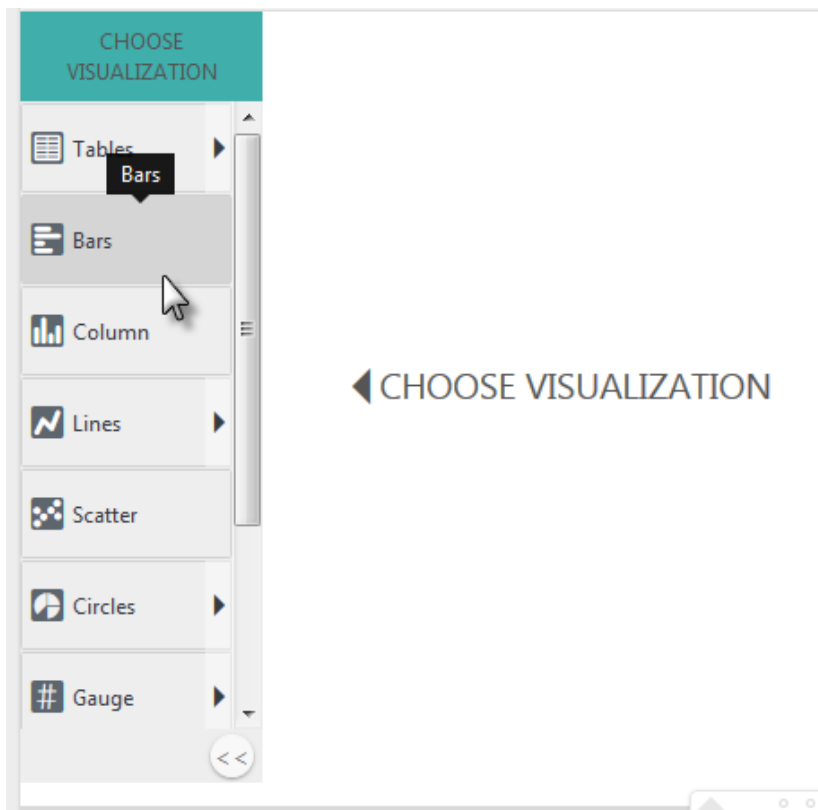
Individual controls are discussed in detail later on in this topic.

The Thinkspace is an investigative tool and, as such, the charts and calculations you create in it are for quick analysis of your data. If your application has been configured to do so, they can be saved and re-used in later sessions.

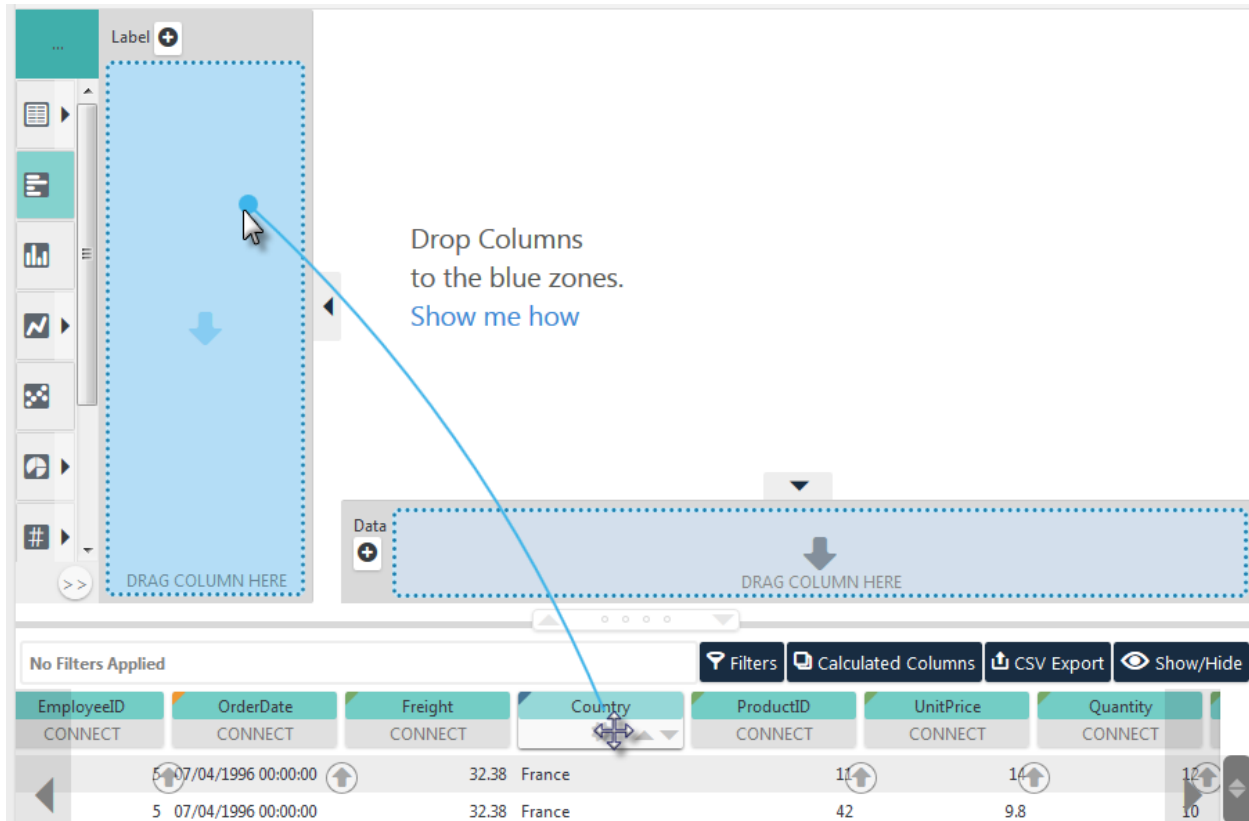
# Your First Chart in Three Easy Steps

Let's make your first visualization, a bar chart, so you can see how easy it is to do. In this, and the following examples, we'll use data from the Northwind database but you can use any data with similar data types to follow along.

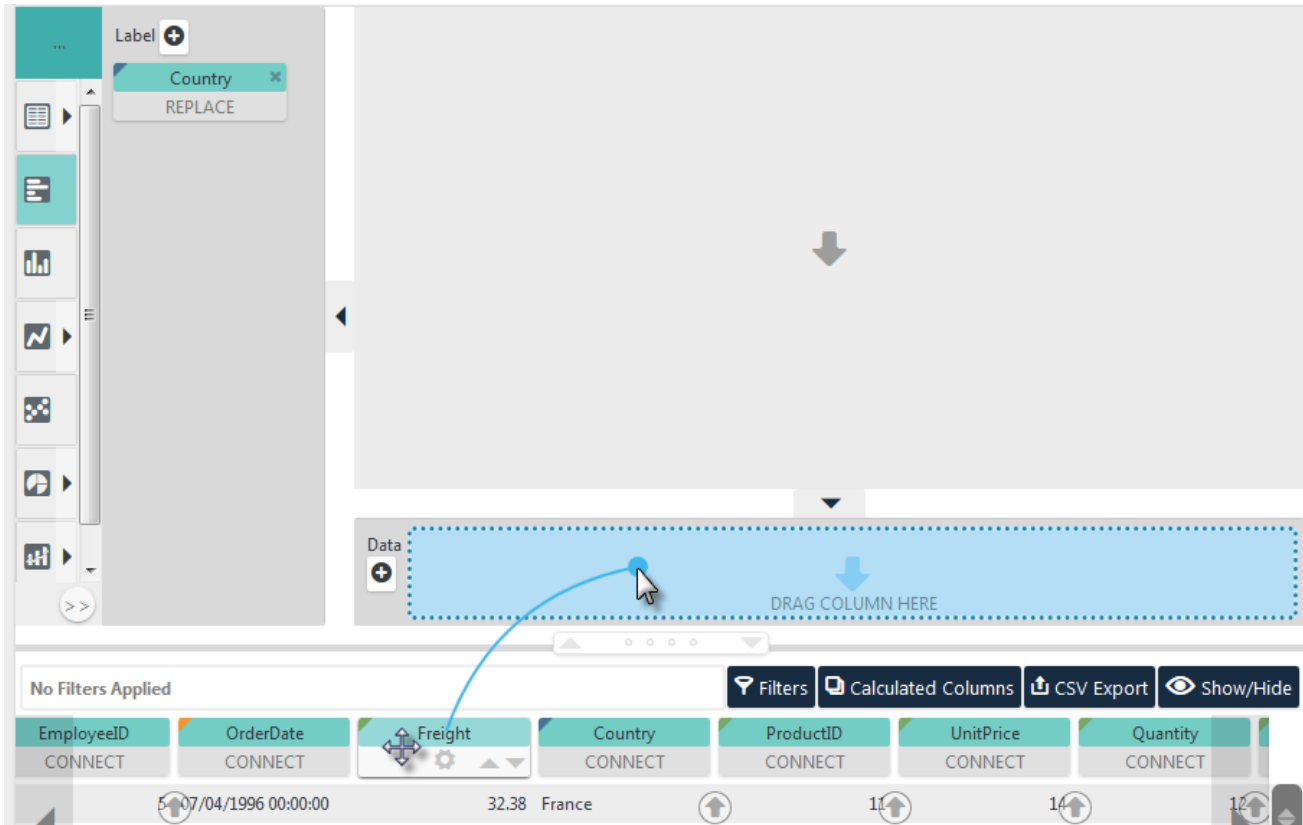
In this example, we'll create a chart that shows the sum of freight charges by county. Run your application and access the Thinkspace.



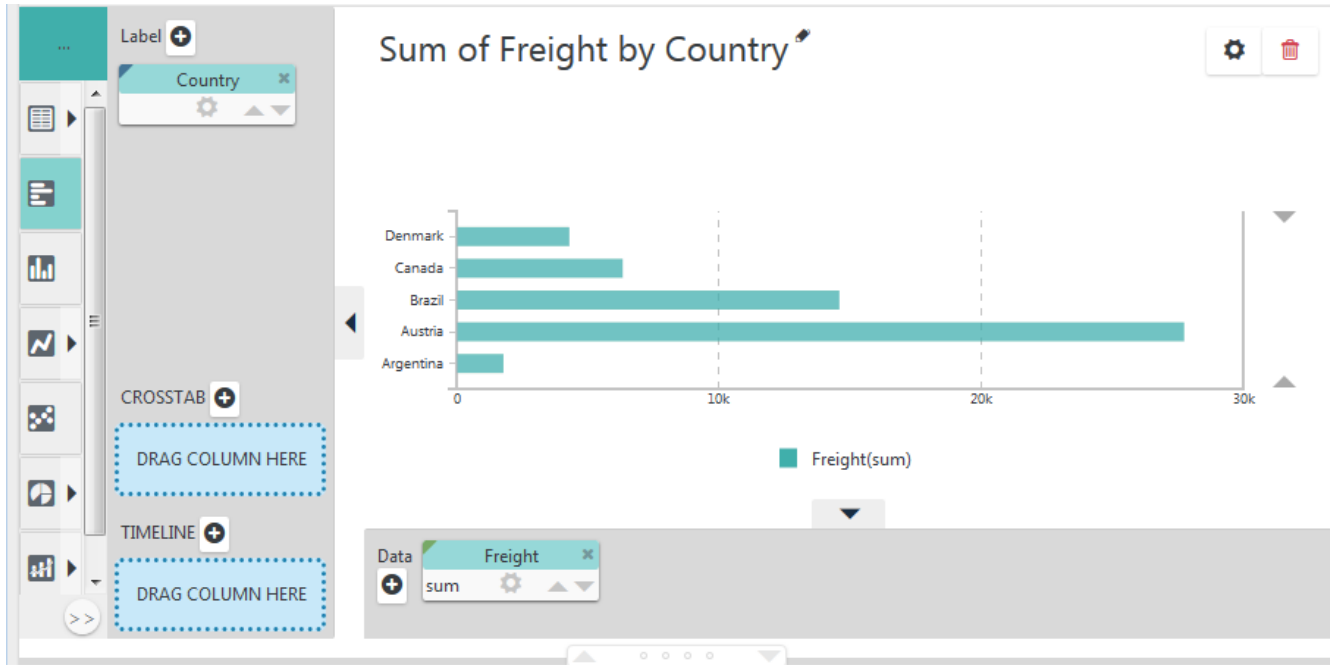
Step 1. After the Thinkspace loads, select the **Bars** chart from the visualizations menu on the left of the page, as shown above.



Step 2. Two blue "drop zones" will appear, as shown above. In the Data Table, click the Country column "pill", drag it to the Label drop zone, and drop it there. We call the line that appears when you drag a pill the "Blue Dot Connector".



Step 3. Repeat the process by dragging the Freight column pill into the Data drop zone, as shown above.



A chart will be instantly generated, as shown above. You've just learned the Thinkspace's most important technique: dragging and dropping pills. That was easy, wasn't it?

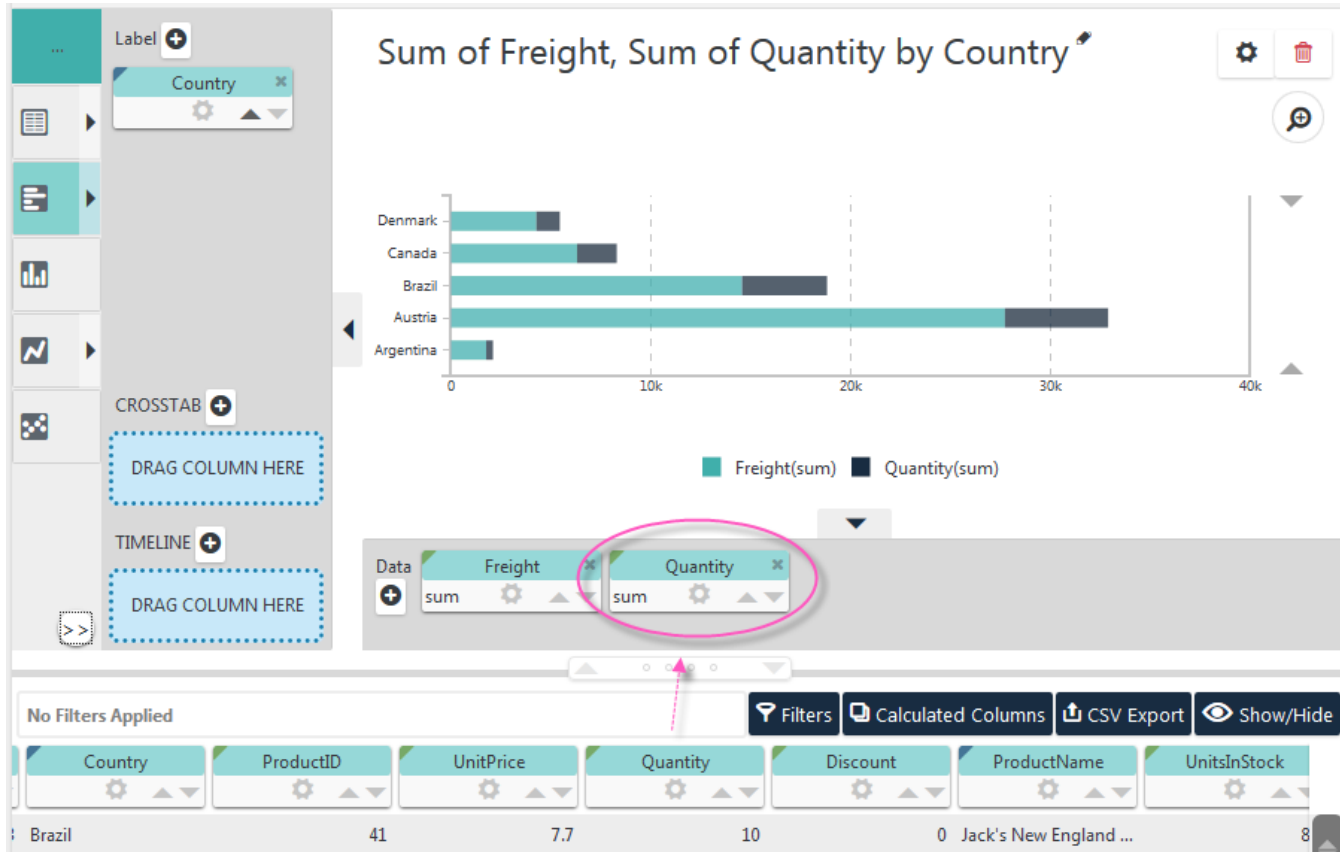


However, it can be *even easier*. We can combine all three steps into *one*! Let's start over: click the red trash can icon in the upper-right corner to remove the chart. Now, just drag the Data Table's Country column pill and drop it onto the Freight column pill, as shown above. The same chart will be rendered.

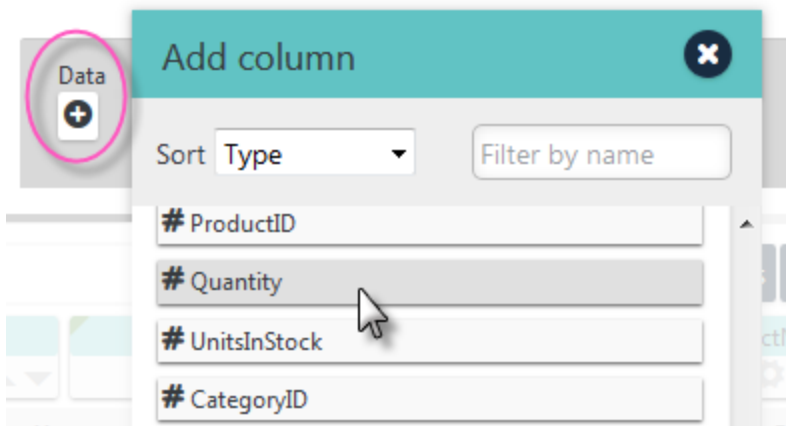
Here's what happened: The Thinkspace automatically "recommended" the Bars chart as the best fit for the data. The column pill that you dragged the Blue Dot Connector *from* (Country) was identified as the Y-axis or Label values, and the pill you *dropped it on* (Freight) was identified as the X-axis or Data values. The chart was then rendered. Notice that the pills for each column also appear next to the chart in the appropriate axis zones.

# Additional Thinkspace Features

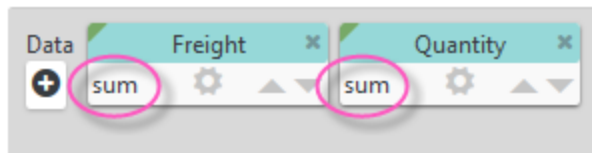
Let's examine some other Thinkspace features:



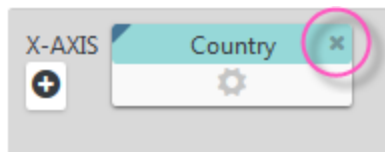
You can also drag-and-drop *additional* pills into an axis zone to add additional series to the chart. In the example shown above, the Quantity column pill has been dragged into our earlier chart, in the X-axis drop zone, producing a chart with two "stacked" series.



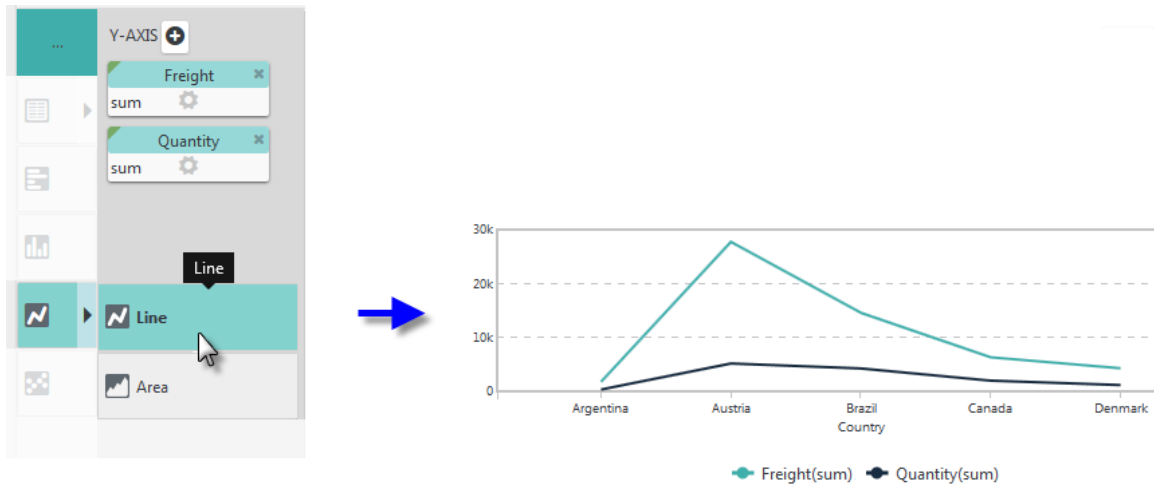
If you have difficulty dragging-and-dropping pills using the Blue Dot Connector, for instance on a mobile device, you can also add columns by clicking the "+" icon, circled above, and selecting them from the **Add Column** dialog box.



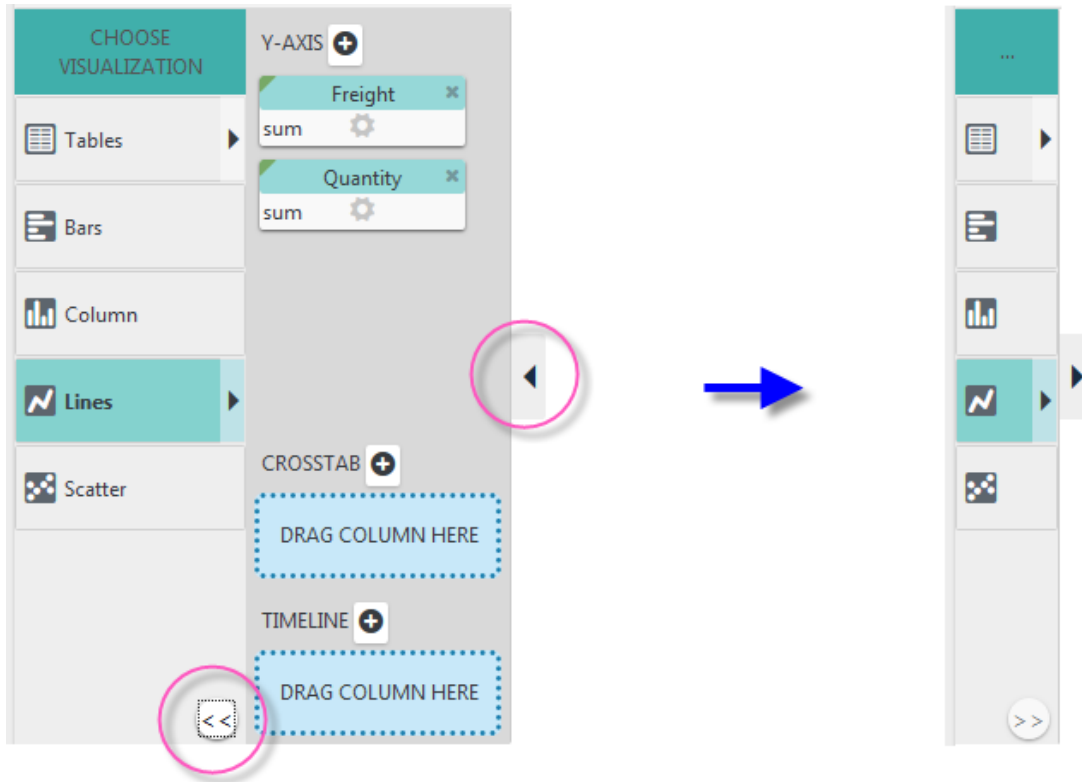
Notice the word "sum", circled above, has appeared in the X-axis pills. This indicates the aggregation the Thinkspace employed after analyzing the data and making an "educated guess" about the best choice to use. We'll discuss this technology in more detail in our topic about working with columns.



If you want to *remove* a pill that you dragged to a drop zone, just click its "X" icon, shown circled above.



You can use the **Visualizations** menu, at the left side of the Thinkspace to change the chart type, as shown above. The menu presents the charts the Thinkspace recommends as the best way to visualize the data you've selected. When you select a different chart type, you may see that the X- and Y-axis pills have been swapped, as needed.



You can control the size of the chart rendering area by using the icons circled above (and one for vertical space, not shown) to expand or collapse the menu and drop zones.

You've just mastered the basics of using the Thinkspace. Well done!

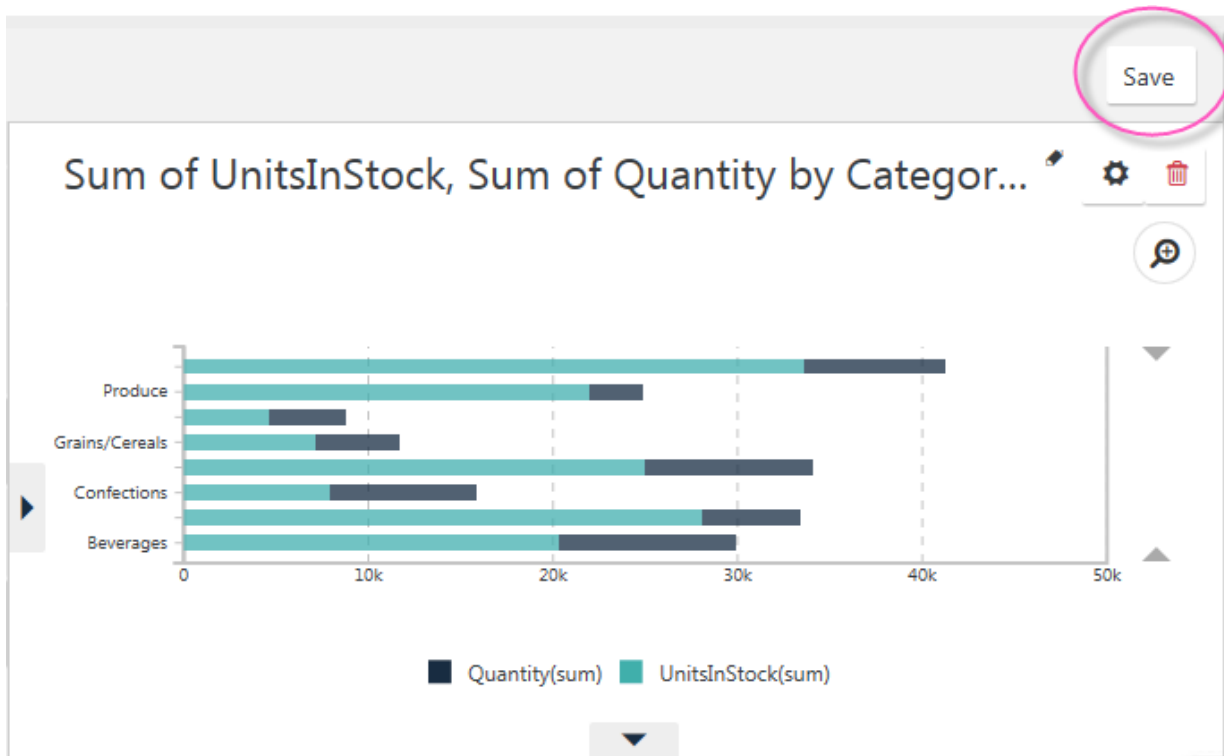
Next, to expand your skills with the Thinkspace, please read our other Discovery Module v3.x topics:

- "Thinkspace Columns" on page 268
- "Thinkspace Charts" on page 304

- "Thinkspace Crosstabs " on page 353

# Saving Your Visualizations

The Thinkspace includes an optional feature that lets you save the settings and visualizations you've created and re-use them in a later session.

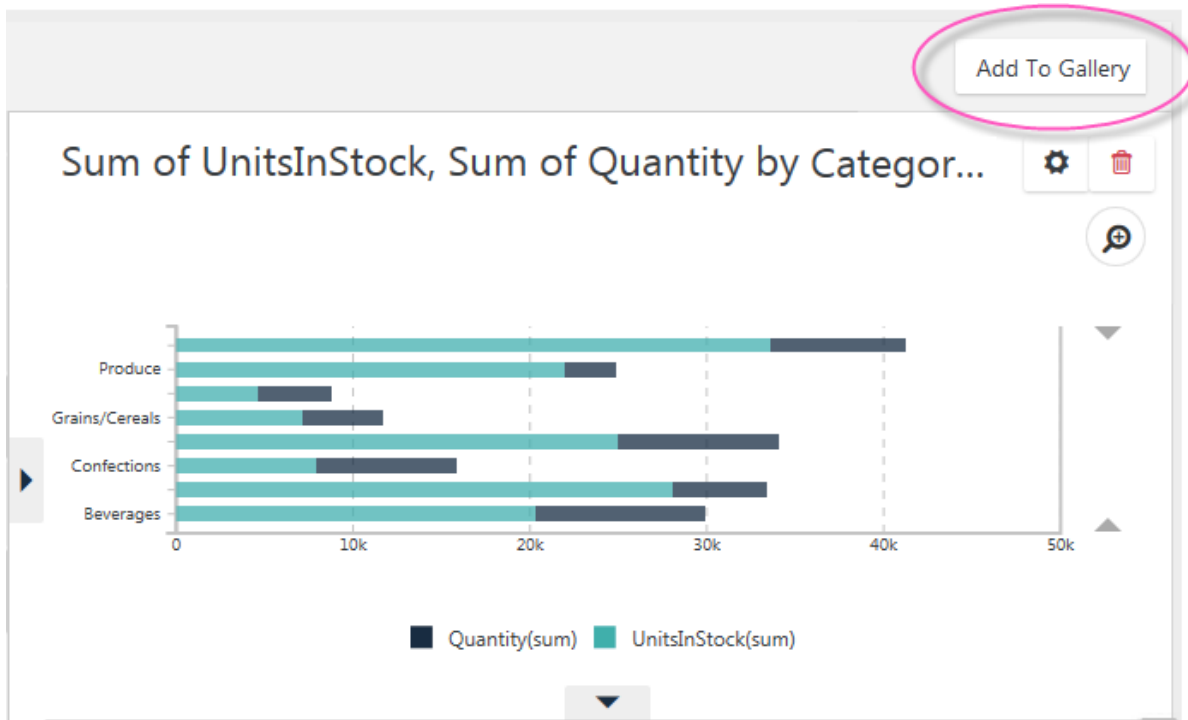


If your application has been configured for this feature, the Thinkspace will display a **Save** button, as shown above. Click it to save your settings and the chart.

Your application will include other buttons or links, outside of the Thinkspace, to retrieve and use the saved settings.

# Adding Your Visualizations to Dashboards and Galleries

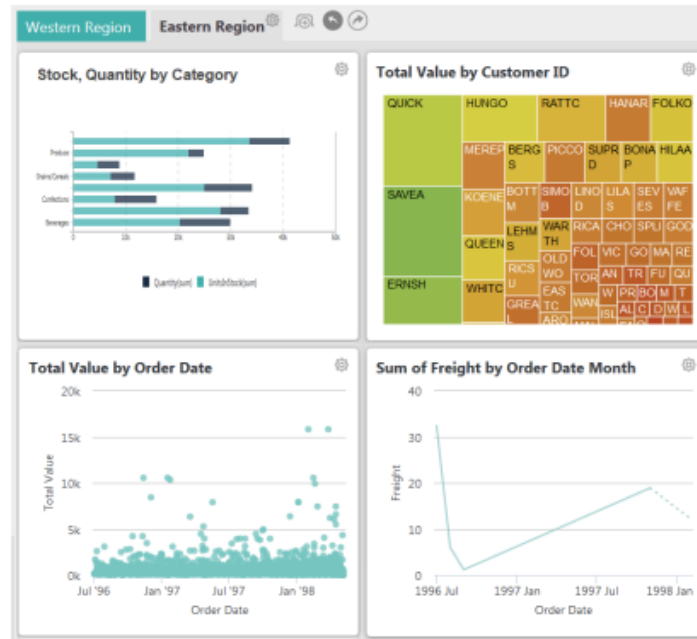
The Thinkspace includes an optional feature that lets you create a visualization in the Thinkspace and then add it as a new panel in an existing Logi Dashboard in another report, or add it to a Visual Gallery.



If your application has been configured for this feature, the Thinkspace will display a button like the one shown above. It may say "Add to Gallery" or "Add to Dashboard" or something similar, depending upon how the application was configured.

From Thinkspace...

... to Dashboard




When configured for use with a Dashboard and the button is clicked, the visualization is added immediately as a *new panel* in the Dashboard, as shown above. Or, if it's configured for use with a Visual Gallery, the visualization is added to the gallery but no immediate insertion occurs.

Just before the visualization is saved, you'll be prompted for the **Panel Title** (with the chart title from the Thinkspace provided as a suggestion) and an optional description for display.

### Visual Gallery X

Find  Sort By Newest ▾


---



**Sum of Freight by Order Date**  
 Created: 2/18/2016 10:54 AM  
 This Bar chart shows the quarterly freight costs over time.

Add Delete from List

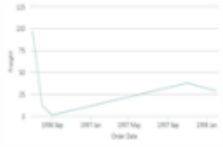
---



**Stock, Quantity by Category**  
 Created: 2/12/2016 10:18 AM  
 This Bar Chart shows the quarterly order values over time from 1996 - 1998 in the domestic market.

Add Delete from List

---



**Sum of Freight by Order Date Month**  
 Created: 2/2/2016 2:06 PM

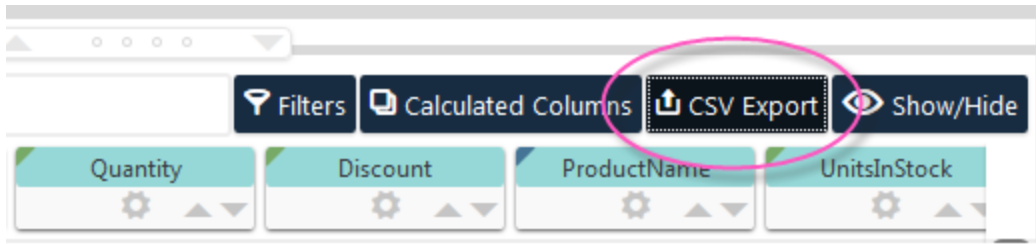
Added Delete from List

The new visualization thereafter appears in the Dashboard Configuration Page or the Visual Gallery, as shown above, just like any other resource, complete with a thumbnail image. The visualization can be removed from the visible Dashboard panels and from the configuration page or gallery entirely, using the usual controls.

You can insert multiple charts into a Dashboard using this technique. For more information about Dashboards, see *Logi Info Dashboard* .

## Exporting Data to CSV File

The Thinkspace includes a feature that allows you to export the data in your table to a file in standard Comma-Separated Values (CSV) format.

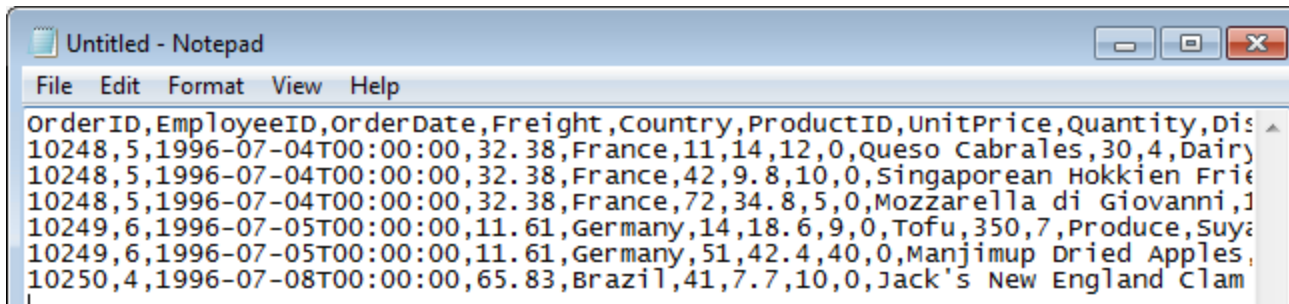


Click the **CSV Export** button circled in the image above to initiate an export. All columns and all rows in the table will be exported.



Attempting to export a very large number of rows might take a long time.

If you have an application, such as Excel, configured for CSV files, you'll be prompted to open or save the file.



Your table data will be exported, as shown above, with column names in the first row.

# Thinkspace Columns

The Thinkspace lets you manipulate your data through its column objects, column pills, and a few other interfaces.

The following topics discuss the actions available to you:

- [Color-Coded Data Types](#)
- [Controlling Column Visibility](#)
- [Changing Column Order](#)
- [Resizing Columns](#)
- [Sorting Column Data](#)
- [Changing Column Aggregation](#)
- [Accessing Gear Menu Options](#)
- [Creating and Editing Calculated Columns](#)
- [Formatting Columns](#)
- [Grouping Rows](#)
- [Filtering Rows](#)
- [Adding In-Cell Graphics](#)
- [Setting Color Thresholds](#)
- [Profiling a Column](#)

If you haven't already done so, please read "Use the Thinkspace - 3.x" on page 250 before proceeding.

Other useful Discovery Module v3.x topics include: "Thinkspace Charts" on page 304 and "Thinkspace Crosstabs " on page 353.



Advanced features discussed here may require Logi Info v12.5. Earlier and later Info versions may not support them. Consult the [Release Notes](#) for specific details.

## Thinkspace - Color-Coded Data Types

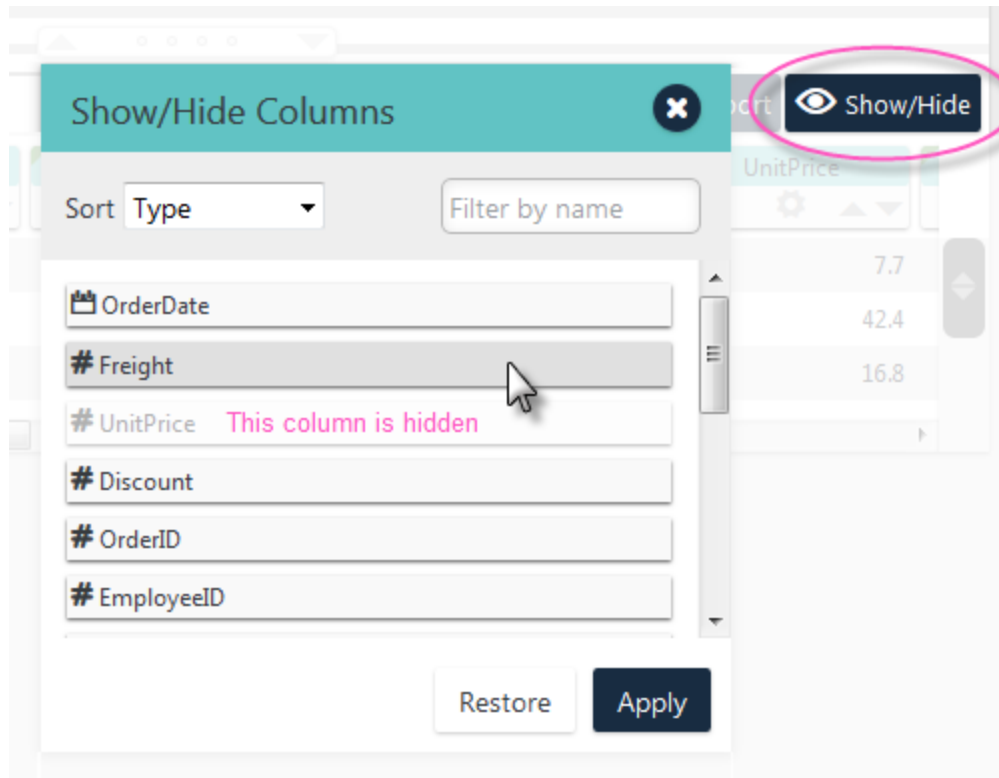
Column pills reflect data types in several ways. For example, in order to make it easy to identify data types, each pill is color-coded, as follows:



Which features are available to the data is dependent on the data type. For example, the default alignment of the data in a column is *Left* for Text and Date/Time data, *Right* for Numeric data. Dates use the *Short Date* format (mm/dd/yyyy) by default and numbers include a thousands separator (nnn,nnn).


# Thinkspace - Controlling Column Visibility

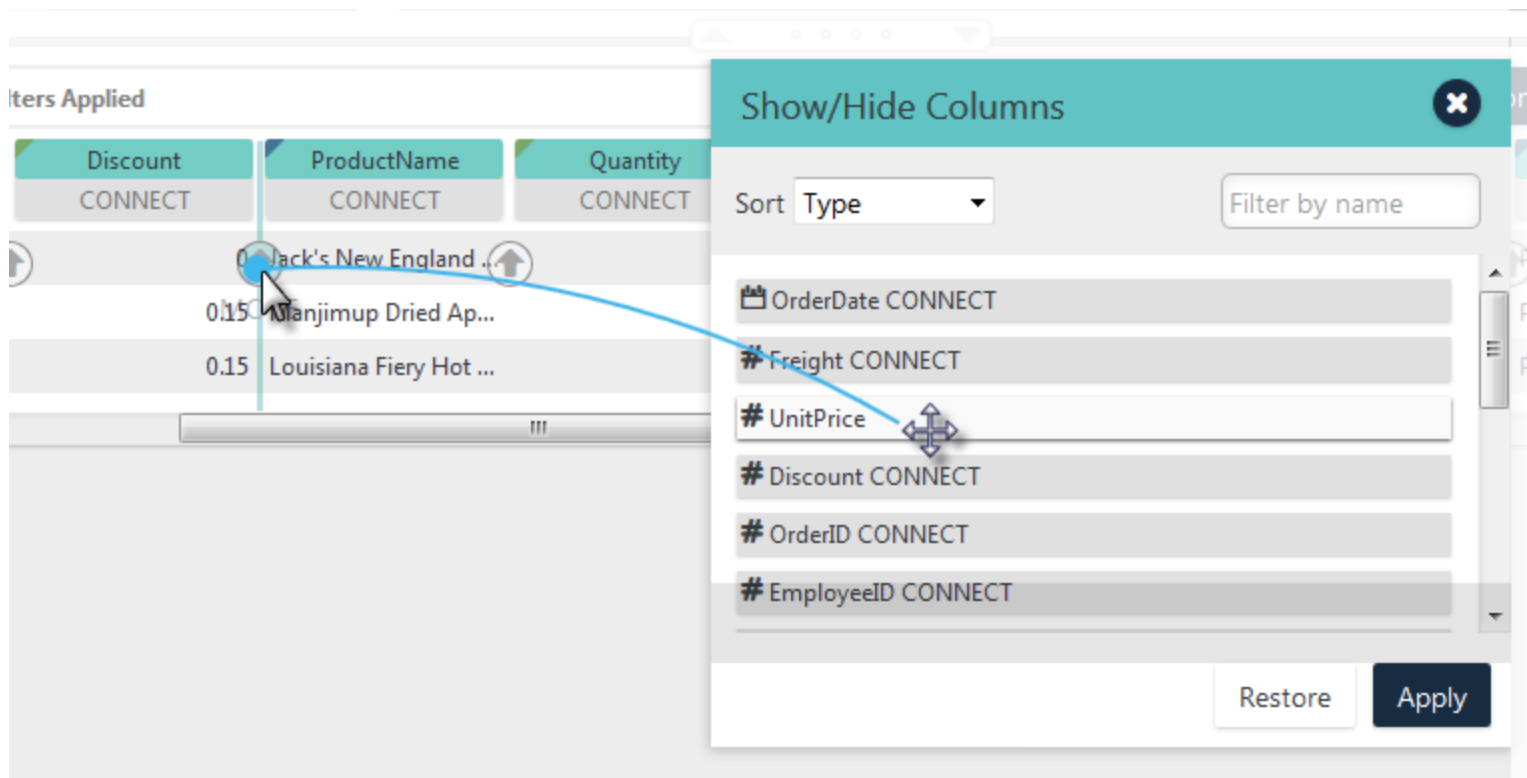
You may want to "hide" certain columns in the data, so they're not displayed in the table.



Click the **Show/Hide** button, circled in the image above, to display the Show/Hide Columns dialog box. You can sort the list of column entries in the dialog box or immediately filter the list by typing in the "Filter by name" text box. Delete any text in this box to redisplay the entire list.

In the dialog box, click one or more column entries to show or hide that column, then click **Apply**. In the example above, the UnitPrice column is hidden. Click an entry a second time, followed by Apply, to toggle its visibility. The **Restore** button undoes any changes made.

 When you restore or "unhide" a column, it will *not* reappear in its previous place in the table. Instead, it appears at the far right-hand end of the columns (which may not be viewable without scrolling). To move it back to original place, you can move the column using another feature of the dialog box:



After you restore or unhide a column, click on its entry and use the Blue Dot Connector position it where you want it. In the example above, we're dragging the *UnitPrice* column to a spot between the *Discount* and *ProductName* columns. We'll drop the column on one of the up-arrow "target" icons that appear between columns when you start dragging.

Click the "X" icon to close the dialog box.

# Thinkspace - Changing Column Order

You can also change the order of the columns in the Data Table by dragging a pill:

The screenshot illustrates the process of reordering columns in a data table. The initial table has columns: ProductName, UnitsInStock, and CategoryID. A blue dot connector is dragged from the UnitsInStock column pill to a 'MOVE' target icon located between the UnitsInStock and ProductName columns. The resulting table shows the columns in the new order: UnitsInStock, ProductName, and CategoryID.

ProductName	UnitsInStock	CategoryID	Category
Queso Cabrales	22	4	Dairy Pro
Singaporean Hokkien Fried M...	26	5	Grains/C
Mozzarella di Giovanni			
Tofu			
Manjimup Dried Apples			

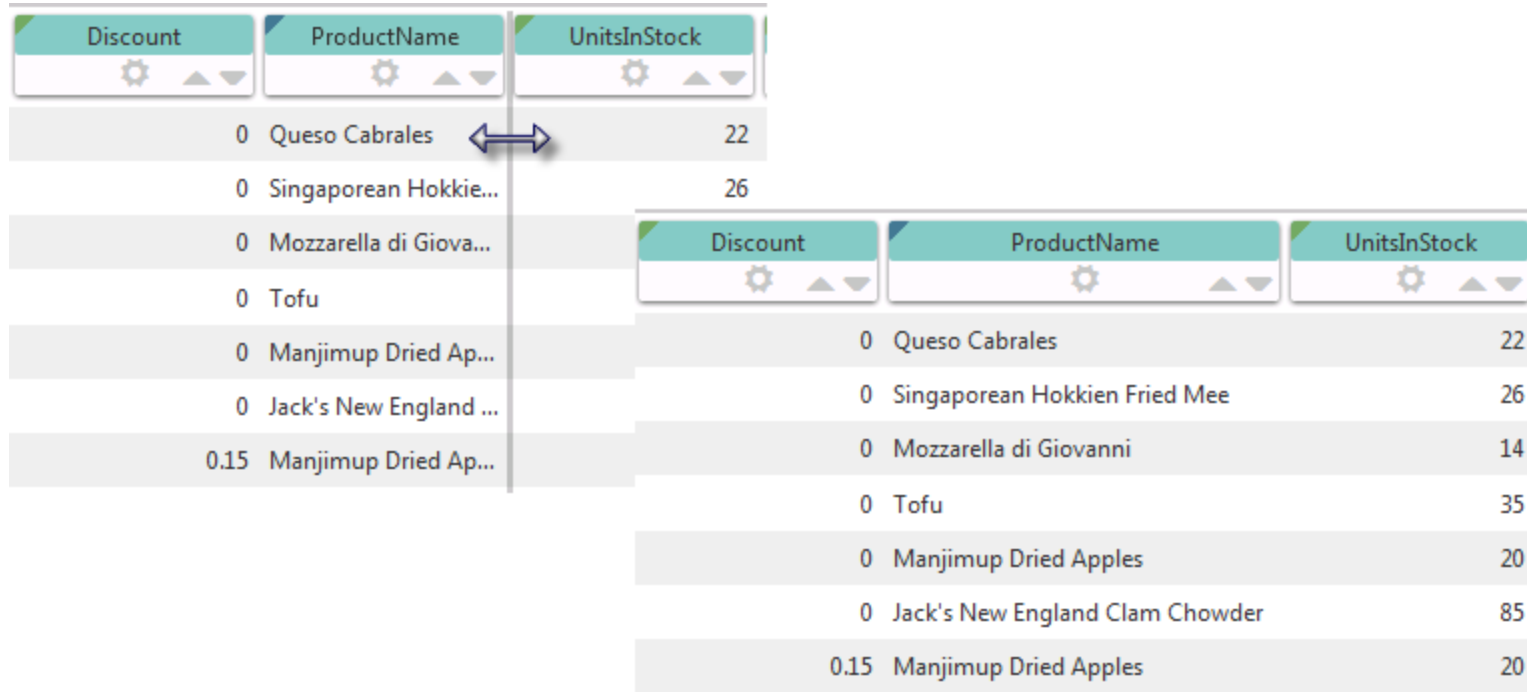
UnitsInStock	ProductName	CategoryID
30	Queso Cabrales	4
26	Singaporean Hokkie...	5
14	Mozzarella di Giova...	4
350	Tofu	7
20	Manjimup Dried Ap...	7

Drop Blue Dot on Move target

To move a column, click on its column pill and drag the Blue Dot Connector out *beneath* the column pills, as shown above. You'll see a "Move target" icon appear between each column. Drop the Blue Dot on a target icon to move the column.

# Thinkspace - Resizing Columns

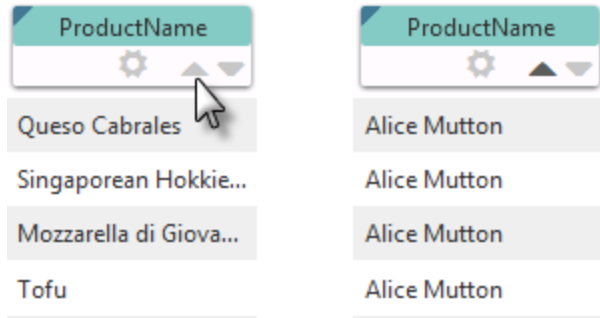
Columns can be resized by dragging them to the desired width:



Place your cursor in the space between columns, to the right of the column you want to resize. A gray "edge" line and a special cursor will appear, as shown above. Drag this line to the desired width and release it.

# Thinkspace - Sorting Column Data

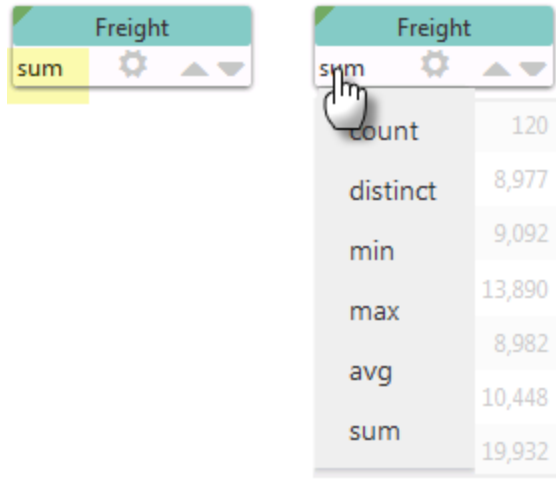
You can sort the data by a column in the table:



Click one of the two gray arrows in the column pill, as shown above, to sort the column in ascending or descending order. The arrow you clicked will darken, becoming an indicator of the sort order selected. Click it again to toggle the sorting *on* or *off*.

# Thinkspace - Changing Column Aggregation

When the data is grouped on a column, all the other columns are automatically aggregated to get a "best fit" summarization.

