Web Reports Guide

Axiom Software

Version 2019.1

KaufmanHall

AXIOM

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Introduction

Web reports provide a fully web-enabled reporting option for Axiom Software. This guide discusses how to create and use web reports.

Intended audience

This guide is intended for all users of Axiom Software, from users who only consume existing reports to web report creators.

What is covered in this guide?

This guide covers the following aspects of web reports:

- What are web reports and how do they compare to Axiom forms?
- Opening and using existing web reports
- Creating new web reports
- Configuring web report components such as data grids and labels
- Configuring refresh variables and creating dependencies
- Creating custom web report templates

What is not covered in this guide?

The following related topics are not covered in this guide:

- **Table setup and administration.** Creating web reports requires general knowledge of your system's data structures, including the available tables and columns and their relationships. For more information, see the *System Administration Guide*.
- **Axiom form setup.** Web report templates are created using Axiom forms. Although knowledge of Axiom forms is not required to create new web reports using existing templates, it is required to create new templates. For more information, see the *Axiom Forms and Dashboards Guide*.

All documentation for Axiom Software can also be accessed using the Axiom Software Help Files.

2

Web Report Basics

This chapter explains what web reports are, and covers the basics of opening and using web reports. The remaining chapters cover how to create new web reports and configure various options.

About web reports

Axiom web reports provide a fully browser-based reporting option for Axiom Software. Reports can be created and viewed entirely in the Web Client, without requiring any spreadsheet design and without requiring the Desktop Client (Excel Client or Windows Client). This greatly expands the available environments for report creation, since the only requirement is a supported browser.

The Report Designer is the tool used to create and configure web reports. Web reports are saved to the Reports Library just like other reports. Web reports use the AWR file type, and are distinguished from spreadsheet reports and Axiom form reports using a special icon.

Comparison to Axiom forms

Axiom Software supports two options for web-based reporting—*web reports* and *Axiom forms*. Web reports are similar to Axiom forms and use many of the same components as building blocks, but are created and managed differently.

- Axiom forms are created in the Desktop Client, using a source spreadsheet file as the basis for querying data and designing the form web page. Once the form has been created, end users can access it using just a browser—the Desktop Client is no longer required. The settings in the spreadsheet are used to render the form web page. Forms are very flexible and can support a wide variety of needs, but the setup and design requires a high level of Axiom Software knowledge and can be complicated.
- Web reports are created in the Web Client browser using the Report Designer, and have no spreadsheet dependencies. The report setup is saved as an XML file, which is then used to render the report web page. Web reports support fewer options than forms, but are easier to create (though a basic knowledge of the system's data structures is still required). Web reports are intended to streamline and simplify the report creation process, so that reports can be created more quickly and require less training and technical requirements.

Web report creation

The web report creation process is template-driven. The first step of the Report Designer is to select a template, which is then copied to create the new report. The selected template determines the layout of the report and the available components in the report, such as data grids and labels. You can then configure the report components to display the desired text and data.

Axiom Software provides a set of standard templates for web report creation. If you have one or more installed products, those products may provide additional templates. You can also create custom templates for use in your own system.

Custom web report templates are created using Axiom forms. You can create an Axiom form that uses certain supported components, and save that form as a web report template. When you create web reports using the template, the file is converted to the XML web report format.

For more information, see Creating Web Reports and Creating custom templates for web reports.

Accessing web reports

End users can view web reports using the Web Client browser. In the Web Client, web reports can be accessed as follows:

- Using the Web Reports browse page
- Using the Navigation panel in the Web Client Task Bar
- Using links within a form home page (or within other forms and web reports)