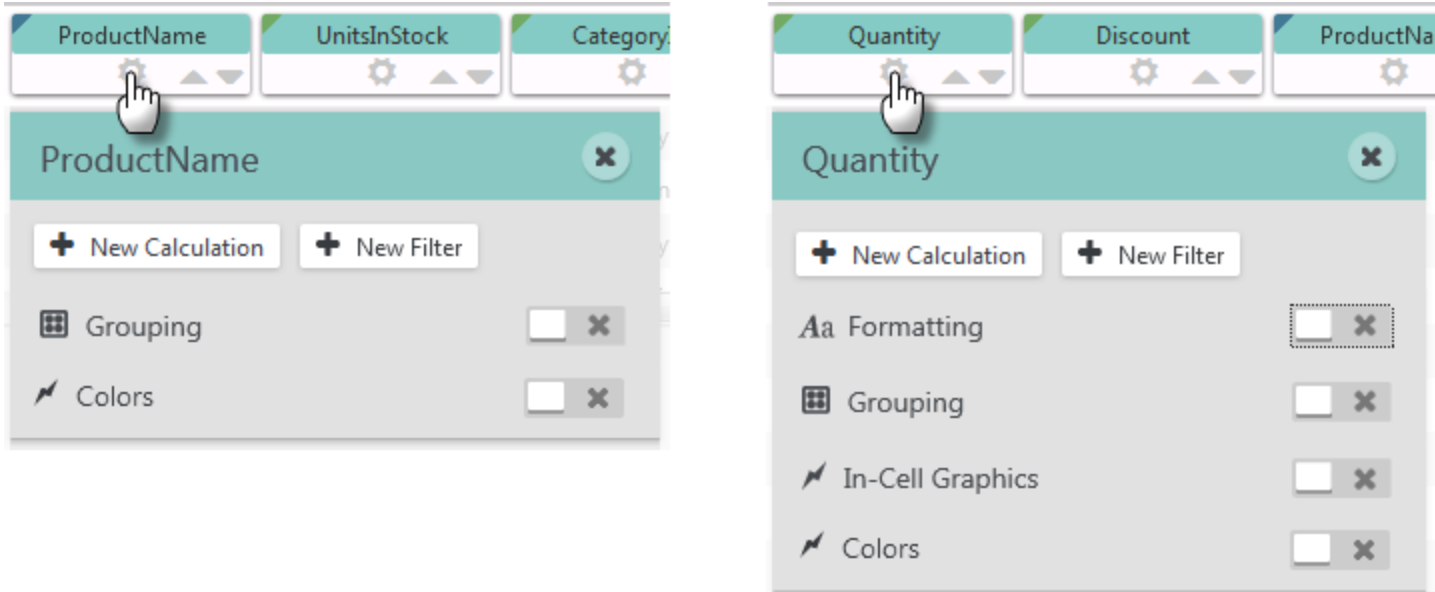


When this happens, each column pill will display the name of the aggregating function that was applied to it. For example, in the image shown above, the grouped data in the Freight column was *summed*. The aggregation automatically applied varies depending on the data type.

However, you can change the aggregation function, if desired, by clicking the function name, as shown above, right. A drop-down list of the aggregation functions available for that data type will appear and you can make a different selection. The data in the table will be updated immediately to reflect the change.

# Thinkspace - Accessing Gear Menu Options

Each column pill has a "gear" icon and selecting it causes a menu to appear below the pill:



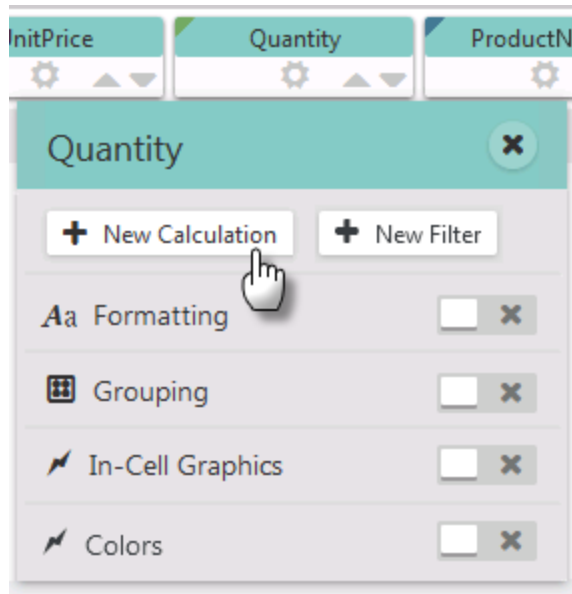
The options available in the menu vary depending on the data type of the column and other factors, as shown above.

Some options can be enabled and disabled, using the sliding   Enable/Disable switch.

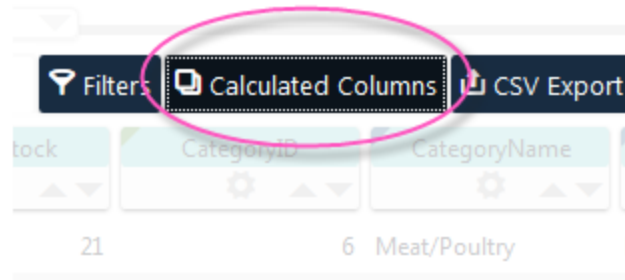
Each of the options is described in detail in the following sections.

# Thinkspace - Creating and Editing Calculated Columns

You may want to add new columns to the data which are the result of calculations using existing data. A simple example would be multiplying Quantity values by Unit Price values to obtain a Total. Here's how:

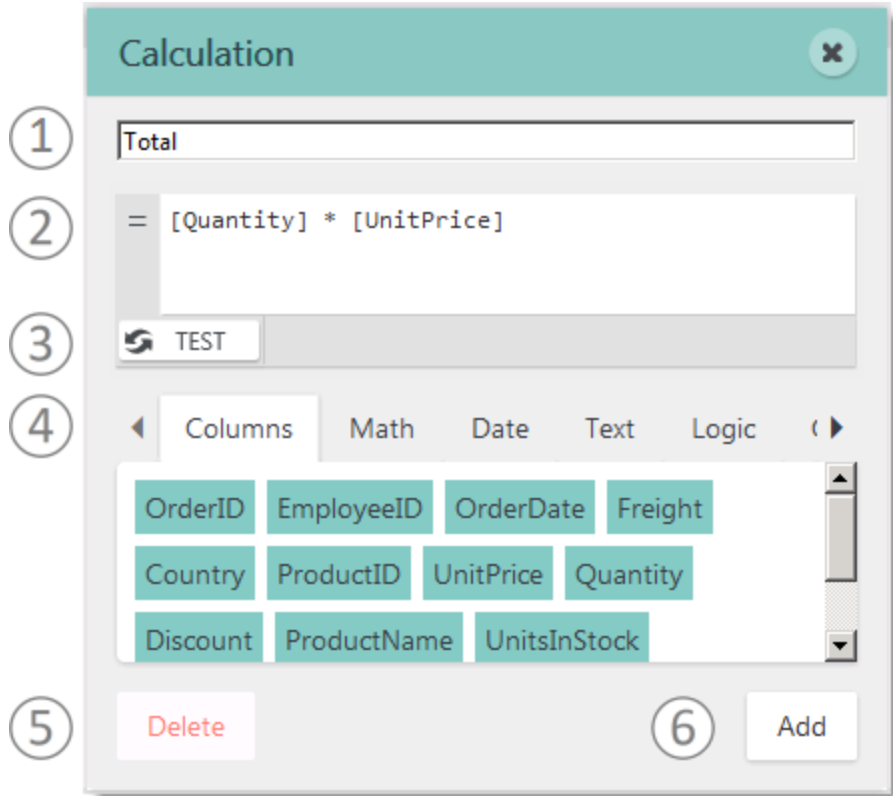


From column pill Gear menu





From Calculated Columns button

Click **New Calculation** on a column's gear menu, as shown above, or click the **Calculated Columns** button, and the calculation definition panel will appear:



Use this panel to create the expression that will produce your calculated data. The controls are:

1. **Column Name** - Enter your choice for the new column name here. If you used a column's gear Menu to get here, a new column name (such as "Quantity\_calc") will be suggested.
2. **Expression** - Create your expression here. You can use column names, functions, etc. from below by selecting them (thus avoiding typos) but you'll need to enter basic math operators (+, -, \*, /) manually. See the important information below about expressions.

3. **Test** - Click this button to test your expression. A valid formula will produce this  success indicator. However, if you see the  warning, hover your cursor over it to see a tooltip describing the problem.
4. **Formula Parts** - Hover over an object here see its syntax and a brief description. Click it to insert it into your expression. Left and right arrows let you scroll through several categories of objects and functions.
5. **Delete** - Click this to delete an existing calculated column.
6. **Add** - Click this to add the new calculated column to the Data Table. The sliding Enable/Disable switch can be used to turn formatting on and off.

## About Expressions

The expression editor has wizard-like features that help you reference functions, columns, etc. easily and avoid errors. The expression syntax must conform to the SQL syntax rules for **PostgreSQL**. The functions shown in the Calculation panel are not exhaustive - other PostgreSQL functions may be used. For more detailed syntax information, refer to the [PostgreSQL Reference Manual](#). When in doubt, use the **Test** button to validate your expression.

Here's some general information about Thinkspace expressions:

*Column References* - All column name references must be enclosed in square brackets (e.g. `[column name]`). If you select a column from the list, the editor will automatically add the square brackets to the column reference. If you're typing the formula in directly, typing a "[" will cause the editor to show a list of valid column names for you to select from.

*Null Values* - By default Null data values are considered when grouping on the column but ignored for any aggregations or charts. If you wish to have Null values counted, they must be converted to a real value (e.g. "N/A", 0, -1, "Unknown") in your expression. For example, to represent Null values as a real value, you could use: `IFNULL ([column], 'N/A')` in your expression.

The IFNULL function can be found in the "Logical" functions category. When the calculated column resulting from this expression is used, it will behave like other columns of the same data type and be included in grouping, aggregations, and charts.

*SQL Functions* - You can use ANSI SQL-92-compliant SQL functions if the standard expression functions aren't sufficient by placing them in a SQL\_FUNCTION wrapper and enabling the Passthrough feature in Logi Data Service.

To enable the feature, open the `/platform/settings/logiDataService.json` file and set:

```
"enablePassthrough": true,
```

Save the file and then stop and restart the Logi services. In the Calculated Column expression, wrap your SQL function like this:

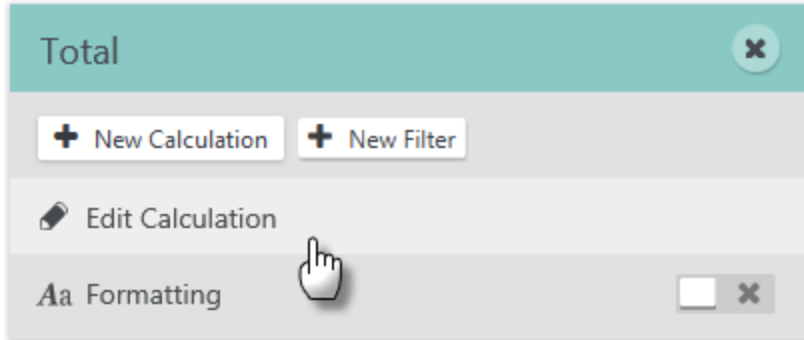
```
SQL_FUNCTION('SUBSTRING([CustomerID],1,2)')
```

Column names must be enclosed in square brackets. Complex SQL statements, like the one shown below, are supported:

```
SQL_FUNCTION("CASE WHEN [Country] = 'Argentina' THEN 1 ELSE 0 END")
```

## Editing a Calculated Column

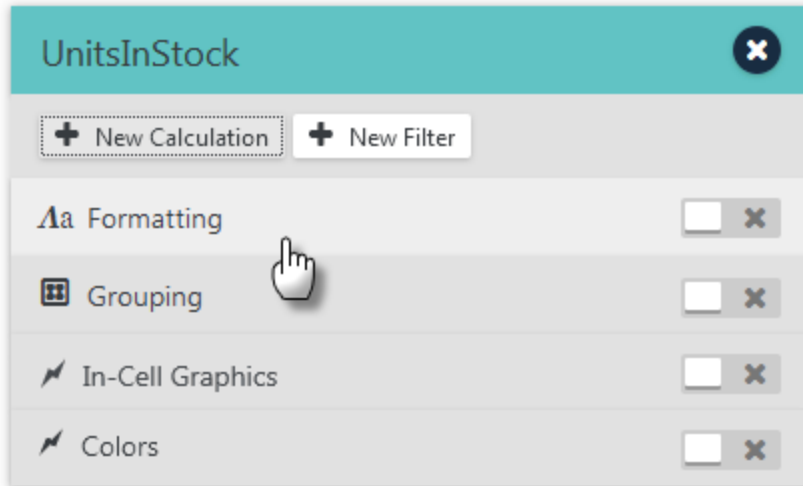
A Calculated Column's gear Menu will include an **Edit Calculation** item:



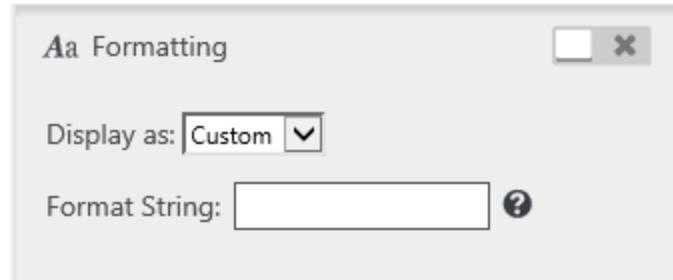
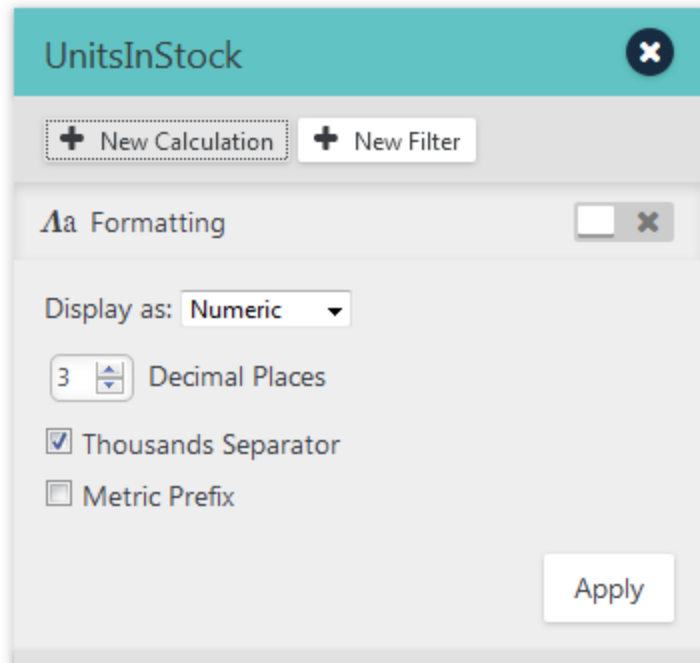
Click the menu item, shown above, to re-open the calculation definition panel and edit the calculation.

# Thinkspace - Formatting Columns

You may want to control the display format of column data. Here's how:



Click **Formatting** on a column's gear Menu, as shown above, and the menu option will expand to show formatting controls:



The formatting options, and controls that appear, are dependent on the column data type. There are no formatting controls for Text-type columns (but the data is left-justified by default). Numeric-type columns present the controls shown above left, which allow generic formatting of numbers.

However, if you'd like to apply customized formatting, you can select the Custom display option. It provides an option to enter special formatting characters. For example, enter "\$" to prepend the number with a dollar sign, or "%" to display it as a percentage. More information about specific formatting characters is available by clicking the "?" icon.

Click **Apply** to reformat the column immediately. The sliding Enable/Disable switch can be used to turn formatting on and off.

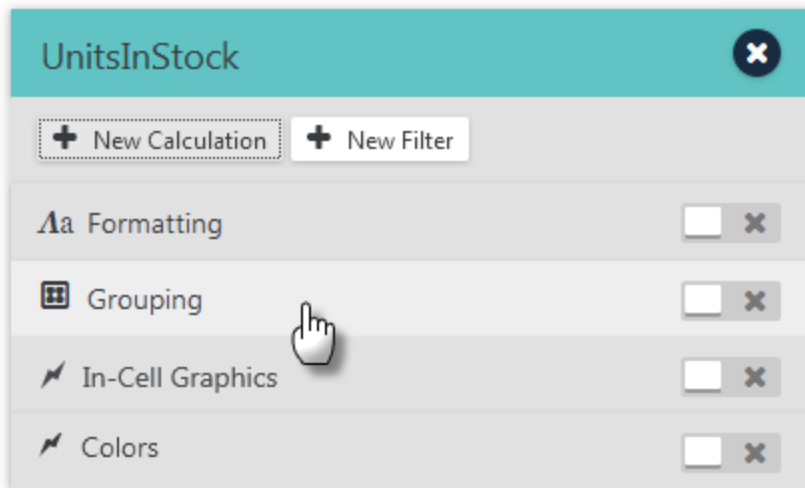
# Thinkspace - Grouping Rows

The Thinkspace uses a proprietary data analysis technique to automatically group continuous data into various categories, called "bins". The key elements of the data "binning" process are:

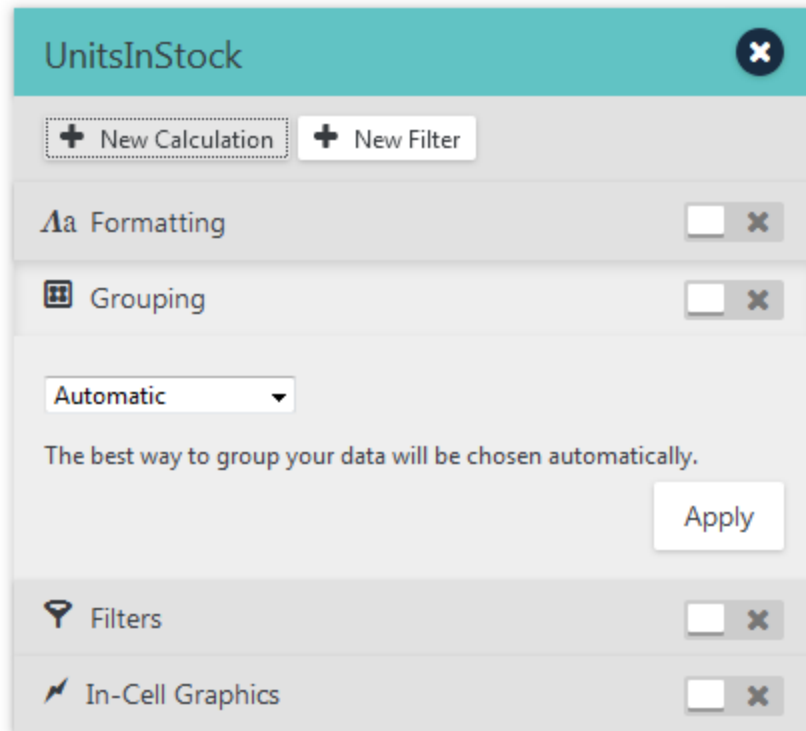
- The actual distribution of the data.
- Ensuring a reasonable chart is generated.
- Producing a "human friendly" distribution.

You'll notice that data is already grouped and summarized when it's used in charts.

However, you may want to customize the grouping parameters. For Text-type data columns, you'll only be able to enable or disable Grouping, using the sliding Enable/Disable switch. For other columns of other data types, here's how to customize grouping:



Click **Grouping** on a column's gear Menu, as shown above, and the menu option will expand to show a panel with the grouping controls. The drop-down list allows you to select the grouping method to be used. Options include:



- *Automatic* - The "best fit" grouping model for the data will be applied automatically, using a default number of bins, based on the key elements mentioned earlier.

**Grouping**

Width of Groups ▾

Width:

Set Custom Outlier Groups

Group Outliers Less Than:

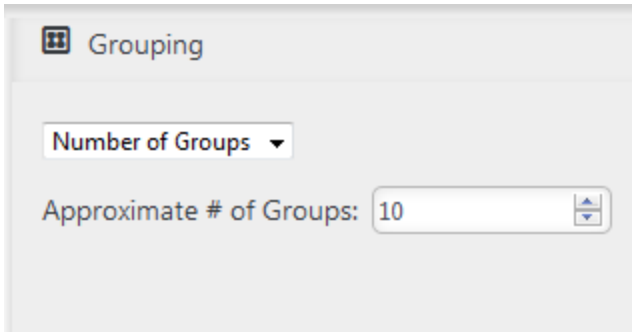
Group Outliers Greater Than:

EmployeeID	OrderID	OrderDate
sum	sum	distinct
+ 1-4	14,146,910	358
+ 5-9	8,824,045	266

- *Width of Groups* - For Numeric data, this option allows you to define the "width" of your groups. The number you enter is always an *approximate* value, as the algorithm will try to create groups based on both the number of groups desired, the data distribution, and the precision of the data.

So, for example, if you want your groups to be four values wide but your data doesn't break up into that evenly, the result may "stretch" a group to include extra values. In the example above, a width of "4" was specified but the last group includes five values. You can usually get better grouping accuracy by creating "outlier" groups, which hold values outside ranges you specify.

 The grouped rows are retained and you can view them by clicking the "+" icon in the table.



OrderID	EmployeeID	OrderDate
count	distinct	
+ 10,200–10,300	140	47
+ 10,300–10,400	265	82
+ 10,400–10,500	259	70
+ 10,500–10,600	267	70
+ 10,600–10,700	258	62
+ 10,700–10,800	254	56
+ 10,800–10,900	259	41
+ 10,900–11,000	238	31
+ 11,000–11,100	215	23

- *Number of Groups* - This option allows you to specify an *approximate* number of groupings. This will be an approximate number because the Thinkspace may be required to create outliers or a number of groups that break the data into human-friendly endpoints.

In the example shown above, the approximate number of groups was set to "10". In reality, this only produced nine data groupings.

 The grouped rows are retained and you can view them by clicking the "+" icon in the table.

**Grouping**

No Binning

Each distinct data value will have its own group.

	EmployeeID	OrderID	OrderDate
	count	distinct	
+ 1	345	111	
+ 2	241	90	
+ 3	321	115	
+ 4	420	141	
+ 5	117	40	
+ 6	168	66	

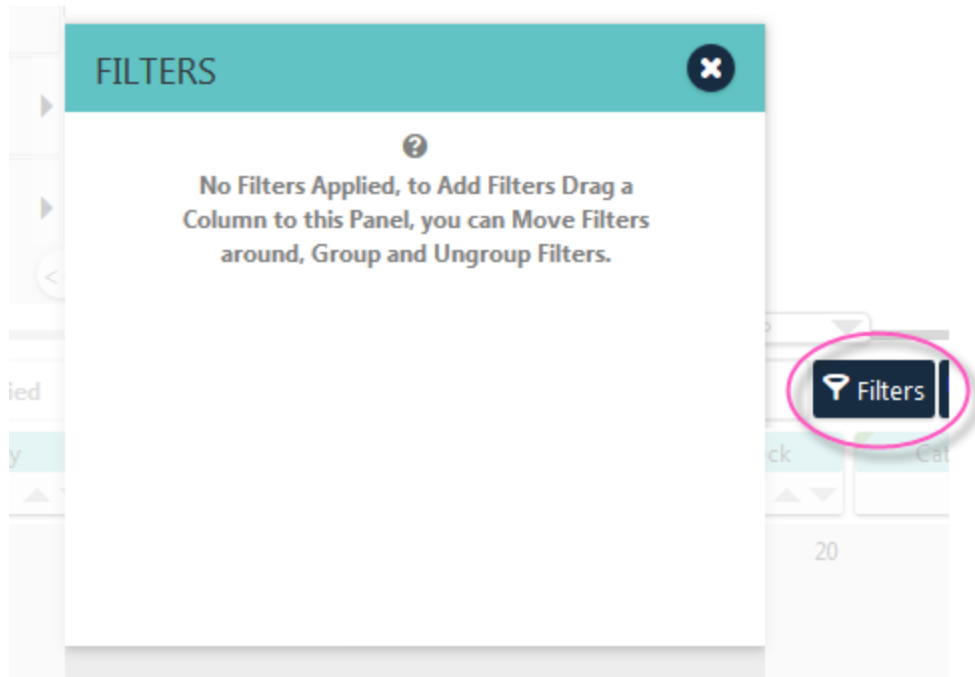
- *No Binning* - This option disables the automatic binning features and simply creates a group for each distinct data value.

 The grouped rows are retained and you can view them by clicking the "+" icon in the table.

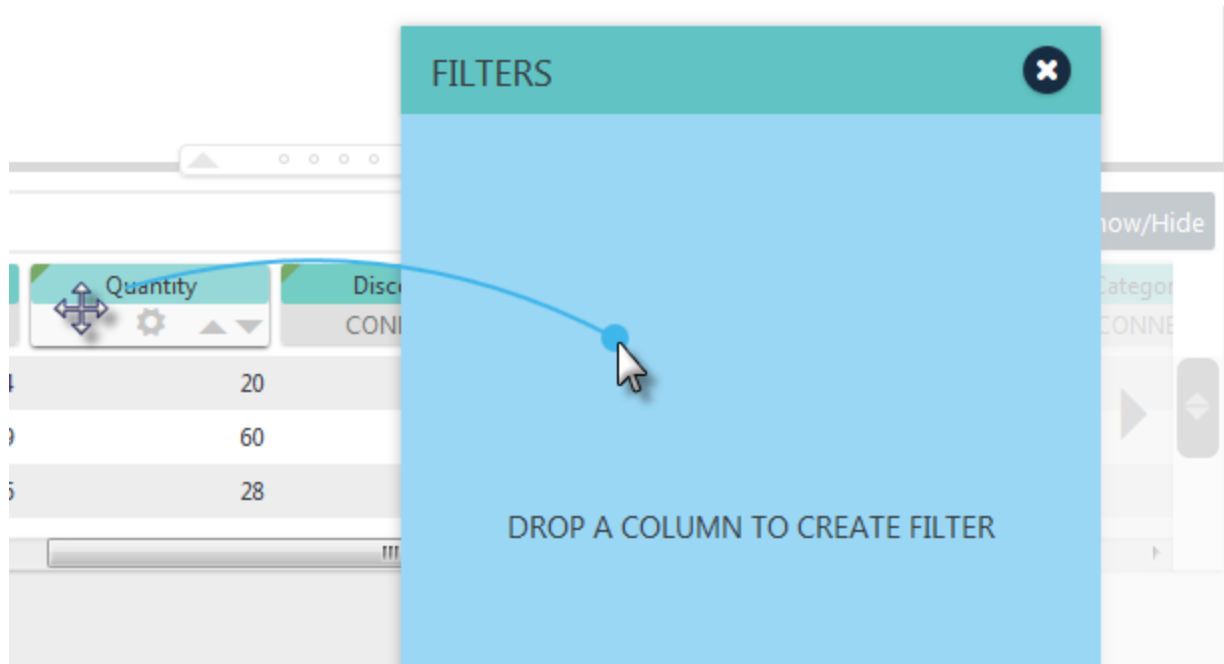
Click **Apply** to group the data immediately. The sliding Enable/Disable switch can be used to turn Grouping on and off.

# Thinkspace - Filtering Rows

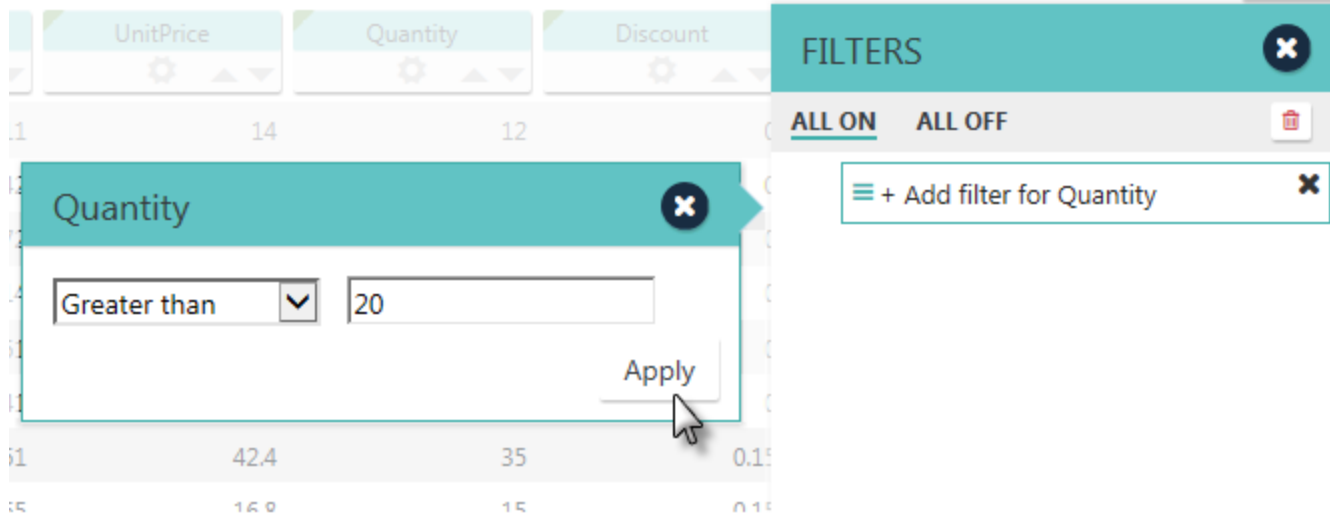
The data used in your analysis can be filtered to remove unwanted data. This is done by setting filter criteria based on column values, resulting in rows matching the criteria being "removed" from the data (the data is hidden, not actually deleted).



Filter configuration can be initiated by clicking the **Filters** buttons just above the Data Table. A panel, shown above, will open as a drop zone for the pills of columns to be filtered.



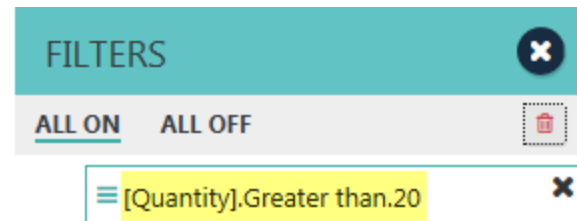
Drag and drop a column pill into the zone to create a filter on that column, as shown above.



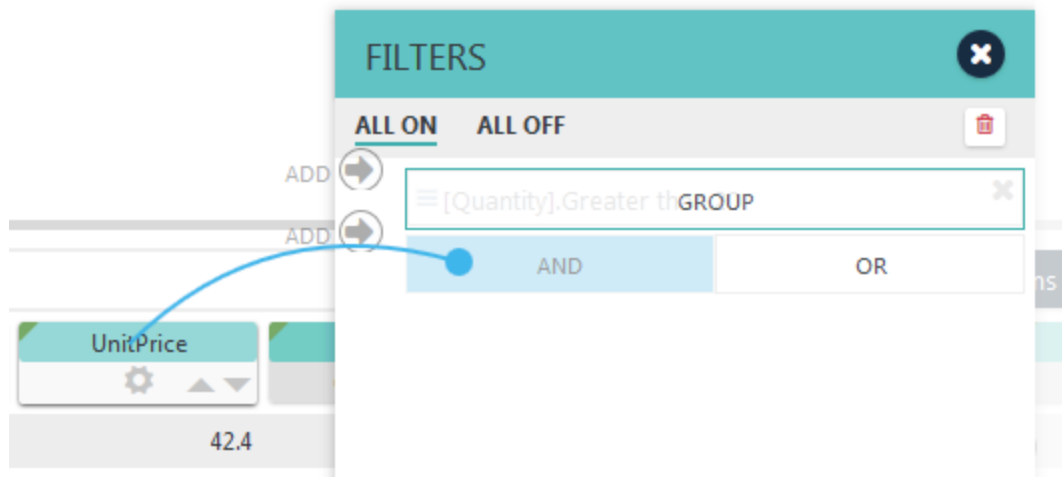
A configuration panel, shown above, will appear with controls for configuring and managing the new filter. Configure your filter and click **Apply**; the filter will be created and the Data Table will be immediately filtered. Your new filter now appears in the Filters panel.

[Quantity].Greater than.20

OrderID	EmployeeID
10249	6
10250	4
10252	4



As you create filters, they'll appear in both in a list in the area just above the left-hand end of the Data Table, shown above left, and in the Filters panel, shown above right.



To create additional filters, drag additional column pills into the Filters panel and, as shown above, drop them on the AND or OR blocks.

**FILTERS** ✕

ALL ON ALL OFF [Click to remove all](#)

☰ [Quantity].Greater than.20 ✕

**AND** ☰ [UnitsInStock].Greater than.50 ✕

**OR** ☰ [Discount].Equals.0.15 [Remove this filter](#) ✕

Drag ☰ to re-arrange and group filters:

**AND** ☰ [Quantity].Greater than.20 ✕

**OR** ☰ [UnitsInStock].Greater than.50 ✕

☰ [Discount].Equals.0.15 ✕

Click **AND** **OR** to change operators:

**OR** ☰ [Quantity].Greater than.20 ✕

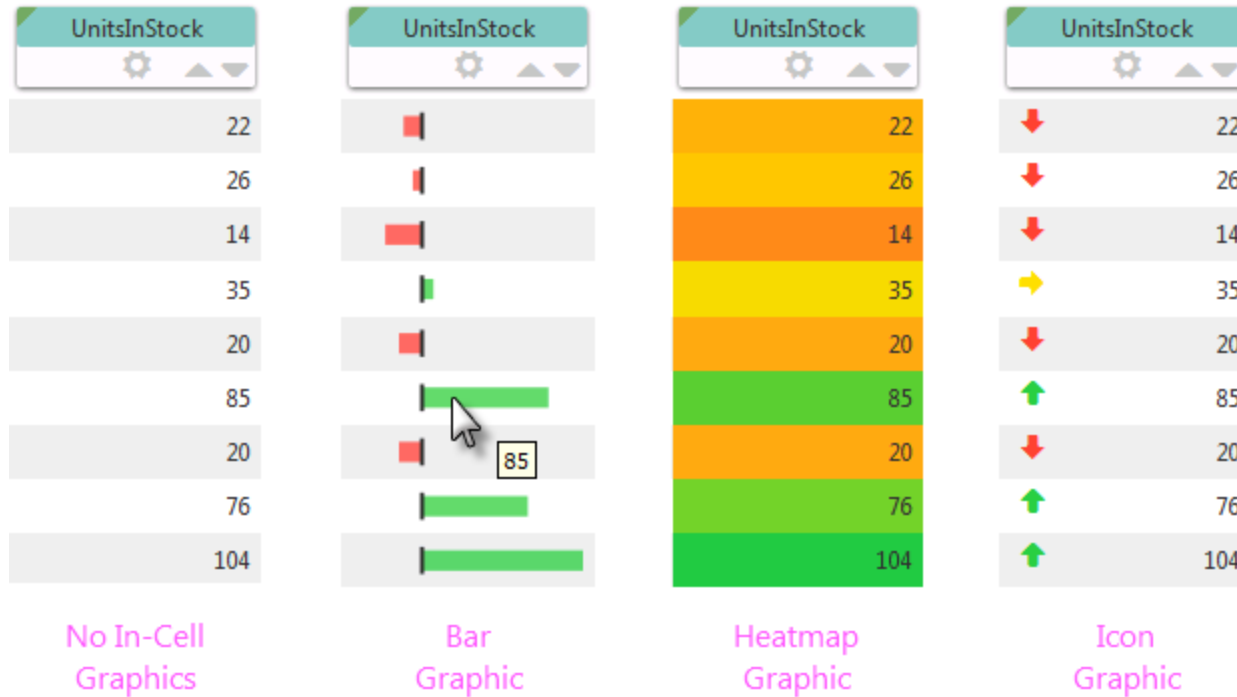
**AND** ☰ [UnitsInStock].Greater than.50 ✕

☰ [Discount].Equals.0.15 ✕

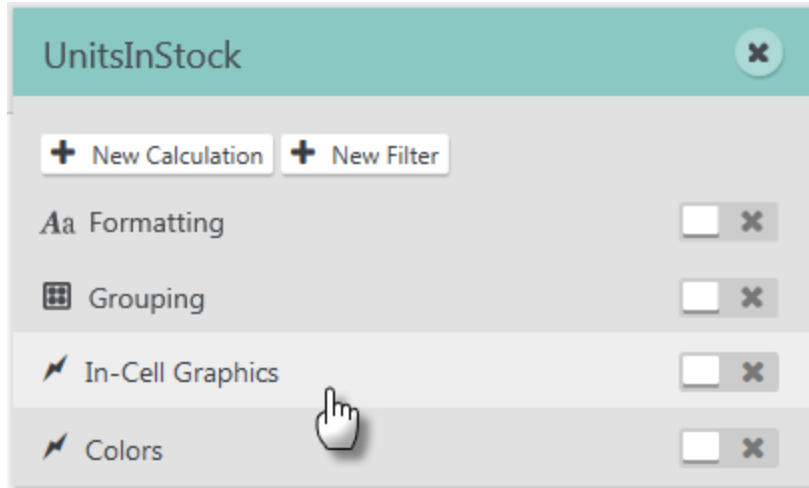
Filters can be re-arranged, grouped, and combined using the controls in the Filters panel, as shown above. Filters can be removed by clicking their "X" icon. Filters can be enabled or disabled *en masse* using the links at the top of the panel, or can all be removed at once using the Remove All icon.

# Thinkspace - Adding In-Cell Graphics

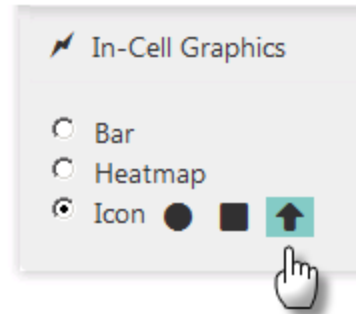
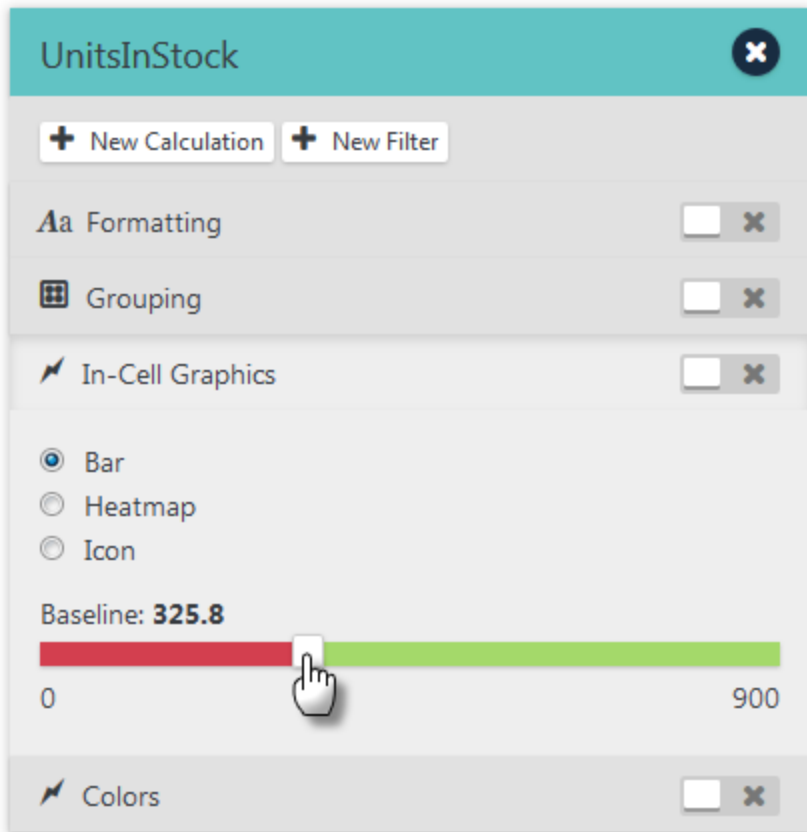
Number-type Data Table columns can include "In-Cell" graphics to make it easier to understand values and compare them at-a-glance:



The available In-Cell graphics are shown above. The Icon graphic can consist of arrows, circles, or squares. Here's how to use these graphics:



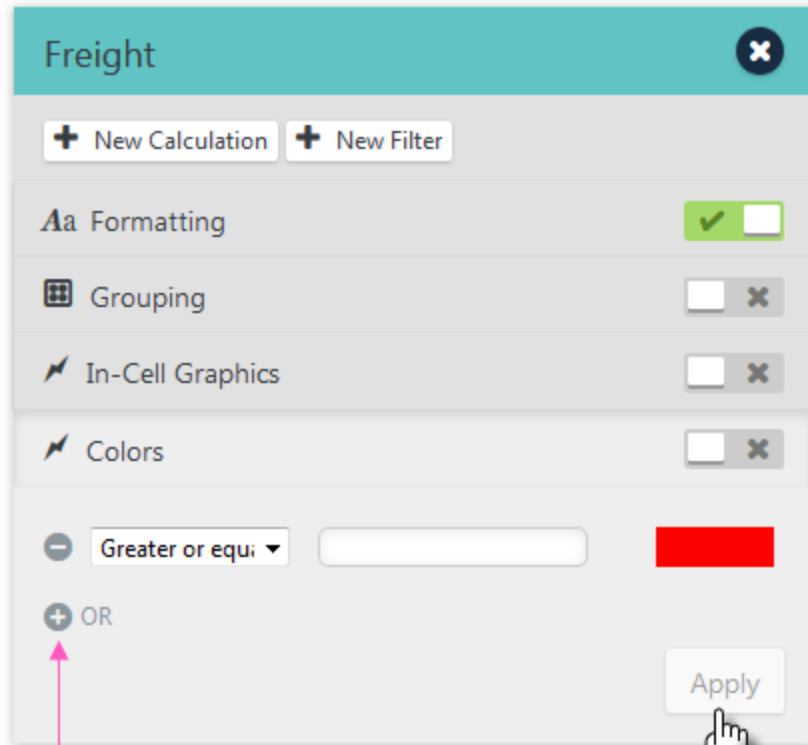
Click **In-Cell Graphics** on a Number column's gear Menu, as shown above, and the menu option will expand to show a panel of options:



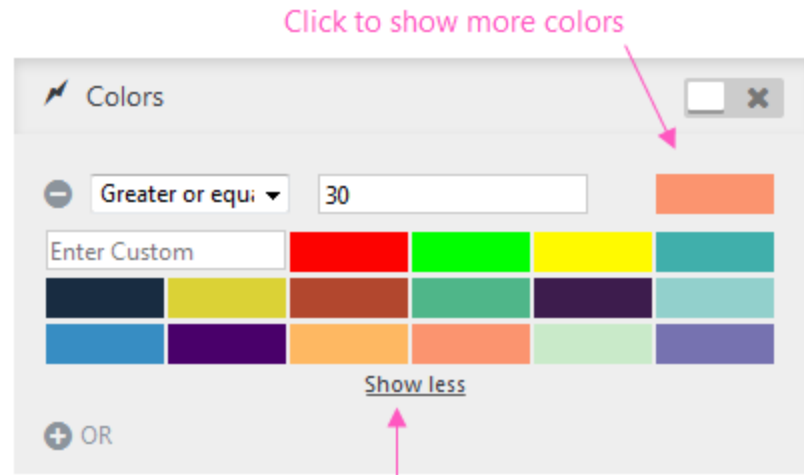
The *Bar* and *Heatmap* options present a Baseline slider, which lets you specify a baseline value for the graphic. The *Icon* option provides three graphic options: Circle, Square, and Arrow. Icon values, which determine colors and arrow icon direction, are evenly distributed in percentage thirds (less than 33%, 33% to 66%, greater than 66%). Click **Apply** to immediately display the graphics. The sliding Enable/Disable switch can be used to turn In-Cell graphics on and off.

# Thinkspace - Setting Color Thresholds

You can set another type of in-cell graphic by coloring column cells based on data value thresholds. Click **Colors** on a column's gear menu:



Click to add more thresholds



Click to show more colors

Click to show more/fewer colors

Using the Colors controls, select a comparison operator, enter a comparison value, and select a color, as shown above. Click the color swatch to show more colors and the *Show more* link to show additional colors. You can also enter color values directly as hex ("#CCCCCC"), RGB ("rgb(197, 95, 169)"), or text ("Blue") values. Click the **+** **-** icons to add or remove thresholds. Click **Apply** to immediately apply the thresholds.

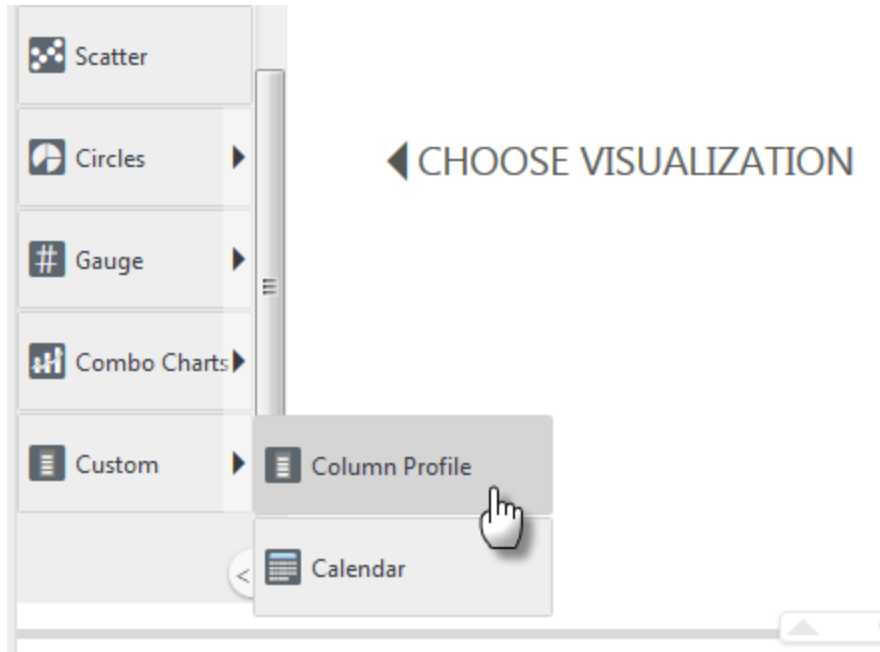
Threshold indicator

OrderDate	Freight	Country
07/04/1996 00:00:00	32.38	France
07/04/1996 00:00:00	32.38	France
07/04/1996 00:00:00	32.38	France
07/05/1996 00:00:00	11.61	Germany
07/05/1996 00:00:00	11.61	Germany
07/08/1996 00:00:00	65.83	Brazil
07/08/1996 00:00:00	65.83	Brazil
07/08/1996 00:00:00	65.83	Brazil
07/08/1996 00:00:00	41.34	France
07/08/1996 00:00:00	41.34	France

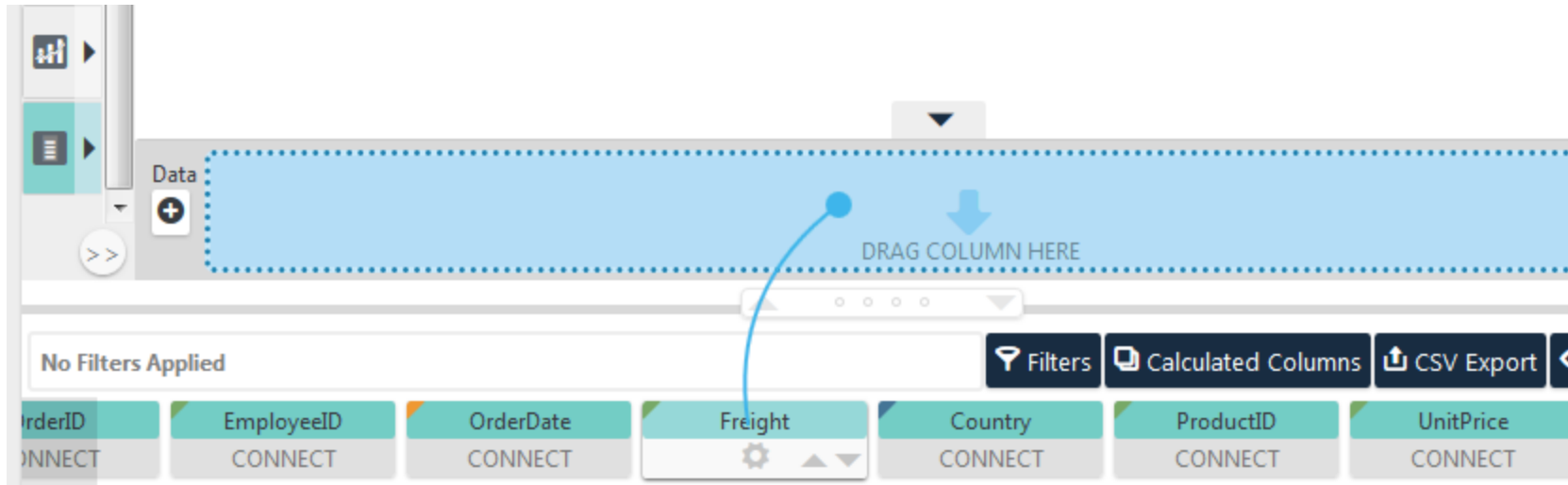
The resulting chart, with just one threshold defined, will look similar to the one shown above. Note that the column pill has a colored threshold indicator displayed now.

# Thinkspace - Profiling a Column

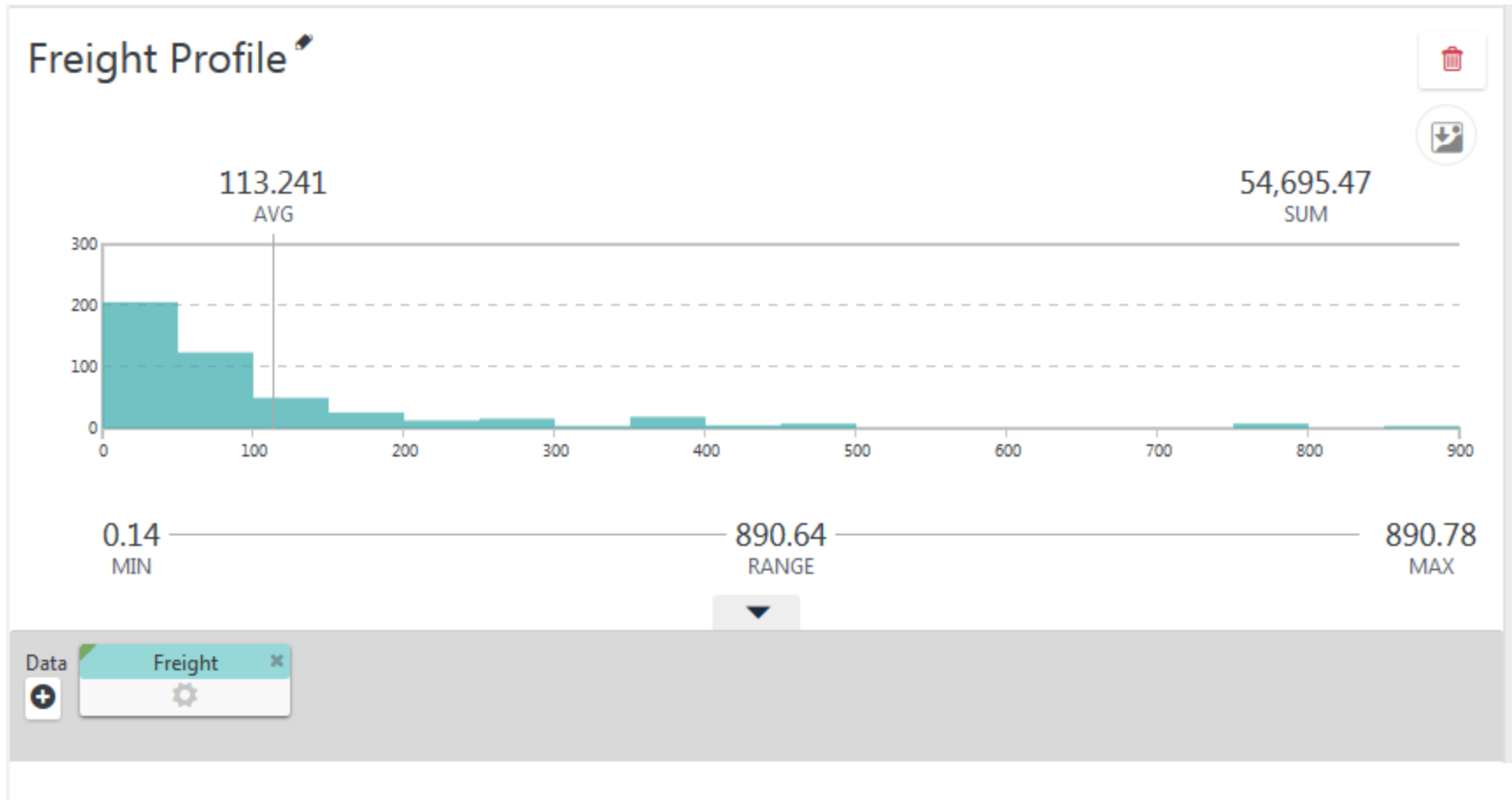
The Thinkspace also lets you "profile" a Data Table column. A column profile displays statistics, such as minimum, maximum, average, and average for Numeric columns, and minimum and maximum for DateTime columns. It can also help you identify problems in your data such as invalid dates, such as a maximum date that's in the future.



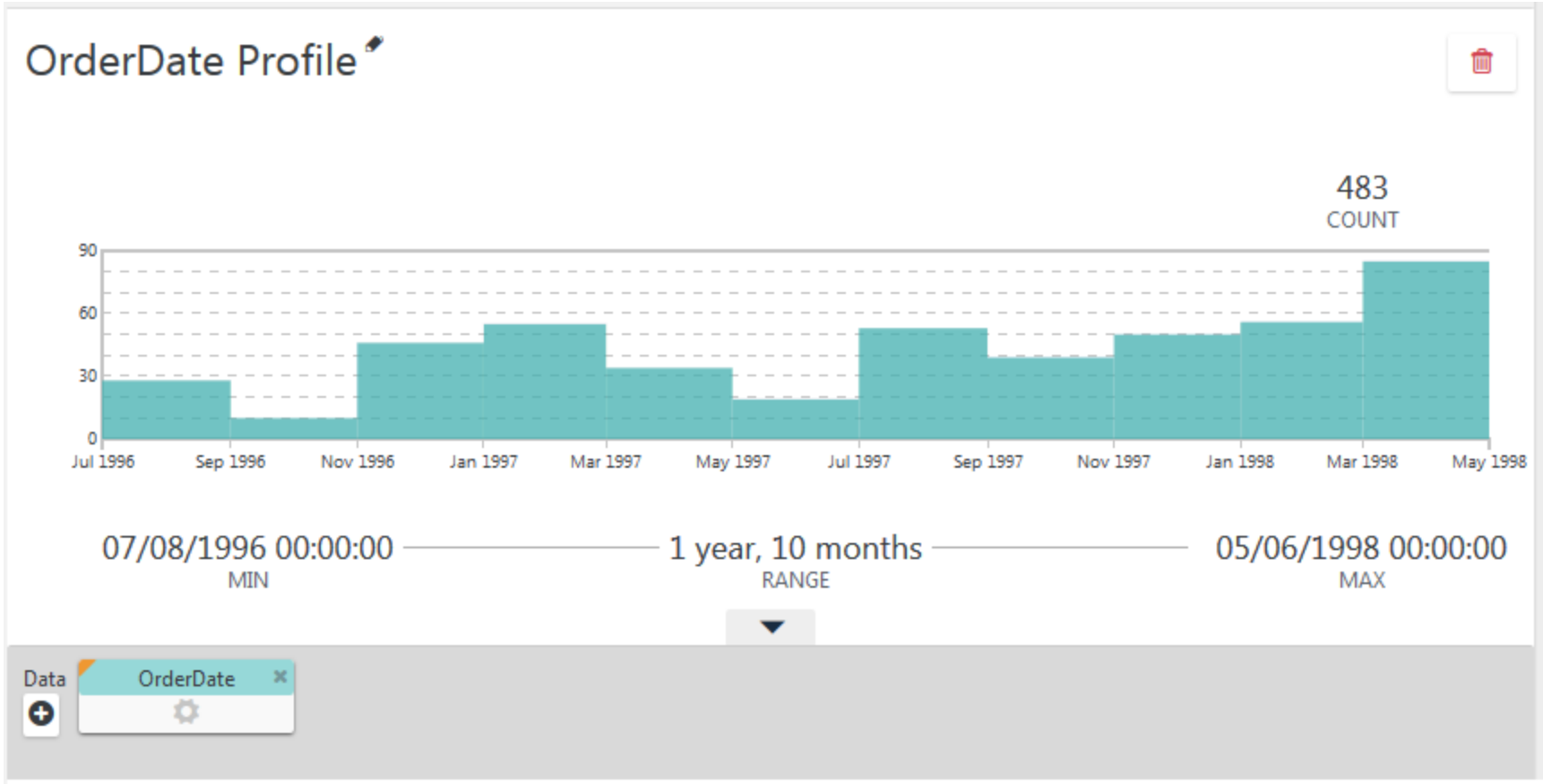
To create a column profile, start with a clear Thinkspace and scroll down in the Visualizations menu, as shown above, and select Custom → Column Profile.



Drag-and-drop a Numeric column pill, like *Freight*, into the blue drop zone, as shown above.



The column profile will be displayed, as shown above. The profile for the *Freight* column includes minimum, maximum, average, and sum statistics. The statistics for other columns will vary, depending on column data type.



Replace the *Freight* column pill with the *OrderDate* pill and you can see the differences, shown above.

Other Discovery Module v3.x topics include: "Thinkspace Charts" on the next page and "Thinkspace Crosstabs " on page 353.

# Thinkspace Charts


The Thinkspace is a component, part of the Discovery Module, in a Logi application that allows you enjoy a rich, highly-interactive analysis experience.

The following topics discuss using Thinkspace charts in a Logi application:

- [Available Chart Types](#)
- [Configuring Chart Title and Legend](#)
- [Swapping and Replacing Axis Columns](#)
- [Setting Color Thresholds](#)
- [Adding Mark Lines](#)
- [Adding Another Series](#)
- [Using Legend Filtering](#)
- [Using the Blue Dot in the Show/Hide Panel](#)
- [Creating a Combo Chart](#)
- [Creating a Timeline Chart](#)
- [Using the Chart Explorer Menu](#)
  - [Zoom Mode: Zooming and Panning](#)
  - [Selection Mode: Selecting Data Points](#)
  - [Drill Mode: Drilling into Data](#)
  - [Export to a .PNG Image](#)

If you haven't already done so, please read "Use the Thinkspace - 3.x" on page 250 before proceeding.

Other useful Discovery Module v3.x topics include: "Thinkspace Columns" on page 268 and "Thinkspace Crosstabs " on page 353.

 Advanced features discussed here may require Logi Info v12.5 and later. Earlier and later Info versions may not support them. Consult the Release Notes for specific details.

# Thinkspace - Available Chart Types

The Thinkspace is capable of producing a variety of charts and the following table shows an example of each one, with a brief description:

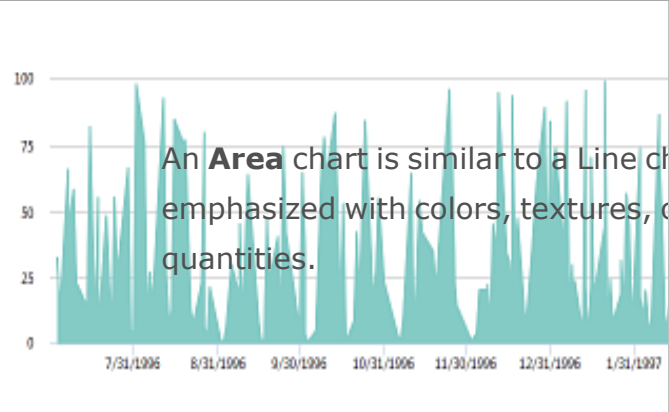
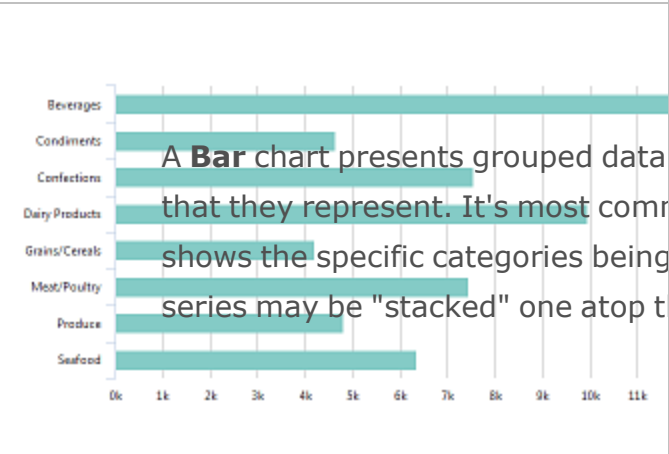
Chart Sample	Description
	<p>An <b>Area</b> chart is similar to a Line chart. However, the area between axis and line are commonly filled-in and emphasized with colors, textures, or cross-hatchings. Typically, this chart is used to compare two or more quantities.</p>
	<p>A <b>Bar</b> chart presents grouped data as horizontal rectangular bars, with bar lengths proportional to the values that they represent. It's most commonly used to show comparisons among categories. The Y-axis of the chart shows the specific categories being compared, and the X-axis represents discrete values. Values from multiple series may be "stacked" one atop the other, or grouped side-by-side.</p>

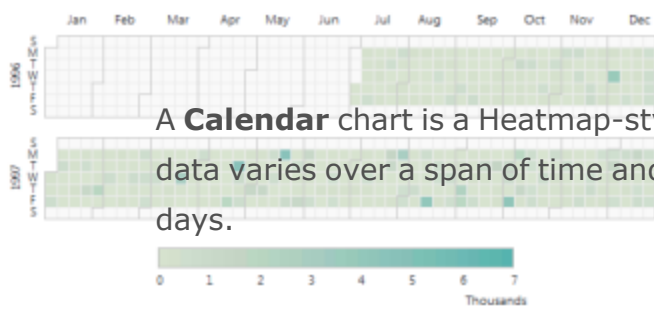
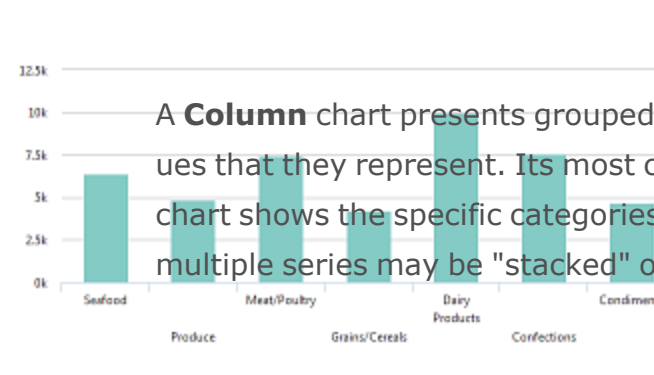
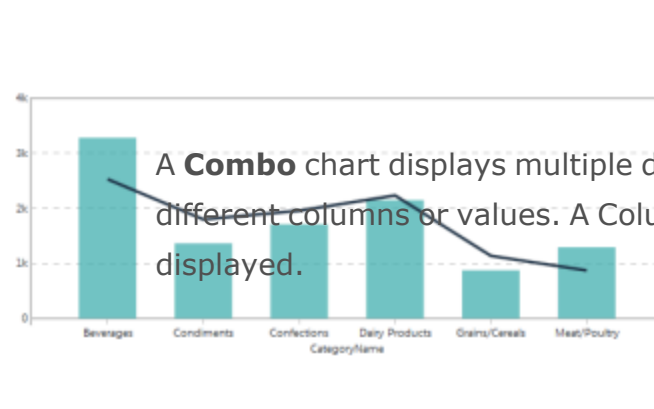
Chart Sample	Description
	<p>A <b>Calendar</b> chart is a Heatmap-style visualization of time-series data. It uses color gradients to show how data varies over a span of time and can be useful for discovering correlations between events and specific days.</p>
	<p>A <b>Column</b> chart presents grouped data as vertical rectangular bars, with bar lengths proportional to the values that they represent. Its most commonly used to show comparisons among categories. The X-axis of the chart shows the specific categories being compared, and the Y-axis represents discrete values. Values from multiple series may be "stacked" one atop the other, or grouped side-by-side.</p>
	<p>A <b>Combo</b> chart displays multiple data series in overlapping chart styles, making it easy to compare values for different columns or values. A Column + Line chart is shown in the image at left. A secondary axis can also be displayed.</p>

Chart Sample	Description
	<p>A <b>Donut</b> chart is related the Pie chart, however its center is a "hole", providing a different look. It's divided into slices to illustrate numerical proportion, and the arc length of each slice is proportional to the quantity it represents.</p>
	<p>A <b>Semi-Donut</b> chart is similar to the Donut chart, but limits itself to one-half of a circle. It's divided into slices to illustrate numerical proportion, and the arc length of each slice is proportional to the quantity it represents.</p>
	<p>A <b>Line</b> chart displays information as a series of data points connected by straight line segments. It's a basic type of chart common in many fields. It is similar to a scatter plot except that the measurement points are ordered (typically by their x-axis value) and joined with straight line segments. A line chart is often used to visualize a trend in data over intervals of time – a Time series – and so the line is often drawn chronologically.</p>

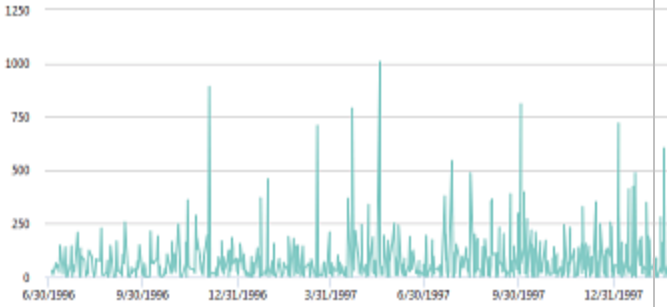
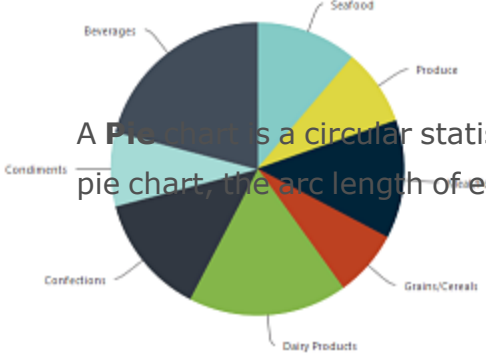
Chart Sample	Description
	
	<p>A <b>Pie</b> chart is a circular statistical graphic, which is divided into slices to illustrate numerical proportion. In a pie chart, the arc length of each slice is proportional to the quantity it represents.</p>
	<p>A <b>Semi-Pie</b> chart is similar to the Pie chart, but limits itself to one-half of a circle. It's divided into slices to illustrate numerical proportion, and the arc length of each slice is proportional to the quantity it represents.</p>


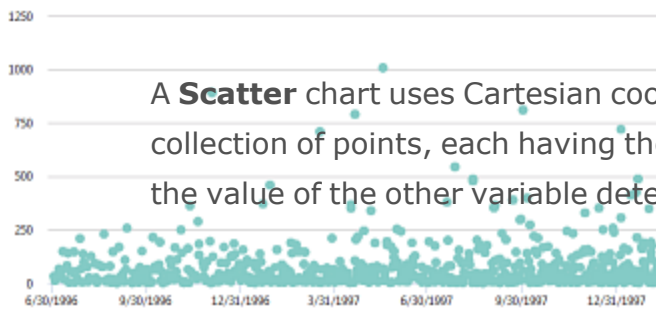
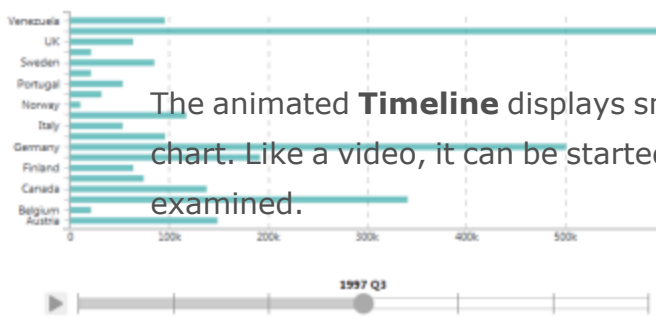
Chart Sample	Description
	
	<p>A <b>Scatter</b> chart uses Cartesian coordinates to display values for several data sets. The data is displayed as a collection of points, each having the value of one variable determining the position on the horizontal axis and the value of the other variable determining the position on the vertical axis.</p>
	<p>The animated <b>Timeline</b> displays snapshots of the data based on time intervals, in an automatically-updated chart. Like a video, it can be started and stopped at various points in time so that the resulting chart can be examined.</p>

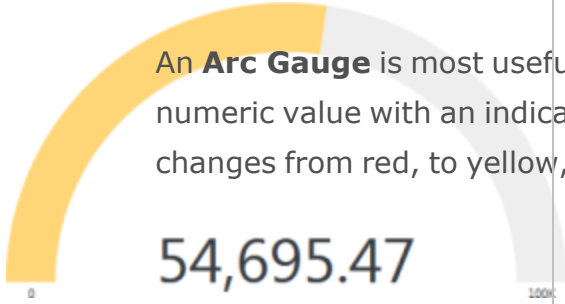

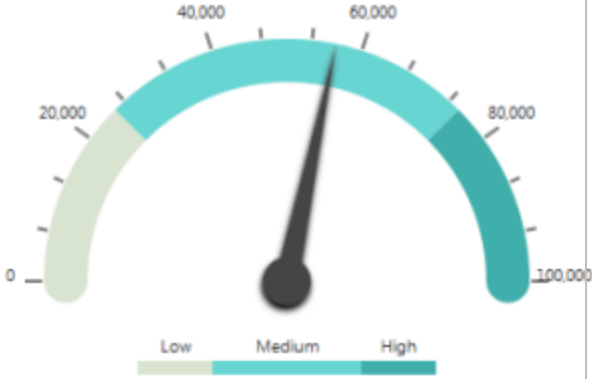
Chart Sample	Description
	<p>An <b>Arc Gauge</b> is most useful for showing an aggregation of values in a single column. It displays a fixed numeric value with an indicator depicting progress towards a maximum value. The color of the indicator changes from red, to yellow, to green as the maximum value is approached.</p>
	<p>A <b>Bullet Gauge</b> is most useful for visualizing an aggregation of values in a single column. They display information in a more compact and easier-to-read format than circular gauges.</p>
	<p>Like the Arc Gauge, the <b>Dial Gauge</b> is most useful for visualizing an aggregation of values in a single column. It does this in an attractive way and it's also a familiar object, given its similarity to those used in automobile Dashboards.</p>

Chart Sample	Description
	
<p data-bbox="247 889 1848 922">A <b>KPI Gauge</b>, like the other gauges, is most useful for visualizing an aggregation of values in a single column.</p> <p data-bbox="247 938 1661 971">It simply displays the aggregated value in a large, clear font, without any other graphic elements.</p> <p data-bbox="157 943 604 1040">54,695.47</p>	

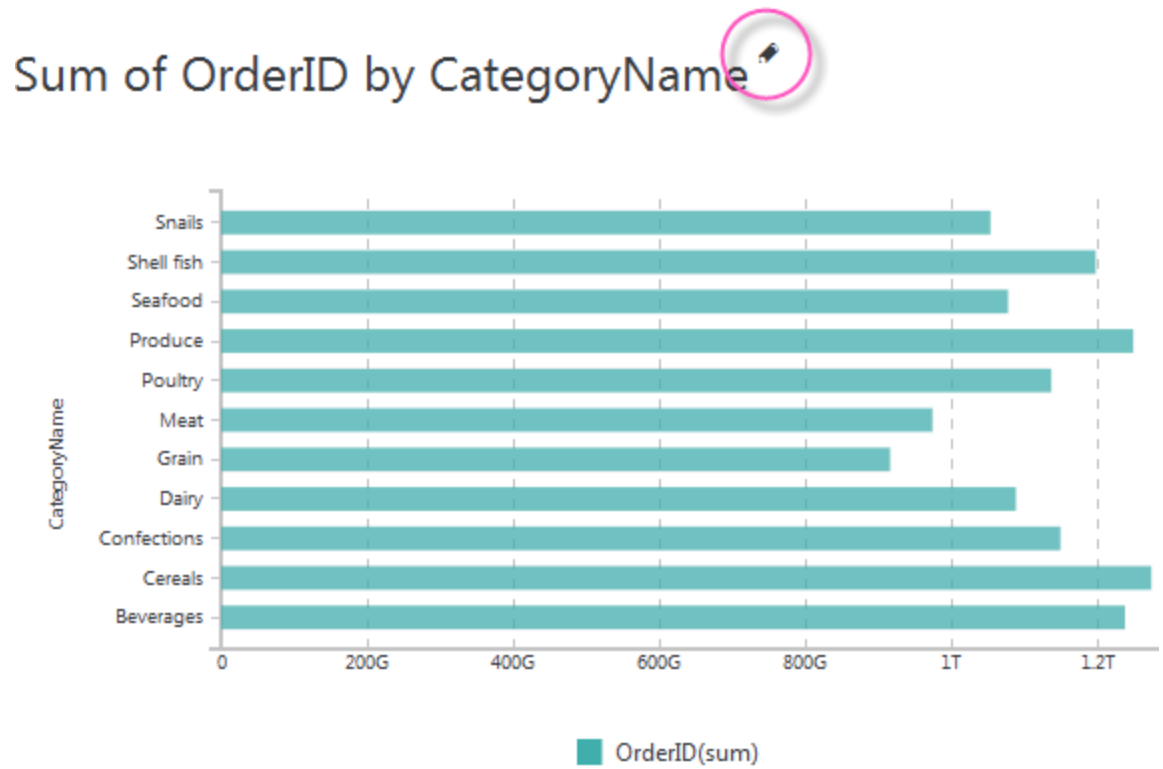
The Thinkspace "recommendation engine" will automatically propose the best chart types for displaying your data, and data point tooltips are generated automatically.

Chart options include filtering the data with a "Crosstab Filter", applying groupings, and showing percentages.

Once you've selected a chart type, you'll almost certainly want to try working with different data, isolating data, and apply modifications. Here are some common chart activities:

# Thinkspace - Configuring Chart Title and Legend

The Thinkspace automatically provides a title for your chart, but you may want to edit the suggested title.



To change the title, click the Edit icon, shown circled above.

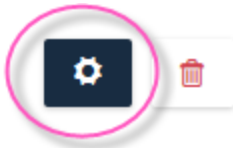
Total Orders by Category

Save edit   Cancel edit   Revert to original title

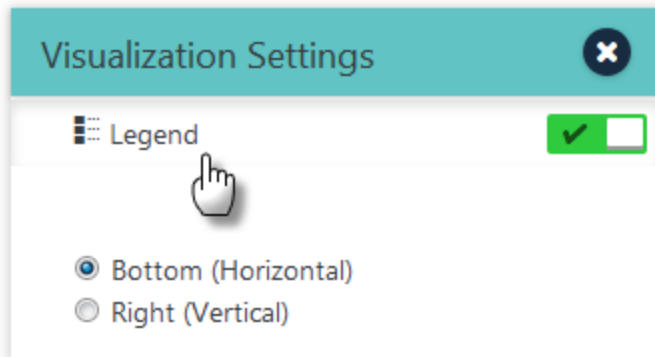


The controls shown above will appear and you can enter your new title. Press Enter to save any changes, or click the icons to save, cancel, or revert the title.

Total Orders by Category



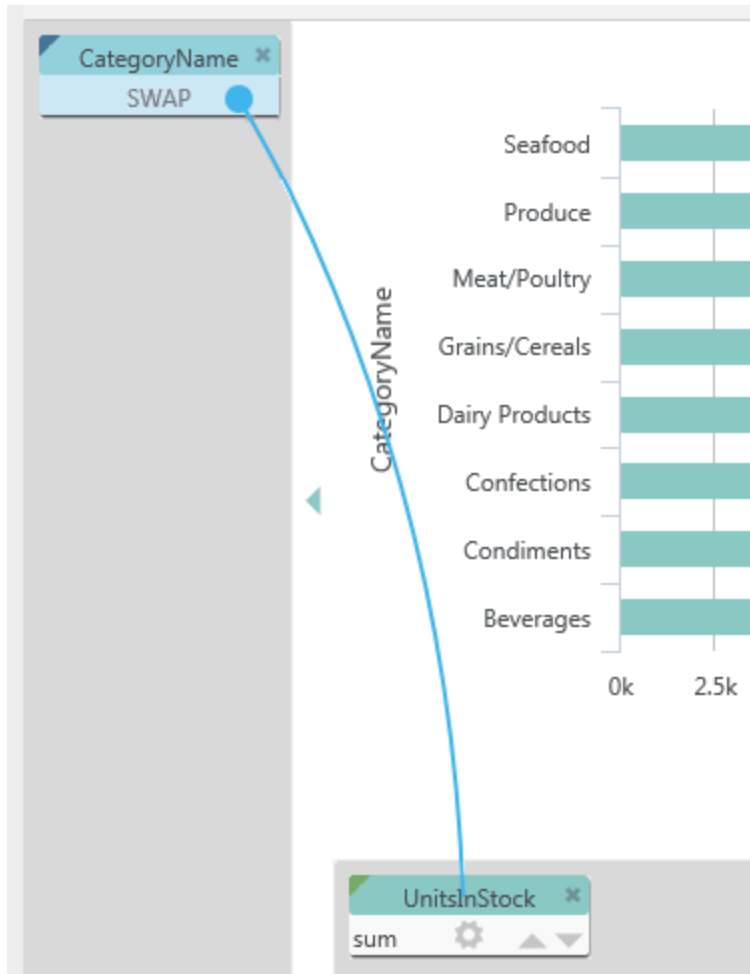
To configure the chart legend, click the chart's gear icon, shown circled above. This opens the Visualization Settings panel:



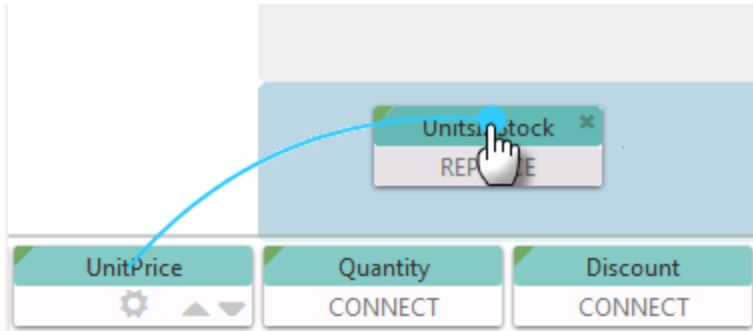
In the panel, shown above, you can select the legend location or disable (hide) it entirely. If the controls are not visible, click the "Legend" caption to expand the panel and make them visible.

# Thinkspace - Swapping and Replacing Axis Columns

You may want to swap the X- and Y-axis columns to view the data differently. Here's how:



Just drag-and-drop the Blue Dot Connector from one axis pill to another, as shown above. If you want to entirely *replace* a column you previously selected to create the chart, it's easy to do:

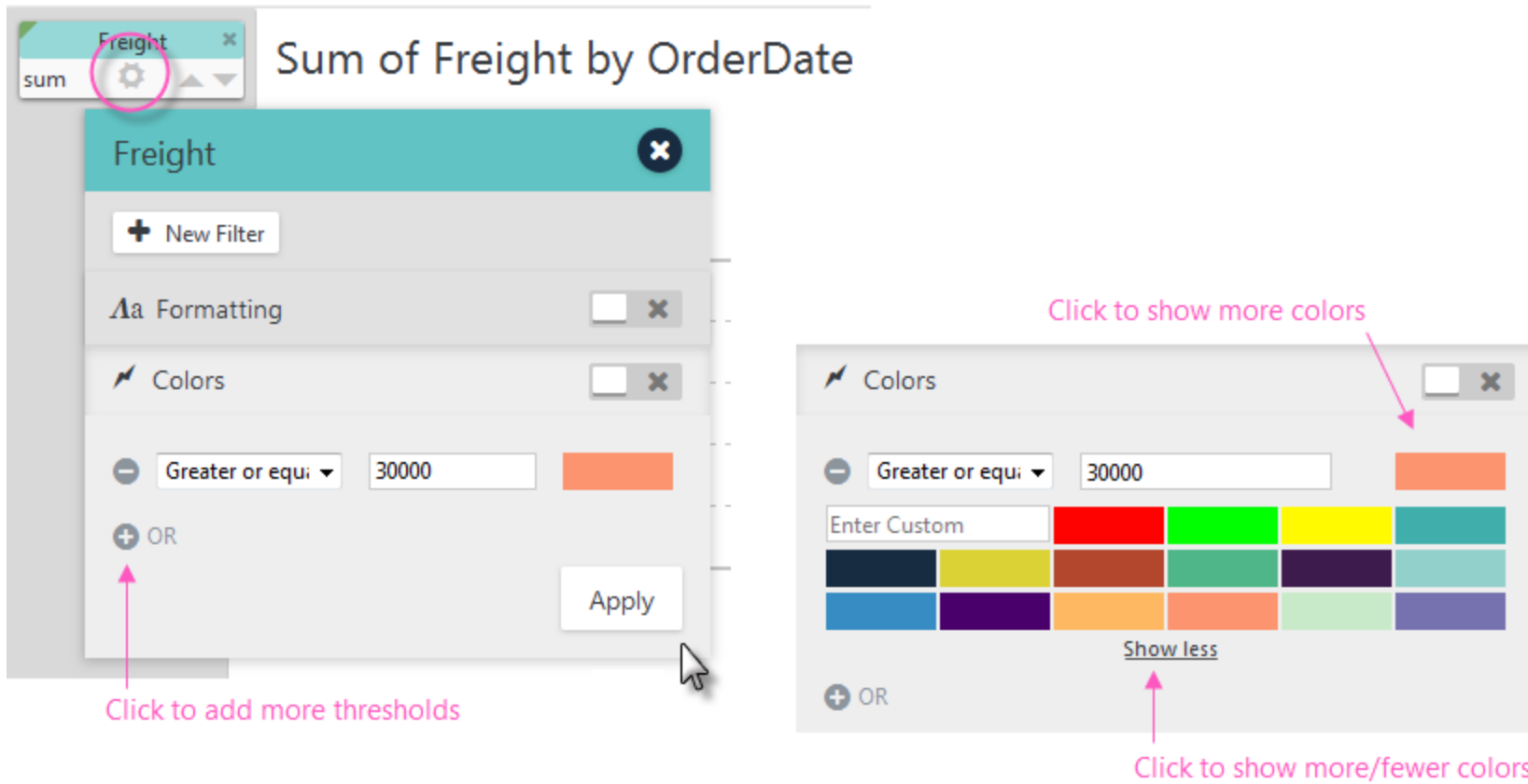


As shown in the example above, to replace a column, just drag another one onto the existing column pill. The word "REPLACE" will appear, then drop the new column. The chart will update immediately.

💡 Don't be surprised if the chart *type* changes when you do this - the Thinkspace will recommend the best chart based on the new data.

# Thinkspace - Setting Color Thresholds

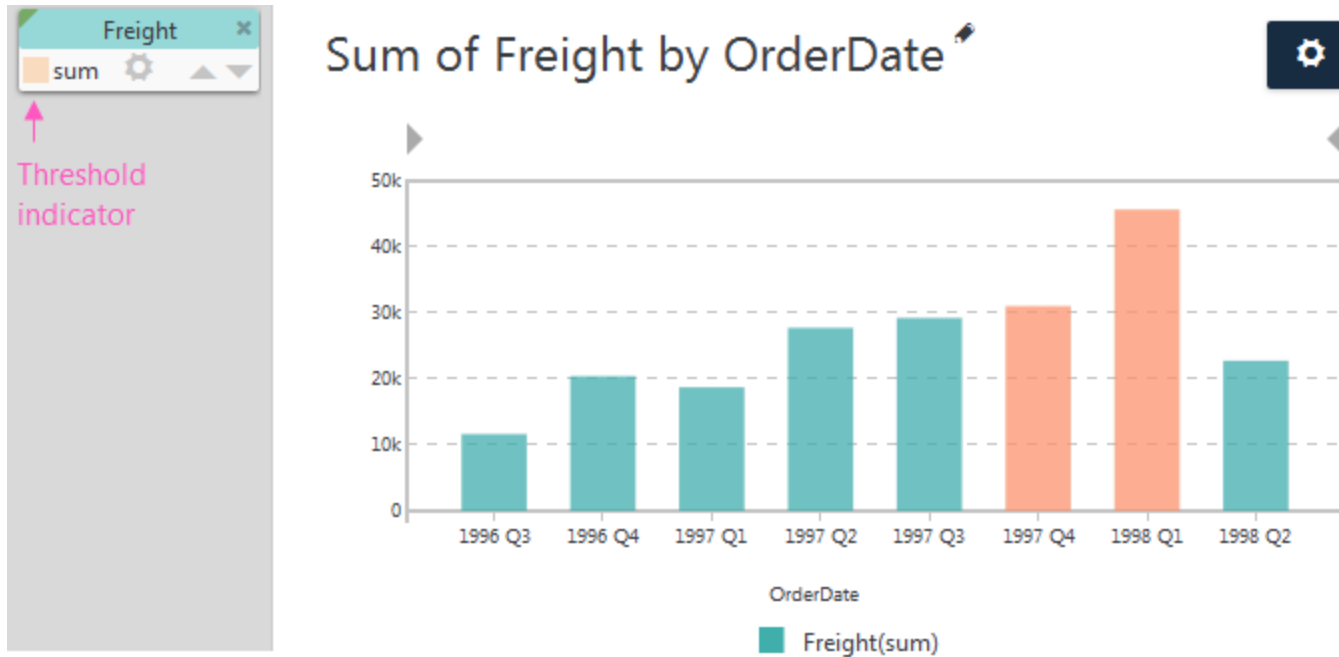
You can set data value thresholds that are indicated by chart colors. To do this, click a chart's column pill gear icon and select the **Colors** menu item:



Using the Colors controls, select a comparison operator, enter a comparison value, and select a color, as shown above.

Click the color swatch to show more colors and the *Show more* link to show additional colors. You can also enter color values directly as hex ("#CCCCCC"), RGB ("rgb(197, 95, 169)", or text ("Blue") values.

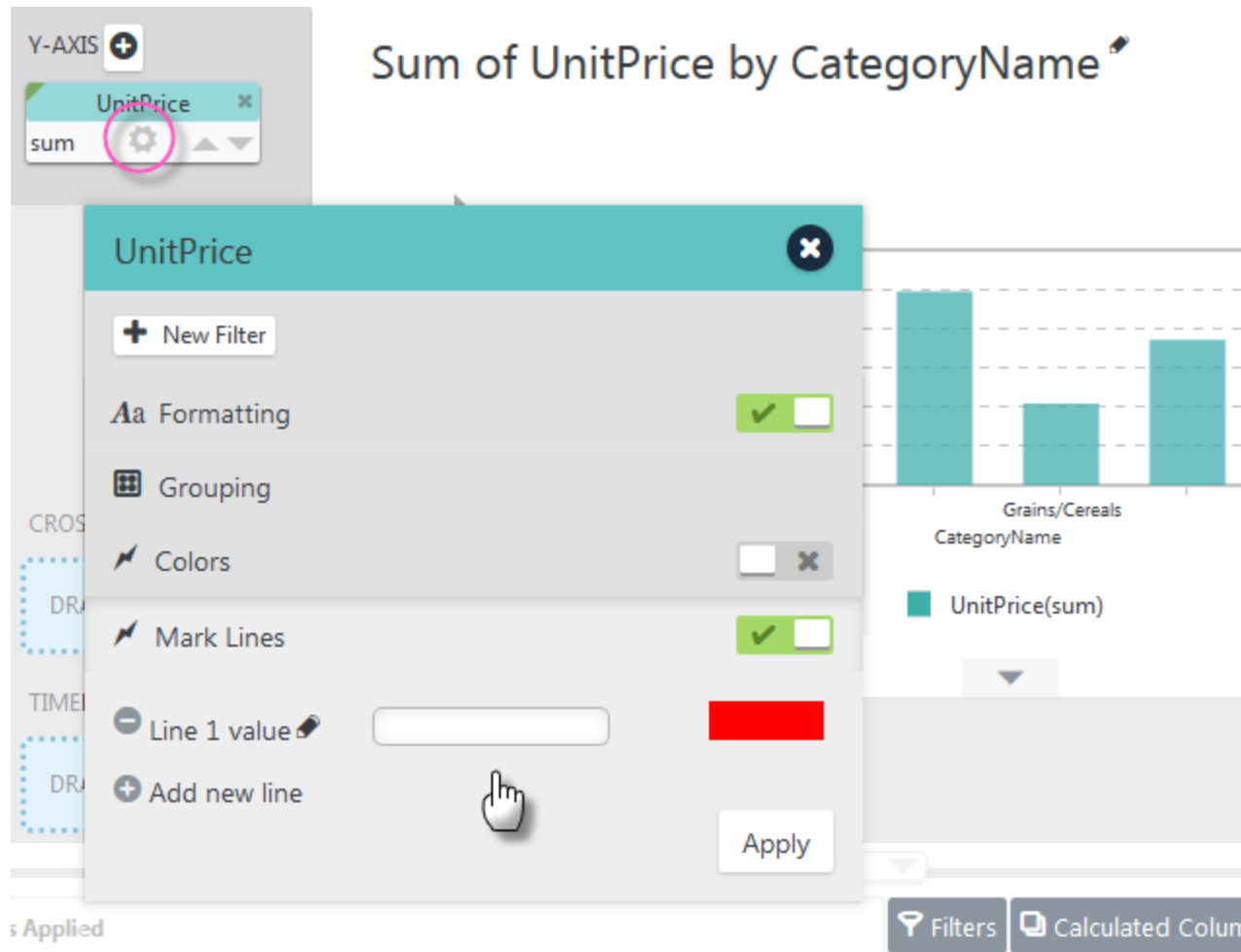
Click the   icons to add or remove thresholds. Click **Apply** to immediately apply the thresholds.



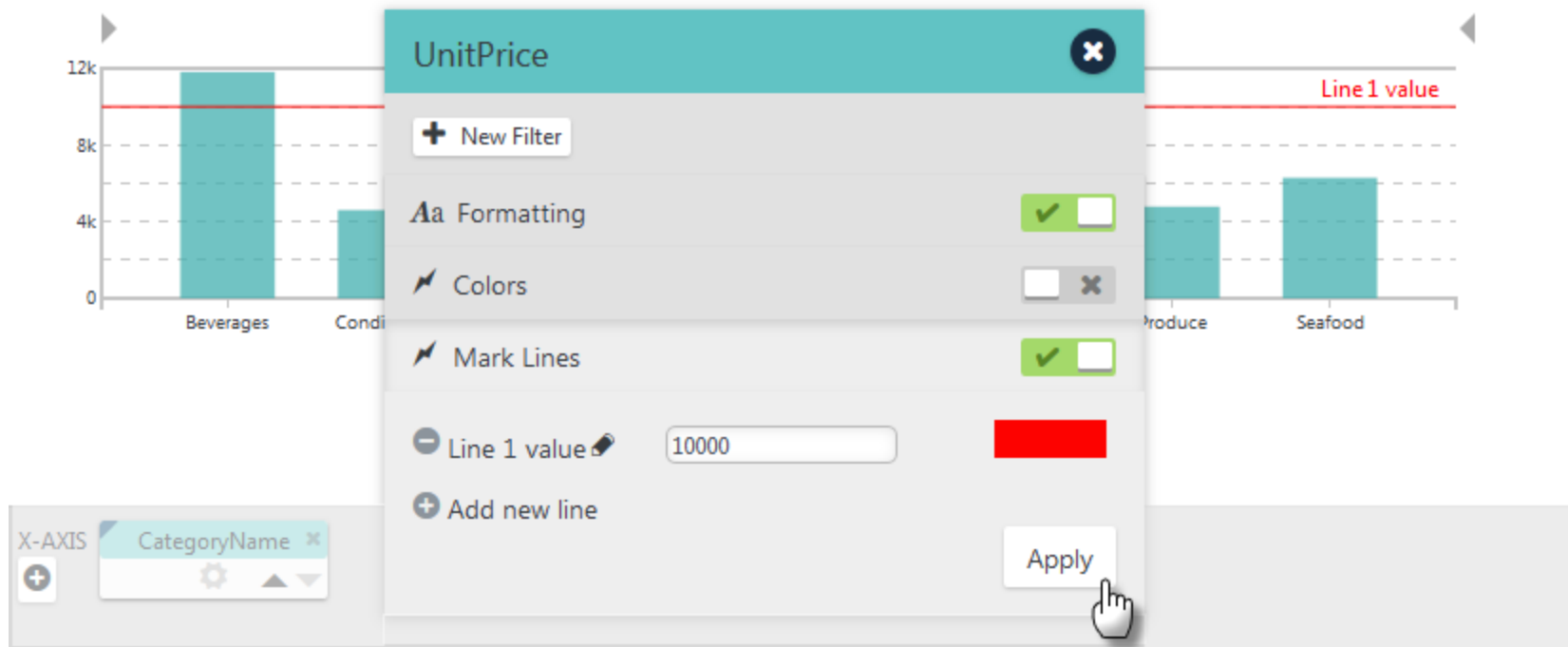
The resulting chart, with just one threshold defined, will look similar to the one shown above. Note that the column pill has a colored threshold indicator displayed now.

# Thinkspace - Adding Mark Lines

Mark Lines are lines on a chart's canvas, related to its Y-axis data values, making it easy to compare data to target values.



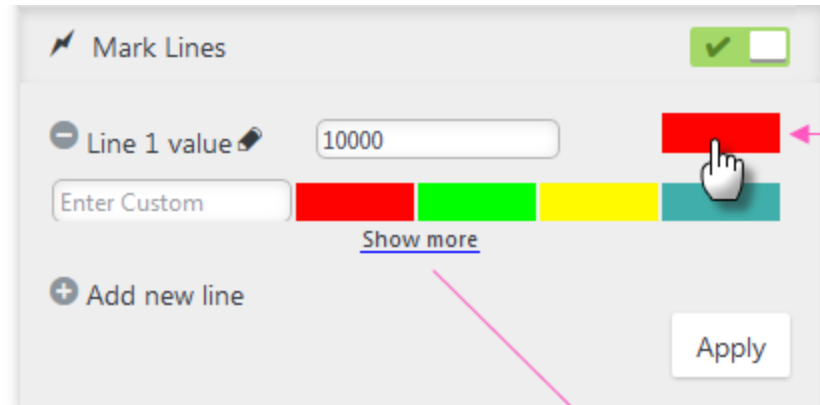
To add Mark Lines, click a Y-Axis pill's gear icon and select Mark Lines in its gear menu, as shown above.



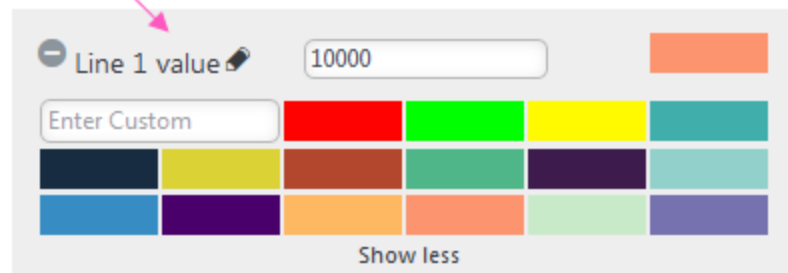
Enter a value for the first line, *10000* in the example above, and click **Apply**. The resulting line and its caption are shown on the chart in the background.

The screenshot shows the 'UnitPrice' configuration panel in Logi Analytics. The panel is titled 'UnitPrice' and has a close button (X). It contains several sections: 'New Filter' with a plus icon; 'Formatting' with a checkmark and a toggle switch; 'Grouping' with a grid icon; 'Colors' with a checkmark and a close button; 'Mark Lines' with a checkmark and a toggle switch. Below these is a list of mark lines, with '2017 Target' selected. A hand cursor is pointing at the '2017 Target' text. To the right of the text is a text input field containing '10000' and a red color swatch. At the bottom of the panel is an 'Apply' button. In the background, a bar chart is visible with a red horizontal line labeled '2017 Target' and bars for 'Produce' and 'Seafood'.

The line's caption can be edited by clicking the "pencil" icon, making changes, and clicking **Apply**, as shown above.



Click to show the custom color control and four standard colors



To change the line's color, click the assigned color swatch to show the standard colors and the *Show more* link to show even more colors. You can also enter custom color values directly as hex ("#CCCCCC"), RGB ("rgb(197, 95, 169)"), or text ("Blue") values.

The configuration panel for 'UnitPrice' includes the following settings:

- New Filter:** + New Filter
- Formatting:**
- Grouping:**
- Colors:**
- Mark Lines:**
- Line 1 value:** 10000 (Red line)
- Line 2 value:** 6500 (Blue line)
- Fill Area Between Lines:**  (Orange fill)

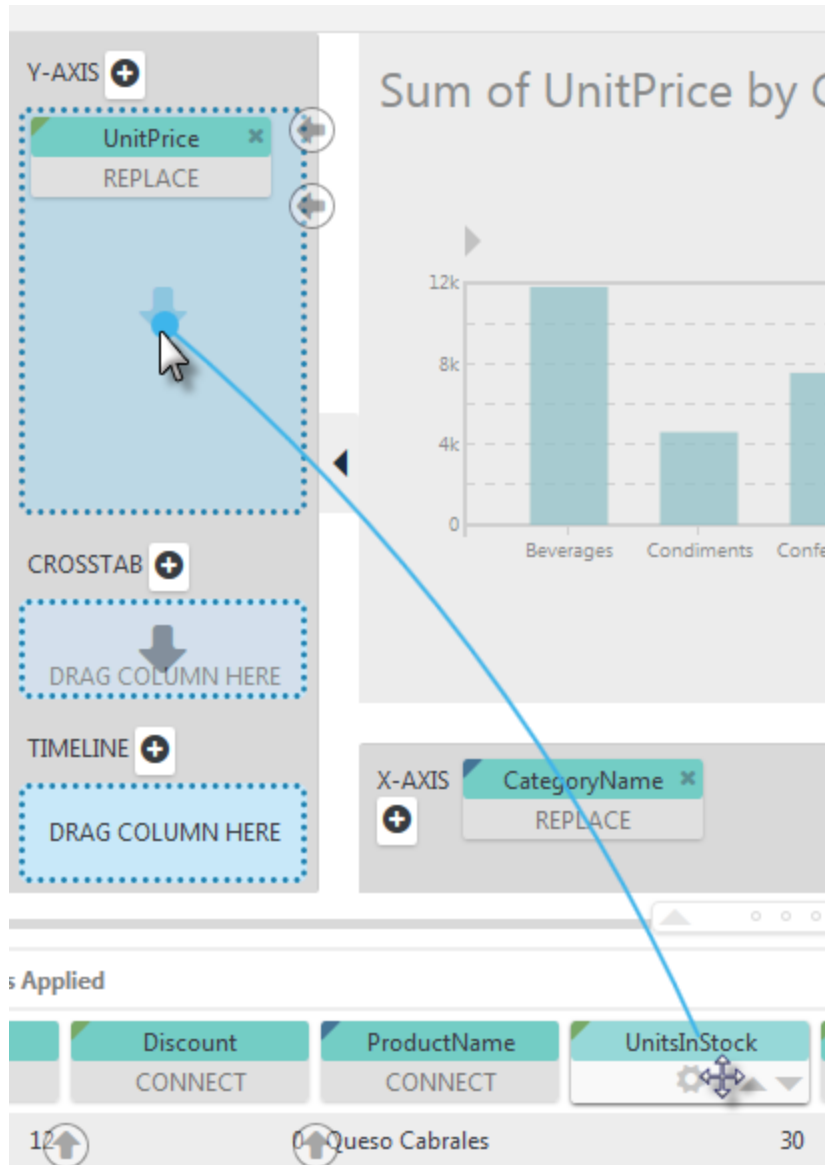
The background chart shows a bar for 'Beverages' with a value around 10k, and two bars for 'Produce' and 'Seafood' with values around 4k and 6k respectively. The 'UnitPrice' column is highlighted in the data table below the chart.

ProductID	UnitPrice
10248	5.00
10248	5.00
10248	5.00
11	42
72	72

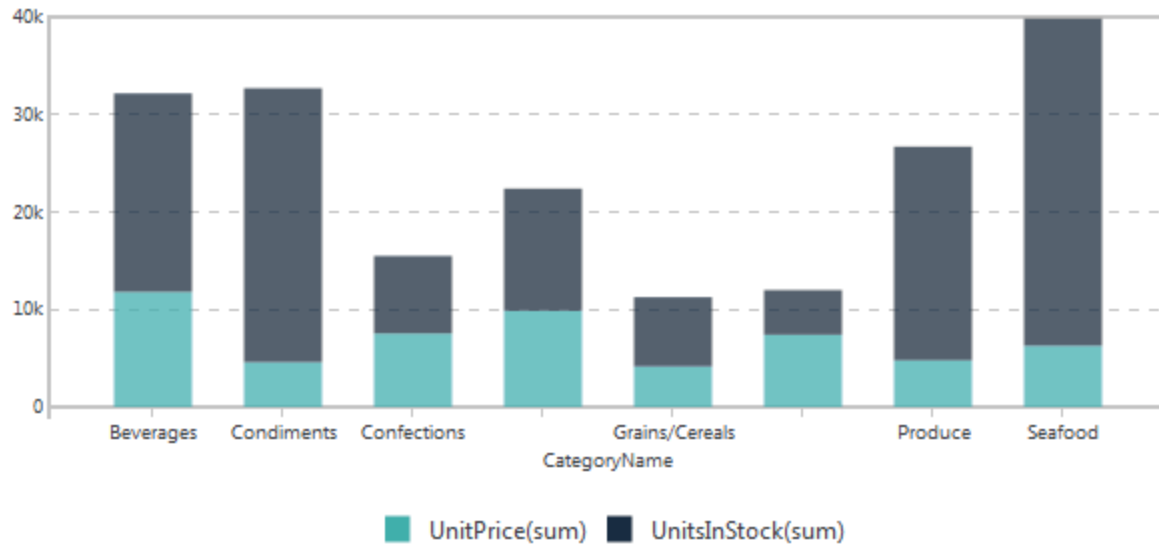
You can add and remove Mark Lines using the icons and even fill the area between them, as shown above.