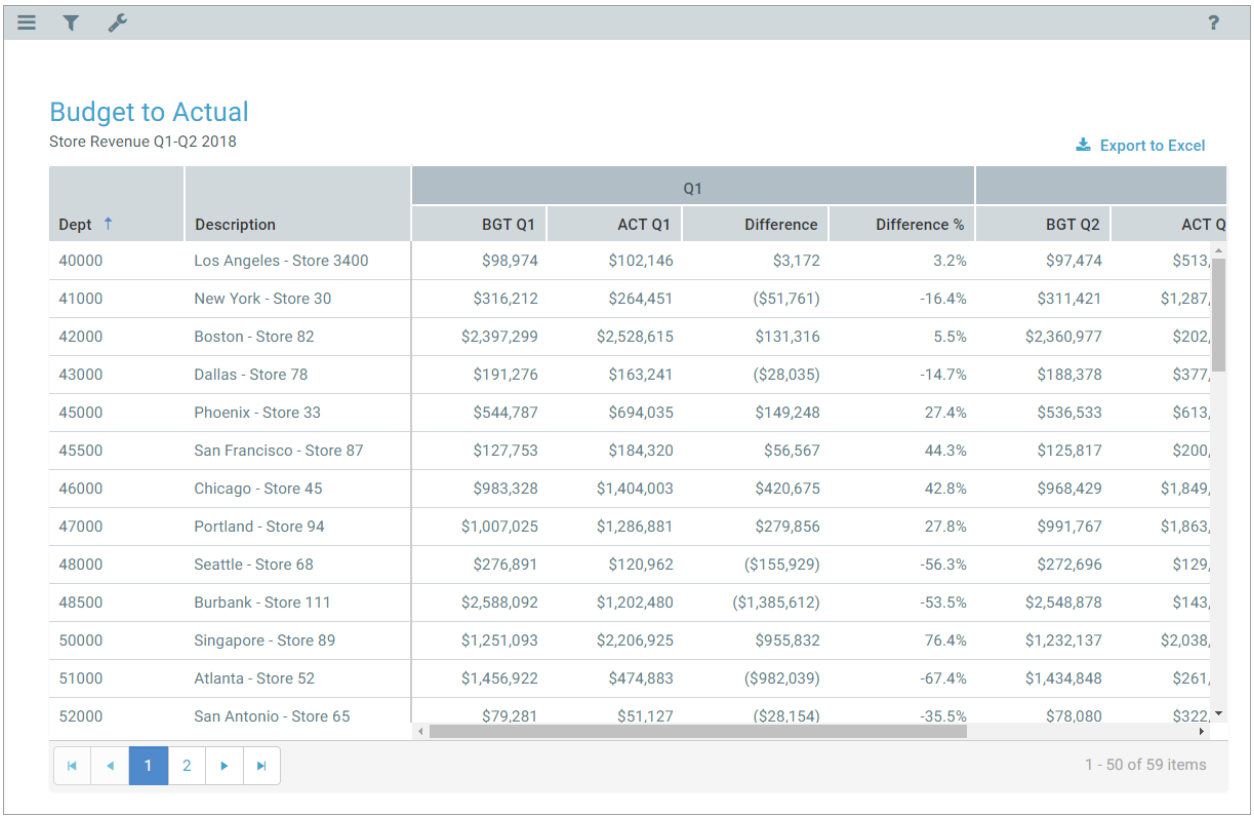
Web Reports are also visible in the Desktop Client in the Reports Library. When a web report is launched from that location, it opens in the Web Client browser.

Just like other report files, you can set security for web reports at a folder or file level within the Reports Library, so that users only see the reports they need to see. Any data queries in the web report are automatically limited by the user's table and table type security filters.

For more information, see Opening web reports.

Web report contents

Web reports can contain title text, hyperlinks, data grids, and KPIs. Using the default templates, reports look similar to the following examples:



Budget to Actual

Store Revenue Q1-Q2 2018

Export to Excel

Dept	Description	Q1					
		BGT Q1	ACT Q1	Difference	Difference %	BGT Q2	ACT Q
40000	Los Angeles - Store 3400	$98,974	$102,146	$3,172	3.2%	$97,474	$513,
41000	New York - Store 30	$316,212	$264,451	($51,761)	-16.4%	$311,421	$1,287,
42000	Boston - Store 82	$2,397,299	$2,528,615	$131,316	5.5%	$2,360,977	$202,
43000	Dallas - Store 78	$191,276	$163,241	($28,035)	-14.7%	$188,378	$377,
45000	Phoenix - Store 33	$544,787	$694,035	$149,248	27.4%	$536,533	$613,
45500	San Francisco - Store 87	$127,753	$184,320	$56,567	44.3%	$125,817	$200,
46000	Chicago - Store 45	$983,328	$1,404,003	$420,675	42.8%	$968,429	$1,849,
47000	Portland - Store 94	$1,007,025	$1,286,881	$279,856	27.8%	$991,767	$1,863,
48000	Seattle - Store 68	$276,891	$120,962	($155,929)	-56.3%	$272,696	$129,
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51000	Atlanta - Store 52	$1,456,922	$474,883	($982,039)	-67.4%	$1,434,848	$261,
52000	San Antonio - Store 65	$79,281	$51,127	($28,154)	-35.5%	$78,080	$322,