## Thinkspace - Adding Another Series

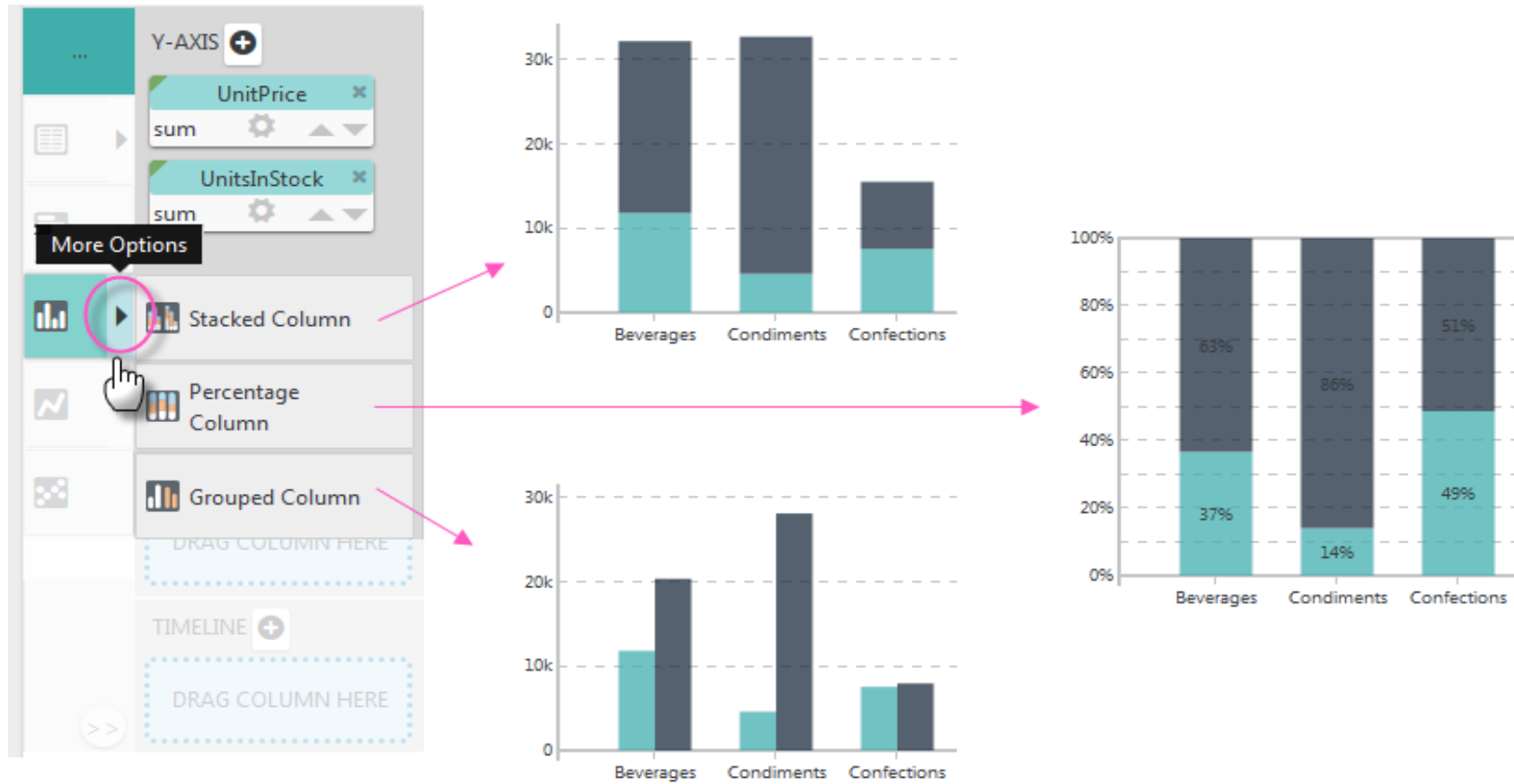
It's often useful to compare several data series on the same chart. In this example, assume we already have a Column chart that shows *UnitPrice* by *CategoryName*, and we want to add *UnitsInStock* to it.



Start by dragging the *UnitsInStock* column pill onto the Y-Axis drop zone, as shown above.



The chart will immediately update, adding the new series by *stacking* its values, as shown above, on the original series. Repeat the process to add more series.

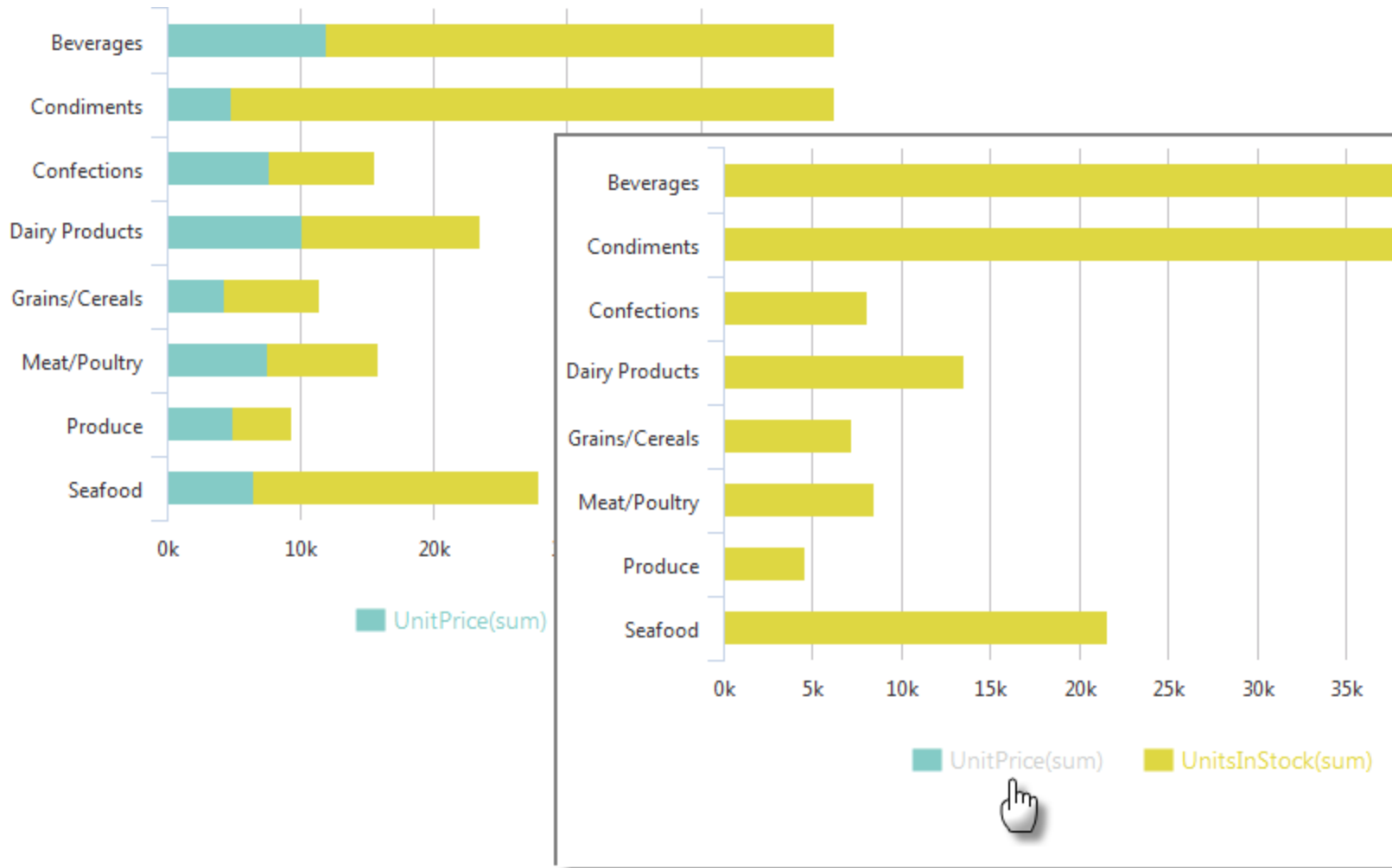


The additional series can be shown as stacked (values), stacked (percentages), or grouped side-by-side. When the second series was added, the option for the selected chart type in the Visualization menu acquired a "More Options" arrow icon, circled above. Click it to see the charting options and select the desired arrangement.

💡 Don't be surprised if the chart *type* changes when you do this - the Thinkspace will recommend the best chart based on the new data - or if the chart *scale* changes.

# Thinkspace - Using Legend Filtering

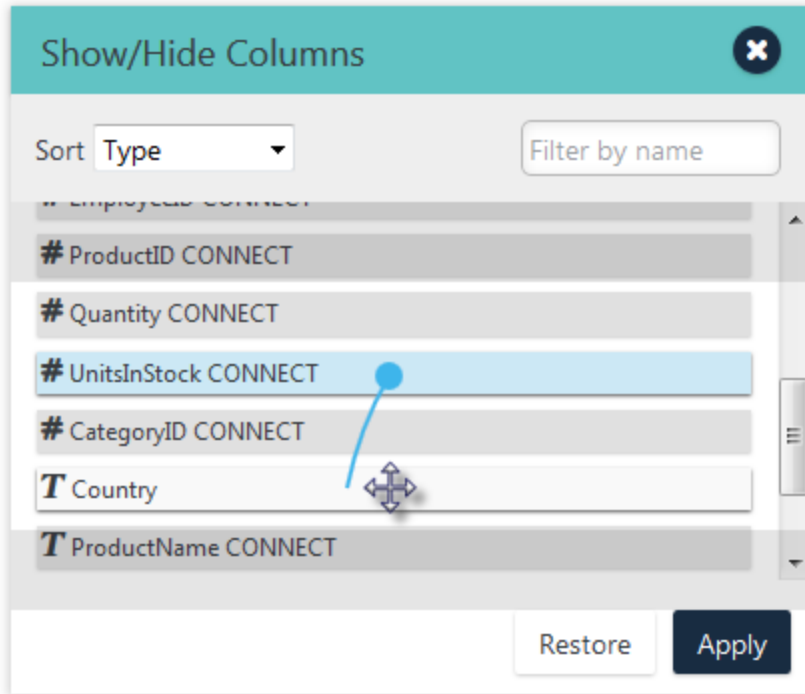
Once you've created a chart with multiple data series, you might want to temporary hide one or more of them to see the other series in isolation.



Click one or more of the legend labels, as shown above, and that data will be temporarily filtered out of the chart. Click again to restore the data.

# Thinkspace - Using the Blue Dot in the Show/Hide Panel

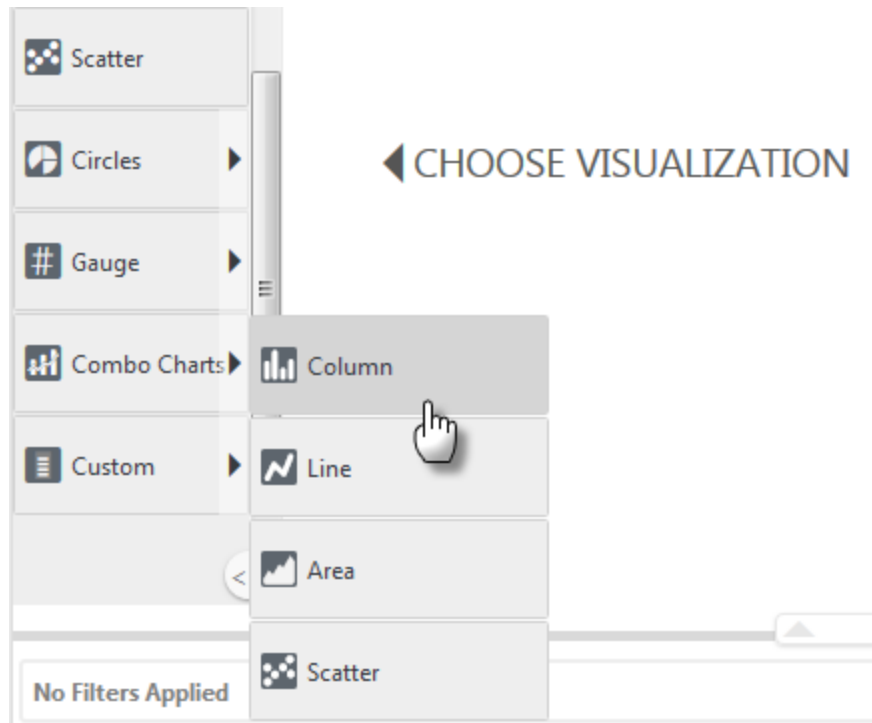
There's another quick and easy way to select columns to be used in a chart, in the Show/Hide Columns panel:



As shown above, open the Show/Hide Columns panel and drag the Blue Dot Connector from one column entry to another. When you drop it, a chart will be created. This is a useful shortcut if you have a lot of columns and don't want to scroll horizontally looking for the right columns to use.

# Thinkspace - Creating a Combo Chart

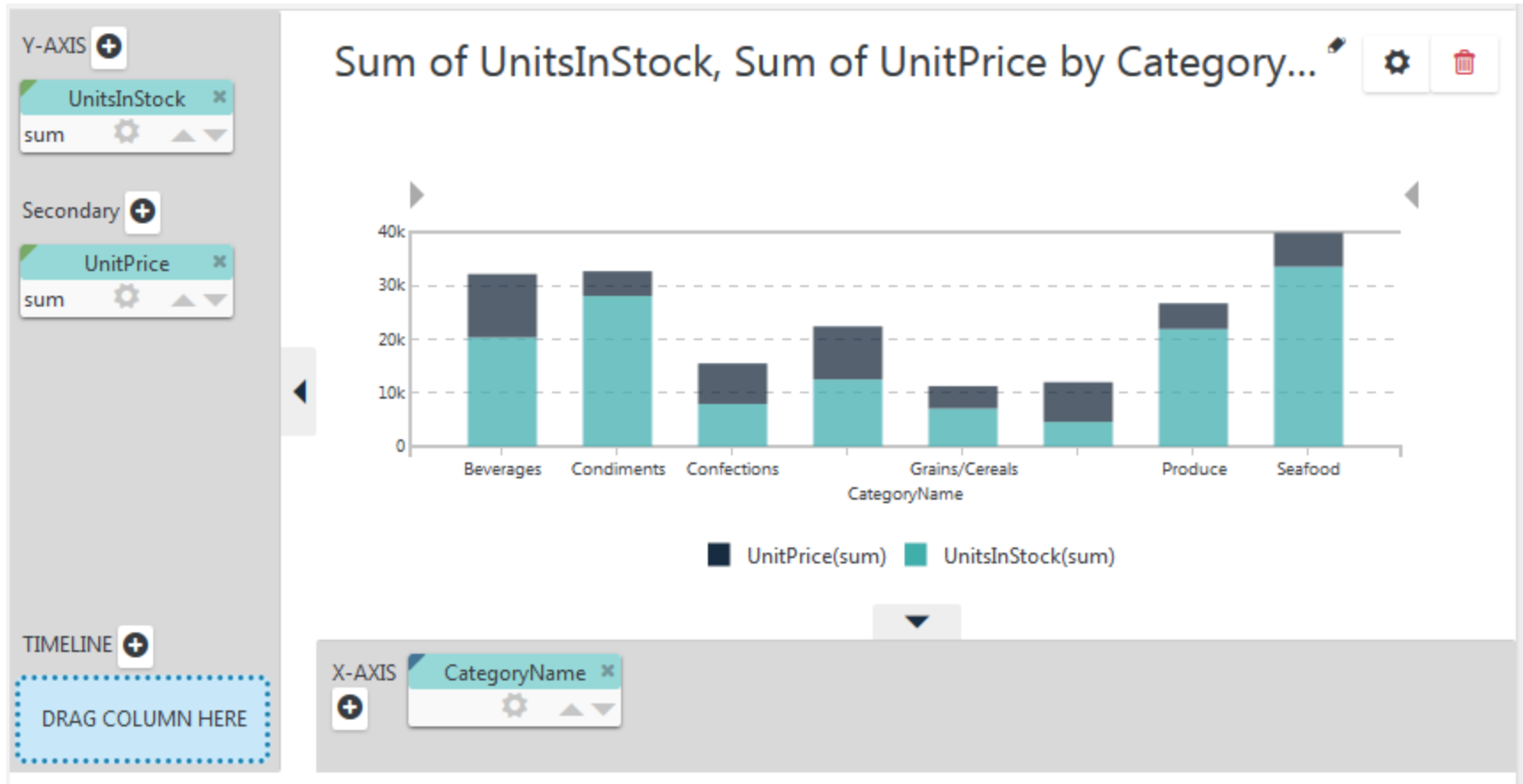
A Combo chart allows you combine several chart types, overlaying them, for easier comparison of the data.



In order to create a Combo chart in the Thinkspace, scroll down in the Visualization menu and select Combo Charts → (base chart type of your choice).

The screenshot displays the Logi Analytics interface for configuring a chart. On the left, the 'Y-AXIS' panel shows 'UnitsInStock' with a 'sum' aggregation. Below it, a 'Secondary' panel contains a blue dashed box labeled 'DRAG COLUMN HERE'. A mouse cursor is positioned over a blue dot in this box, with a blue arrow pointing to the 'UnitPrice' column in the bottom toolbar. The 'X-AXIS' panel shows 'CategoryName' with a 'REPLACE' button. The main chart area is currently empty, showing a large downward arrow. The bottom toolbar includes buttons for 'Filters', 'Calculated Columns', 'CSV Export', and 'Show/Hide'. Below the toolbar, a row of columns is visible: 'UnitPrice' (value 14), 'Quantity' (CONNECT, value 12), 'Discount' (CONNECT), 'ProductName' (CONNECT, value 'Queso Cabrales'), 'UnitsInStock' (CONNECT, value 30), 'CategoryID' (CONNECT), and 'CategoryName' (CONNECT, value 'Dairy Products').

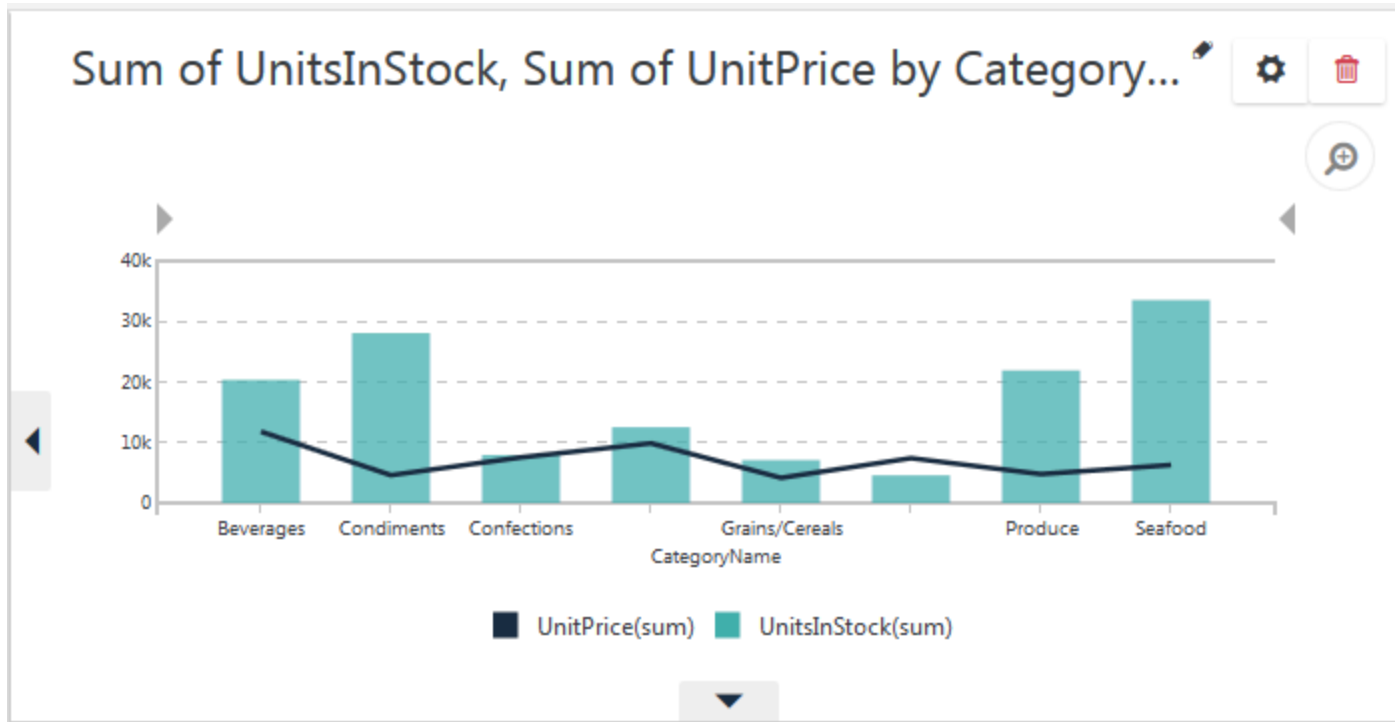
Drag-and-drop the data pills necessary to create the first chart series (in the example above *CategoryName* and *UnitsInStock*). Then drag the pill for your second series (*UnitPrice*) into the Secondary axis drop zone, as shown above.



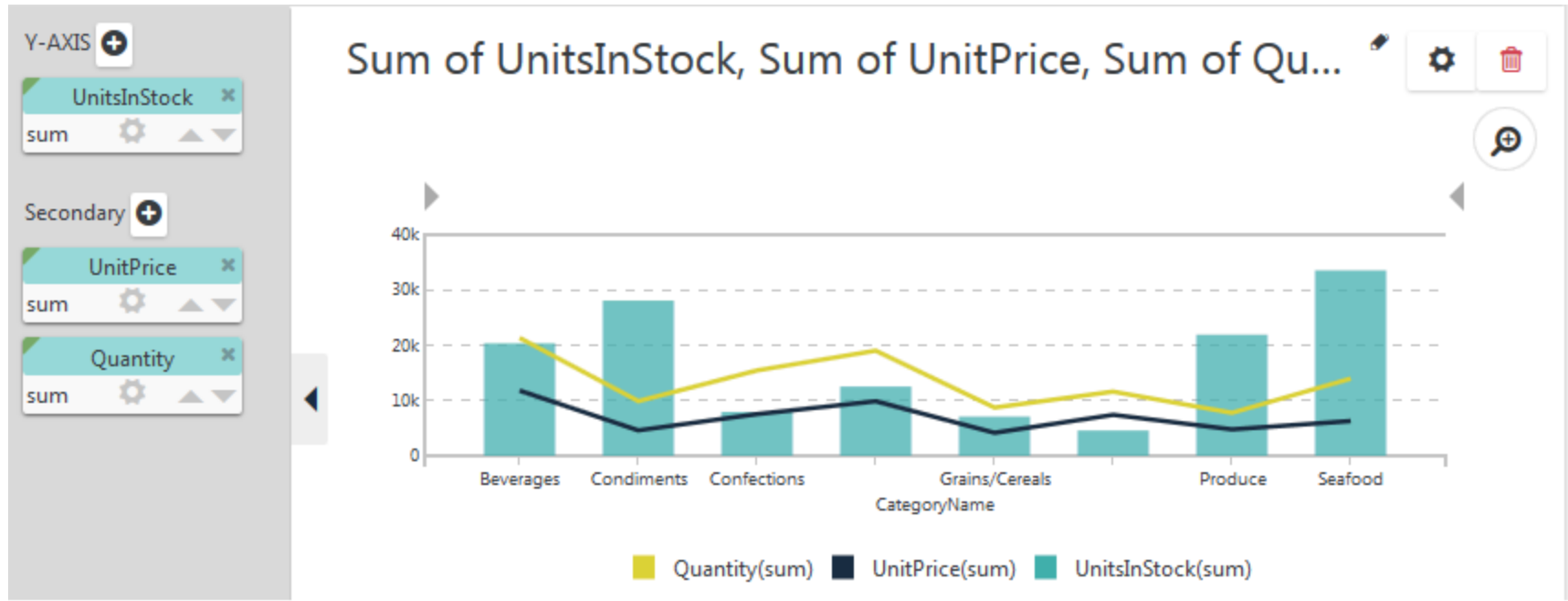
Your chart will be drawn, with the two series stacked, as shown above.

The screenshot displays the Logi Analytics interface. On the left, the 'Y-AXIS' section contains 'UnitsInStock' (sum) and 'Secondary' section contains 'UnitPrice' (sum). A pink circle highlights the settings gear for 'UnitPrice'. A modal window titled 'UnitPrice' is open, showing 'Visualization Settings' with a dropdown menu for 'Type' containing 'Column', 'Area', 'Line', 'Column', and 'Scatter'. The 'Line' option is selected and highlighted in blue. Below the dropdown are 'Aa Formatting' (checked) and 'Colors' (unchecked) options. The background shows a bar chart titled 'Sum of UnitsInStock, Sum c' with a y-axis from 20k to 40k. The bottom of the interface shows a data row with values: 10248, 5, 07/04/1996 00:00:00, 32.38, Fran.

Next, click the Secondary pill's gear icon and select the Visualization Settings in its gear menu, as shown above. You can now choose a different chart type for the secondary data. We'll choose a Line chart for this example.



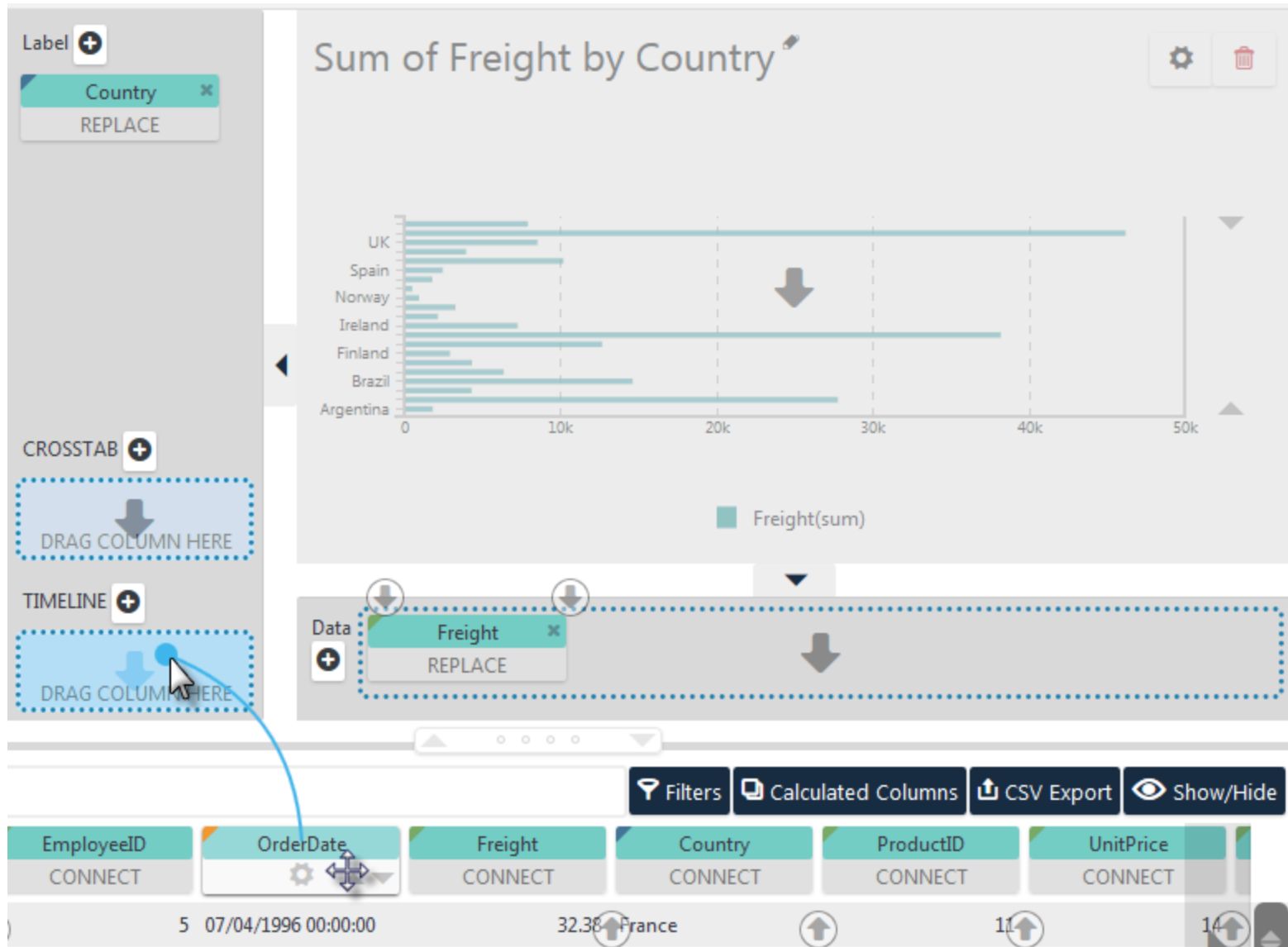
And the resulting chart is shown above.



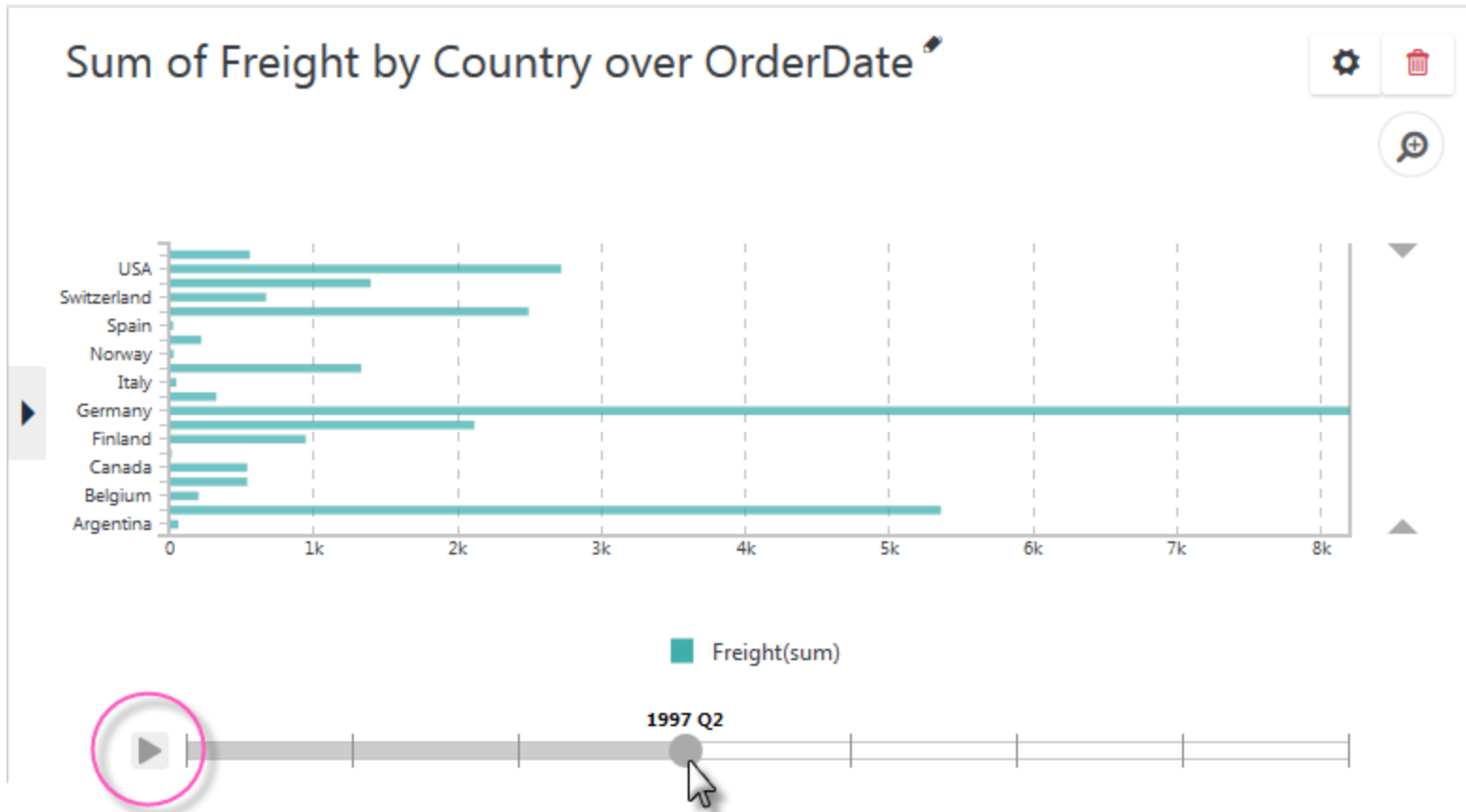
You can add more series by dropping more pills in the Secondary drop zone and the chart will add them, as shown above. Their chart types will default to that of the last pill added.

# Thinkspace - Creating a Timeline Chart

A Timeline chart shows you how data has changed over time. In order to create a Timeline chart in the Thinkspace, first create a chart as usual:



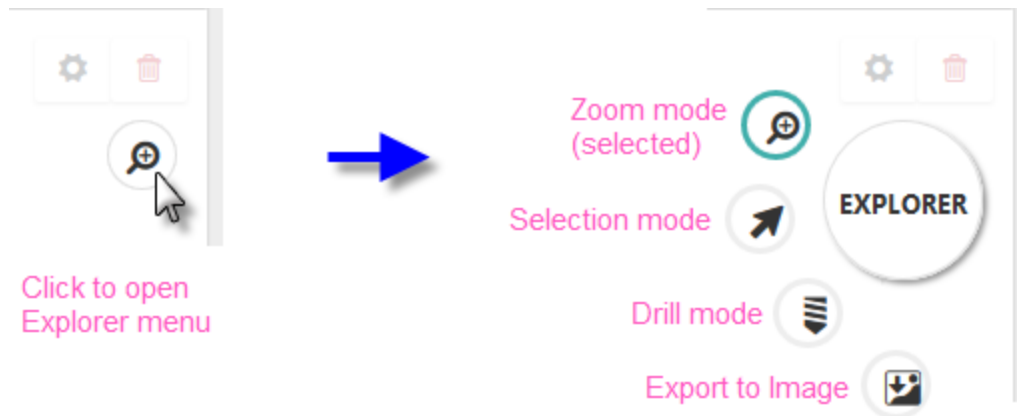
Then drag-and-drop the pill for a temporal (DateTime) column into the TIMELINE drop zone, as shown above. You can use the "+" icon to select a column from a list instead of dragging if you prefer.



The animation controls will appear below the chart; these control the presentation of the chart data over time. Click the "Play" icon, circled above, to start/stop sequencing the data. You can also drag the playback point forwards and backwards with your mouse cursor.

# Thinkspace - Using the Chart Explorer Menu

A number of features are controlled by the **Chart Explorer** menu, which appears in the upper right-hand corner of the visualization area:



Click the "magnifying glass" icon to open the menu (it's only visible when your mouse cursor is over a chart). When opened, four "satellite" options appear around it. Click an option to select it, or click the central EXPLORER icon to close the menu.

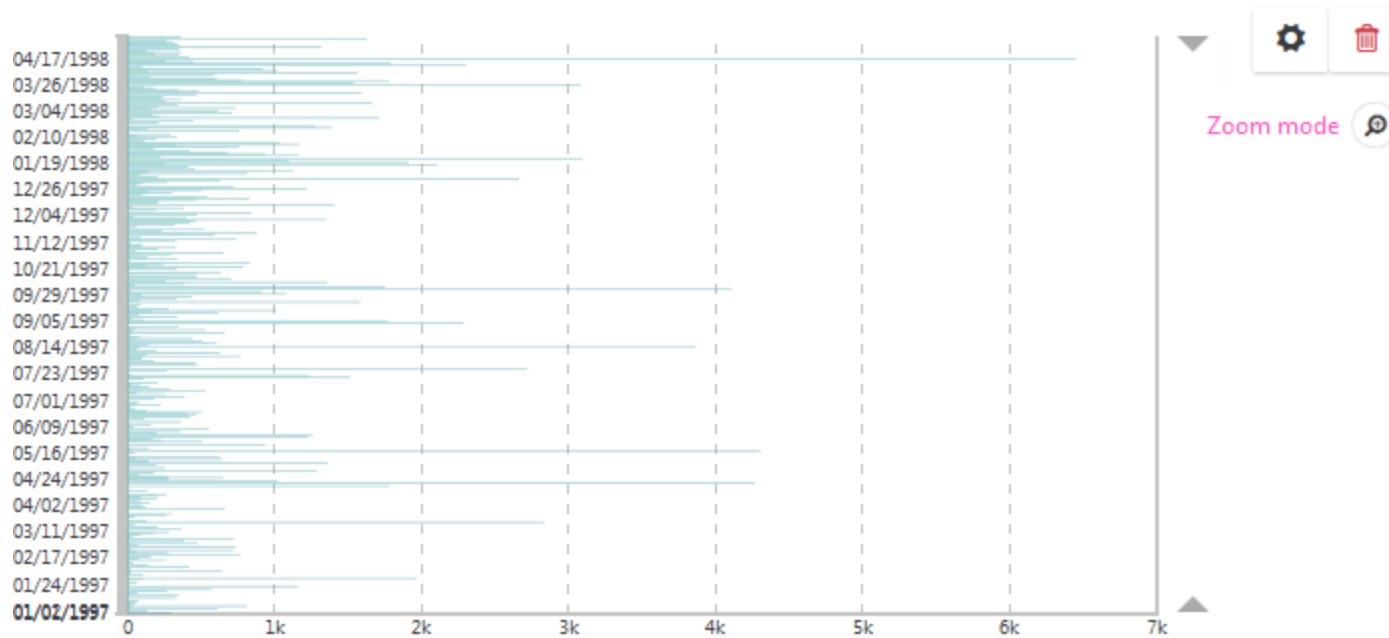
Chart Explorer modes can work together. For example, you can Zoom into a chart, then switch to Drill mode to select a data point and generate a temporary view of the data.

The following features are available in the Chart Explorer menu:

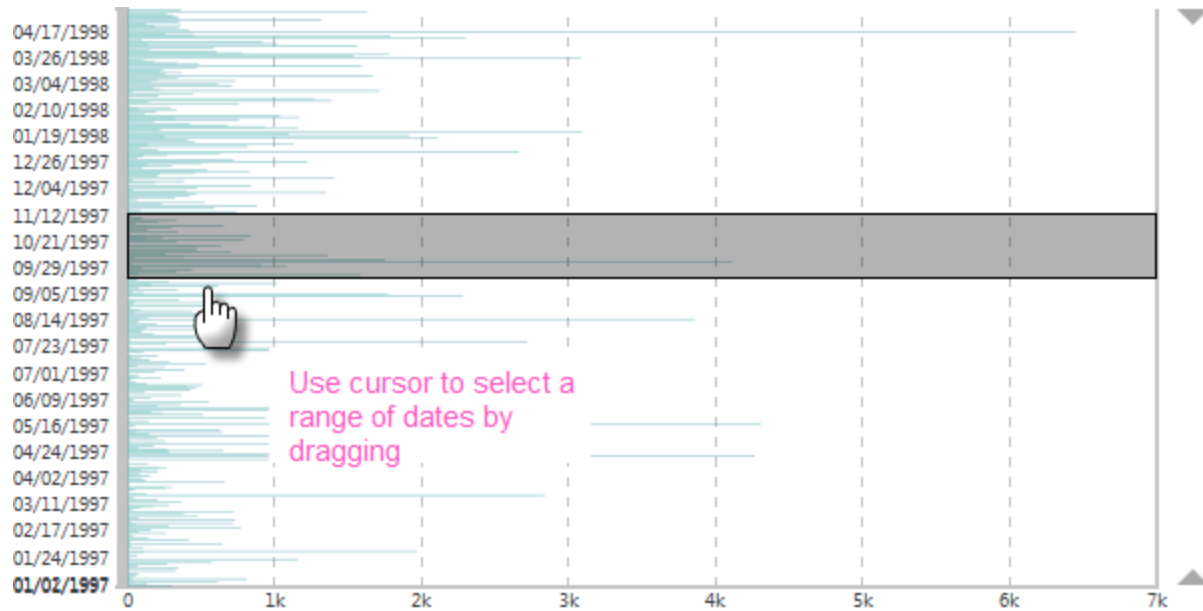
- **Zoom Mode: Zooming and Panning**
- **Selection Mode: Selecting Data Points**
- **Drill Mode: Drilling into Data**
- **Export to a .PNG Image**

# Thinkspace - Zoom Mode: Zooming and Panning

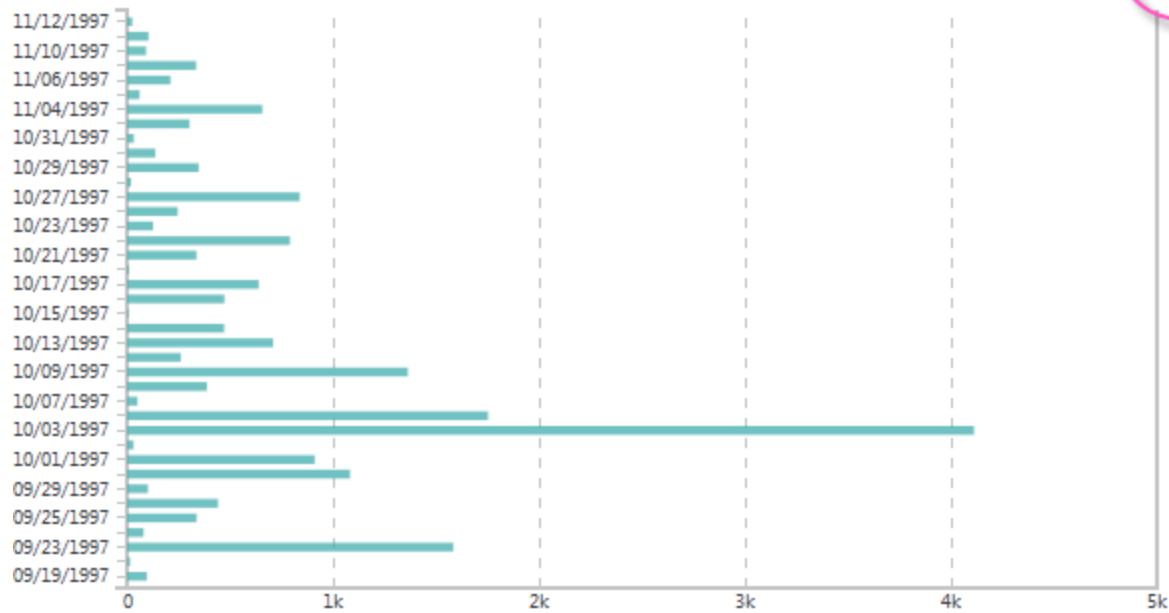
Charts may include so much data that it's useful to be able to "zoom" into them. The Thinkspace includes a zooming and panning feature that lets you do just that. Consider this bar chart:



Interesting, but suppose you want to look more closely at a specific range of dates?

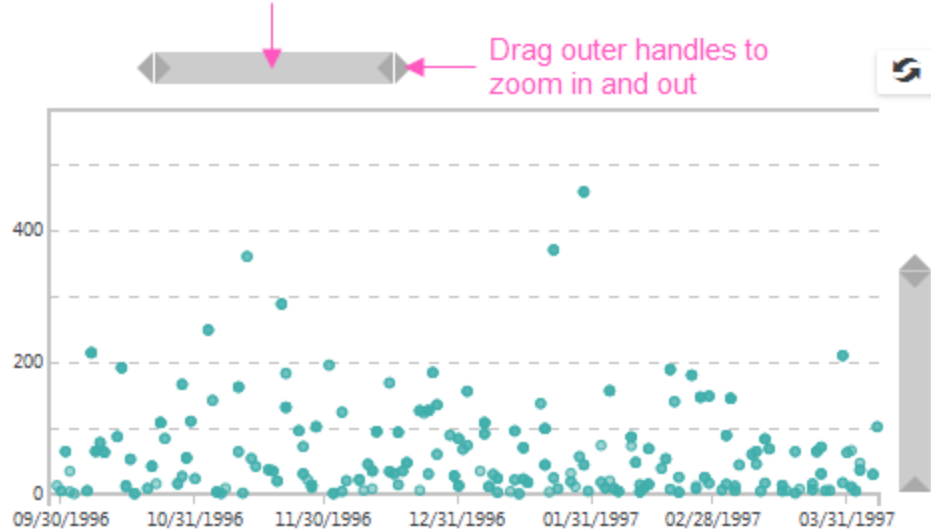


You can zoom "into" the chart by dragging a selection area around certain dates, as shown above. Depending on the chart type and data, you may be dragging the selection area vertically, as above, or horizontally, or both. When you release your mouse button, the chart will be re-drawn to include just the selected data.



After the chart zooms in on your selected data area, a **Reset** icon will appear, as shown above. Click it to reset the chart to its original state.

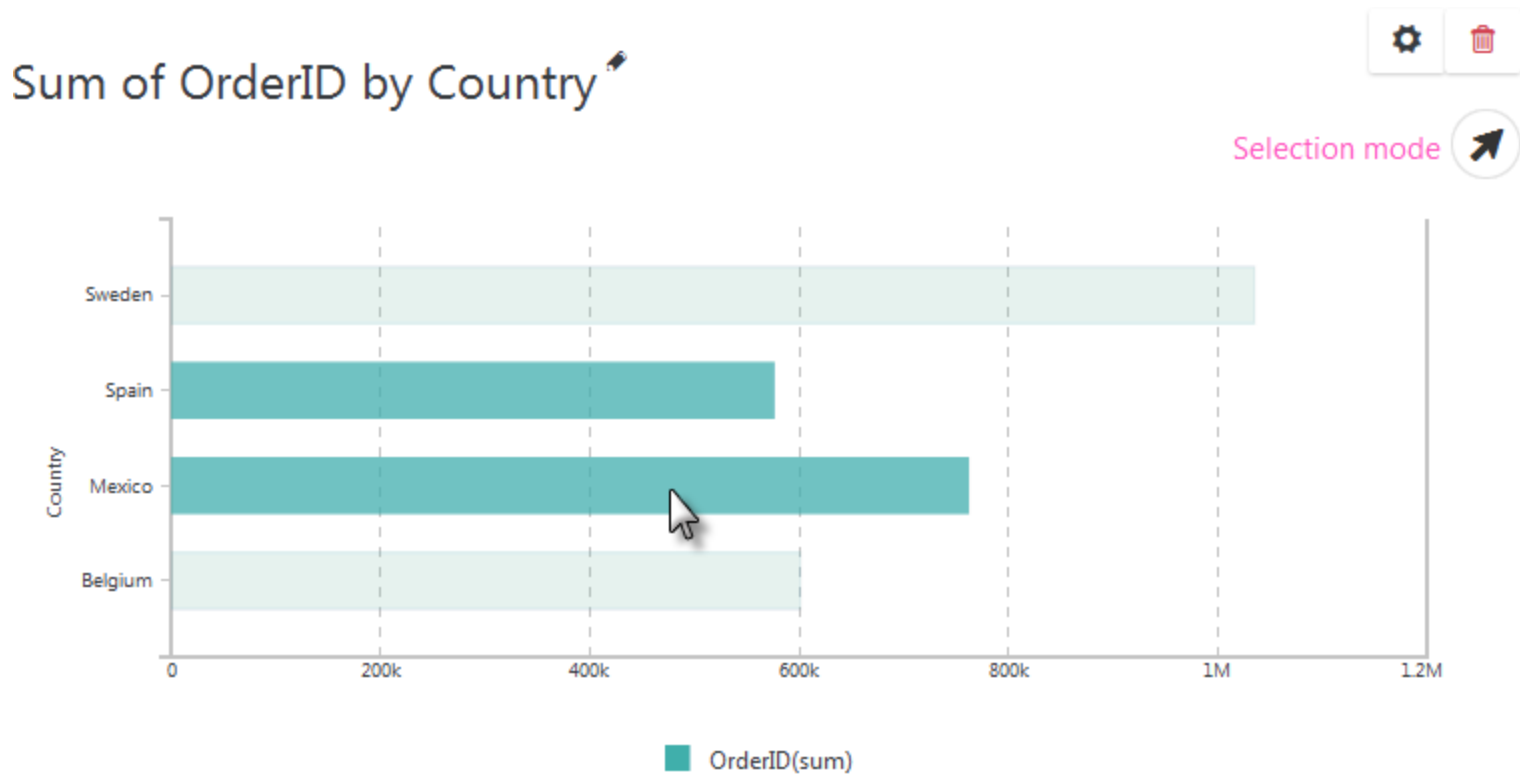
Drag middle of bar to pan data left and right



Depending on the chart type and data, you'll also see a vertical and/or horizontal "pan-zoom" bar outside the chart, adjacent to where your selection area was. The example Scatter chart above has both. Drag the bar's outer handles to zoom in and out, and drag in the middle of the bar to pan the chart canvas through the data.

# Thinkspace - Selection Mode: Selecting Data Points

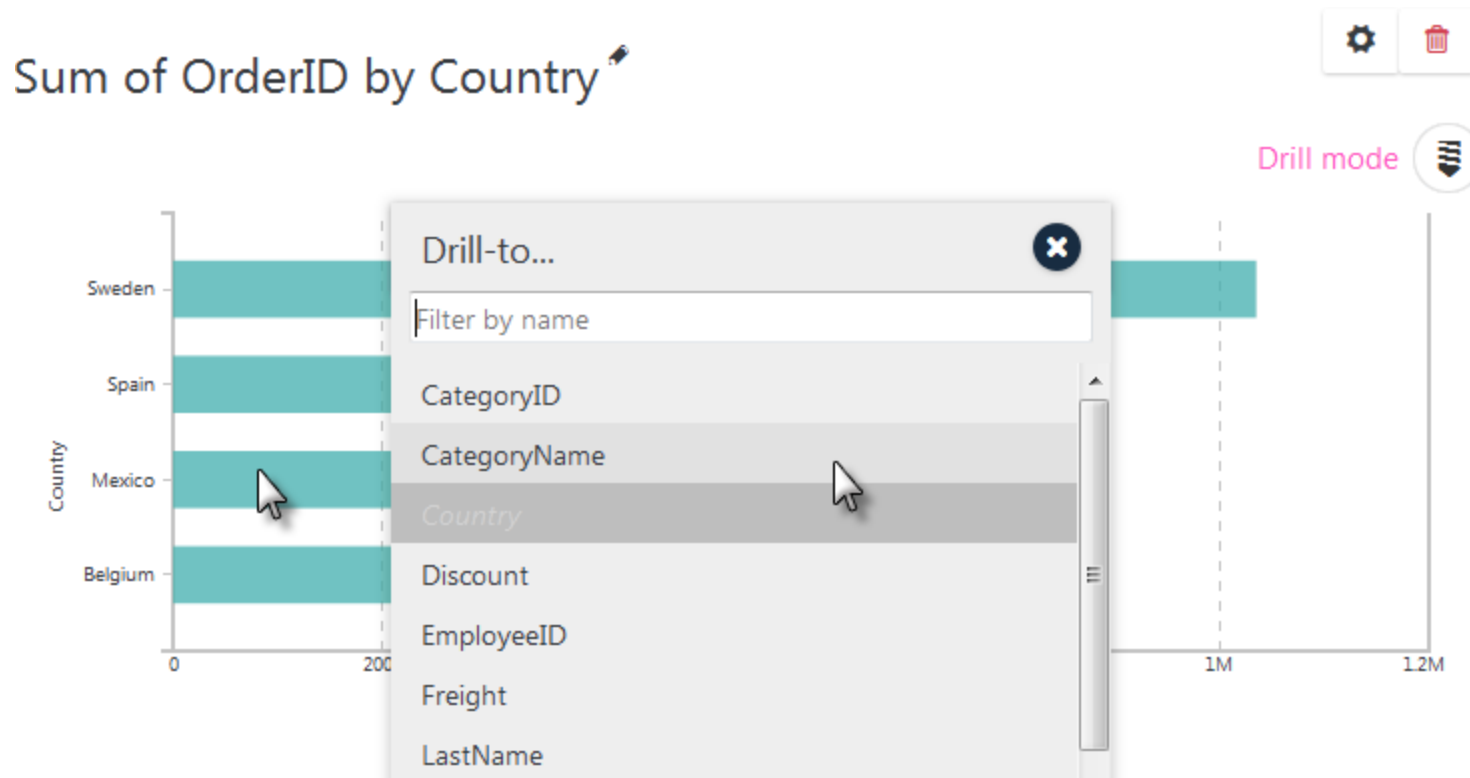
You can also use *Selection* mode to enable a kind of "data point filtering":



As shown in the example above, two bars in the chart have been selected by clicking them; click them again to toggle their selection. When one or more bars (or data points in any chart) are selected, all other bars are dimmed. When you click a bar, the data in the table below is immediately filtered to include only the selected bar values.

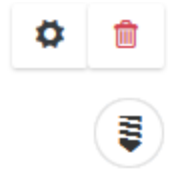
# Thinkspace - Drill Mode: Drilling into Data

You can use *Drill* mode to generate temporary views of supporting data:

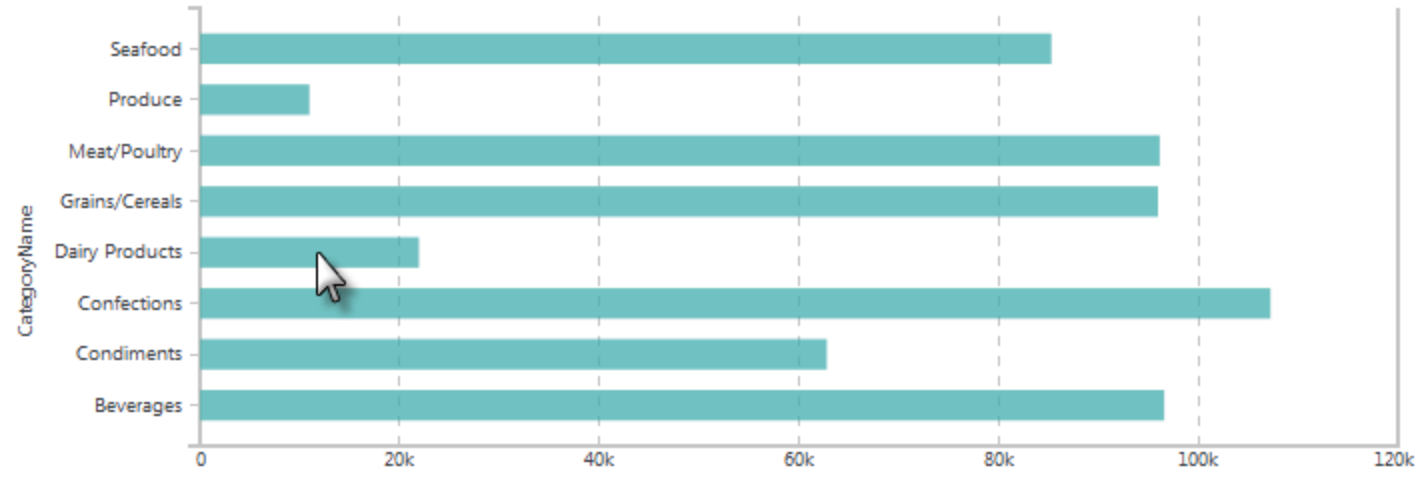


When *Drill* mode is selected and a bar is clicked, the Drill-to menu appears, as shown above. Select a column (in the example "CategoryName") to drill down into and the chart will be re-drawn:

## Sum of OrderID by Country



Country = Mexico    CategoryName ← Navigation trail

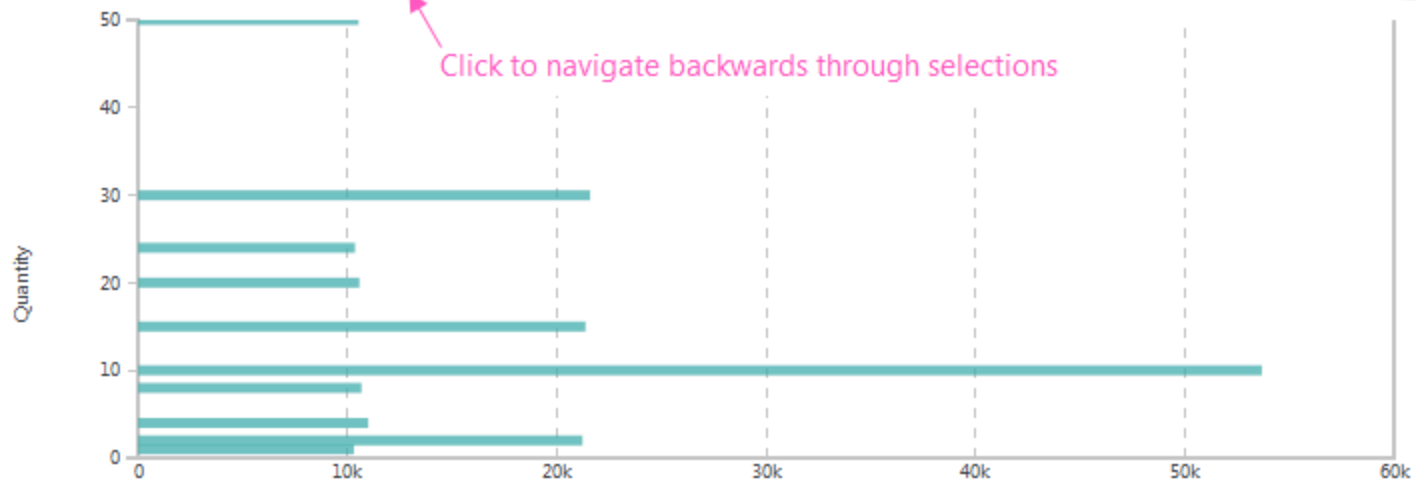


You can continue to drill down by clicking another bar ("Dairy Products"), as shown above. A "navigation trail" appears just below the chart title showing the drilling actions taken.

## Sum of OrderID by Country



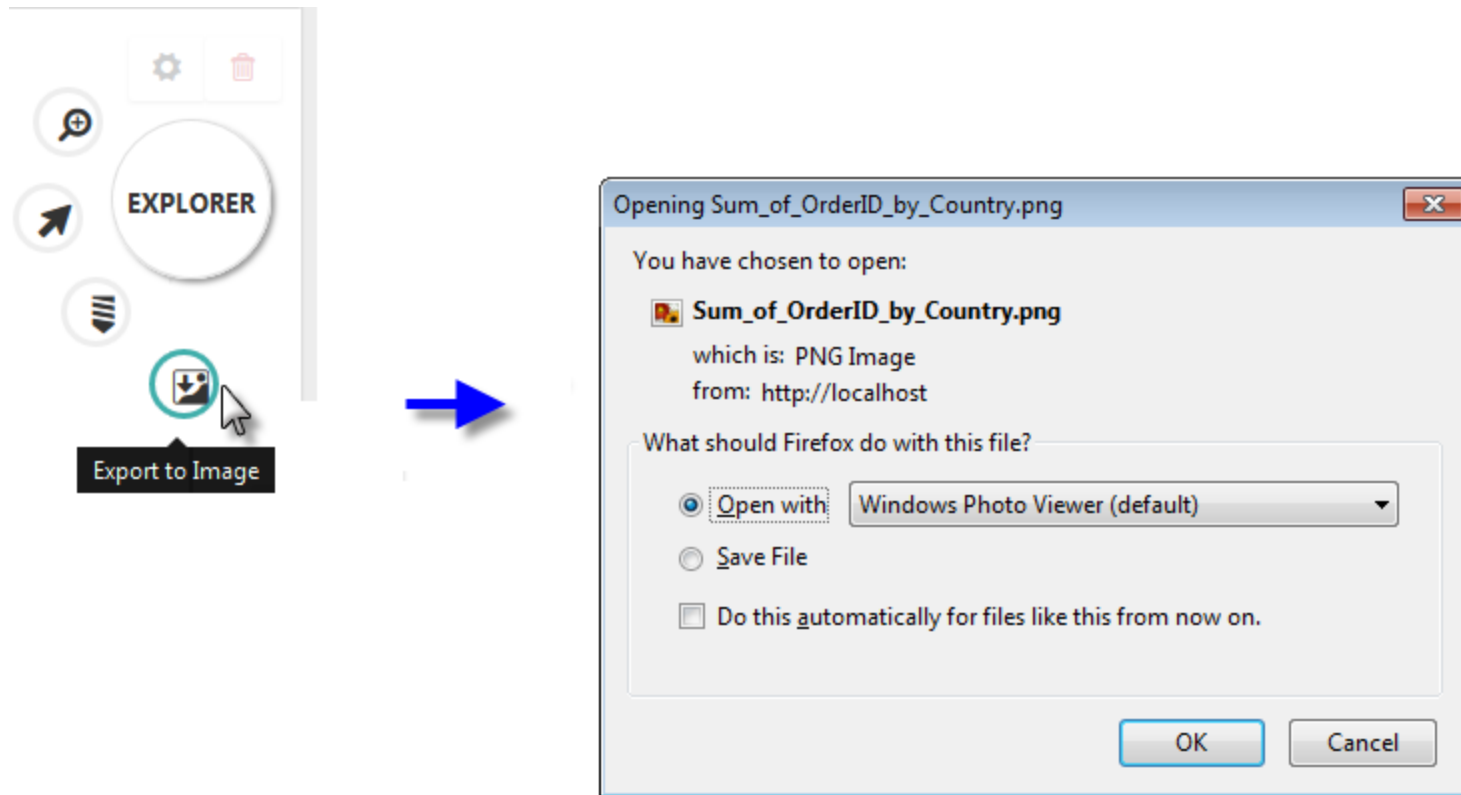
Country = Mexico    CategoryName = Dairy Products    Quantity



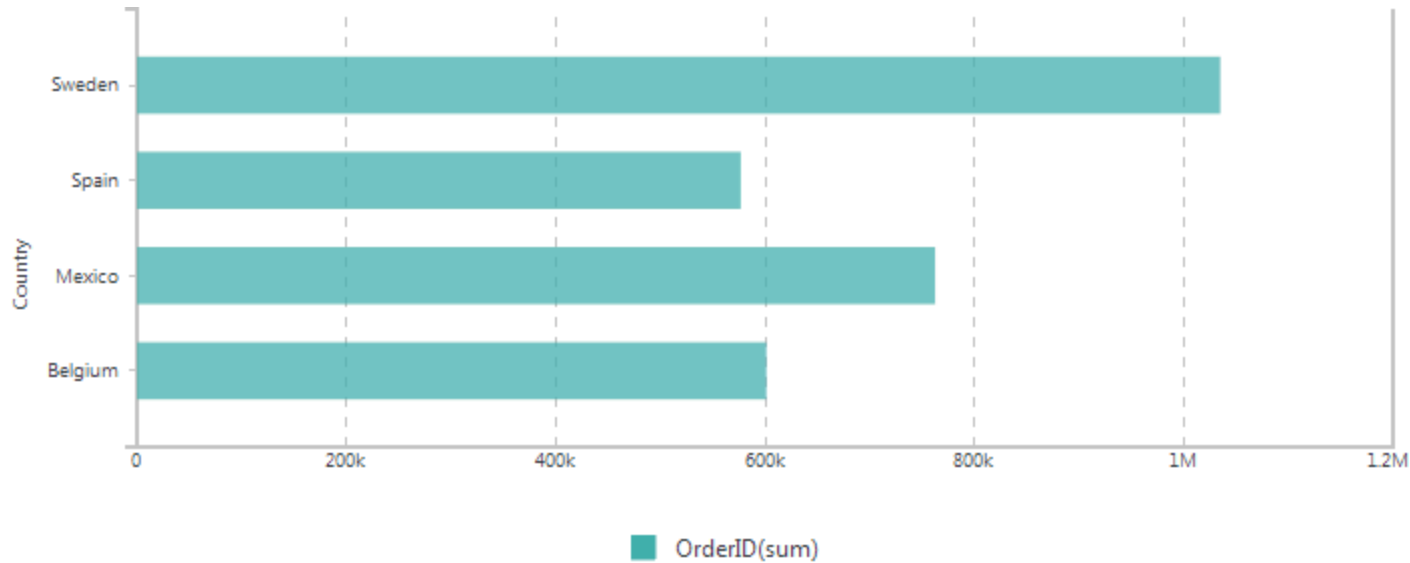
The navigation trail's links allow you to navigate backwards through the drill selections you've made, regressing the chart with each step.

# Thinkspace - Export to a .PNG Image

You can export your chart to an image file, using the Export to Image option:



When you select the option, your chart is saved as a .PNG image file and your browser is sent a link to it. The browser usually reacts to this as an open/download file request and, depending on its configuration, will either save the file to the browser's Download folder or display a dialog box similar to the one shown above.



An example of an exported chart image is shown above. Note that it *does not* include the title that you see for it in the Thinkspace.

Other useful Discovery Module v3.x topics include: "Thinkspace Columns" on page 268 and "Thinkspace Crosstabs " on the next page.

# Thinkspace Crosstabs

A Cross Tabulation (often abbreviated as "crosstab") is a data visualization that displays the *joint distribution* of two or more variables simultaneously. Crosstabs can be charts or they can be tables, the latter sometimes called "pivot tables". Both make it easy to sort, count, and total the data.

The following topics discuss the use of Thinkspace Crosstabs:

- [Working with Crosstab Charts](#)
- [Working with Crosstab Tables](#)

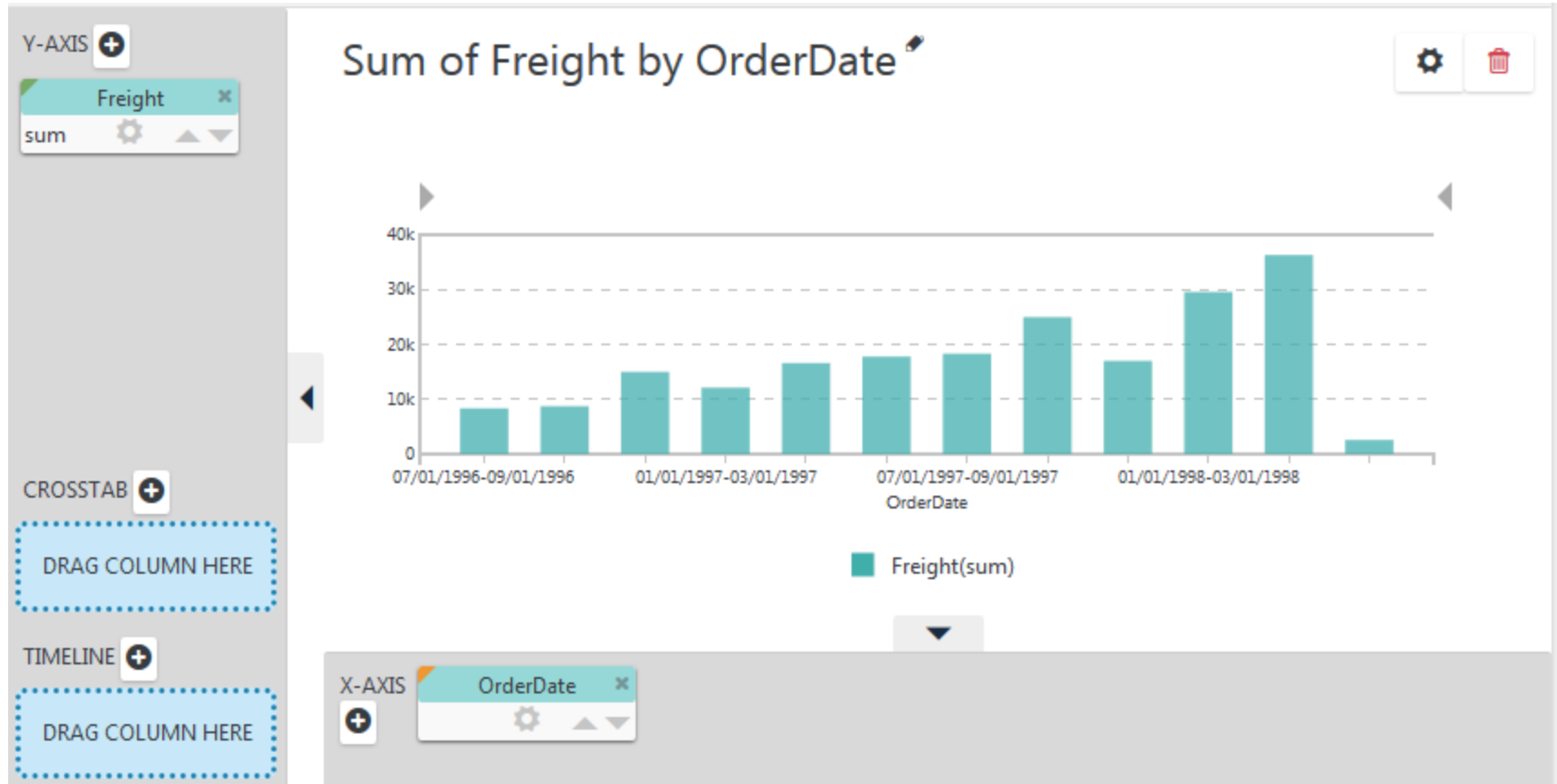
If you haven't already done so, please read "Use the Thinkspace - 3.x" on page 250 before proceeding. Other useful Discovery Module v3.x topics include: "Thinkspace Charts" on page 304 and "Thinkspace Columns" on page 268



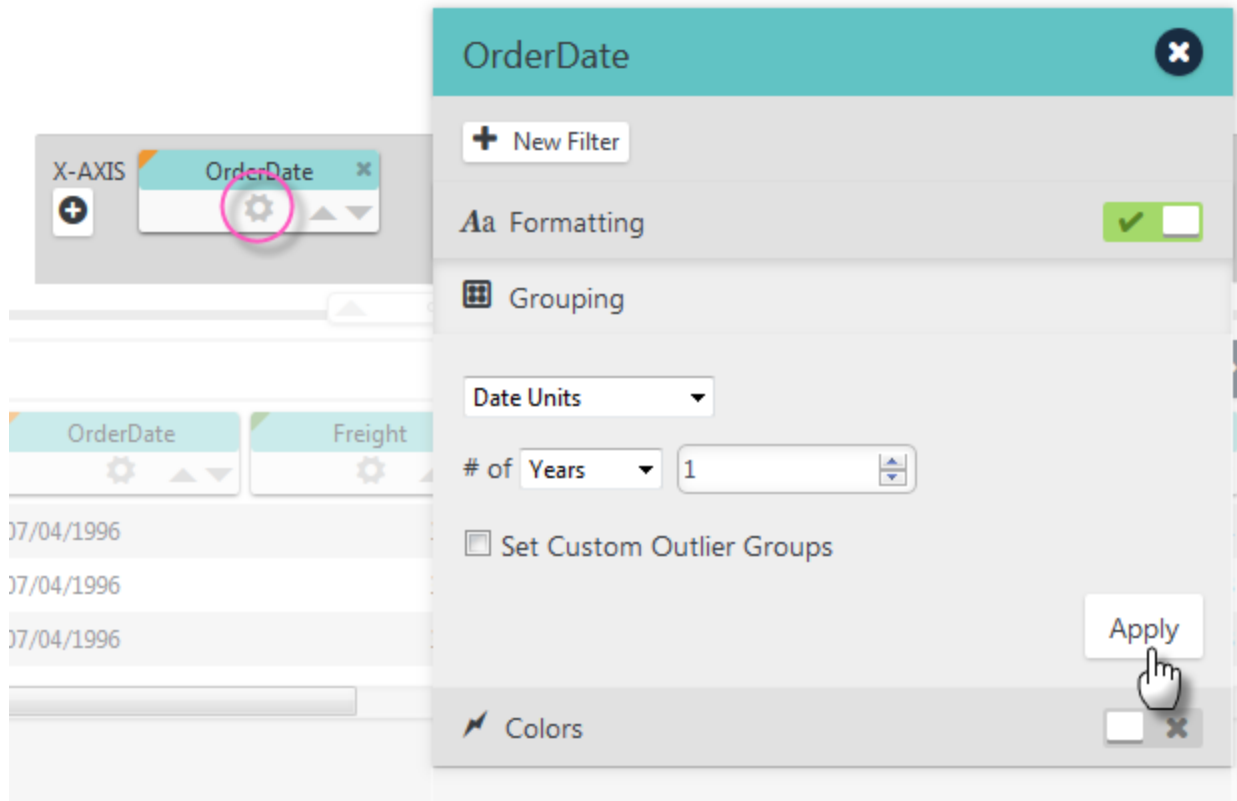
Advanced features discussed here may require Logi Info v12.5. Earlier and later Info versions may not support them. Consult the Release Notes for specific details.

# Thinkspace - Working with Crosstab Charts

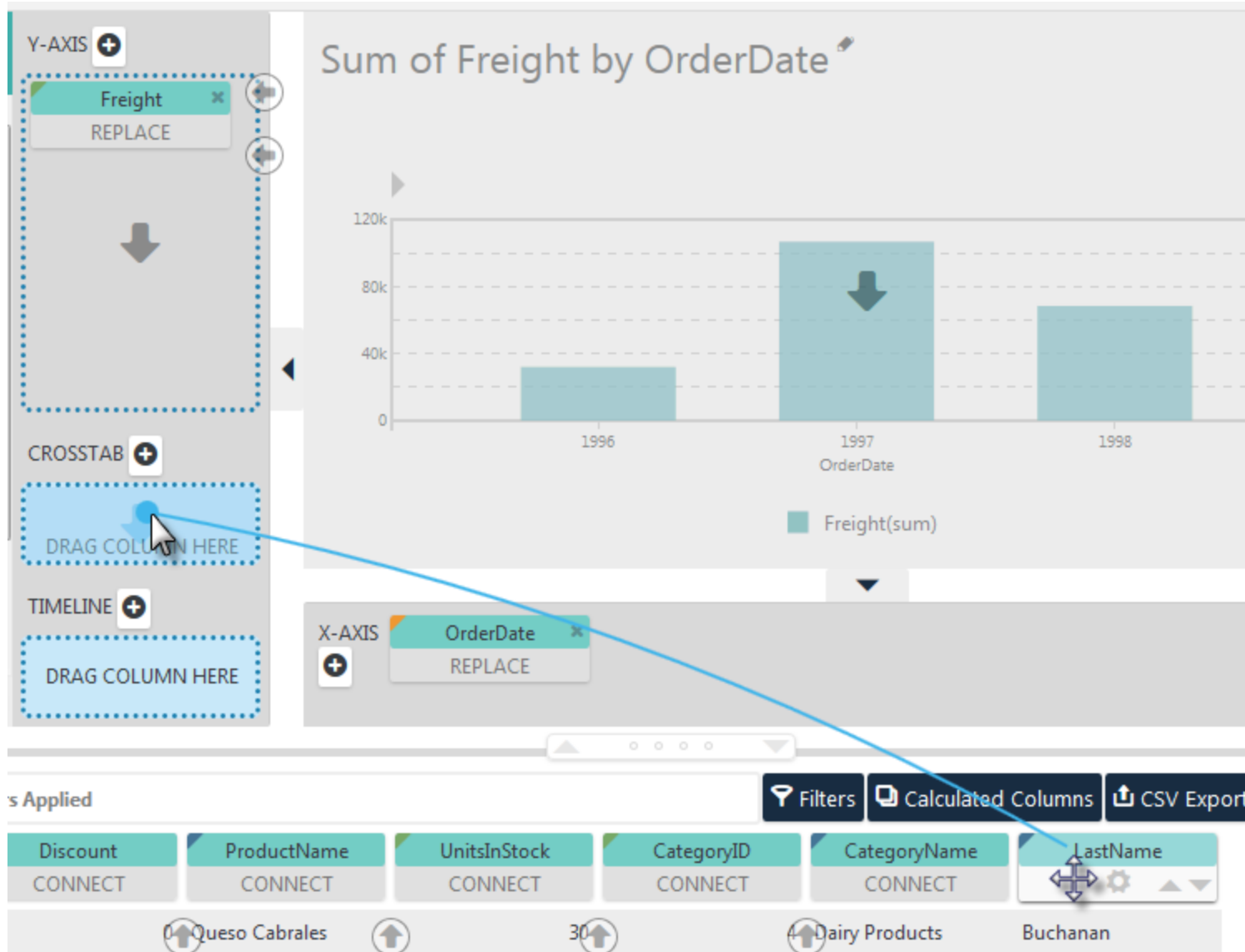
Let's start by visualizing "cross-tabbed" data in a chart.



Our starting point will be a regular Column chart, showing *Freight* by *OrderDate*, as shown above.



Open the *OrderDate* pill using its gear icon, and change its Grouping to use Date Units, with # of Years = 1, as shown above. The chart will be re-drawn accordingly.



Drag and drop the *LastName* pill from the Data Table into the CROSSTAB drop zone, using the Blue Dot Connector, as shown above. The chart will be re-drawn accordingly.

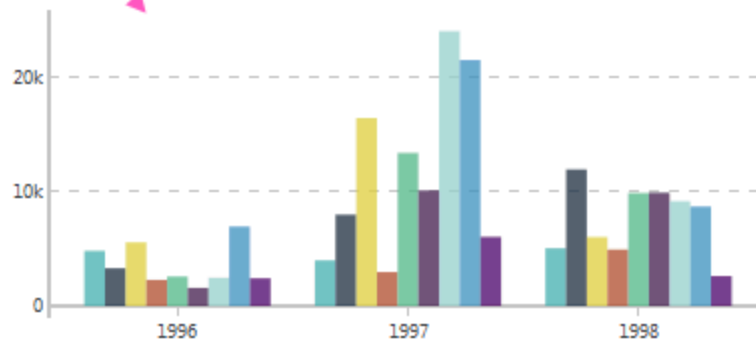
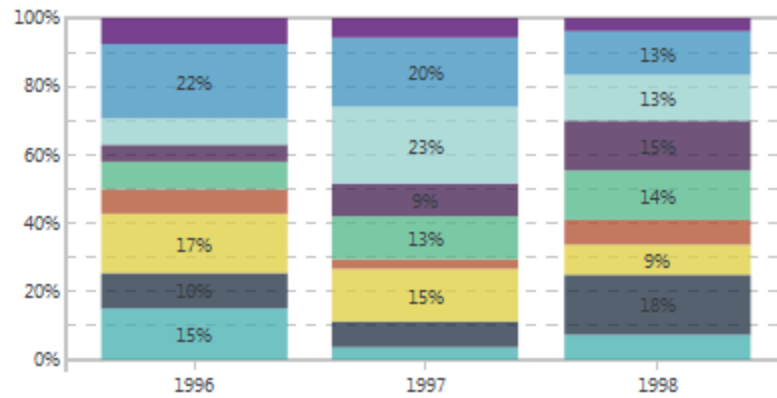
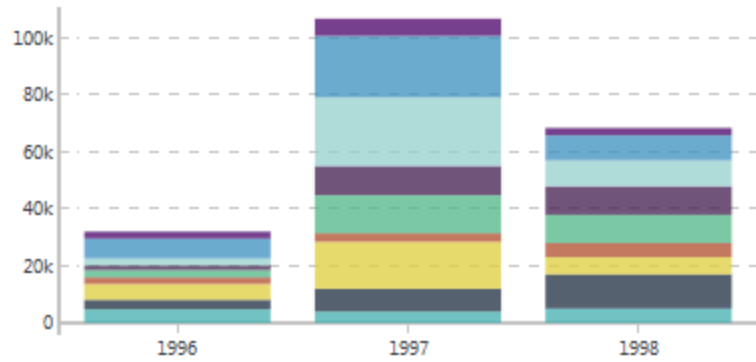
Y-AXIS +

Freight x

sum

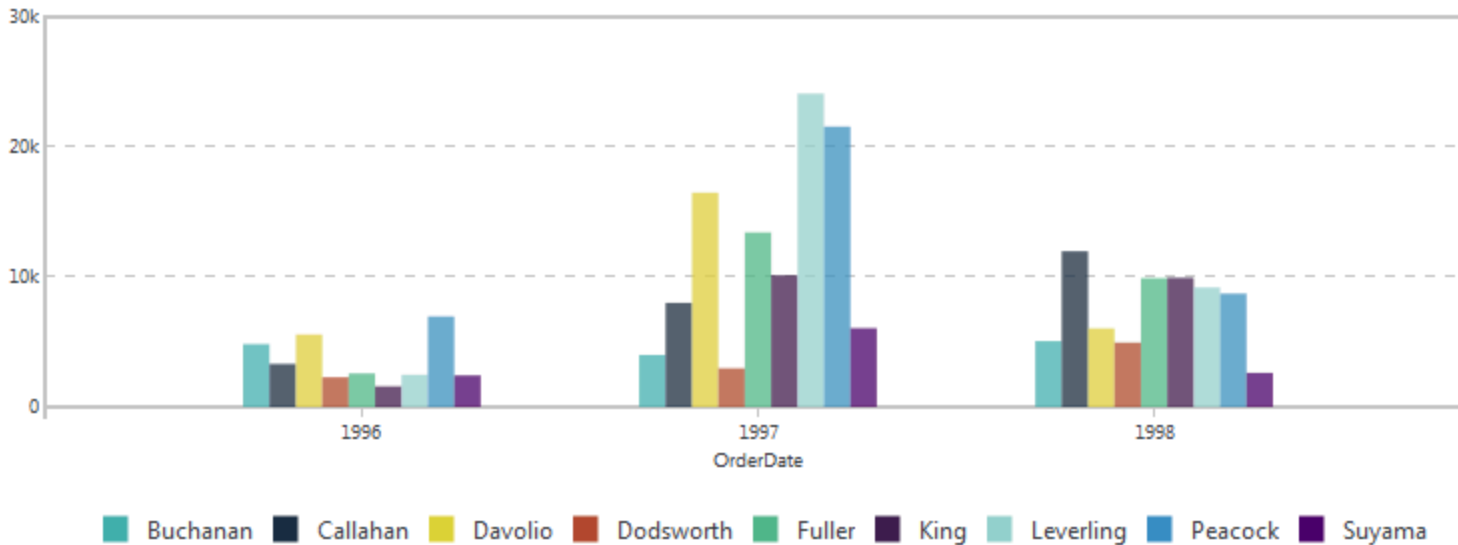
More Options

- Stacked Crosstab Column
- Percentage Crosstab Column
- Grouped Crosstab Column

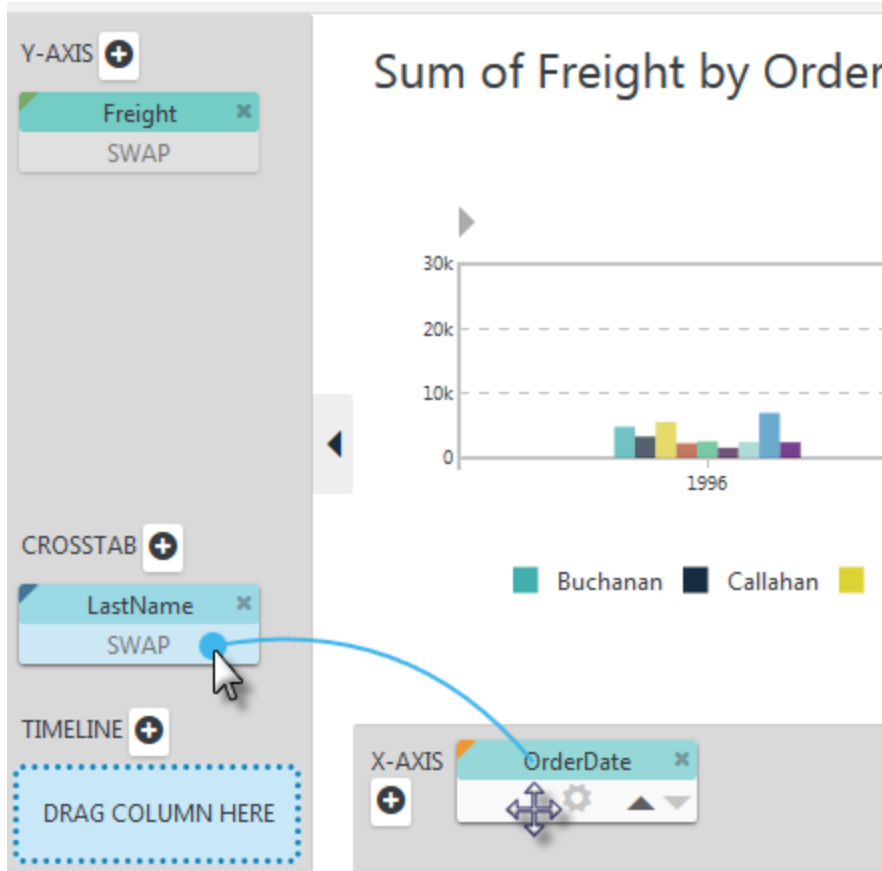


The cross-tabbed data can be shown as stacked (values), stacked (percentages), or grouped side-by-side. When the *LastName* pill was dropped, the option for the selected chart type in the Visualization menu acquired a "More Options" arrow icon, circled above. Click it to see the crosstab charting options and select the **Grouped Crosstab Column** option.

## Sum of Freight by OrderDate over LastName

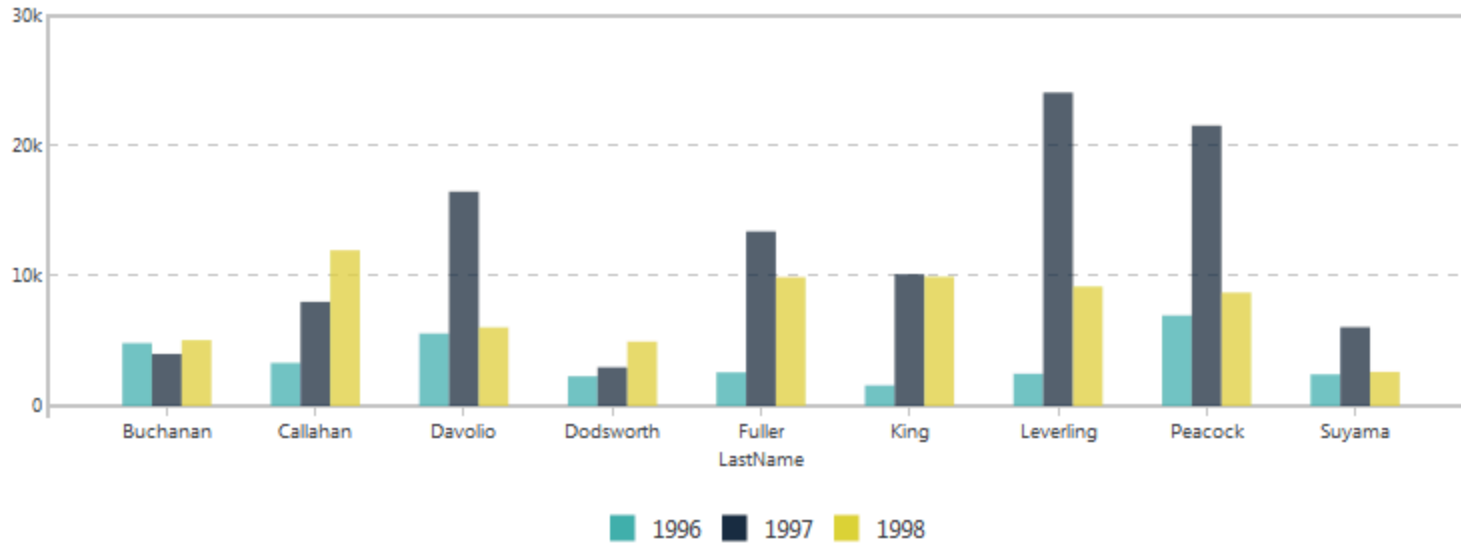


The resulting chart will look like the example above.



If you'd like to view the data a little differently, for example, grouped by *LastName* instead of *OrderDate*, it's easy to do - just drag and SWAP the two column pills, as shown above.

## Sum of Freight by LastName over OrderDate



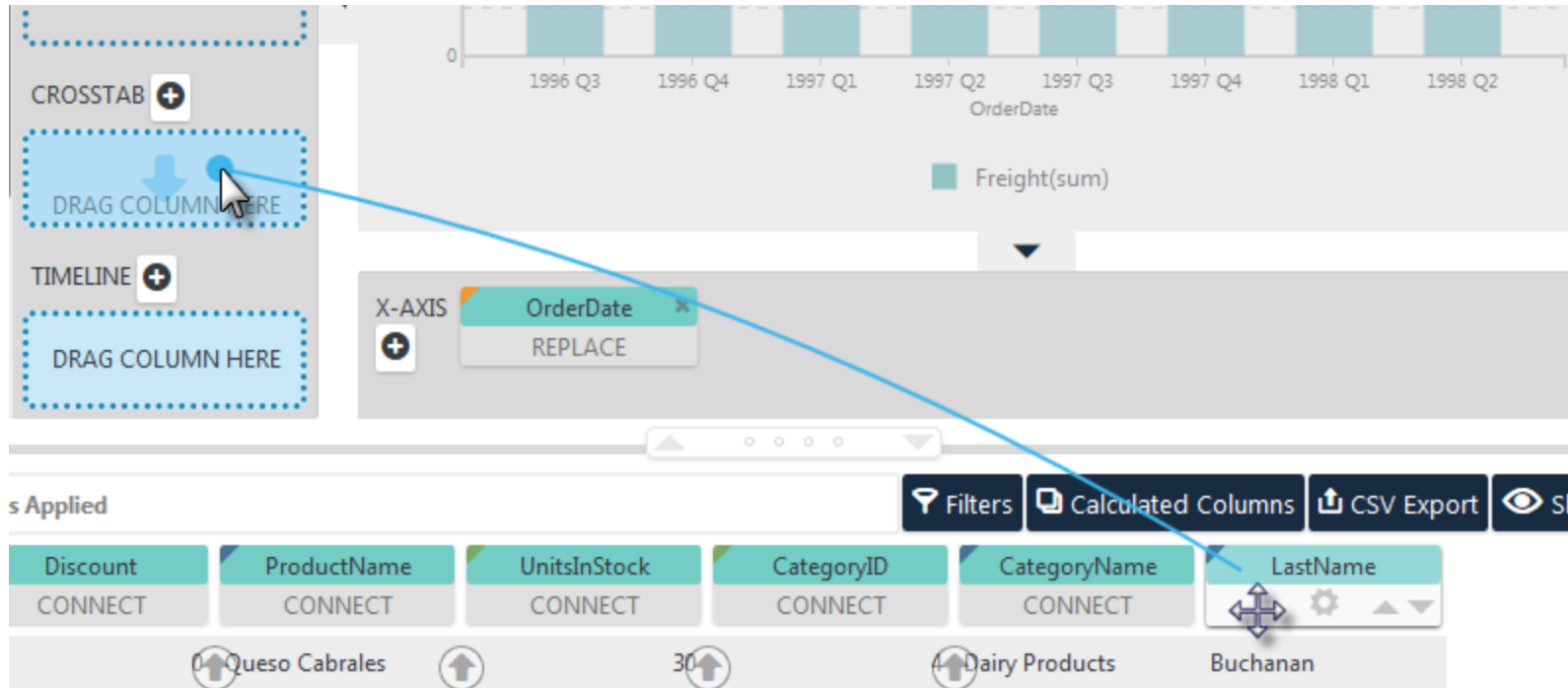
And the resulting chart is shown above.

# Thinkspace - Working with Crosstab Tables

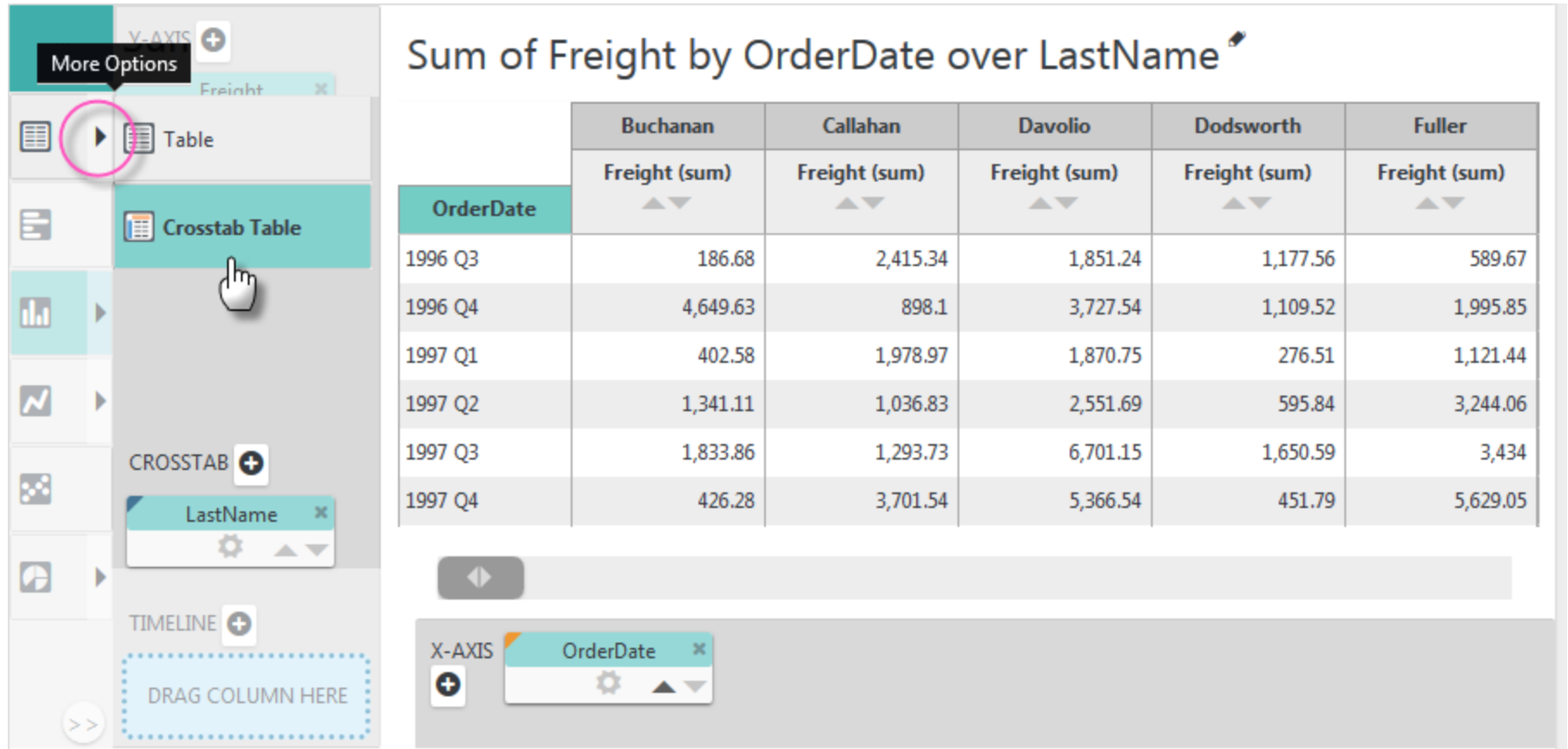
If you'd like to see the data in a Crosstab Table, that's easy to do.



Our starting point once again will be a regular Column chart, showing *Freight* by *OrderDate*, as shown above. This time the Order-Date column's **Grouping** will be set to # of Quarters = 1.



Drag and drop the *LastName* pill from the Data Table into the CROSSTAB drop zone, using the Blue Dot Connector, as shown above. The chart will be re-drawn accordingly.





When the *LastName* pill was dropped, the option for the Table type in the Visualization menu acquired a "More Options" arrow icon, circled above. Click it to see the Table options and select the **Crosstab Table** option. The Column chart will be replaced with a Crosstab Table.

Depending on the width of your browser window, a horizontal scroll bar may appear so that you can scroll the table to additional columns to the right.


## Editing the Crosstab Table

You'll notice that the drop zones were hidden when the Crosstab Table was rendered. How can we edit the table?

Sum of Freight by OrderDate over LastName  


	Buchanan	Callahan	Davolio	Dodsworth	Fuller
OrderDate	Freight (sum)	Freight (sum)	Freight (sum)	Freight (sum)	Freight (sum)
1996 Q3	186.68	2,415.34	1,851.24	1,177.56	589.6
1996 Q4	4,649.63	898.1	1,995.8	1,121.4	1,995.8
1997 Q1	78.97	36.83	1,121.4	1,121.4	1,121.4
1997 Q2	36.83	3,244.0	3,244.0	3,244.0	3,244.0
1997 Q3	1,833.86	1,293.7	6,701.15	1,650	1,650
1997 Q4	436.28	3,701.54	5,366.54	451	451
1998 Q1	81	81	81	81	81
1998 Q2	1.1	1.1	1.1	1.1	1.1

**Column Headers**

LastName  ▲ ▼

Column Summary  ✕


**Row Headers**

OrderDate  ▲ ▼

Custom

Row Summary  ✕

**Values**

Freight 

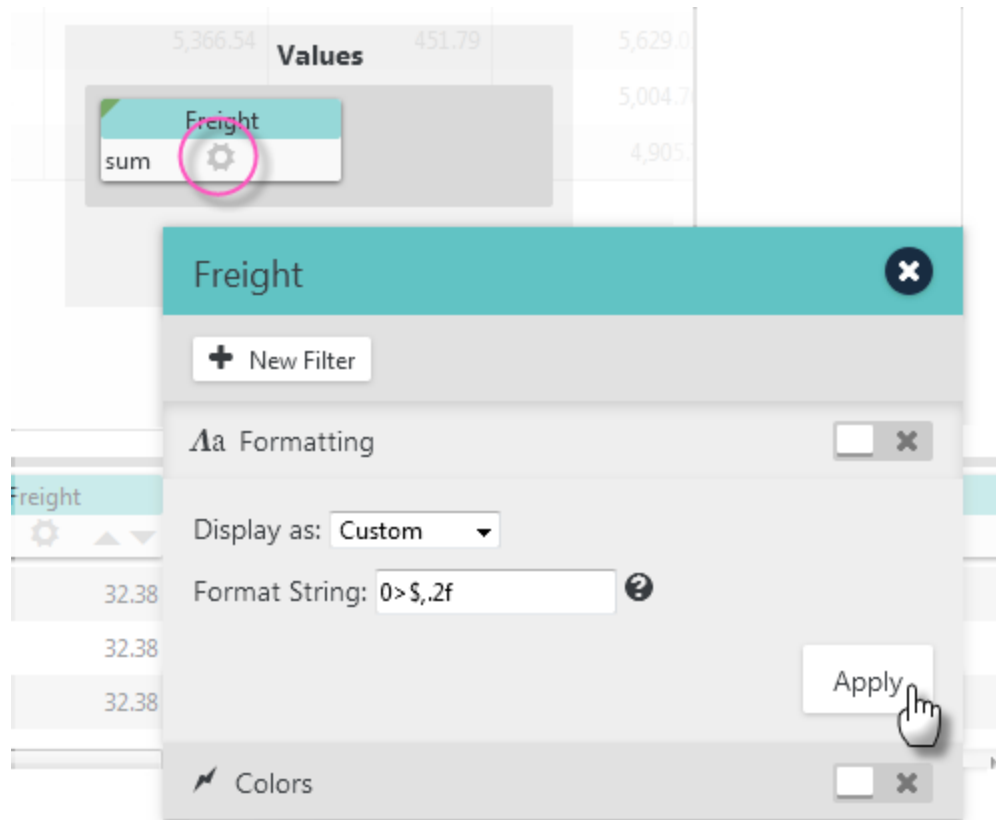
sum

Click to swap column and row header pills

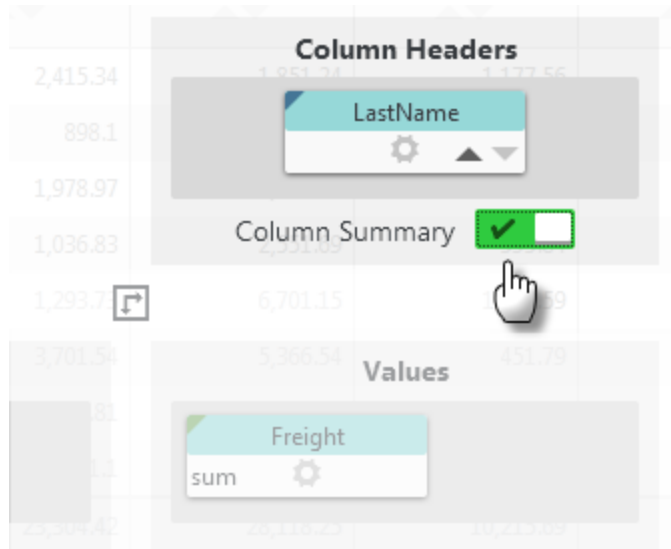
Click to toggle row summaries

Click to toggle column summaries

Click the **Settings** icon in the upper right-hand corner, circled above. A panel with column pills and controls, like those above, will slide open. The pills' Sorting and gear menu icons can be clicked to sort, format, and filter the data, as usual. Let's format the *Freight* column values.



Click the *Freight* pill's gear icon and select the Formatting option. Select the Custom format display and set the format string to `0>$.2f` as shown above. This will format the values as currency and right-justify them.



Let's also add a **Column Summary**, by clicking the button shown above, that will give us the totals in a row across the bottom of the table. Click **Apply** to save the changes and hide the panel.

## Sum of Freight by OrderDate over LastName



	Buchanan	Callahan	Davolio	Dodsworth	Fuller
	Freight (sum) ▲▼	Freight (sum) ▲▼	Freight (sum) ▲▼	Freight (sum) ▲▼	Freight (sum) ▲▼
OrderDate					
1996 Q3	\$186.68	\$2,415.34	\$1,851.24	\$1,177.56	\$589.67
1996 Q4	\$4,649.63	\$898.10	\$3,727.54	\$1,109.52	\$1,995.85
1997 Q1	\$402.58	\$1,978.97	\$1,870.75	\$276.51	\$1,121.44
1997 Q2	\$1,341.11	\$1,036.83	\$2,551.69	\$595.84	\$3,244.06
1997 Q3	\$1,833.86	\$1,293.73	\$6,701.15	\$1,650.59	\$3,434.00
1997 Q4	\$426.28	\$3,701.54	\$5,366.54	\$451.79	\$5,629.05
1998 Q1	\$5,058.34	\$9,248.81	\$4,018.01	\$2,517.54	\$5,004.76
1998 Q2	\$8.80	\$2,731.10	\$2,031.33	\$2,436.34	\$4,905.70
<b>SUMMARY</b>	\$13,907.28	\$23,304.42	\$28,118.25	\$10,215.69	\$25,924.53

The resulting Crosstab Table looks like the example shown above.