1 2

1 - 50 of 59 items

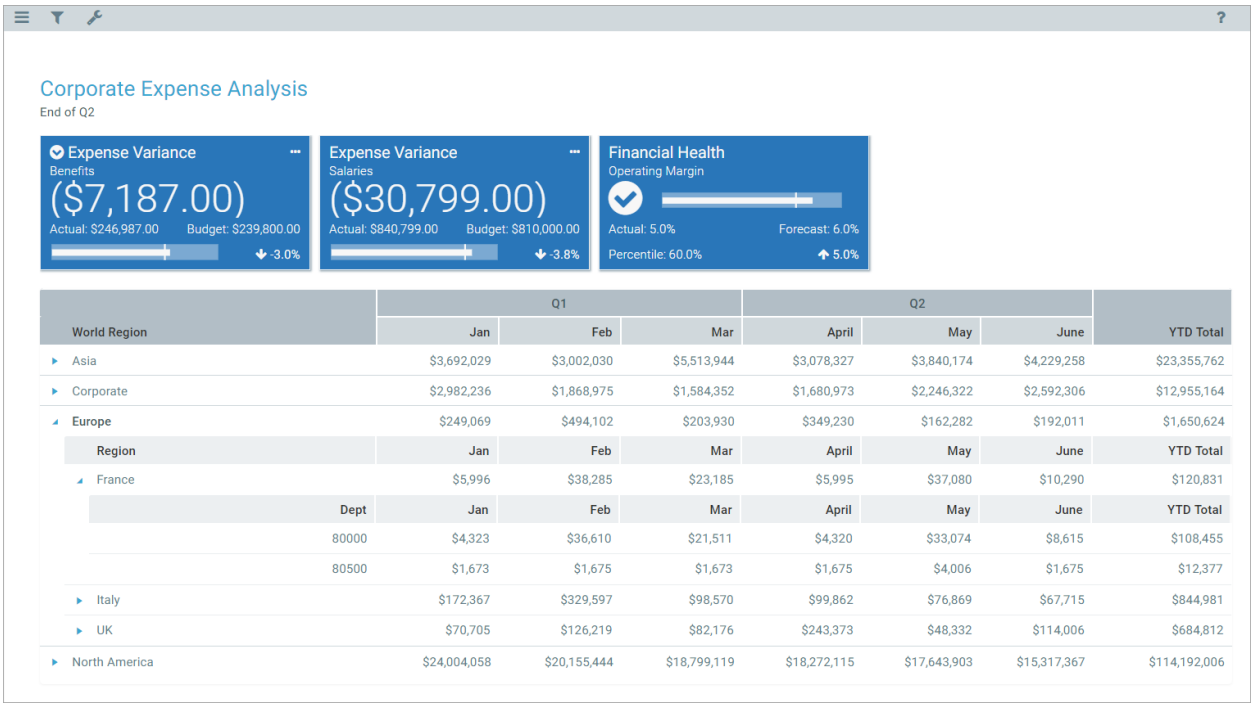
Example report with frozen columns and paged data (Standard Template)