## Adding Multiple Column Headers

It's easy to produce a multi-level Crosstab Table, by adding more column header values:

The screenshot shows a crosstab editing panel with the following components:

- Column Headers:** A pill for 'LastName' with the function 'REPLACE' selected.
- Values:** A pill for 'Freight' with the function 'sum' selected.
- Column Summary:** A green checkmark and a checkbox.
- Data Table:** A table with columns for 'Freight (sum)' and rows for various values.
- Bottom Panel:** A row of pills for 'OrderDate', 'Freight', 'Country', and 'Pr'.

The screenshot shows a crosstab editing panel with the following components:

- Column Headers:** A pill for 'LastName' with a gear icon.
- Values:** Two pills for 'Freight', one with 'sum' and one with 'avg' selected.
- Column Summary:** A green checkmark and a checkbox.
- Data Table:** A table with columns for 'Freight (sum)', 'Freight (avg)', and 'Freight (sum)'.
- Bottom Panel:** A row of pills for 'OrderDate', 'Freight', and 'Country'.

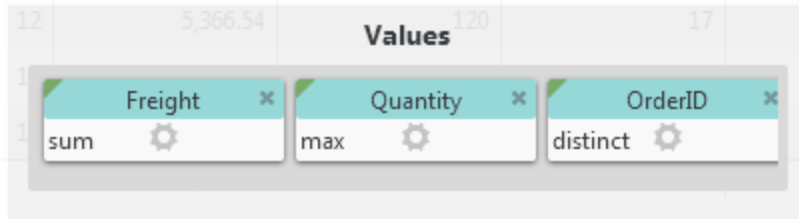
Different aggregations

Open the crosstab editing panel again and drag-and-drop the *Freight* column pill from the Data Table into the Values drop zone, as shown above, left. Once in the drop zone, this second pill has automatically been given a *different aggregating function* than the first pill. You can, of course, select the aggregating function of your choice by clicking the function name. Click **Apply** to save the changes and hide the panel.

## Avg of Freight and Sum of Freight by OrderDate over LastName

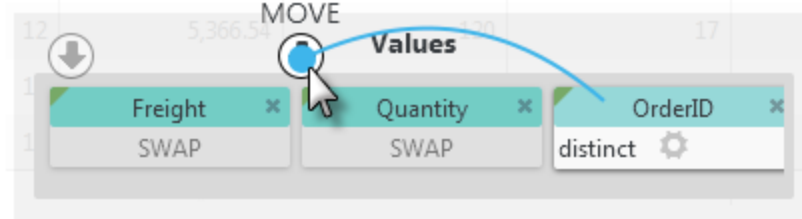
OrderDate	Buchanan		Callahan		Davolio	
	Freight (avg) ▲▼	Freight (sum) ▲▼	Freight (avg) ▲▼	Freight (sum) ▲▼	Freight (avg) ▲▼	Freight (sum) ▲▼
1996 Q3	\$18.67	\$186.68	\$86.26	\$2,415.34	\$66.12	\$1,851.24
1996 Q4	\$273.51	\$4,649.63	\$42.77	\$898.10	\$88.75	\$3,727.54
1997 Q1	\$44.73	\$402.58	\$46.02	\$1,978.97	\$69.29	\$1,870.75
1997 Q2	\$111.76	\$1,341.11	\$49.37	\$1,036.83	\$85.06	\$2,551.69
1997 Q3	\$101.88	\$1,833.86	\$46.20	\$1,293.73	\$131.40	\$6,701.15
1997 Q4	\$30.45	\$426.28	\$115.67	\$3,701.54	\$111.80	\$5,366.54
1998 Q1	\$140.51	\$5,058.34	\$168.16	\$9,248.81	\$61.82	\$4,018.01
1998 Q2	\$8.80	\$8.80	\$85.35	\$2,731.10	\$37.62	\$2,031.33
<b>SUMMARY</b>	\$118.87	\$13,907.28	\$89.63	\$23,304.42	\$81.50	\$28,118.25

The resulting Crosstab Table now includes separate columns for the two different aggregations of *Freight* values, as shown above.



Buchanan		
Freight (sum)	Quantity (max)	OrderID (distinct)
186.68	60	4
4,649.63	80	7

Multiple Values



Buchanan		
Freight (sum)	OrderID (distinct)	Quantity (max)
186.68	4	60
4,649.63	7	80

Drag pill to re-order Values in table

Of course, you can also drop *different* column pills into the Values drop zone, as shown above, and re-order them by using the Blue Dot Connector.

## Adding Multiple Row Headers

We can also produce a multi-level Crosstab Table by adding more row header values with different groupings:

The screenshot displays a data table with columns for OrderDate, OrderDate, and numerical values. Three editing panels are overlaid on the table:

- Row Headers:** Contains two 'OrderDate' pills. The first pill is grouped by 'Quarters' and the second by 'Months'. A pink arrow points to the first pill with the text 'Set Grouping to "Date Units", # of Quarters = 1'. Another pink arrow points to the second pill with the text 'Set Grouping to "Date Units", # of Months = 1'.
- Column Headers:** Contains a 'LastName' pill with a gear icon and a dropdown arrow.
- Values:** Contains a 'Freight' pill with a gear icon and a dropdown arrow.

Other visible elements include a 'Column Summary' panel with a close button and a 'Row Summary' panel with a close button.

For example, open the editing panel again and drag-and-drop an *OrderDate* column pill from the Data Table into the Row Headers drop zone, as shown above. You may need to set the Grouping of the existing *OrderDate* pill to Date Units, # of Quarters = 1 before you can drop the second pill there. When you drop the second pill there, it will be automatically grouped differently from the first one. Click its gear icon to check its Grouping configuration and, if it's not already so, set it to Date Units, # of Months = 1. Click **Apply** to save the changes and hide the panel.

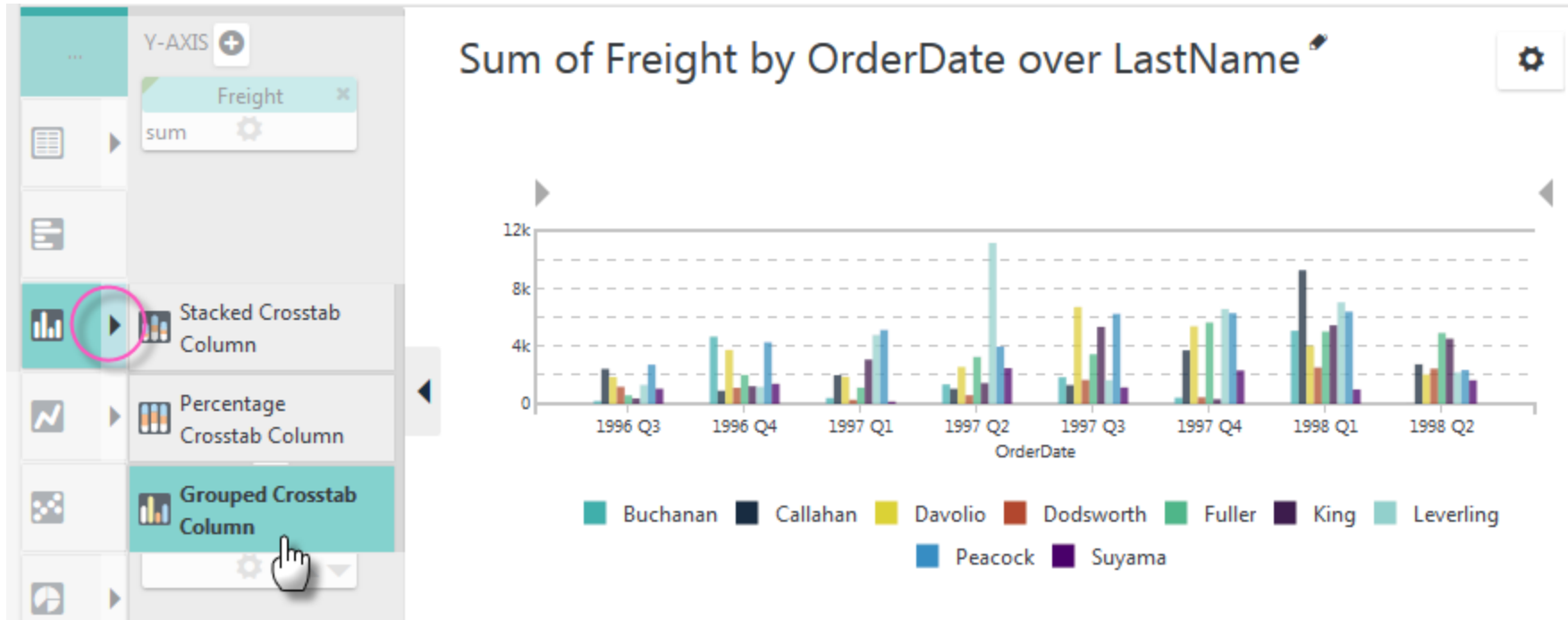
## Sum of Freight by OrderDate and OrderDate over La...

		Buchanan	Callahan	Davolio	Dodsworth
		Freight (sum)	Freight (sum)	Freight (sum)	Freight (sum)
OrderDate	OrderDate	▲▼	▲▼	▲▼	▲▼
1996 Q3	Jul 1996	175.2	277.45	421.53	1,177.56
	Aug 1996		1,239.83	643.5	
	Sep 1996	11.48	898.06	786.21	
1996 Q4	Oct 1996	36.34	26.58	823.23	1,081.54
	Nov 1996	924.21	127.88	1,264.24	
	Dec 1996	3,689.08	743.64	1,640.07	27.98
1997 Q1	Jan 1997		638.39	336.65	70.95
	Feb 1997		1,141.06	496.55	
	Mar 1997	402.58	199.52	1,037.55	205.56
1997 Q2	Apr 1997		140.91	9.98	51.23
	May 1997	713.79	756.2	2,001.59	9.74

The resulting Crosstab Table now includes separate rows for each month, within each quarter, as shown above.

## Switch to Crosstab Chart

You can also switch between a Crosstab Table and a crosstab chart pretty easily:



Just open the Visualizations menu and select the crosstab chart of your choice. In the example above, a **Grouped Crosstab Column** chart has been selected.

Other useful Discovery Module v3.x topics include: "Thinkspace Columns" on page 268, and "Thinkspace Charts" on page 304.

# SuperWidgets

SuperWidgets provide the ability to easily integrate visualizations and Dashboards, built using Discovery Module technology such as Dataviews and the Thinkspace, into Logi Info and other applications.

The following topics discuss the use of SuperWidgets in Logi Info:

- [Launching the SuperWidget Authoring Tool](#)
- [Managing Widgets](#)
- [Creating Widgets](#)
- [Creating HTML Widgets](#)
- [Creating Dashboards](#)
- [Adding Filtering Widgets to the Dashboard](#)
- [Using Widgets in Logi Info Apps](#)
- [Using Widgets in Non-Logi Apps](#)

## About SuperWidgets



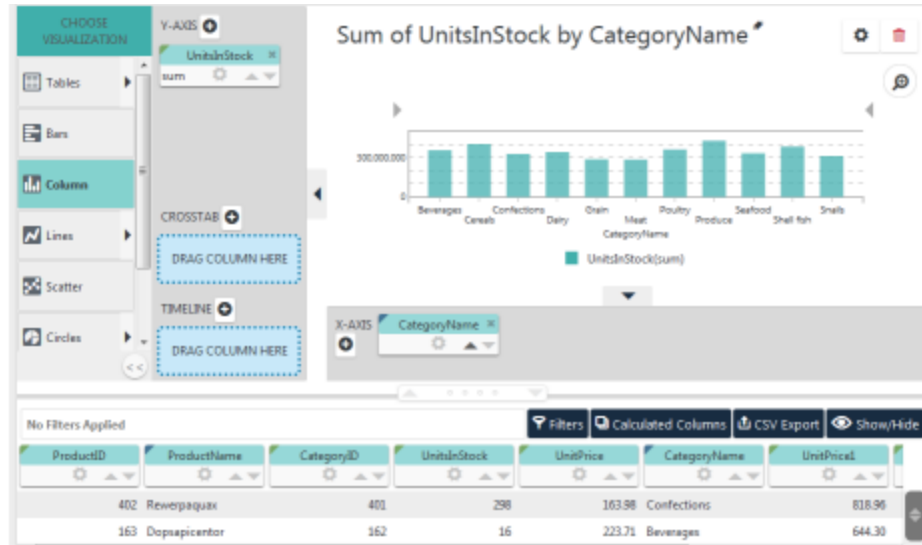
SuperWidgets have been deprecated in Logi Info v12.6. SuperWidgets are client-side components, such as charts and Dashboards, that can be used and re-used in applications.

Don't confuse SuperWidgets with Logi Info's legacy Widget definitions. SuperWidgets use a completely different technology. As client-side components, SuperWidgets don't need to use iFrames for integration into applications. They use Dataviews (see "Dataview Authoring" on page 414) as their data sources and use the Thinkspace (see "Use the Thinkspace - 3.x" on page 250) for creating and editing them. SuperWidgets work with these browsers: Chrome 26+, IE 11+, Edge, Firefox 20+, and Safari 7+.

Sum of UnitsInStock by CategoryName

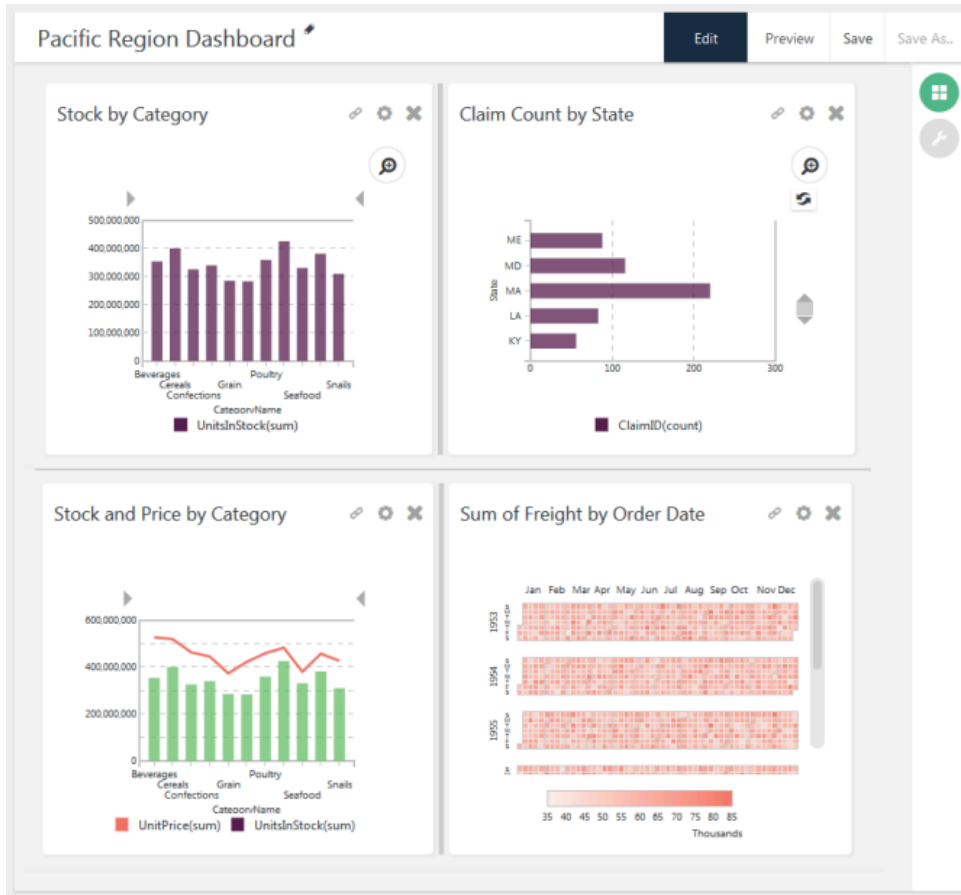


SuperWidget  
standalone visualization



SuperWidget  
visualization  
with Thinkspace controls

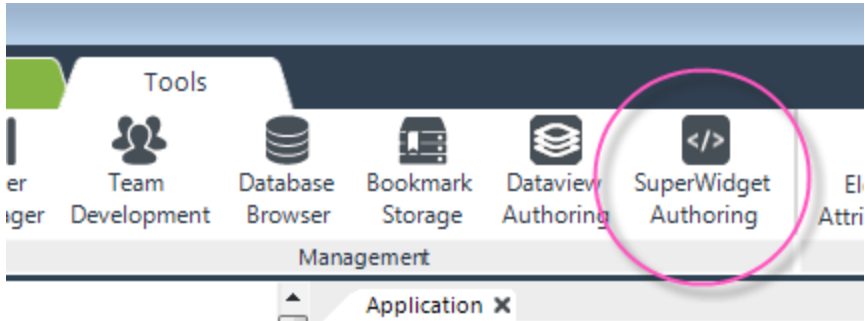
SuperWidgets can be saved and integrated into applications as standalone visualizations that can be zoomed, drilled-into, and exported, as shown above left, or as visualizations in a Thinkspace, with all its customization controls included.



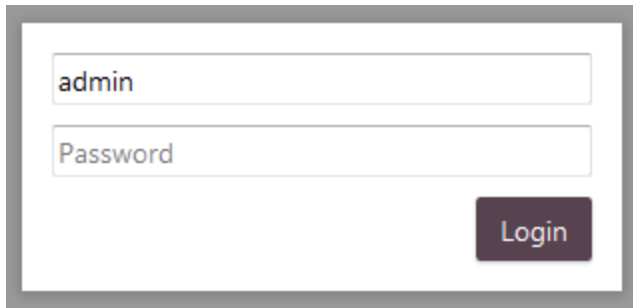
Visualization widgets can be combined into Dashboards that are themselves saved as widgets, as shown above, and that can be presented in applications. Visualizations in the Dashboards are completely interactive.

# Launching the SuperWidget Authoring Tool

You launch the SuperWidget Authoring tool from within Logi Studio:



On Studio's Tools tab, you'll find the **SuperWidget Authoring** menu item, circled above. This menu item will only be visible if Discovery Module v3.0+ / Logi Platform Services has been installed and you have an appropriate license. The tool will open in your default browser:



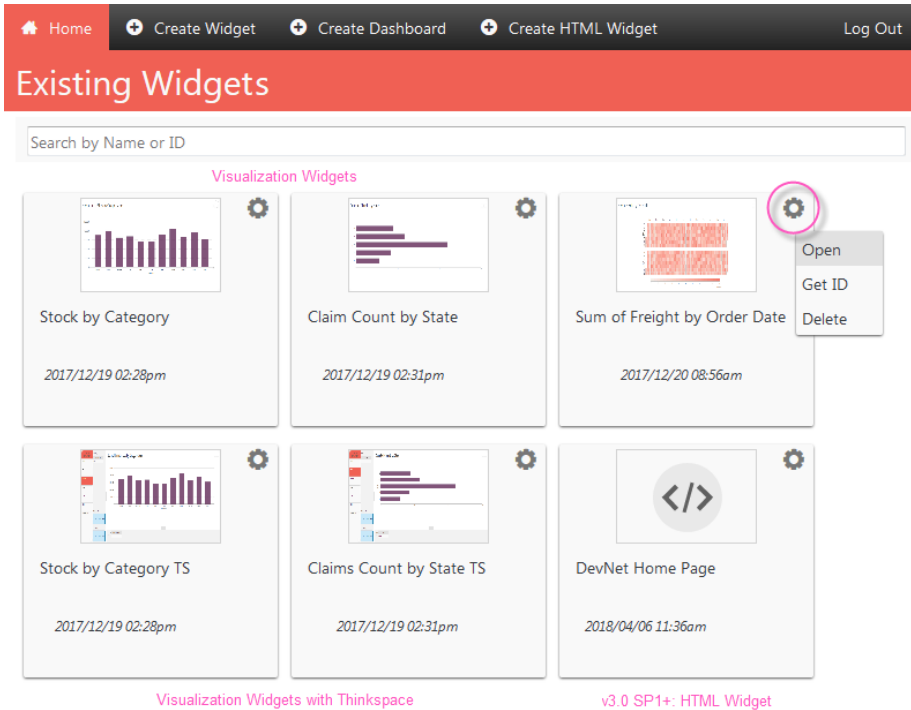
You'll be presented with the *Login* page, shown above. Enter either the "admin" password that was established when Discovery Module v3.0+ / Logi Platform Services was installed, or similar credentials, and click **Login** to access the tool. You can also reach the tool outside of Studio, by entering the URL:

```
http://localhost:3000/analysis-components/assets/widgets/logiwizard.html#/main
```

in your browser (assuming a Discovery Module 3.0+ / Logi Platform Services installation with default parameters).

# Managing Widgets

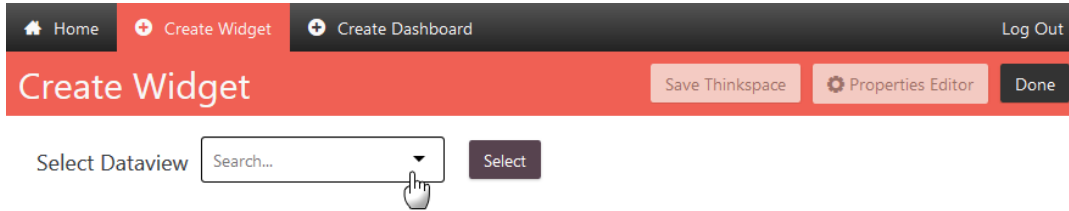
Existing widgets are displayed as "tiles", as shown below, with a thumbnail image of the visualization. Each tile has a gear icon, circled below, that presents a menu when clicked. The menu items allow you to open the widget for editing, to get its ID and embedding code (discussed in detail in "Creating Widgets" on page 382), and to delete it. Notice that there are several kinds of tiles being displayed. The first two are a visualization and a visualization plus its Thinkspace controls. You can see examples of this by looking at the left tiles below: the *Stock by Category* tile is the visualization and, below it, the *Stock by Category TS* tile is the same visualization with the Thinkspace. Adding the "TS" to the widget title was simply a customization for clarity, not something that's automatic.



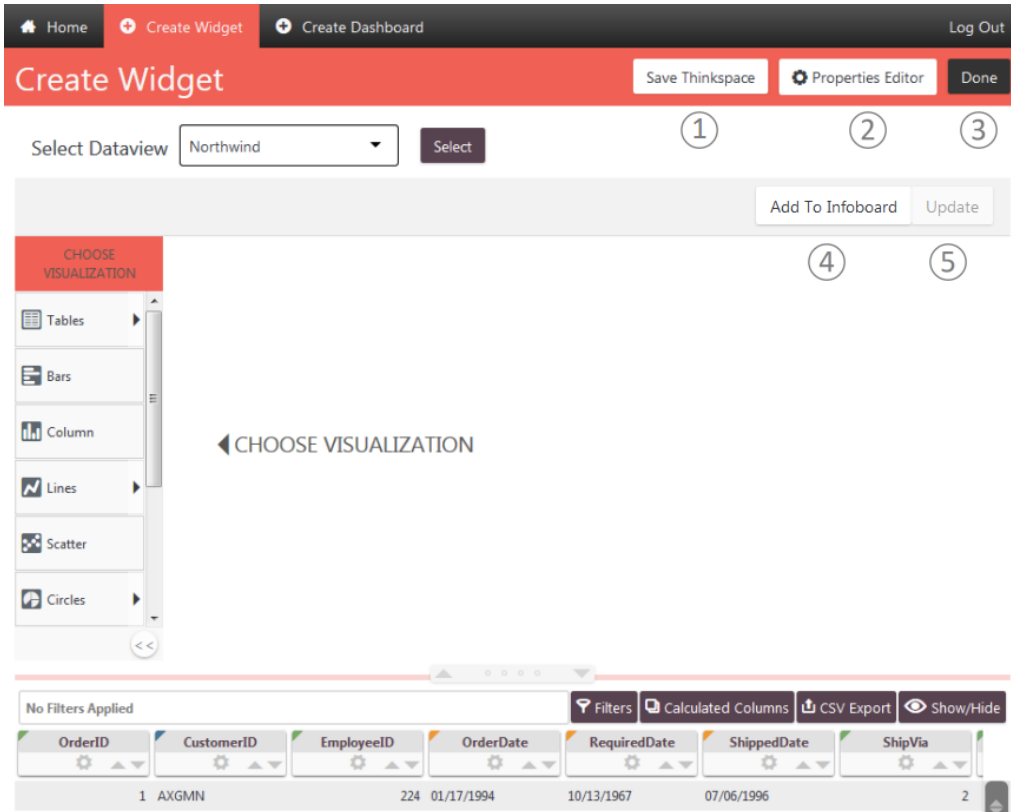
Another kind of tile represents an HTML Widget, which lets you include content using an iFrame. Widgets that will be directly embedded into an application can be any variety, with or without the Thinkspace. But widgets that will be used in a Dashboard *cannot* have Thinkspace controls.

# Creating Widgets

To create a new widget, click the **Create Widget** tab:

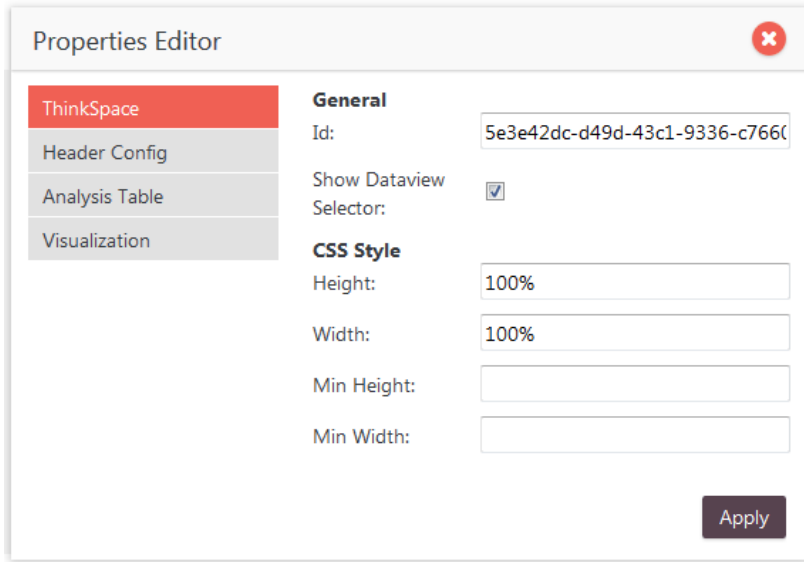


Your first task is to select a Dataview to work with. Pick one from the list and click **Select**.



The Thinkspace tool will open, with the data from the Dataview you selected, as shown above. Detailed instructions for using the Thinkspace can be found in "Use the Thinkspace - 3.x" on page 250. In addition to the Dataview selection controls, this interface includes several special buttons.

1. **Save Thinkspace** - Click to save your work. The visualization (with the Thinkspace controls) will be saved and appear as a tile in the Home page.
2. **Properties Editor** - Click to edit the widget properties, including title, header, and styling, and to control the visibility of individual Thinkspace controls:



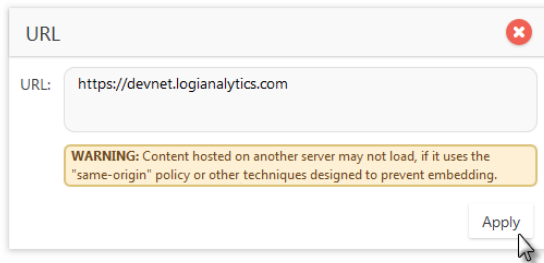
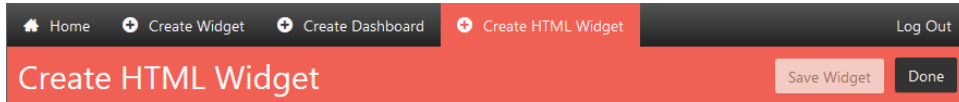
3. **Done** - Click to return to the Home page.
4. **Add to Infoboard** - Click to save the visualization (without the Thinkspace controls) and it will appear as a tile in the Home page. These visualizations are available for use in creating a Dashboard.
5. **Update** - Click to save your work when you've edited a visualization.

Like all objects created using Discovery / Logi Platform Services, widgets are saved in the platform database.

# Creating HTML Widgets

An **HTML Widget** allows you to include content *not* created with Logi Platform Services in a widget that uses an iFrame.

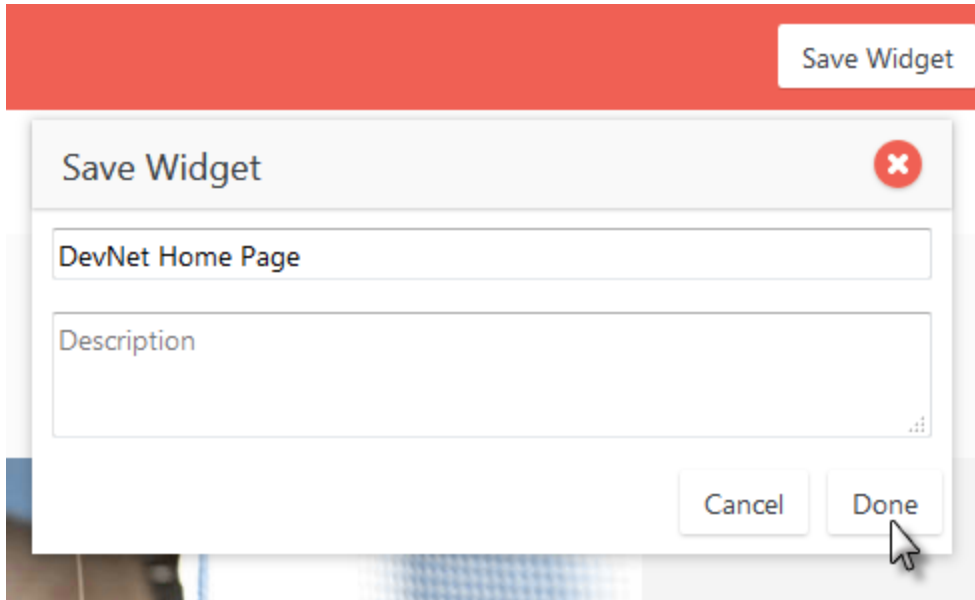
To create a new HTML widget, click the **Create HTML Widget** tab:



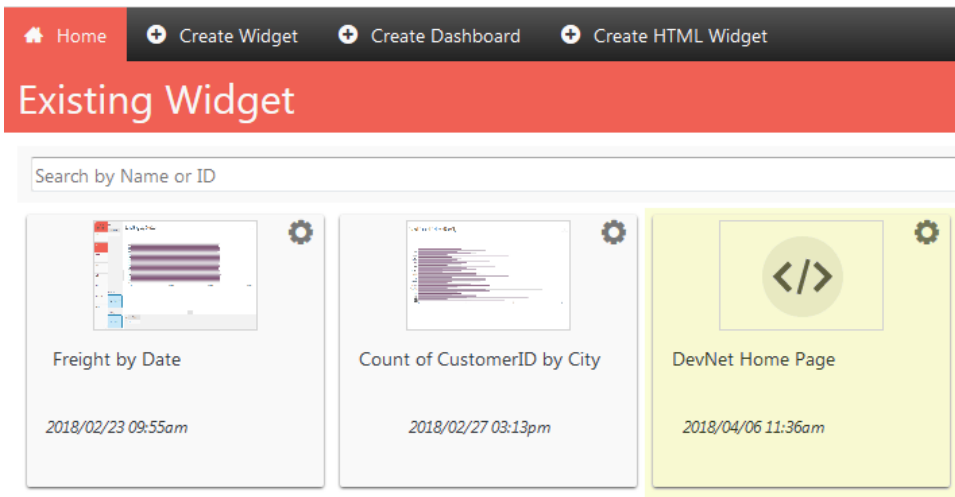
Enter the URL of the content you want to include in the widget, as shown above, and click **Apply**. The tab area should fill with the content.



Some content may be hosted with a *same-origin policy*, which will prevent it from being included in this fashion.



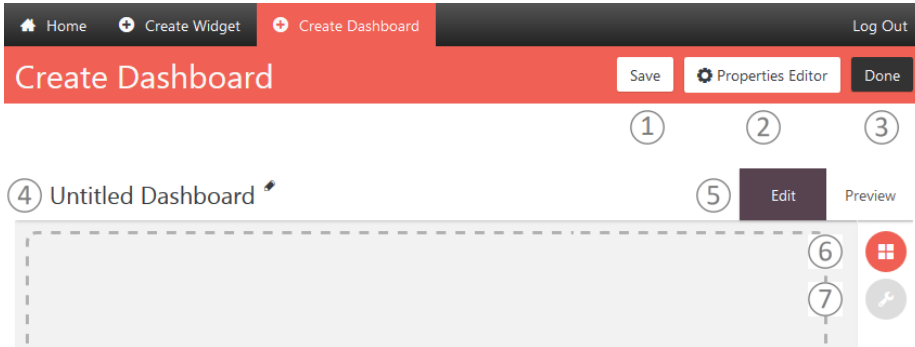
Click **Save Widget**, provide a title and, optionally, a description, and click **Done**, as shown above.



When you return to the Home tab, you'll see that your new HTML Widget has been added to it, as shown above. Like other objects created using Discovery/Logi Services, HTML Widgets are saved in the platform database.

# Creating Dashboards

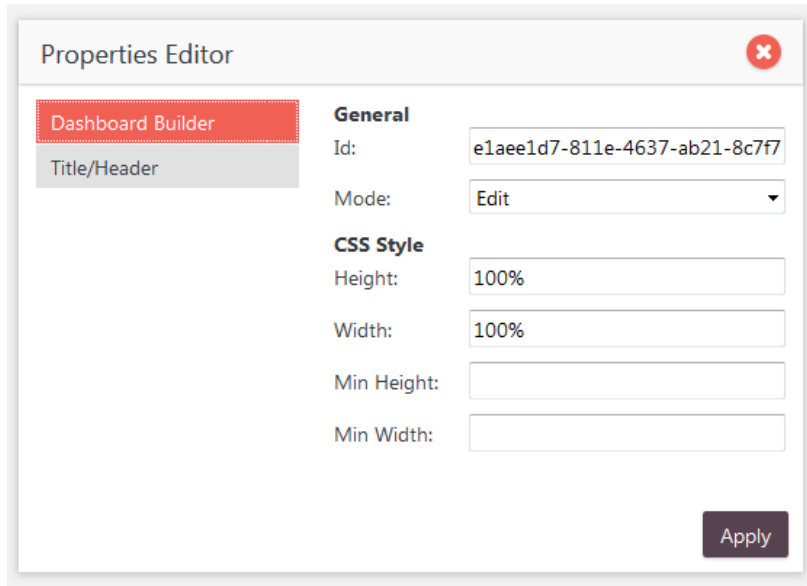
To create a new Dashboard, click the **Create Dashboard** tab:





The controls available include:

1. **Save** - Click to save your work. The Dashboard itself will be saved as a widget and appear as a tile in the Home page.

2. **Properties Editor** - Click to edit the widget properties, including title, header, and styling:

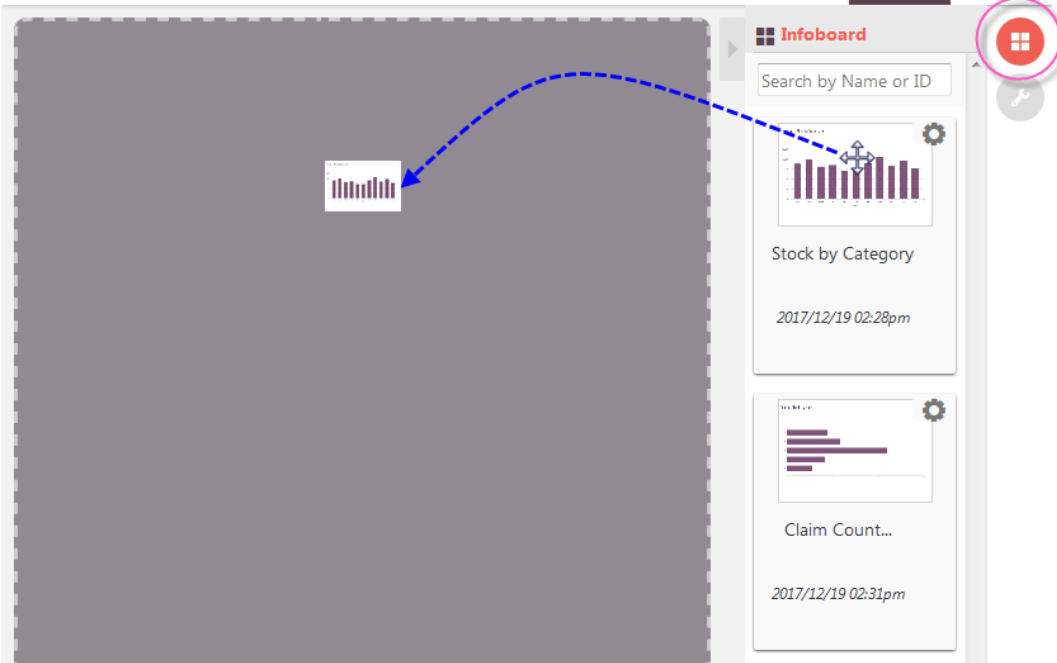


3. **Done** - Click to return to the Home page.
4. **Title** - Click the "pencil" icon to edit the default title.
5. **Edit/Preview** - Click to switch modes. In Preview mode, editing controls are not displayed.
6. **Open Infoboard** - (Edit mode) The Infoboard, a slide-open panel revealed when you click the  icon, is a gallery of the available widgets.
7. **Open Filter Widgets** - (Edit mode) A slide-open panel revealed when you click the  icon, is a gallery of the available standard widgets.

## Adding Widgets to the Dashboard

To add your visualization or HTML widgets to a new Dashboard, open the Infoboard and find the widget you want to use.

Untitled Dashboard 

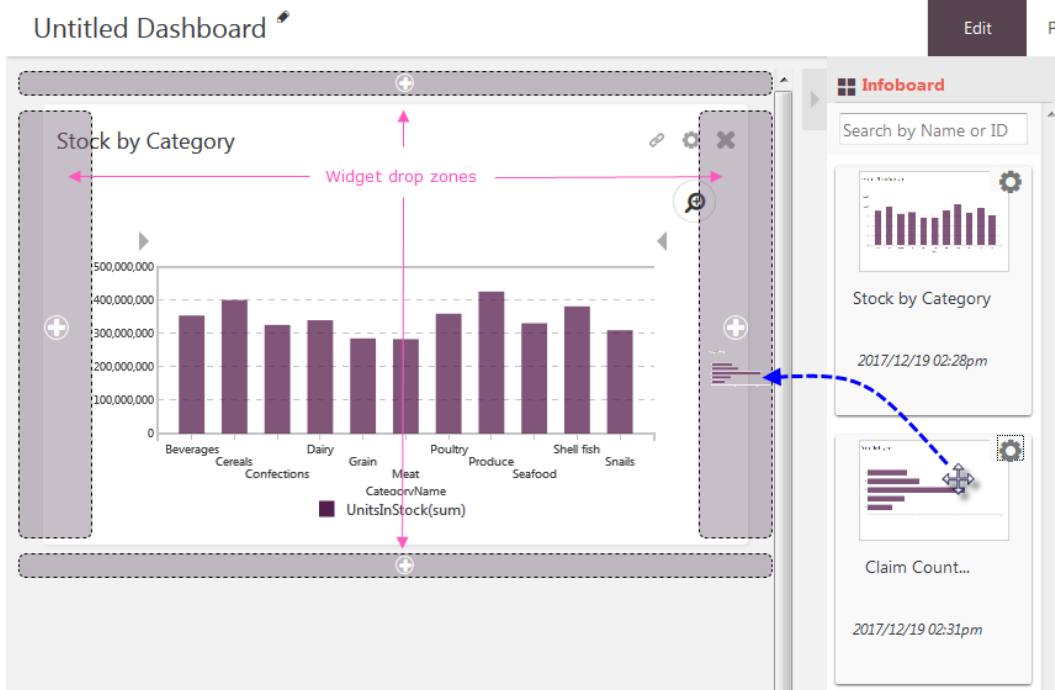


Drag-and-drop the widget from the Infoboard onto the Dashboard, as shown above.

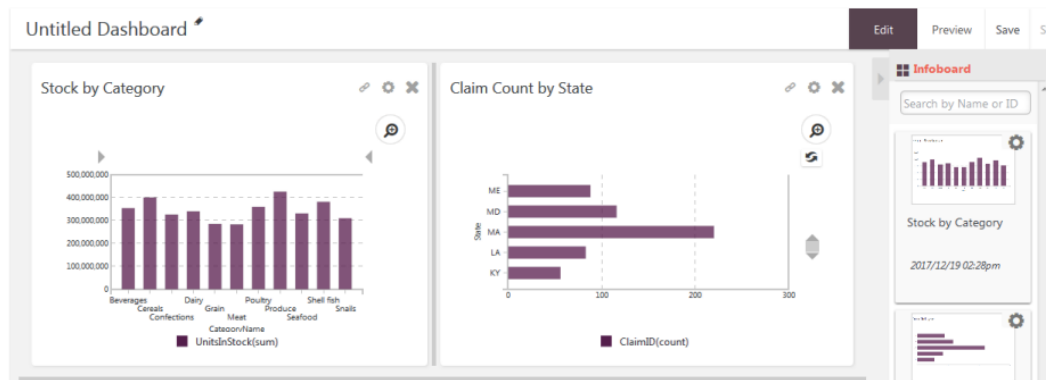


Once dropped, the widget expands, gets its data, and renders its visualization, as shown above. Three icons appear on the widget in Edit mode that let you set filtering (more about this later), edit/rename the widget, and remove the widget from the Dashboard. These icons do not appear in Preview mode or at runtime.

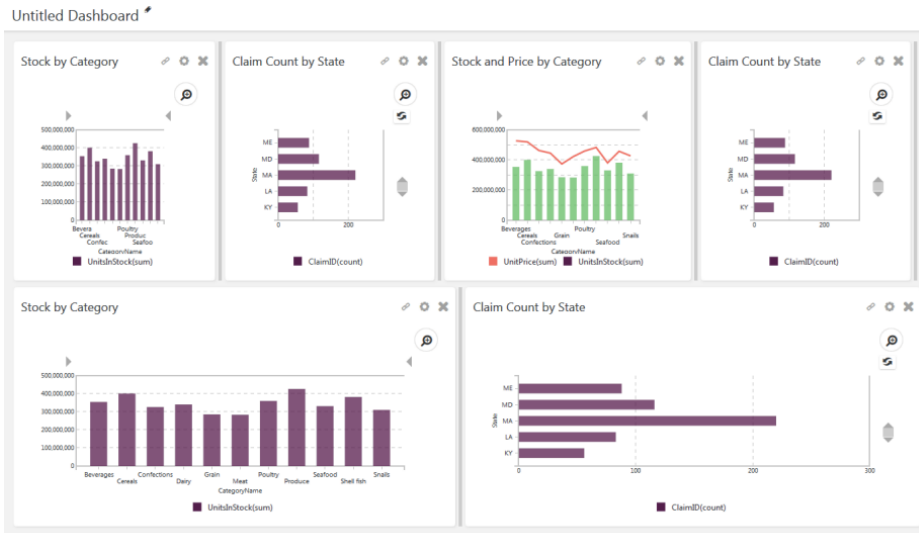
The widgets in the Infoboard have their own gear icons, with menu options that let you open the widget in the Thinkspace, for editing, or delete it entirely from your collection of widgets. Find the next widget you want to add to the Dashboard. You can use the same widget multiple times in the same Dashboard. For example, one instance could be normal and the other zoomed in on specific data.



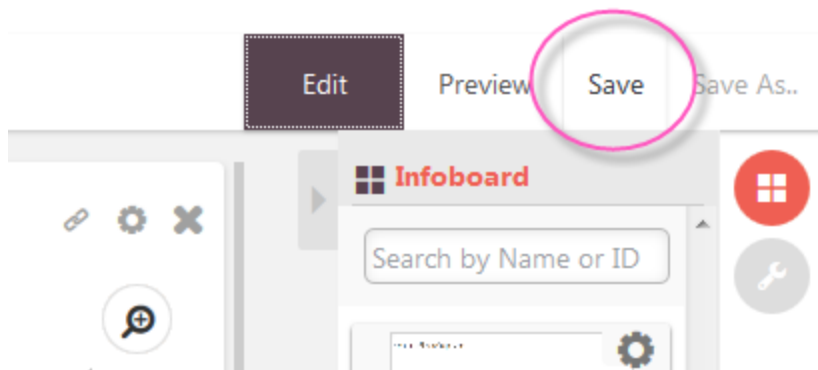
Drag the next widget onto the Dashboard and "drop zones" will appear, as shown above. Drop the widget onto one of them to place it above, below, left of, or right of the first widget.



The result is shown above. You can continue to add widgets as desired and they'll be automatically scaled to fit the space. Due to space constraints, you can only place four widgets side-by-side across the Dashboard.



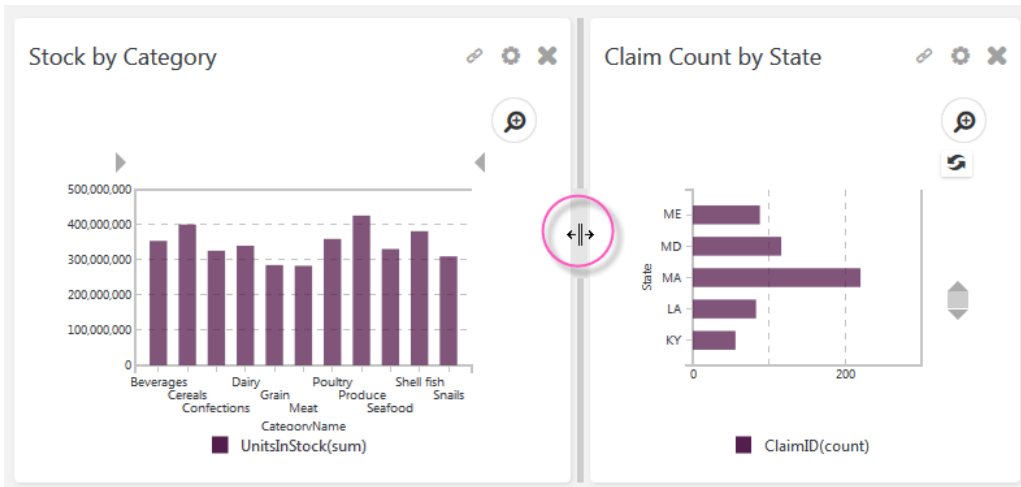
You can have different numbers of widgets in different rows, however, as shown above.



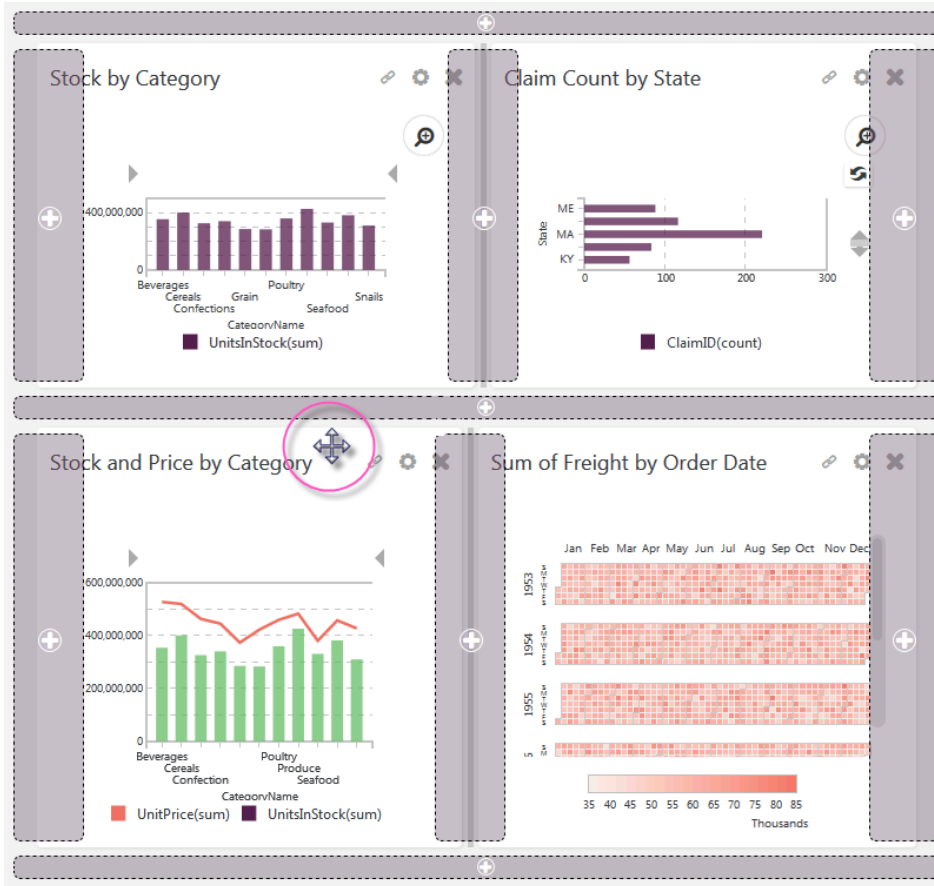
Once you start adding widgets to the Dashboard, the **Save** button, shown above, will be enabled. Click it to save the Dashboard to its own widget, which will appear on the Home page with the visualization widgets.

## Resizing and Rearranging Widgets

You can resize and rearrange the widgets in a Dashboard, as follows:



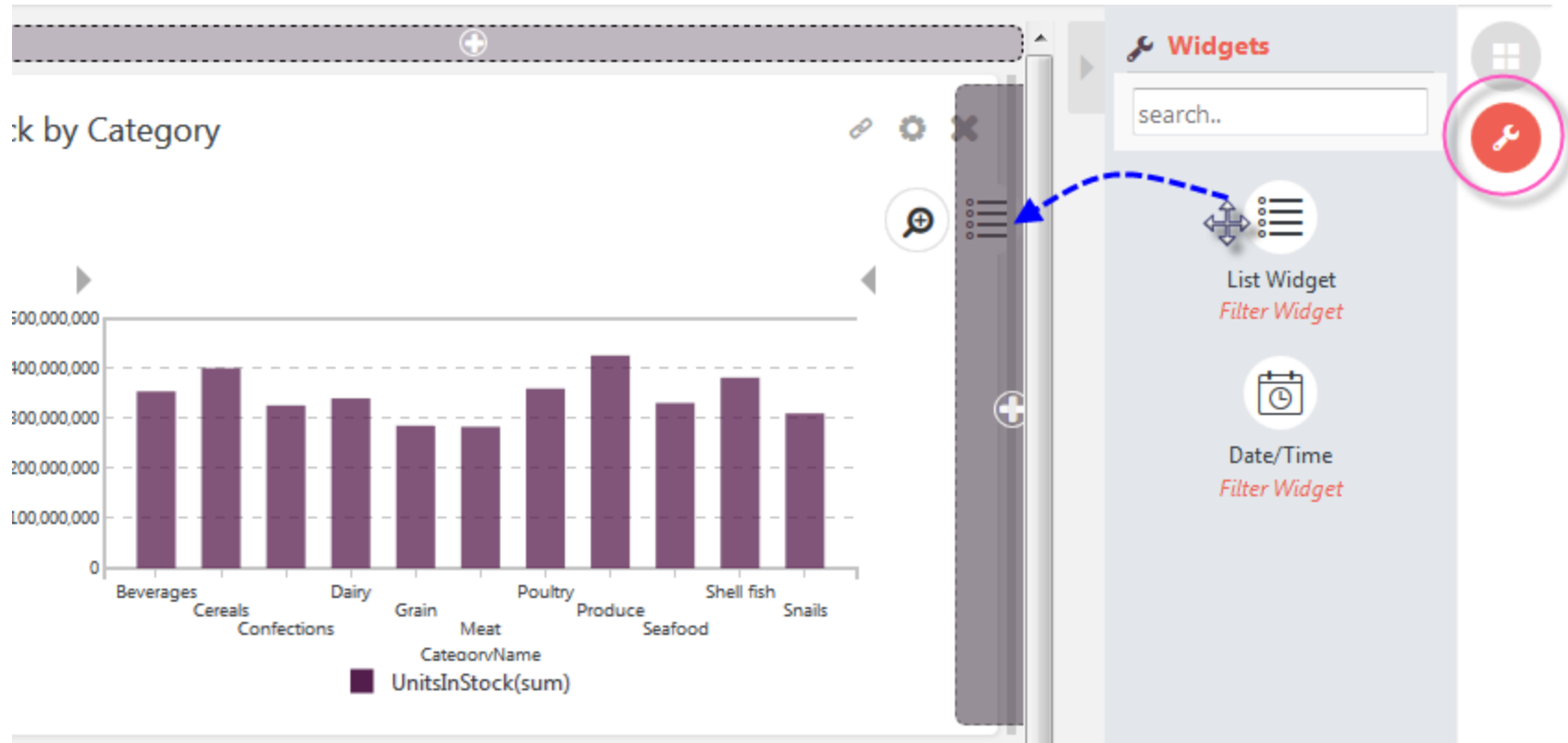
A gray "resizing bar" separates the widgets, as shown above. If you have several rows of widgets, there will also be horizontal resizing bars. Place your cursor on the bar and drag it to resize the widgets.



To rearrange widgets, click a widget title area and begin to drag. Drop zones will appear around all of the widgets, as shown above. Drop the widget in the desired location.

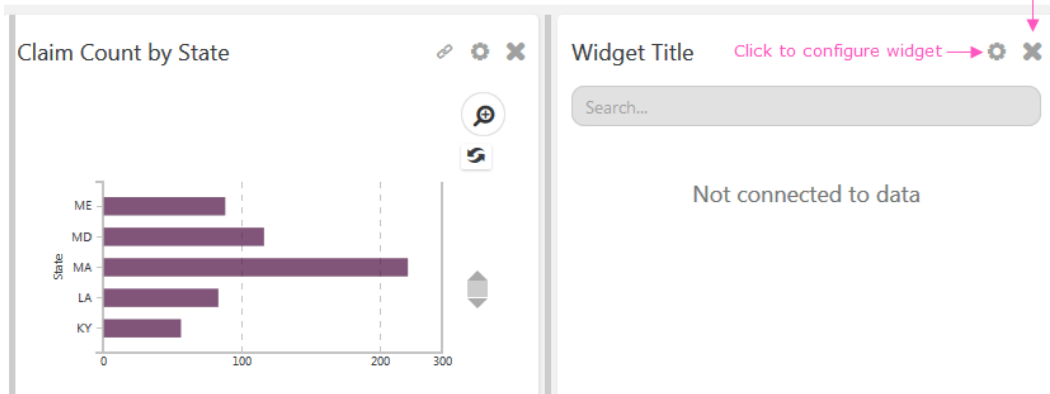
# Add Filtering Widgets to the Dashboard

The Dashboard editing tool includes several built-in filtering widgets and they can be added to a Dashboard and configured to filter one or more visualization widgets. To add filtering widgets to a Dashboard, open the built-in widgets panel and find one of widgets you want to use.



In the example shown above, the **List Filter Widget** is being dragged onto a drop zone in the Dashboard.

Click to delete widget



The widget will expand in place and can be moved, resized, and deleted just like other widgets. Click its gear icon to open its settings panel:

Settings

① Caption

② Selection Type

③ Selection Mode  Single  Multiple  
 Include Search

④ Select Data

⑤ Display Column

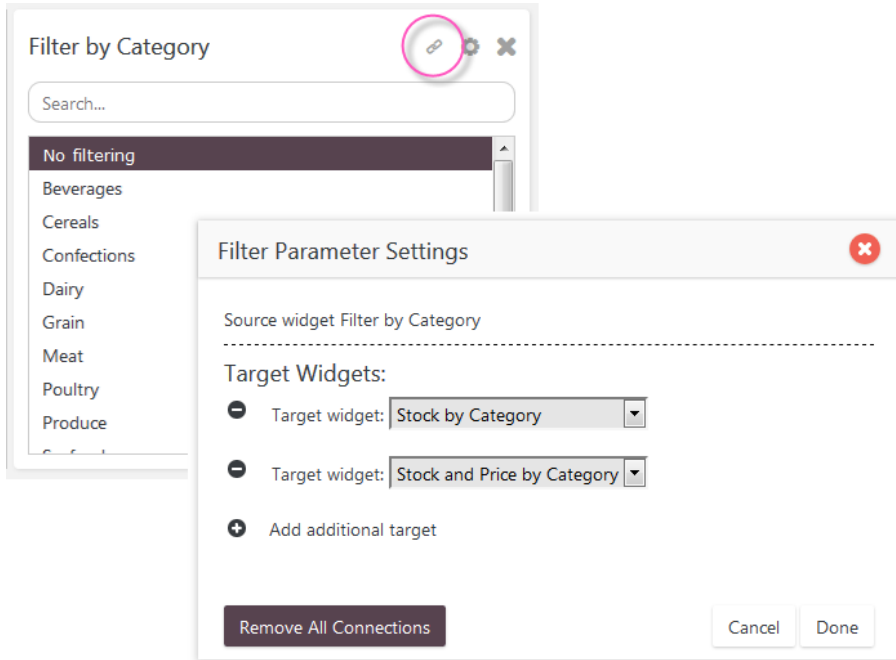
⑥ Value Column

⑦  Include "No Selection" Item  
 "No Selection" Label

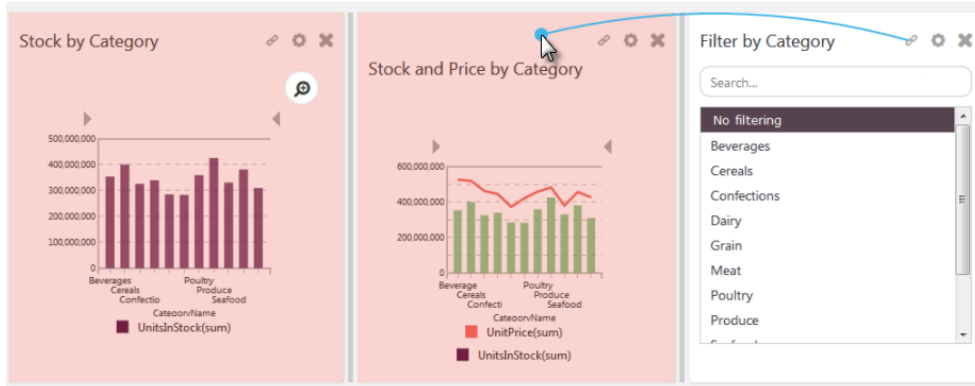
Configuration options will vary by filter widget type, but the example above is typical. The options above include:

1. **Caption** - Specifies the caption that will appear for this widget.
2. **Selection Type** - Specifies whether the filtering values will be appear in a simple list, filling the panel, or a drop-down list.
3. **Selection Mode** - Specifies whether multiple filtering values can be selected, and whether a search feature is available.
4. **Select Data** - Specifies the Dataview whose data will be filtered.
5. **Display Column** - Specifies the data column that will supply text shown in the selection list.
6. **Value Column** - Specifies the data column that will be targeted by the filtering.
7. **Include "No Selection"** - Specifies if the list will include a "blank" entry and, if so, what its text will be.

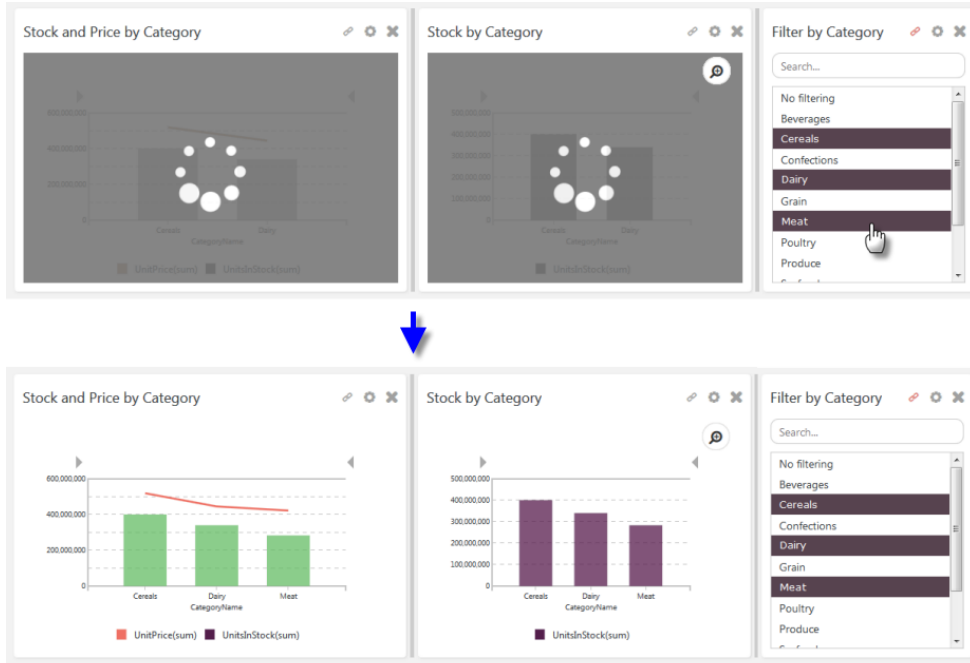
Click **Apply** to save the filter configuration. Once the filter has been configured, a new icon for connecting the filter to visualization widgets will appear at the top:



Click the Link icon, circled above, to open the **Filter Parameter Settings** panel, which is where you select the visualization widgets that will be filtered. Use the **+** **-** icons to add and remove target widgets. The list of target widgets only includes those that have been created using the same Dataview as the one specified for this filter. Click **Done** when ready.



A faster way to select target widgets is to use the Blue Dot Connector, as shown above, to make the connections. The visualization widgets available for filtering (those using the same Dataview) will temporarily turn pink as you start to drag the Blue Dot. Once connections have been made, the Link icon will turn red.



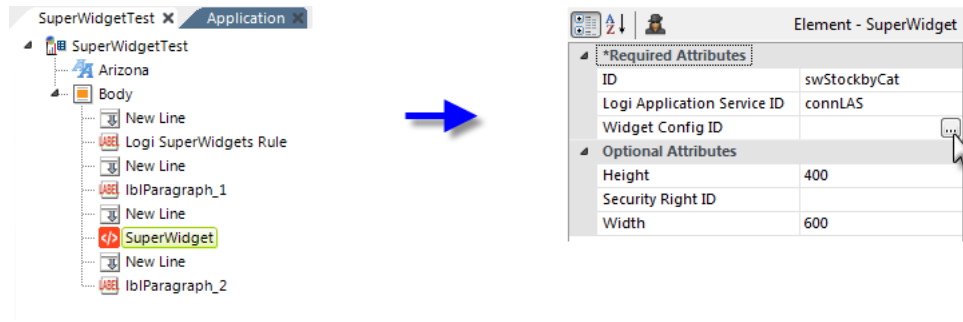
As you select Category filter values, they're applied to *all* of the visualization widgets linked to the filter, as shown above.

# Using Widgets in Logi Info Apps

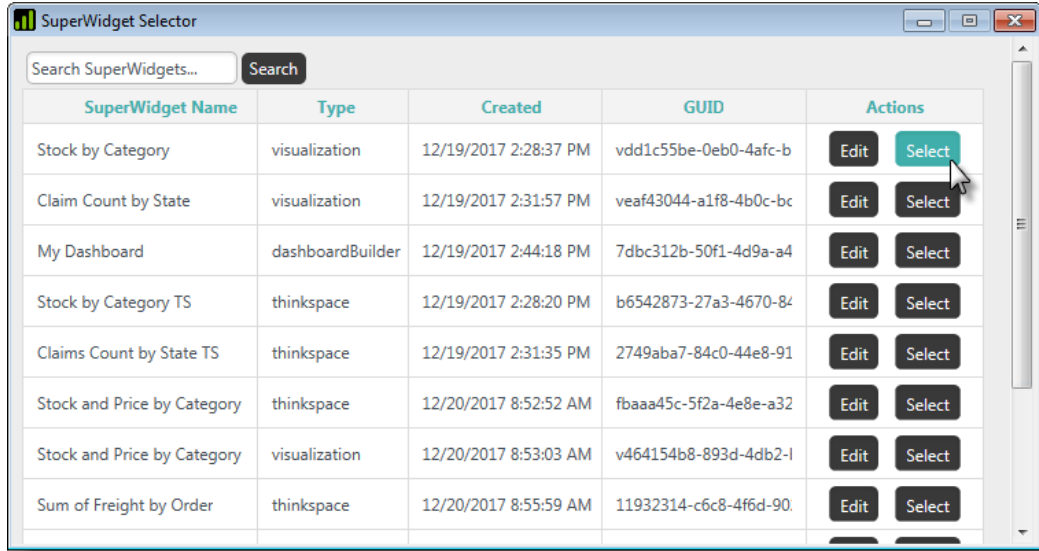
Now that we have a collection of visualization and Dashboard widgets, it's time to use them an application. Let's start by using a visualization widget in a Log Info application, using these steps:

1. Ensure that your application version is Logi Info v12.5+ and Discovery Module v3.0+ is installed, with an SSM 12.5 license.
2. Ensure that you have a configured **Connection.Logi Application Services** element in your application's `_Settings` definition.

If its **Logi Application Service Authentication Type** attribute is *blank* or configured for *Standard* authentication and the **Username** and **Password** attributes have valid values, there is no requirement for a Security element. However, if the authentication type is configured for *TrustedAccess*, then you must have a Security element in place to provide user authentication.



3. Add a **SuperWidget** element in an appropriate place in your Logi report definition, similar to the example above. If you can't find this element in Logi Studio, then you need to review Step #1. Configure the SuperWidget appropriately and click the browse button at the end of the **Widget Config ID** attribute value to display the SuperWidget Selector dialog box:

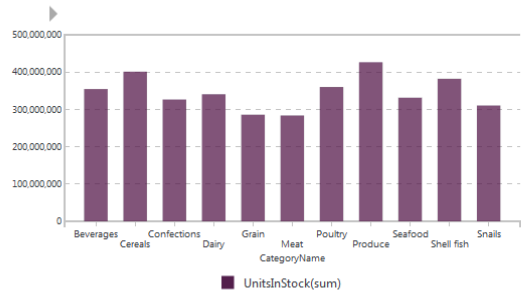


This dialog box contains an entry for every widget you built with the SuperWidget Authoring tool. Select the one you want to use in your report and the dialog box will close and the widget's GUID will be filled-in back in the attribute value.

## Logi SuperWidgets Rule

Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed do eiusmod tempor incididunt ut labore et dolore magna aliqua. Ut enim ad minim veniam, quis nostrud exercitation ullamco laboris nisi ut aliquip ex ea commodo consequat. Duis aute irure dolor in reprehenderit in voluptate velit esse cillum dolore eu fugiat nulla pariatur. Excepteur sint occaecat cupidatat non proident, sunt in culpa qui officia deserunt mollit anim id est laborum.

### Stock by Category



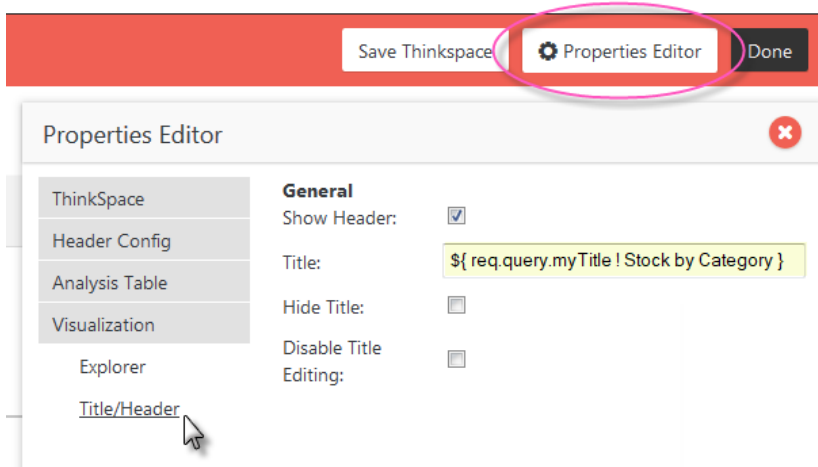
Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed do eiusmod tempor incididunt ut labore et dolore magna aliqua. Ut enim ad minim veniam, quis nostrud exercitation ullamco laboris nisi ut aliquip ex ea commodo consequat. Duis aute irure dolor in reprehenderit in voluptate velit esse cillum dolore eu fugiat nulla pariatur. Excepteur sint occaecat cupidatat non proident, sunt in culpa qui officia deserunt mollit anim id est laborum.

4. Save and browse your report and, as in the example above, your visualization widget should be included. The widget is fully-functional, with live Explorer features, and is not embedded in an iFrame. That's all there is to it.

You should be aware that the widget is sensitive to the **Logi Theme** being used in your application and may display with different colors or fonts as a result.

## Using SuperWidget Parameters

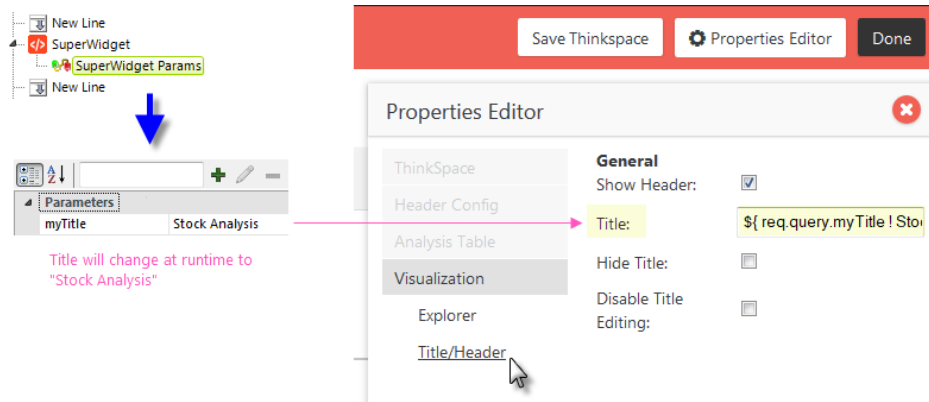
You can dynamically change many of the properties of the widget and change data filtering at runtime using parameters. First, let's see how we can use a parameter for a widget property:



1. In the widget editor, find the desired property (in this example, the Visualization Title) and enter a small piece of parameter "placeholder" code as its value, as shown above. The code format is:

```
{ req.query.<paramName> ! <defaultValue> }
```

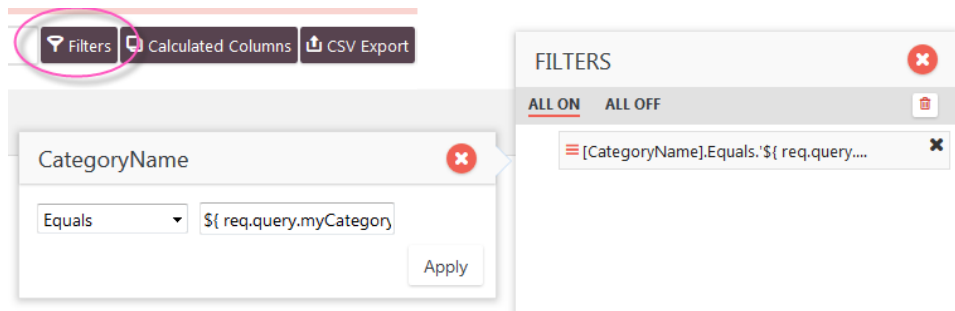
Click **Apply** and **Update** to save your changes.



2. Add a **SuperWidget Params** child element, shown above, to your definition and create a name-value pair for the parameter name identified in the code. Parameter values must be in the correct format for the property and may be tokens.

At runtime, the visualization's title will be the parameter value text. If there is no parameter value (for example, if a token is used for the value and it evaluates to nothing) then the default title value "Stock by Category" will be used.

Now let's see how we can use the same technique to create dynamic filters:



1. In the widget editor, open the Filters panel and create a new filter for the Data Table by dragging-and-dropping the CategoryName column pill into it. As shown in the example above, we're going to create a filter that includes individual

categories by name. In the filter definition panel, select the operator, Equals, and enter the same piece of code we used earlier as the comparison value:

```
{ req.query.myCategory ! * }
```

The code is slightly different in this context: instead of a "default value", we use an asterisk ("\*") in the code to represent all values. This serves the same purpose by providing a guarantee that all values will be included if the parameter is empty.



Operators that compare value lists (In, Not In) may not be used with filter parameters.

Click **Apply** and **Update** to save your changes.



2. Add a **SuperWidget Params** child element, shown above, to your definition and create a name-value pair that corresponds to the parameter name you used in the filter code. Parameter values must be in the correct format for the property and may be tokens.

At runtime, the visualization will be filtered to include only the CategoryName data identified in the parameter value, represented above by a token. If there is no parameter value then all CategoryName data will be included.

## Adding a Visualization Widget with Thinkspace

Let's do that again but add one of our widgets that was saved with the Thinkspace controls. Go back to your report definition and open the SuperWidget Selector dialog box again. Select one of the widgets that included the Thinkspace, and you may need to

make the SuperWidget element's Height and Width attributes more generous. Save your definition, and run the report.

## Logi SuperWidgets Rule

Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed do eiusmod tempor incididunt ut labore et dolore magna aliqua. Ut enim ad minim veniam, quis nostrud exercitation ullamco laboris nisi ut aliquip ex ea commodo consequat. Duis aute irure dolor in reprehenderit in voluptate velit esse cillum dolore eu fugiat nulla pariatur. Excepteur sint occaecat cupidatat non proident, sunt in culpa qui officia deserunt mollit anim id est laborum.

Select Dataview

NW Orders

Select

Add To Infoboard

Save As..

CHOOSE VISUALIZATION

Tables

Bars

Column

Lines

Scatter

Circles

Y-AXIS +

UnitsInStock

sum

⚙️

▲▼

CROSTAB +

DRAG COLUMN HERE

TIMELINE +

DRAG COLUMN HERE

### Sum of UnitsInStock by Category...

⏪

⏩

CategoryName  
■ UnitsInStock(sum)

X-AXIS +

CategoryName

No Filters Applied

Filters

Calculated Columns

CSV Export

Show/Hide

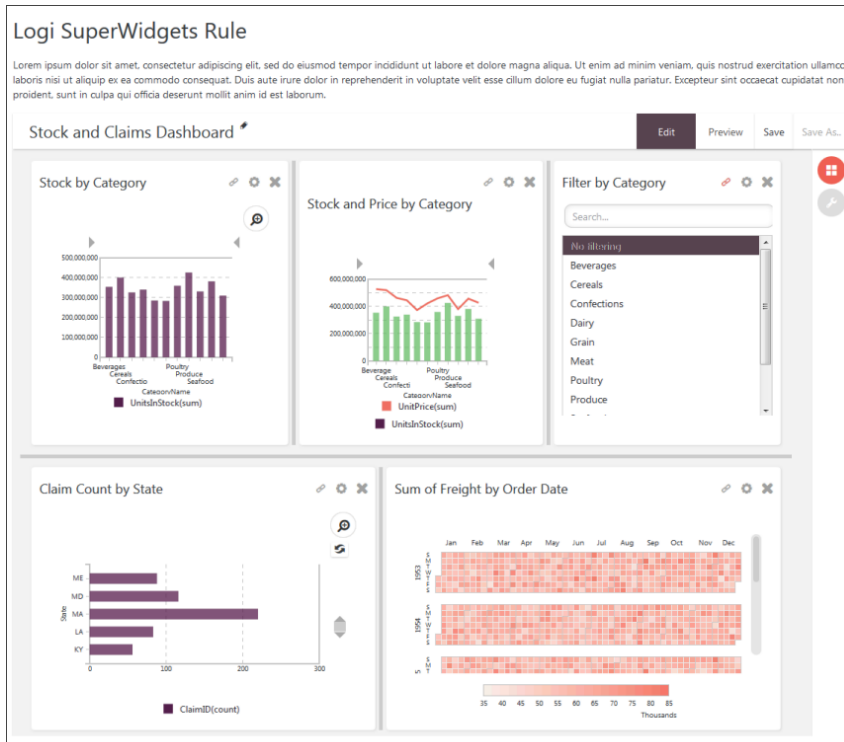
ProductID	ProductName	CategoryID	UnitsInStock	UnitPrice	CategoryName
402	Rewerpaquax	401	298	163.98	Confections
163	Dopsapicentor	162	16	223.71	Beverages

Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed do eiusmod tempor incididunt ut labore et dolore magna aliqua. Ut enim ad minim veniam, quis nostrud exercitation ullamco laboris nisi ut aliquip ex ea commodo consequat. Duis aute irure dolor in reprehenderit in voluptate velit esse cillum dolore eu fugiat nulla pariatur. Excepteur sint occaecat cupidatat non proident, sunt in culpa qui officia deserunt mollit anim id est laborum.

Now you should see your visualization inside a complete, working Thinkspace, as shown above, with "live" controls. Remember that the availability of that some of the features of the Thinkspace, including the Dataview selector and Data Table Filters, Calculated Columns buttons, etc. are configurable in the widget settings. You can use the Thinkspace controls now to change the visualization widget in many ways and then you can save your customized version as a *new widget* or add it to the Infoboard, using the buttons provided. However, you cannot update the underlying widget from here; it remains unchanged and usable again in its original form.

## Adding a Dashboard Widget

And, finally, let's do that again with a Dashboard widget and, once again, you may need to make the SuperWidget element's Height and Width attributes more generous. Save your definition, and run the report.



Now you should see your Dashboard, as shown above, with "live" controls. Panels can be moved, filters changed, etc. at runtime.

## Using Widgets in Non-Logi Apps

You can also directly embed these widgets into HTML pages and non-Logi applications, using JavaScript. In the following example, we'll assume that Logi Info and the Discovery Module are installed on a web server named "Jupiter". We'll also assume that the HTML page that will embed a widget is being served from "Nomad12". Here are the steps necessary to embed a widget in an HTML page:

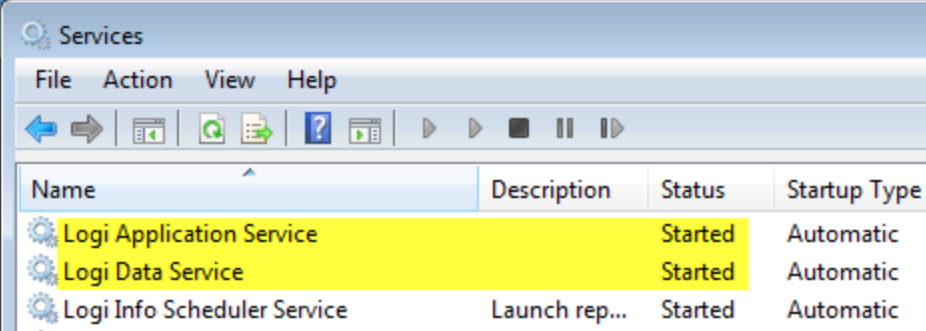
1. On Jupiter, modify the settings file to accept a request from Nomad12. Assuming a default installation location, the file is:

```
C:\LogiAnalytics\Discovery\platform\settings\logiApplicationService.json
```

```
{
  "disableSchemaValidation": false,
  "logiApplicationService": {
    "description": "Platform logiApplicationService Configuration",
    "logLevel": "error",
    "corsOriginWhiteList": "http://Nomad12",
    "accessTokenGracePeriod": 120,
    "system": {
      "pollingIntervalSeconds": 15,
      "pollingTimeoutMinutes": -1
    }
  },
}
```

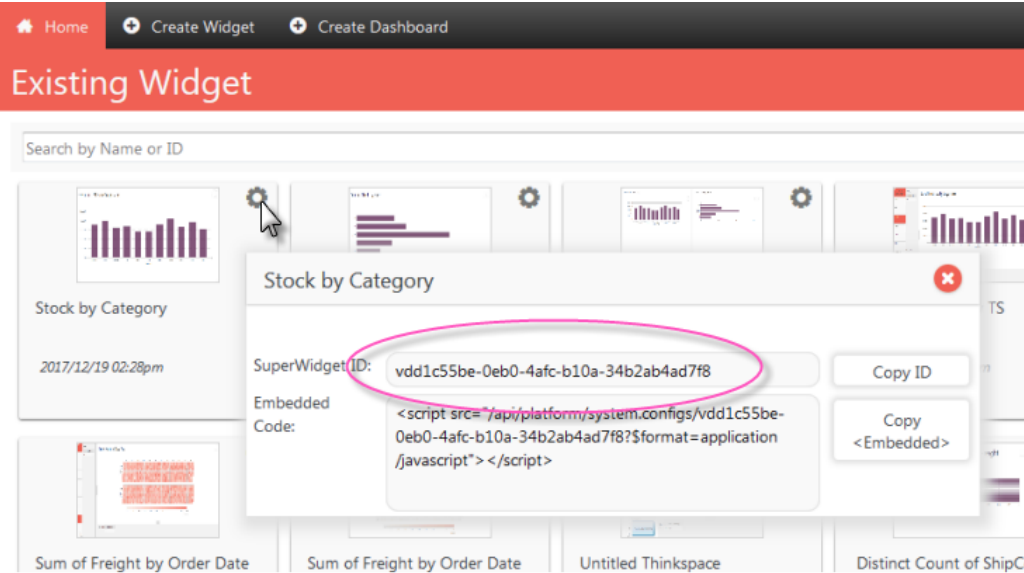
Find the **corsOriginWhiteList** entry, highlighted above, and change it to accept requests from Nomand12. Save the file.

 The "\*" wild-card value will not work in this situation - you *must* provide a value.



Name	Description	Status	Startup Type
Logi Application Service		Started	Automatic
Logi Data Service		Started	Automatic
Logi Info Scheduler Service	Launch rep...	Started	Automatic

2. Stop and restart the **Logi Application Service** and **Logi Data Service** services or daemons, shown above.



Home Create Widget Create Dashboard

## Existing Widget

Search by Name or ID

Stock by Category

2017/12/19 02:28pm

Sum of Freight by Order Date Sum of Freight by Order Date Untitled Thinkspace Distinct Count of ShipC

Stock by Category

SuperWidget ID: **vdd1c55be-0eb0-4afc-b10a-34b2ab4ad7f8** Copy ID

Embedded Code: `<script src="/api/platform/system.configs/vdd1c55be-0eb0-4afc-b10a-34b2ab4ad7f8?format=application/javascript"></script>` Copy <Embedded>

3. On Jupiter, find, copy, and save the ID of the widget you want to embed. This can be found in several places, including the SuperWidget Authoring Tool in Logi Studio, as shown above, or through the SuperWidget element's widget selector, which was used at the top of this page.
4. Here's the format of the JavaScript you'll add to your HTML page on Nomad12, in the page body wherever you want the widget to appear:

```
<script
  src="http://hostServer:port/api/platform/system.configs/widgetID?interpolate=true&$format=application/javascript">
</script>
```

The example below shows the script with the values for our example filled in.

```
<script
  src="http://Jupiter:3000/api/platform/system.configs/vdd1c55be-0eb0-4afc-b10a-34b2ab4ad7f8?interpolate=true&$format=application/javascript">
</script>
```

Other `<script>` tag parameters are also valid, such as:

```
id="myID" style="width:800px; height:700px;" theme="Arizona"
```

5. Browse your HTML page and the widget will appear in it.



Users will be required to login to the widget the first time they browse the page and again if their session expires.

# Dataview Authoring

Logi Data Services technology, found in recent Discovery Module versions, uses Dataviews to define datasource connections, queries, and data enrichment.

The following topics discuss Dataviews and the tools for creating and managing them:

- [Launching the Dataview Authoring Tool](#)
- [Dataview Authoring Tool Menu](#)
- [Managing Your Profile](#)
- [Connecting to Databases](#)
- [Connecting to Data Files and Applications](#)
- [Managing Data Sources](#)
- [Creating a Dataview](#)
- [Dataview Loading](#)
- [Filtering Data](#)
- [Data Enrichment](#)
- [Creating Data Relationships](#)
- [Managing Dataviews](#)



Advanced features discussed here work with Logi Info v12.5 and later. Earlier and later Info versions may not support them; consult the [Release Notes](#) for specific details.


## About Dataviews

Logi Data Services technology provides you with an advanced means of data retrieval based on the "Dataview", a definition that specifies the connection information, query details, and data enrichment details.

Dataviews are stored in a system database and can be used with the SuperWidget Authoring tool. For more information, see "SuperWidgets" on page 375. Dataviews can also be used in Logi Info reports using a special DataLayer element, and the data can be altered at runtime using special Data Service ("Ds") elements. When executed at the server, the Dataview retrieves the data and makes it available in the standard datalayer format to other elements for analyses and visualizations. Some of the benefits of this include:

- Decoupling of developer and data architect duties
- Shared access to stored Dataviews by multiple users
- Better support for Self-Service analytics
- Excellent performance for very large datasets (250M+ rows)

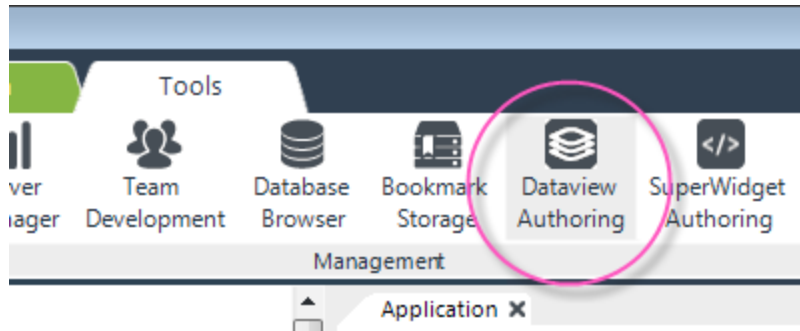
Prior to working with Dataviews, a connection to Logi services must be configured. See "Get Started with the Discovery Module 3.2" on page 226 for more information. Dataviews are created using tools like the Dataview Authoring tool accessible from Logi Studio. The Dataviews used with Logi Info can retrieve data from a number of databases.

 If our **DataHub 3.0+** product is installed, then Dataviews can *also* retrieve and join file-, cloud-, and application-based data, such as Facebook, Google Analytics, and Marketo, and cache it in a separate data store.

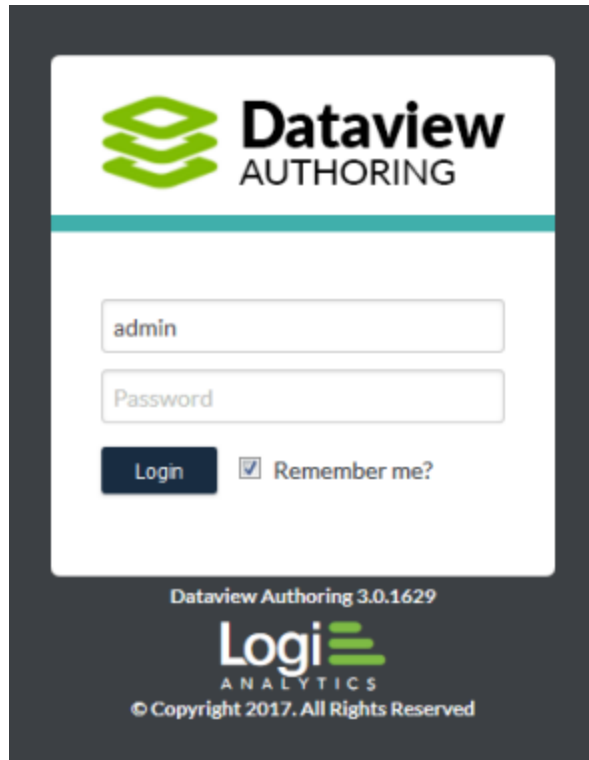
The following sections describe how you can create and manage Dataviews using the browser-based tool in Logi Studio.

# Launching the Dataview Authoring Tool

You launch the Dataview Authoring tool from within Logi Studio:



On Studio's Tools tab, you'll find the **Dataview Authoring** menu item, circled above. This menu item will only be visible if DM v3.1 has been installed. The tool will open in your default browser:

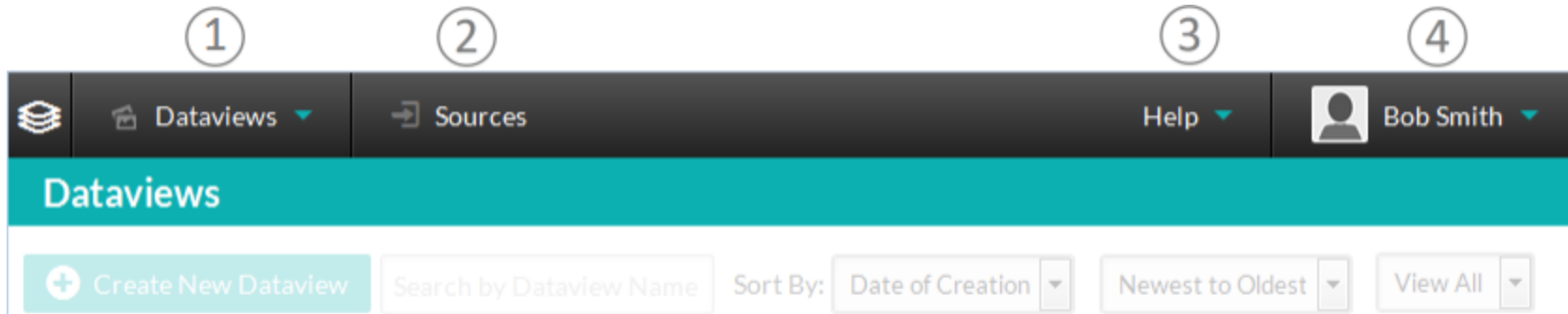


You'll be presented with the *Login* page, shown above. Enter either the "admin" password that was established when DM v3.1 was installed, or similar credentials, and click **Login** to access the tool.

You can also reach the tool outside of Studio, by entering the URL <http://localhost:3000/Datahub/Account/Login> in your browser (assuming a DM v3.1 installation with default parameters).

# Dataview Authoring Tool Menu


After you log into the Dataview Authoring tool, you'll see the main menu, above the *Dataviews* page:



The main menu options include:

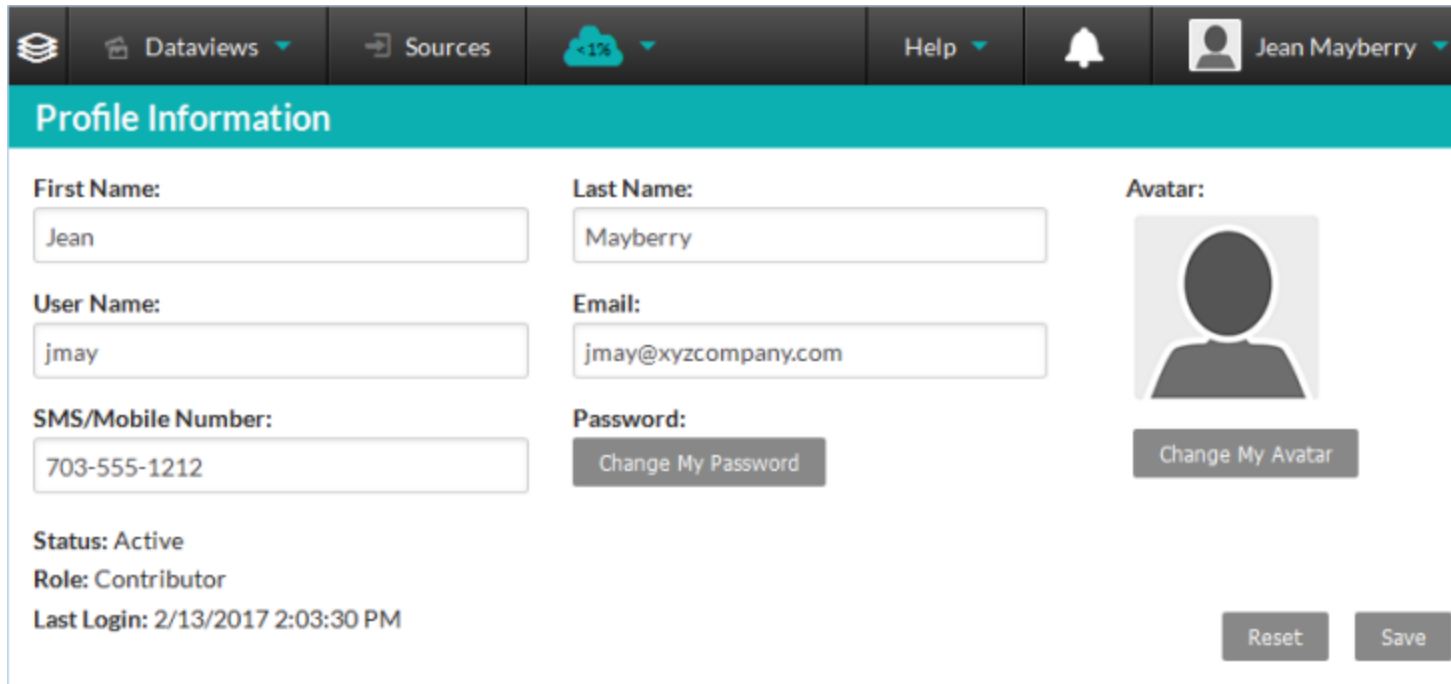
1. **Dataviews** - This option lets you manage Dataviews, by creating them or selecting one from lists of Recent or All Dataviews.
2. **Sources** - This option lets you manage your data sources, by creating connections to databases.
3. **Help** - This option displays the "About" panel, which displays the version number, and includes a link to the included REST API documentation.
4. **UserName** - This option allows you to manage your user profile and to logout. It also allows Administrator users to manage other users and groups, and to generate a Client Secret security value.

The "Home" icon at the left end of the menu always returns you to the *Dataviews* page.

 The minimum device width and height for working with this tool is 1300px by ~600px. At lower resolutions, you may not be able to navigate around the interface properly.

# Managing Your Profile

The details of your profile are stored in the system database. If you click the main menu option with your user name, you'll see the *Profile Information* page:



**Profile Information**

**First Name:**


**Last Name:**

**User Name:**

**Email:**

**SMS/Mobile Number:**

**Password:**

**Avatar:** 

**Status:** Active  
**Role:** Contributor  
**Last Login:** 2/13/2017 2:03:30 PM

In the related page, you can manage the data associated with your user account and change your password. Be sure to provide an email address here if you're going to be using DataHub 3.0 to cache data and you want to be notified when data loading completes.



You can also choose a specific avatar, as shown above.

# Connecting to Databases

In DM v3.1, a connection to data is called a "Source" and can be an application, database, or file connection. In this topic, we'll create a new Source based on a SQL database. There are multiple paths to the Add Source panel, including:

- **Sources** menu option → Create New Source.
- **Dataviews** menu option → Create New Dataview → From Source tab → Add New Source

The Add Source panel will appear.

**Add Source**
✕

①  Database  Application

② Data Provider: Microsoft SQL Server

③ New Source Name: Northwind

④ Server Name: yourDBServer

⑤ User Name: yourDBUserName

⑥ Password: yourDBPassword

⑦ Database Name: Northwind Get list

⑧ Port Number: 1433

⑨ Test Source Cancel Save

💡 There will be different fields presented depending on the Data Provider selection.

Select or provide the required information, as follows:

1. **Database** - Select the Database radio button, making the fields shown above visible.
2. **Data Provider** - Select the desired database or provider type. There are several MS SQL Server options, allowing for its different security schemes.
3. **New Source Name** - Give the source an arbitrary name for easy recognition later in the list of sources.
4. **Server Name** - Enter the database server name or IP address.
5. **User Name** - Enter the user name required to access the database.
6. **Password** - Enter the password required to access the database.
7. **Database Name** - Enter the target database name (or, for Oracle, the Service Name).

For Microsoft SQL Server, MySQL, and PostgreSQL providers, you can use the **Get List** button to select the database name from a list.

For some providers, an *Advanced Options* link will be shown, allowing you to set special configuration options, such as Schema Name or Warehouse Name, specific to that provider.

8. **Port Number** - Enter the Port number for the connection. The default port number for the provider will be displayed.
9. **Test Source** - Click the button to attempt to make the connection specified and provide a status message. In addition to indicating either success or failure, any existing Source with the *exact same* specifications will be identified so you can decide whether to use it instead or proceed to save your new Source.

Click **Save** to save your new Source. Repeat as necessary to create all the Sources you need.

## Working with a SQL Server Named Instance

If you're trying to connect to a named instance of Microsoft SQL Server, such as `yourDBServer\SQLEXPRESS, 8484` then the example connection shown above will not work. You may have noticed that the Data Providers selection list includes several Microsoft SQL Server variants. One of them is *Microsoft SQL Server Named Connection* and here's an example configuration for it:

### Add Source ✕

Database  Application

Data Provider:

New Source Name:

Server Name:

Instance:

User Name:

Password:

Database Name:

Advanced Options

Port Number:

= yourDBServer\SQLEXPRESS,8484

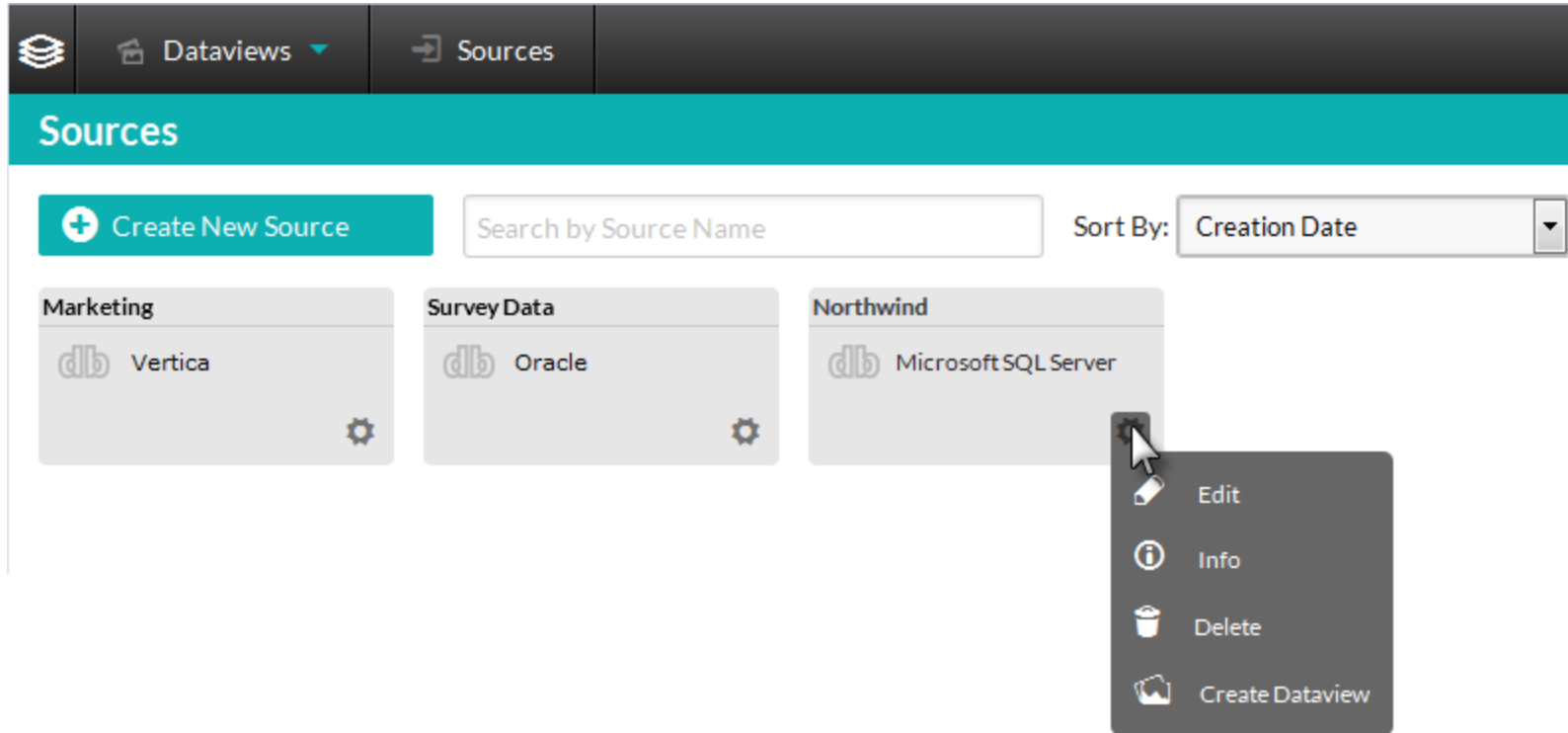
The example above shows how a complex SQL Server connection ID is parsed and placed appropriately in the Add Source panel. You have to expand the Advanced Options area to access the Port Number control.

# Connecting to Data Files and Applications

If our **DataHub 3.0+** product is installed, then Dataviews can *also* retrieve and join file-, cloud-, and application-based data, such as Facebook, Google Analytics, and Marketo, and cache it in a separate data store.

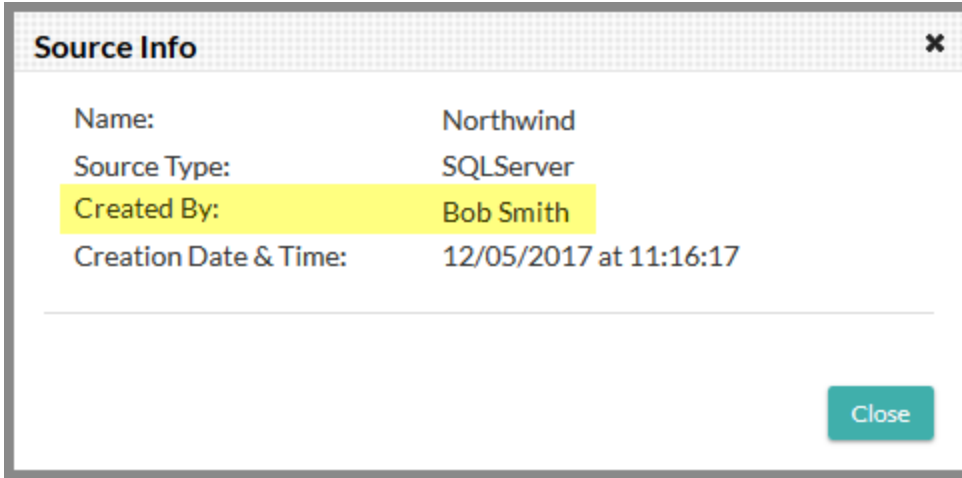
# Managing Data Sources

As you create Sources, they're shown on the *Sources* page as graphic "pills":



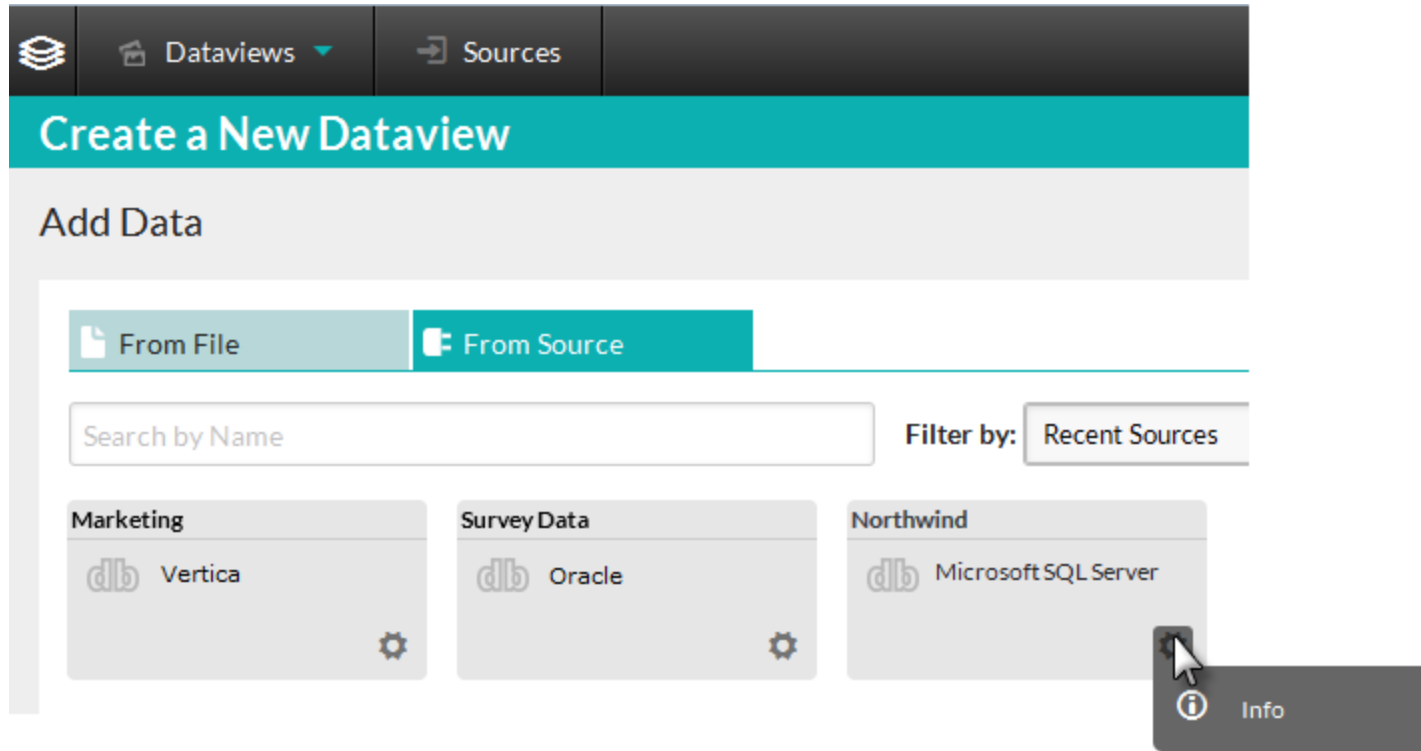
The collection of Sources can be searched and filtered using the provided controls.

Each pill displays the Source name and database type, as shown above, and includes a *gear* icon. Hovering your mouse cursor over the icon displays a menu of management actions.



The *Info* gear menu option allows you to see, among other details, who created the Source, as shown above. This can be helpful if the Source has been shared with you by another user.

The *Delete* gear menu option will only be included if you're the user who created the Source.



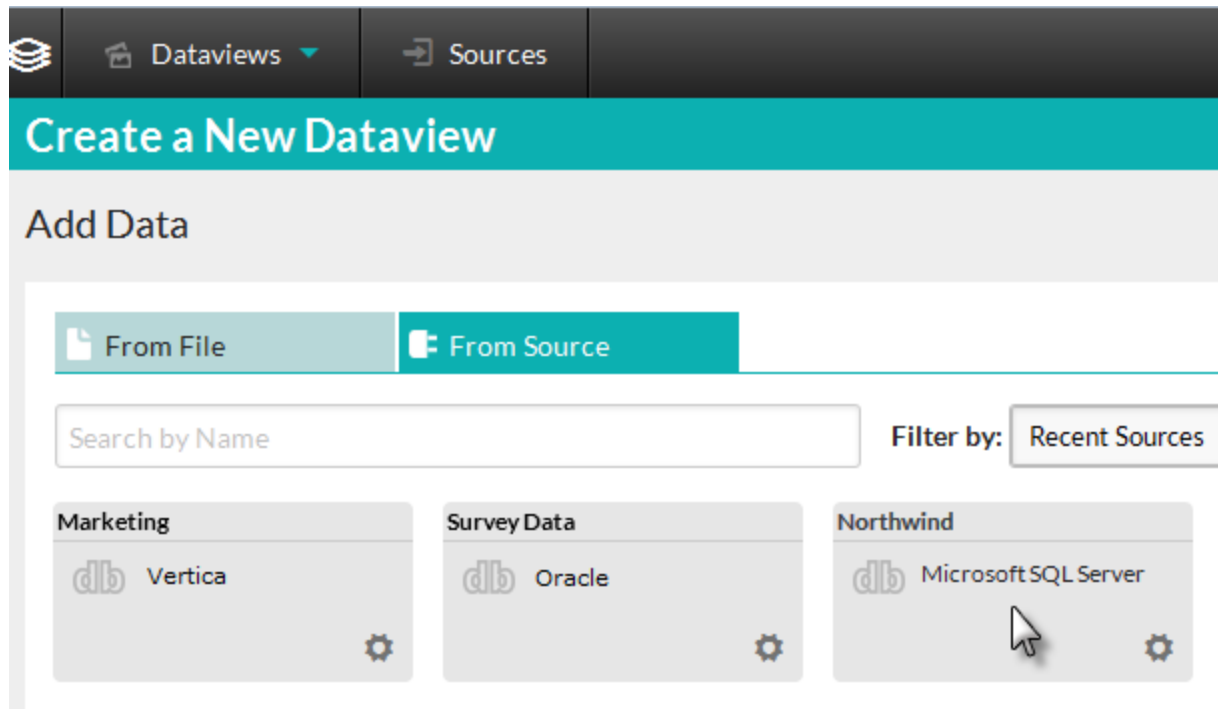
Source pills are also visible in the *Create a New Dataview* page, under the From Source tab, as shown above. The gear icon, however, only displays an information option from this page.

# Creating a Dataview

Once you've created one or more Sources, you can create a Dataview. There are multiple paths to the *Create a New Dataview* page, including:

- **Dataviews** menu option → Create a New Dataview
- **Sources** menu option → gear icon in Source pill → Create Dataview

Once you arrive at the *Create a New Dataview* page, click the From Source tab:



Your data Source pills will be displayed, as shown above. Click a pill to create a Dataview that uses it, and the Dataview Configuration tab will appear:

**Dataview Configuration** | **Dataview Status** | **Data Enrichment**

**Add Data** Cancel Reset Save

**Sources in Use**

1 Northwind  
db Microsoft SQL Server

**Objects in Northwind**

Search by Name Show All

Objects in Use

2 Customers Click to filter

Available Objects

3 Categories

Employees

Invoices

Orders

**Columns in Customers** [All None](#)

Search by Nam Show All

CustomerID

CompanyName

ContactName 5

ContactTitle

Address

City

Region

PostalCode

Country

Phone

Fax

+

The "+" icon is only used when creating Dataviews for DataHub

CompanyName ContactName Region Country 6

Here are the important features of this tab, keyed to the image shown above:

1. **Sources in Use** - This panel displays the data Source in use by this Dataview. When creating a Dataview for use with DataHub, the "+" icon allows you to add multiple Sources, and create relationships between them.
2. **Data Objects** - This panel displays a list of the data objects (tables and views) available in the selected Source. The list can be searched and filtered using the included controls.

Click an object to select it. When you do, its columns appear in the Columns panel. If you select any of an object's columns, the object will be placed in the "Objects in Use" list. Database objects can be filtered by clicking their Filter icons; filtering is discussed in "Filtering Data" on page 438.

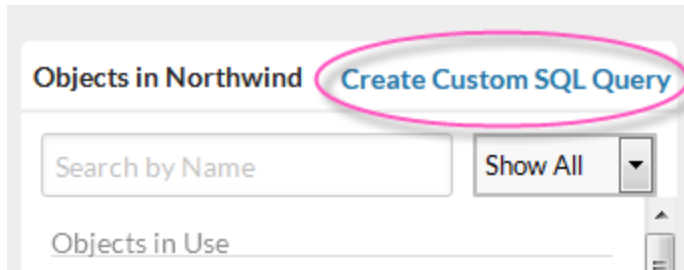
3. **Available Objects** - This is a list of the data objects that are available for use but haven't been used yet.
4. **Action Icons** - Click an icon to *Save* your definition, *Reset* all selections to their defaults, or *Cancel* Dataview creation.
5. **Columns** - This panel displays a list of the columns available in the selected data object. The list can be searched and filtered using the included controls, and the All and None links can be used for bulk selection. Click a column to add or remove it from the Dataview.
6. **Column Pills** - When you select a column in the Columns panel, it will be represented by a "pill" at the bottom of the page. These provide a representation of the data, in tabular form, included in the Dataview.

When you have selected your Sources, Objects, and Columns, click the *Save* icon...

...and you'll be prompted to provide a name for your Dataview. Click **Create** to save the Dataview.

## Creating Custom SQL Objects

When creating a Dataview that uses a SQL database Source, you can create a data object by defining a custom SQL query. This query can only select data from the available data objects.



If the data source is a SQL database, at the top of the middle panel in the Dataview Configuration tab, you'll see the **Create Custom SQL Query** link, shown circled above.

**Custom Query Editor: Custom Query** ✕

Query Name:

Query:  

```
SELECT LastName + ', ' + FirstName AS FullName, HireDate,
Address, City, Region FROM Employees
```

Query is valid

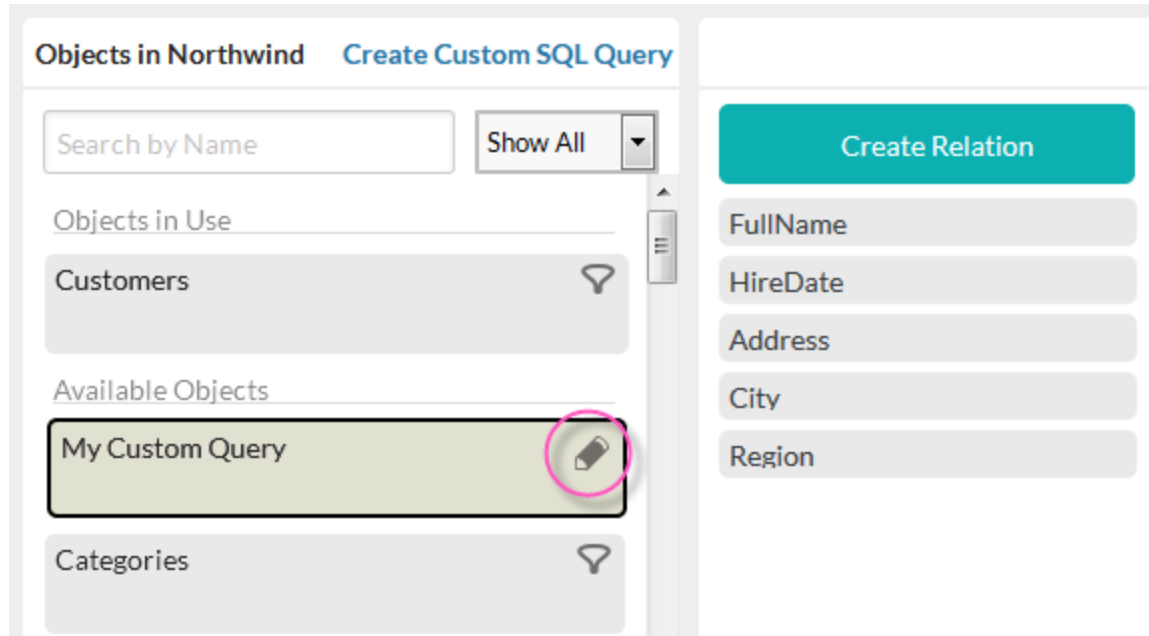
Cancel Test Save

When you click the link, the Customer Query Editor panel, shown above, will be displayed, with these controls:

1. **Query Name** - Enter a name for your custom query.
2. **Query** - Enter your SQL query, using the correct SQL syntax for the Source database.
3. **Actions** - Click the action buttons to **Test** your query or **Cancel** the operation. You *must* successfully test your query before the **Save** button will be enabled. A **Delete** button (not shown) will only be visible if you're editing an existing custom query and you can use it to delete the custom query.

When you click **Test**, the query will be validated and the results shown in a message adjacent to the buttons.

Once you test and save your custom query, the new object will appear in the list of objects in the middle panel:

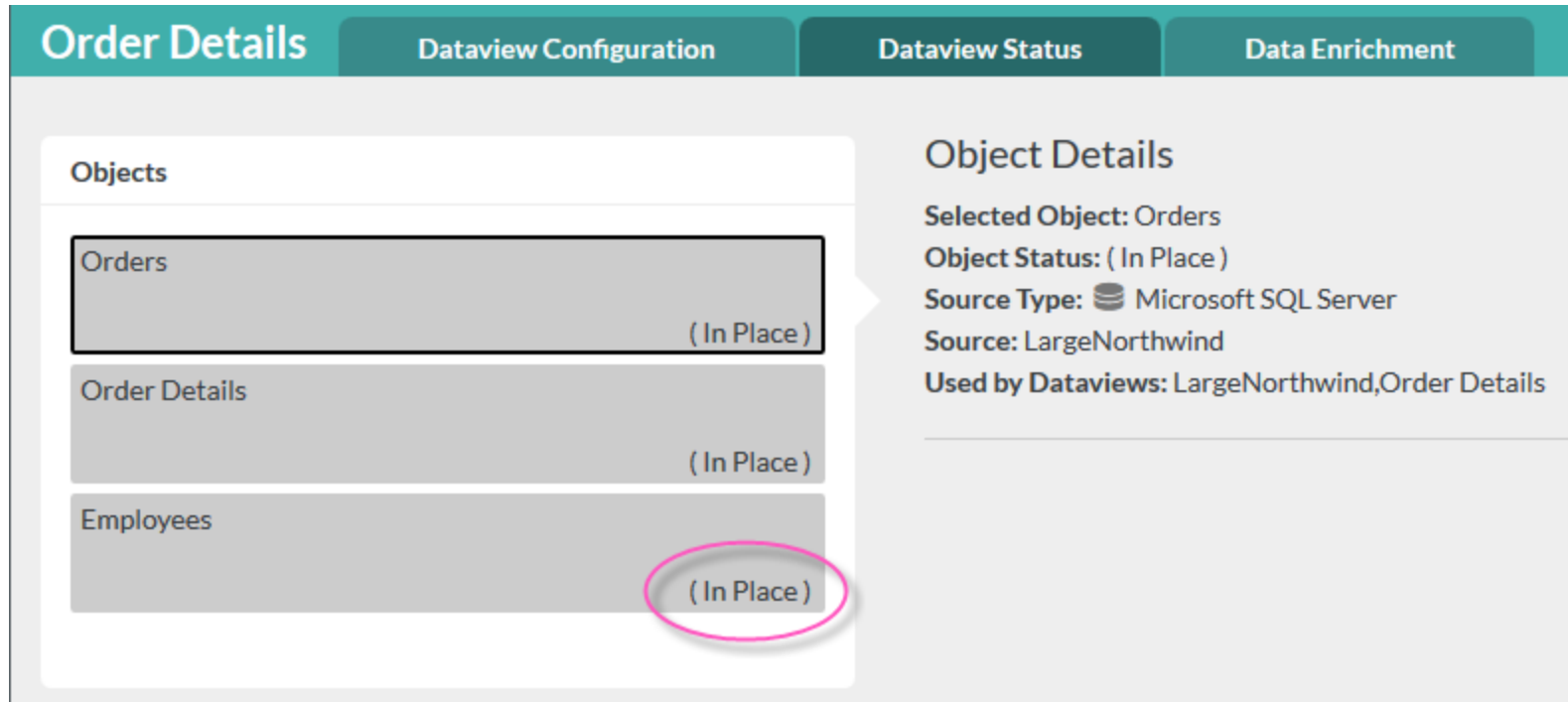


Its columns will appear in the right-hand panel. Like other columns, they can be used to create relationships with other data.

To edit or delete a custom query, click the *Edit* icon, shown circled above. 💡 You can only modify or delete a custom query if no Dataviews are dependent upon it.

# Dataview Loading

When a Dataview is saved you'll see its details in the Dataview Status tab:



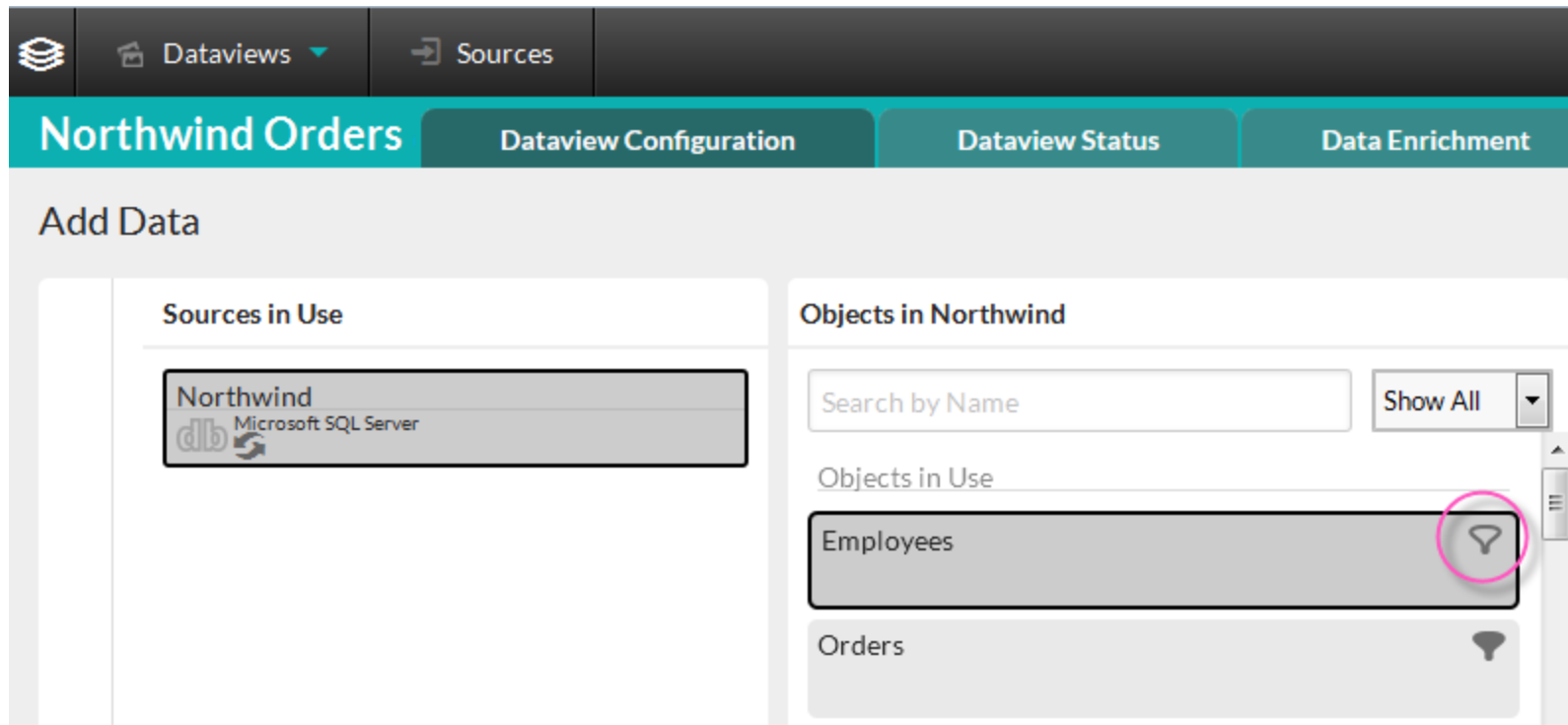
The (In Place) label on the data objects means that the data will be accessed directly from the data source at runtime - it's not cached and no data loading occurs.

However, if our **DataHub 3.0+** product is installed, then Dataviews can *also* retrieve and join data from Excel and CSV files, and from cloud services and applications, such as Facebook, Google Analytics and Marketo, and cache it in a separate data store. If data is being loaded and cached, then additional details and controls are available in this tab.

# Filtering Data

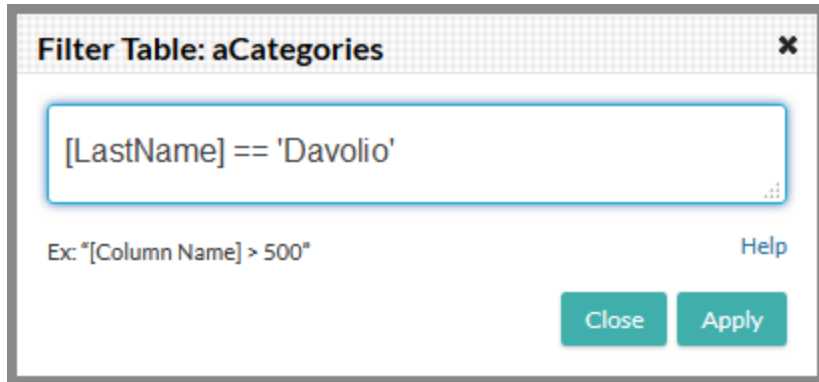
Dataviews can include instructions for a filtering operation, if the Source is a SQL database or an application that uses a SQL-like query language. This is done internally by adding a "WHERE" clause to the query used to retrieve the data.

The filter criteria is set on a Dataview's page, in its Dataview Configuration tab:



Click the *Filter* icon, shown circled above, to specify the filter criteria for that Object. If a filter already exists for an object, the filter icon will appear "filled in", as shown above for the Orders object. If there is no icon, then filtering is not supported.


Clicking the icon will display the Filter Criteria panel:



Enter your filter expression. If the filter already exists, its filter expression will be loaded into the panel, as shown above. Here are some guidelines for filter expressions:

- Column names must be enclosed in square brackets, e.g. [OrderDate].
- Column names are *case-sensitive*.
- Column names can only reference a column in the current data object.
- Column names can be either the "friendly" name found in the Columns panel or the actual column name in the data source.
- Conditions may be nested.
- String and date values must be enclosed in *single* quotes.
- Numeric values must not be enclosed in quotes.

The complete syntax for filter expressions is described in *Dsexpression Reference*.

 *Do not* surround your entire expression with double-quotes, as suggested by the example in the panel.

If you try to modify the filter expression for an object that's already been used in a Dataview, a warning message will be displayed.

# Data Enrichment

"Data Enrichment" refers to instructions in a Dataview definition that enhance the data it retrieves. Enrichment consists of the following possible actions:

- Set a column's "physical" name
- Categorize a column as a Dimension or a Metric value
- Set a column's data type Sub-Category
- Set a column's display Format
- Create a new Calculated column

Additional enrichment options are available when working with DataHub; these are discussed in a separate topic that's included with the DataHub 3.0 documentation. All of these actions are undertaken in a Dataview's Data Enrichment tab:

Northwind Orders    Dataview Configuration    Dataview Status    **Data Enrichment**

Selected Column: **Country**    ▶    ↶    📄

Preview    Reset    Save

**Details**

Physical Name:

Source Name: Country

Category:  Dimension     Metric

Sub-category:

Format:


Selection indicator

Gear icon and menu

Country	ShipRegion	Region	CompanyName	Discount	Quantity	UnitPrice
USA	AK	AK	Old World Delicatessen	Null		Null
USA	AK	AK	Old World Delicatessen	0.25		\$14.00
USA	AK	AK	Old World Delicatessen	0.00		\$17.45
USA	AK	AK	SUMMARY	0.00		\$21.00

The image above shows the selected column properties, identifies the column selection indicator (simply click a column to select it), and identifies the column *gear* icon used to display a drop-down menu of options.

Click the *Preview* icon to preview the effects of formatting changes.

 This requires the Physical Name property be the same as the original name of the column in the data (the Source Name). Use Reset icon to undo any previewed changes.

Click the *Reset* icon to restore all the properties for a column to their original values.

Click the *Save* icon to save Dataview enrichment changes.

## Setting Column Properties

To set column properties, select a column by clicking its name and its properties will be displayed.

<b>Physical Name:</b>		
①	<input type="text" value="Unit Price"/>	
<b>Source Name:</b> UnitPrice		
<b>Category:</b> <input type="radio"/> Dimension <input checked="" type="radio"/> Metric		
<b>Sub-category:</b>		
③	<input type="text" value="Currency"/>	<input type="text" value="Temporal"/>
<b>Format:</b>		
④	<input type="text" value="\$12,013.98"/>	<input type="text" value="01/30/2016 (MM/DD/YYYY)"/>

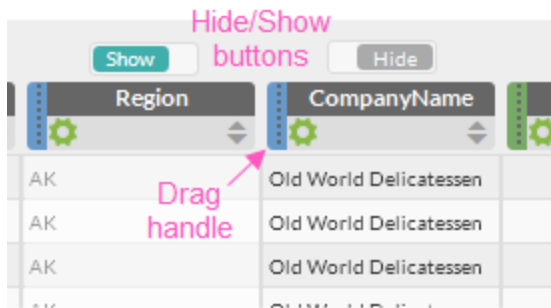
The column properties that can be set are shown above and include:

1. **Physical Name** - This property is the column name that will be displayed in the column header and elsewhere, sometimes called the "friendly" name. The Source Name (the name of the column in the data source) is shown below it for reference.
2. **Category** - This property lets you specify if the column should be treated as a Dimension (an independent variable - usually descriptive or categorical) or a Metric (a dependent variable - usually numeric). An initial assignment is made when the data is retrieved, based on an analysis of the data, but you may wish to change it.
3. **Sub-Category** - This property further categorizes the column data type. If the Category is set to Dimension, then options here include *Boolean, Identity, Numeric, Temporal, and Text*. If set to Metric, then options include *Currency, Decimal, and Integer*.
4. **Format** - This property determines how the data values in this column will be formatted for display. Options displayed here are related to the Sub-Category property setting and include a wide variety of formats.

Remember to click the Save icon to save your changes.

## Hide / Show / Change Column Order

You can choose to hide or show Dataview columns by clicking the button at the top of the column header:

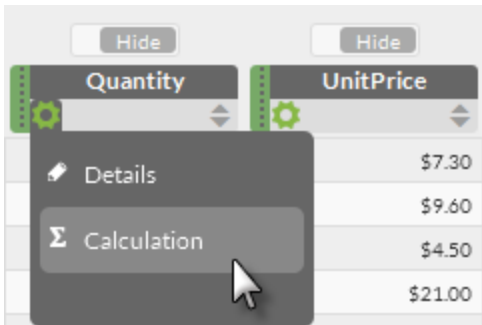


You can rearrange columns by clicking a "drag handle", shown above, and dragging the column to a new location. Drag handles are color-coded by data type.

## Creating a Calculated Column

A "calculated column" adds a new column in the data and is usually the result of operations on one or more existing columns. Once defined, a calculated column is created automatically when the data is retrieved.

In the following example, we'll create a new column that contains the results of multiplying the Quantity column by the UnitPrice column.



To get started, we'll hover the mouse cursor over the gear icon of one of the existing columns, *Quantity*, as shown above, and select the *Calculation* drop-down menu item.

**Northwind Orders**    Dataview Configuration    Dataview Status    **Data Enrichment**

Selected Column: **Quantity\_Calculation**

Details    **1** Math    **2** [Quantity] \* [UnitPrice]    Delete    Preview    Reset    Save

Calculation

- ABS
- EXP
- INT
- LOG
- MAX
- MIN
- MOD
- POWER
- ROUND
- SIGN
- SQRT

**3** + - / \* = ,    Test    Put field names in [square brackets].

**4**

Result	Quantity	UnitPrice
12.5	1	12.5

**5**

Country	ShipRegion	Quantity	Quantity_Cal...	UnitPrice	ProductID
Germany	Null	15		\$7.30	Null
Germany	Null	15		\$9.60	Null
Germany	Null	15		\$4.50	58
Germany	Null	15		\$21.00	Null
Germany	Null	15		\$99.00	3

The Calculation panel, shown above, will appear, with these keyed elements:

1. **Built-in Functions** - Hover your mouse cursor over one of these built-in functions to see its description, click to add it to the expression area. See the information at the end of this topic about using special SQL functions.
2. **Expression Area** - This is where you build your expression for generating the calculation column values. You can type directly into this field, if desired. Field names *must* be enclosed in [square brackets] and, as soon as you type an opening square bracket, a list of available columns will be shown for you to choose from.
3. **Operators** - Click to add one of these standard operators to the expression.
4. **Test Area** - Click the **Test** button to run the expression and see the results in this area.
5. **New Column** - The new column will be inserted into the columns at the bottom of the page, to the right of the column whose *gear* icon menu you used, and marked as the selected column.

To exit the Calculation panel, select a different column by clicking on it. You can then re-select the new calculated column and set its properties (for example, if you want to change its name).

Click the *Save* icon to save the new calculated column.

Click the *Reset* icon to clear the expression and results *before* previewing the new column.

Click the *Preview* icon to preview the calculated column, which will be populated with values based on the expression.

Click the *Delete* icon to delete the calculated column altogether and start over. To exit the Calculation panel, select a different column by clicking on it.

**Null values** in a column pose special challenges. In an application consuming a Dataview, they may be considered when grouping on the column but may not be included in aggregates and charts. While this may be the desired behavior, there are situations where a Null value should be counted. In those cases, the Null must be converted to a real value (e.g. "N/A", 0, -1, "Unknown"). This calculated column expression can be used to convert the Null values to a real value:

IFNULL ([column], 'N/A')

For Dataviews that use database Sources, you can use SQL functions if the standard expression functions aren't sufficient.

```
SQL_FUNCTION ("LEFT ([CompanyName], 3)")
```

+
-
/
\*
=
,
Test

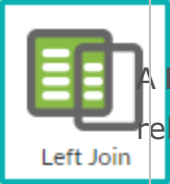
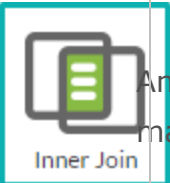
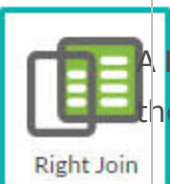

Result	CompanyName
Alf	Alfreds Futterkiste


As shown in the example above, you can wrap an ANSI SQL-92-compliant function in a "SQL\_FUNCTION( )" structure in your expression and it will be understood and executed as part of the query used in the data retrieval process. Column names must still be enclosed in square brackets. Complex SQL statements, like this, are supported:

```
SQL_FUNCTION("CASE WHEN [Country] = 'Argentina' THEN 1 ELSE 0 END")
```

# Creating Data Relationships

You can define data relationships between data objects in a Dataview. These are the support relationships:

Join	Description
 <p>Left Join</p>	<p>A <b>Left Join</b> will return all of the data from the left object and the data from the right object where the data in the related columns match. Where there isn't matching data, return Null information for the right object's columns.</p>
 <p>Inner Join</p>	<p>An <b>Inner Join</b> will return all of the data from the left and right objects where the data in the related columns match. Exclude the data from both objects if the data in the related columns doesn't match.</p>
 <p>Right Join</p>	<p>A <b>Right Join</b> will return all of the data from the right object and the data from the left object where the data in the related columns match. Where there isn't matching data, return Null information for the left object's columns.</p>
 <p>Outer Join</p>	<p>An <b>Outer Join</b> will return all of the data from both the left and right objects. Where there are matches in the related columns, return the data from both left and right objects. Where a match can't be found, return Null information. All records from both data objects will be represented in the final dataview.</p>

Join	Description
 <p>Union All</p>	<p>A <b>Union All</b> will return all of the data from both the left and right objects where there are matches in column names and data types. The non-matching columns will be appended to the rows. 💡 No column specification is required for this type of relationship. DataHub will analyze the objects to determine the resulting record set.</p>

In the following examples, we'll use the Northwind database as our primary data source and go through the process of creating a Dataview that includes a relationship. Once you understand the user interface basics, the techniques used to select the objects and columns, and establish relationships is relatively simple.

We'll begin by navigating to DataHub's **Create a New Dataview**, selecting or creating a Northwind data source (not shown here), and displaying the **Dataview Configuration** tab.

We're going to need Customer information and Order information, so let's start by selecting the *Customers* data object and identifying the customer data that we need.

### Northwind Orders

Dataview Configuration | Dataview Status | Data Enrichment

#### Add Data

**Sources in Use**

Northwind db Microsoft SQL Server

**Objects in Northwind**

Search by Name  Show All

Objects in Use

Customers

Available Objects

Employees

EmployeeTerritories

Invoices

Order Details

Orders

**Columns in Categories** Select: [All](#) [None](#)

Search by Name  Show All

CustomerID

CompanyName

ContactName

ContactTitle

Address

City

Region

PostalCode

Country

Phone

Fax

CompanyName

Region

Country

We clicked on the *Customers* data object and clicked on the *CompanyName*, *Region*, and *Country* columns, as shown above. Notice at the bottom-left of the tab, the current definition of the columns in the Dataview is taking shape.

Our next step is to identify the Order information we need in the Dataview. If we click on the *Orders* object, the Dataview Configuration tab will look like:

# Northwind Orders

Dataview Configuration | Dataview Status | Data Enrichment

## Add Data

**Sources in Use**

- Northwind  
db Microsoft SQL Server

**Objects in Northwind**

Search by Name  Show All

Objects in Use

- Customers

Available Objects

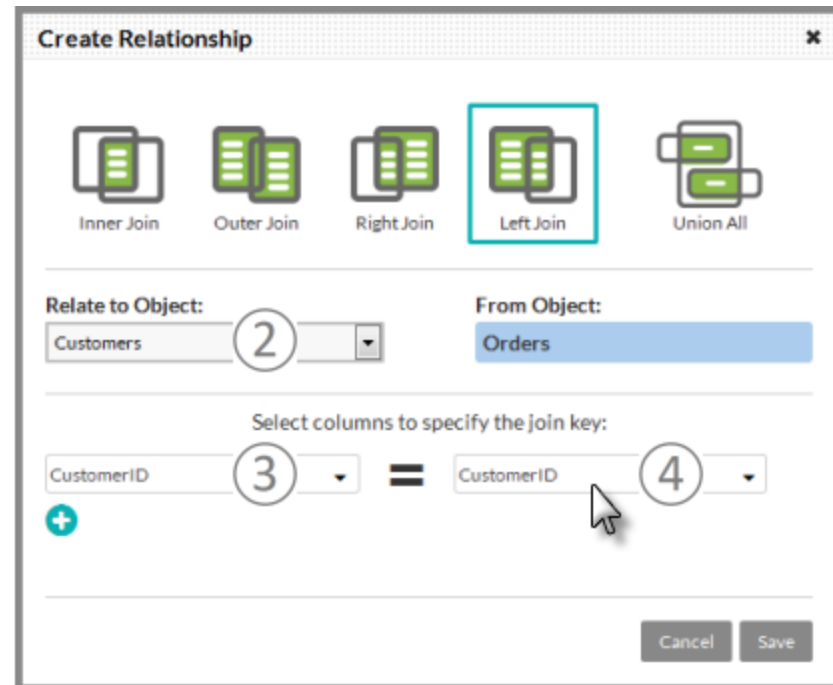
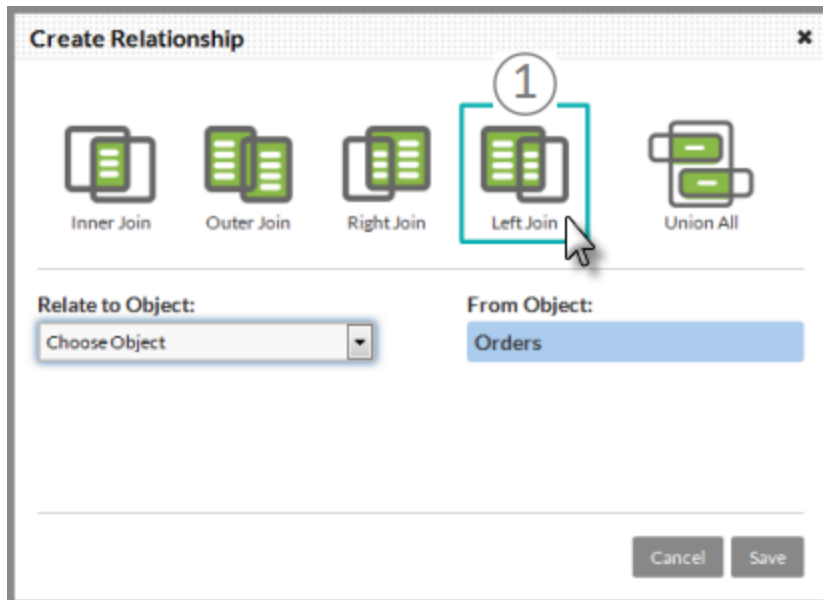
- Employees
- EmployeeTerritories
- Invoices
- Order Details
- Orders**
- Products

**Can't determine relations for Orders**

- OrderID
- CustomerID
- EmployeeID
- OrderDate
- RequiredDate
- ShippedDate
- ShipVia
- Freight
- ShipName
- ShipAddress
- ShipCity
- ShipRegion
- ShipPostalCode
- ShipCountry
- Invoiced

Notice that the *Customers* columns are still in the Dataview, the *Orders* columns are available for selection, but no relationship between them has been defined yet.

If we click **Create Relation** in the Columns panel, the Create Relationship panel is displayed:

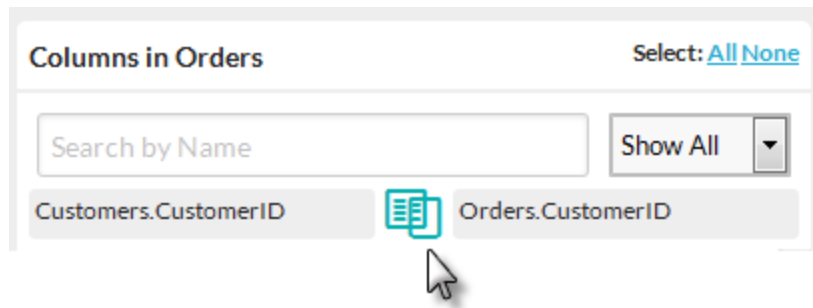


In order to create a relationship, do the following:

1. **Relationship Type** - Click the type of relationship you want to use; in our example, it's a *Left Join*, which is selected by default.
2. **Relate To Object** - Select the object we want to relate the *Orders* object to; we want to relate to *Customers*.

3. **Select "Left" Key Column** - Select the column in Customers that we want to relate to one in Orders; we'll use *CustomerID*.
4. **Select "Right" Key Column** - Select the column in Orders that we want to relate to the one we selected in Customers; we'll use *CustomerID*.

It's not necessary for this example, but we can create multiple key column pairs by clicking the "+" icon. Click the **Save** button to save the relationship.



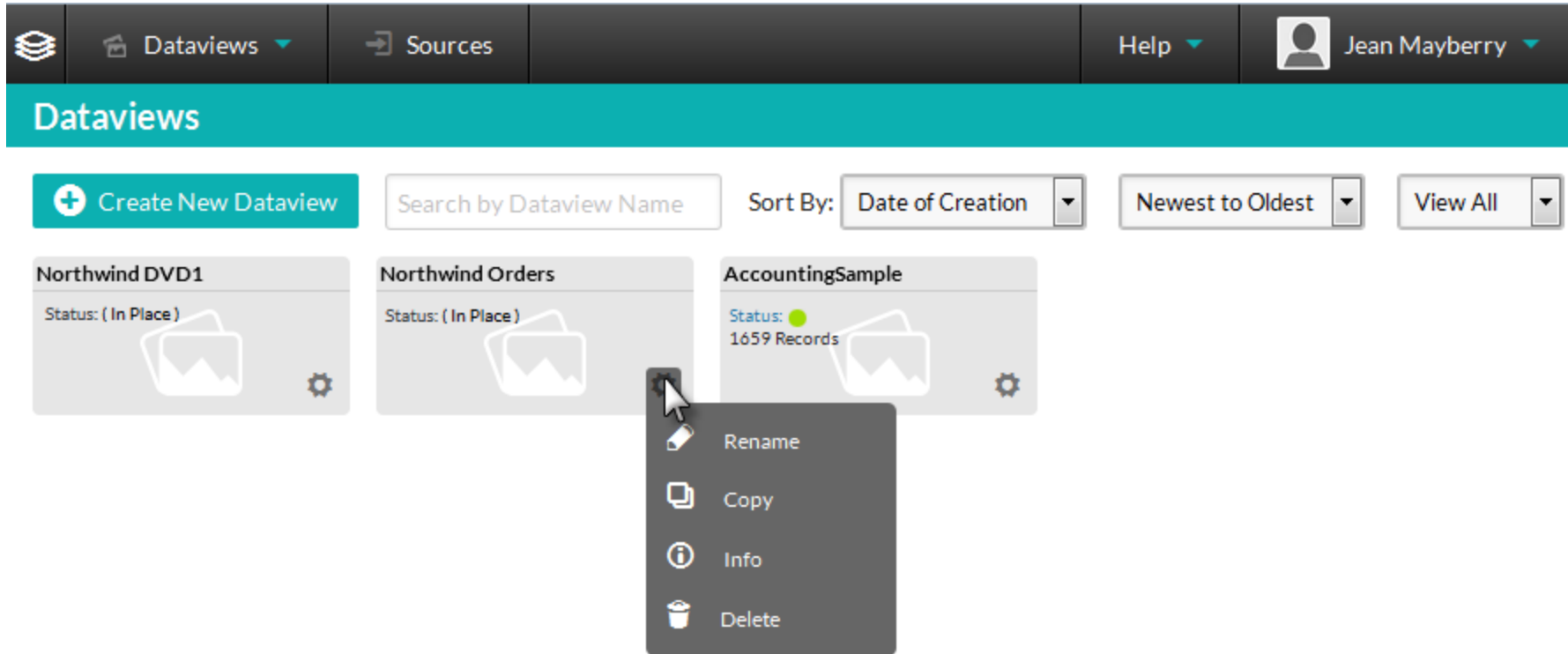
The relationship description has been added to the top of the Columns panel, as shown above. To modify it, click the Join icon in the middle.

It's possible to create additional relationships between these and other objects by repeating the process described above.

Click the *Save* icon in the upper right-hand corner of the tab to save the Dataview with its relationship.

# Managing Dataviews

As you create Dataviews, they're represented in the *Dataviews* page with graphic "pills":



The collection of pills can be searched and filtered using the provided controls.

Each pill displays the Dataview name, its status ("In-Place" for a regular Dataview), its loaded record count ("### Records" if cached in DataHub) as shown above, and includes a gear icon. Hovering your mouse cursor over the icon displays a menu of management actions. The *Delete* option will only be included if you're the user who created the Dataview.

# PDB Object Migration Tool

The Platform Database (PDB) is a central repository of key information for a Discovery Module v3.1 instance. This topic provides instructions for copying essential objects in a PDB from one instance to another.

The following sections are covered in this topic:

- About PDB Object Migration
- [Running the PDB Object Migration Tool](#)

## About PDB Object Migration




Features discussed here work with Logi Info v12.5. Earlier and later Info versions may not support them; consult the [Release Notes](#) for specific details.

It's very likely that you'll need to migrate (copy) Platform Database (PDB) objects from one Discovery Module (DM) instance to another. For example, a common scenario involves moving (or "promoting") work from your development machine to a production server. Another scenario involves creating a new application + DM instance for a new tenant in a multi-tenant environment.

Logi provides the **PDB Object Migration Tool**, a command-line utility, for this purpose. When it runs, it does the following:

1. Creates a safety copy of the existing PDB in the "target" LS instance
2. Copies all the needed PDB objects from the "source" DM instance (and all the relationships between them) to the PDB in the target DM instance. The process can include copying only new objects (*Appendmode* - the default) or copying new objects *and* updating existing objects (*Update mode*).

 The general assumption in this topic is that you've already installed the Discovery Module on the target computer or VM and have configured its PDB with default and/or custom objects, including users, groups, and permissions, as appropriate to your implementation.

When you run the PDB Object Migration Tool, all of the objects in the source PDB are migrated, **except** objects in the following namespaces:

Excluded Namespace	Comment
system.capabilities*	
system.connectionTypes	Represents connection templates, which are configured in files.
system.groups	Groups are <i>not</i> migrated to the target PDB. See note below.
system.info.*	Related to notifications.
system.licenses	
system.oauthparams	Used only for OAuth connection creation.
system.product.environments	
system.refreshToken	
system.roles	Roles are <i>not</i> migrated to the target PDB. See note below.

Excluded Namespace	Comment
system.security.defaultAuth	
system.settings	
system.user.metadata*	
system.users	Users are <i>not</i> migrated to the target PDB. See note below.

It's not possible to exclude other objects individually.




As described above, User, Groups, and Roles are *not* migrated to the target PDB. This is because these security-related objects might not be the same in both environments and, typically, you don't want to overwrite them in the target PDB, which you've already configured.

The source and target PDBs must have the same "admin" user credentials, and stopping the Logi Data Service service on the source and the target instances is not required.

The tool expects, as an argument, the fully-qualified file path and name of the source PDB. Typically, this file is:

(Windows)C:\LogiAnalytics\Discovery\platform\db\LogiDB.mv.db

(Linux)LOGI\_HOME/platform/db/LogiDB.mv.db

 Depending on your network configuration, you may have direct access to this file on the source computer. If not, you may have to copy or FTP the PDB file from the source computer to the target computer - but DO NOT overwrite the existing PDB on the target computer. Instead, copy the source PDB to some temporary folder and work with it, using the tool, from there.

## Running the PDB Object Migration Tool

To run the tool, from a command line, navigate to:

(Windows) `C:\LogiAnalytics\Discovery\platform\bin`

(Linux) `LOGI_HOME/platform/bin`

and execute this batch file, using your *admin* credentials:

(Windows) `pdbMigrationTool.bat --source_pdb={path_to}/LogiDB.mv.db --mode=append --user=admin --password=password`

(Linux) `./pdbMigrationTool.sh --source_pdb={path_to}/LogiDB.mv.db --mode=append --user=admin --password=password`

where:

source_pdb	(Required) Specifies the fully-qualified path and filename for the source PDB file, either to a shared network folder or to a local temporary folder on the target computer (see note at the end of the previous section).
mode	Specifies the scope of the migration, subject to the exclusion table shown earlier: =append- (default) causes the source PDB objects not already in the target PDB to be <i>added</i> to it; =update- same as append but <i>also</i> updates the existing target PDB objects with source PDB objects.
user	(Required) Specifies the ID of the user performing the migration, e.g., admin. The tool can be executed by the "admin" user and can also be called from other Command Line administrative operations.

password	(Required) Specifies the user's password.
invalidate_ cache	Specifies status of all caches. If <i>true</i> (the default value) all are marked invalid and will be refreshed.

The operation will log its details and present status feedback, if run by a human, in the command-line window.

### Error Handling

If an unrecoverable error occurs during the tool's operation, the target PDB will be automatically restored from the safety copy made when the operation started.

# Glossary

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## A

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### **API**

API, short for Application Program Interface, is a set of routines, protocols, and tools for building software applications. In business intelligence, APIs may be used to enable end-users to directly update source systems.

### **Authentication**

Authentication is the verification of a user's identity.

### **Authorization**

After a user's identity has been authenticated, authorization grants or denies access to reports, columns, and records to selected users or user-groups.

## B

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### **Big Data**

Refers to both the ever-growing volumes of data in use today and also to services that are specifically engineered to provide and manipulate very large data volumes.

### **Business Analytics**

Business analytics, or business intelligence (BI), gives customers the ability to rapidly create scalable, interactive data analysis applications, and self-service capabilities users can access from anywhere and on any device.

## C

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### **Columnar Data Store**

Columnar data store is a type of big data repository containing structured data in columns and rows. The main benefits are that the data can be highly compressed and is easily searchable.

### **CRM**

A Customer Relationship Management (CRM) system is a database-based system that records a company's daily customer-related transactions. CRMs can help customer representatives to provide better service, close more deals, and increase revenue.

### **CSS**

Cascading Style Sheets (CSS) is a technology that allows the presentation aspects of web pages to be separated from the page content. It can be used to add "styling" (e.g. apply fonts, colors, alignment, spacing, and more) to web pages.

## D

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### **Data Discovery**

Data discovery is the capability to analyze data on-the-fly and uncover insights from it.

### **Data Enrichment**

Data enrichment is a method of preparing data to make it ready for analysis and exploitation, and can include formatting, adding calculations, joining with other data, and more.

### **DevNet**

The Logi Developer Network website.

## **Drill Down**

Drill Down is a capability that allows the user to get a view of the underlying or supporting data used in an analysis.

## **Drill Through**

Drill Through is similar to Drill Down but takes it one step further by applying analysis to the underlying or supporting data.

## **E**

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## **Elemental Development**

A development approach used in Logi Info that lets developers build feature-rich applications by using reusable, pre-built elements, rather than by writing low-level code.

## **F**

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## **Forecasting**

A technique involving data mining and analysis leading to predictions about what will happen in the future.

## **G**

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## **Geo Mapping**

The combination of geographic and other data to produce map visualizations, such as Google or Leaflet maps.

## H

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### **Heatmap**

A Heatmap chart, sometimes called a "tree map", which uses a unique arrangement of rectangles to represent data and relationships, using color and size.

## I

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### **Interpolation**

The process of evaluating a literal value match containing one or more placeholders, yielding a result in which the placeholders are replaced with their corresponding values.

## J

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### **JavaScript**

JavaScript is a programming language supported by the majority of modern web browsers and used by many websites.

### **JDBC**

Java Database Connectivity (JDBC) is an API used to access relational databases. Open Database Connectivity (ODBC) is a similar API designed for use with Java.

### **JSON**

JavaScript Object Notation (JSON) is a lightweight data-interchange format that's easy for humans to read and write, and easy for computers to parse and generate.

## K

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### **KPI**

Key Performance Indicators (KPIs) are visual indicators, in the form of color-coded shapes, which are tied to a pre-defined, critical threshold.

## L

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### **LDAP**

The Lightweight Directory Access Protocol (LDAP) is an Internet protocol applications use to look up information from a server and is frequently used for containing user login information.

## M

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### **My Term**

My definition

## N

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### **NoSQL**

"Not only SQL" (NoSQL) is an alternative to traditional relational databases, and doesn't rely on tables and a pre-determined schema. NoSQL databases are especially useful for working with large sets of distributed data.

## O

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### **ODBC**

Open Database Connectivity (ODBC) is an API used to access relational databases. Java Database Connectivity (JDBC) is a similar API designed for use with Java.

### **OLAP**

Online Analytical Processing (OLAP) is the process of analyzing data stored in multi-dimensional "cubes".

## R

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### **REST**

Representational State Transfer (REST) is a type of API used to provide interoperability between computer systems on the Internet.

## S

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### **SSM**

The Self-Service Module (SSM) is a package that includes Logi Info + SSRM + Discovery or Logi Platform Services.

### **SSRM**

The Self-Service Reporting Module (SSRM) is a Logi Info add-on module that adds special elements to Info and includes the InfoGo application.

## W

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### **Write-Back**

The ability to update data sources, typically by adding, editing, or deleting data.