Expenses Overview

End of Q2 2017

WorldRegion	Q1				Q2				
	Jan	Feb	Mar	Q1 Total	Apr	May	June	Q2 Total	YTD Total
Asia	$3,692,029	$3,002,030	$5,513,944	$12,208,003	$3,078,327	$3,840,174	$4,229,258	$11,147,760	$23,355,762
Corporate	$2,982,236	$1,868,975	$1,584,352	$6,435,563	$1,680,973	$2,246,322	$2,592,306	$6,519,601	$12,955,164
Europe	$249,069	$494,102	$203,930	$947,101	$349,230	$162,282	$192,011	$703,523	$1,650,624
Region	Jan	Feb	Mar	Q1 Total	Apr	May	June	Q2 Total	YTD Total
France	$5,996	$38,285	$23,185	$67,466	$5,995	$37,080	$10,290	$53,365	$120,831
Dept	Jan	Feb	Mar	Q1 Total	Apr	May	June	Q2 Total	YTD Total
80000	$4,323	$36,610	$21,511	$62,445	$4,320	$33,074	$8,615	$46,010	$108,455
80500	$1,673	$1,675	$1,673	$5,022	$1,675	$4,006	$1,675	$7,355	$12,377
Italy	$172,367	$329,597	$98,570	$600,535	$99,862	$76,869	$67,715	$244,446	$844,981
UK	$70,705	$126,219	$82,176	$279,100	$243,373	$48,332	$114,006	$405,712	$684,812
North America	$24,004,058	$20,155,444	$18,799,119	$62,958,621	$18,272,115	$17,643,903	$15,317,367	$51,233,384	$114,192,006

Example report with grouped data (Standard Template)



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Example report with KPIs and data grid (KPI Template)

Web report users can review the data in the report and also do the following (depending on the report configuration):

- Use built-in data grid tools such as the ability to sort the grid by any column, move between pages of data, and filter the displayed data in the grid by any column where filtering has been enabled
- If the grid shows grouped data, expand and collapse sections of data in the grid
- Use special grid features such as the ability to drill down rows of data or export grid data to a spreadsheet
- Launch supporting information for a KPI by clicking the action button in the top right corner of a KPI box
- Filter the report data on demand, using predefined refresh variables in the Filters panel

Opening web reports

Web reports are browser-based reports created using the Report Designer. You can browse all of the web reports that are available to you and open them to view the report data. In order to open a web report, you must have at least read-only access to the report, as defined in Axiom Software security. Web Reports can be opened from either the Web Client or the Desktop Client.

This topic discusses the default way to access web reports. Your system may be designed so that you can open web reports in other ways, such as:

- Using the Navigation panel in the Web Client

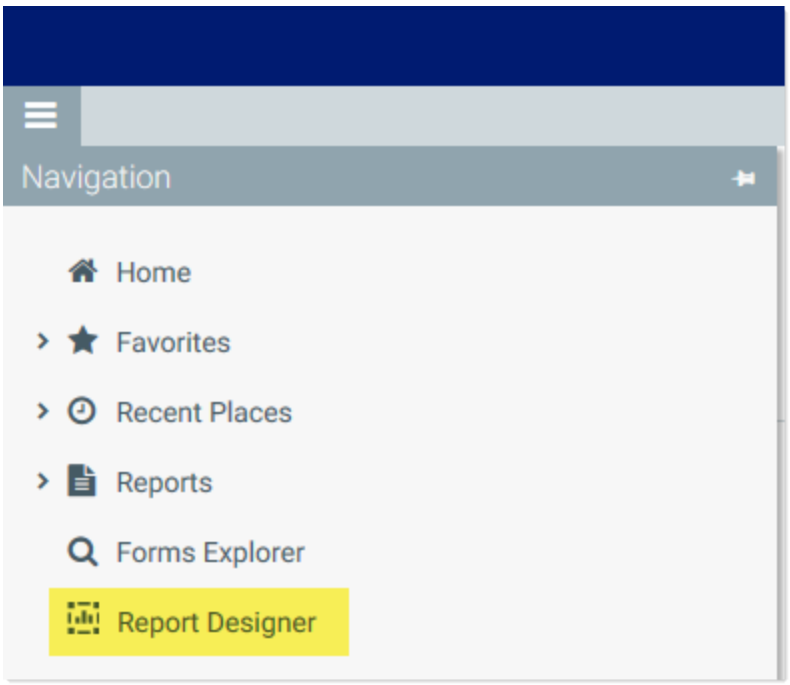
- Using links within your home page or other files
- Using links within a task pane or ribbon tab in the Desktop Client

Opening a web report using the Web Client

You can open web reports using the Report Designer page in the Web Client.

To access the Report Designer page:

- Click the menu icon in the left side of the Task Bar to open the Navigation panel. Then, select **Report Designer**.

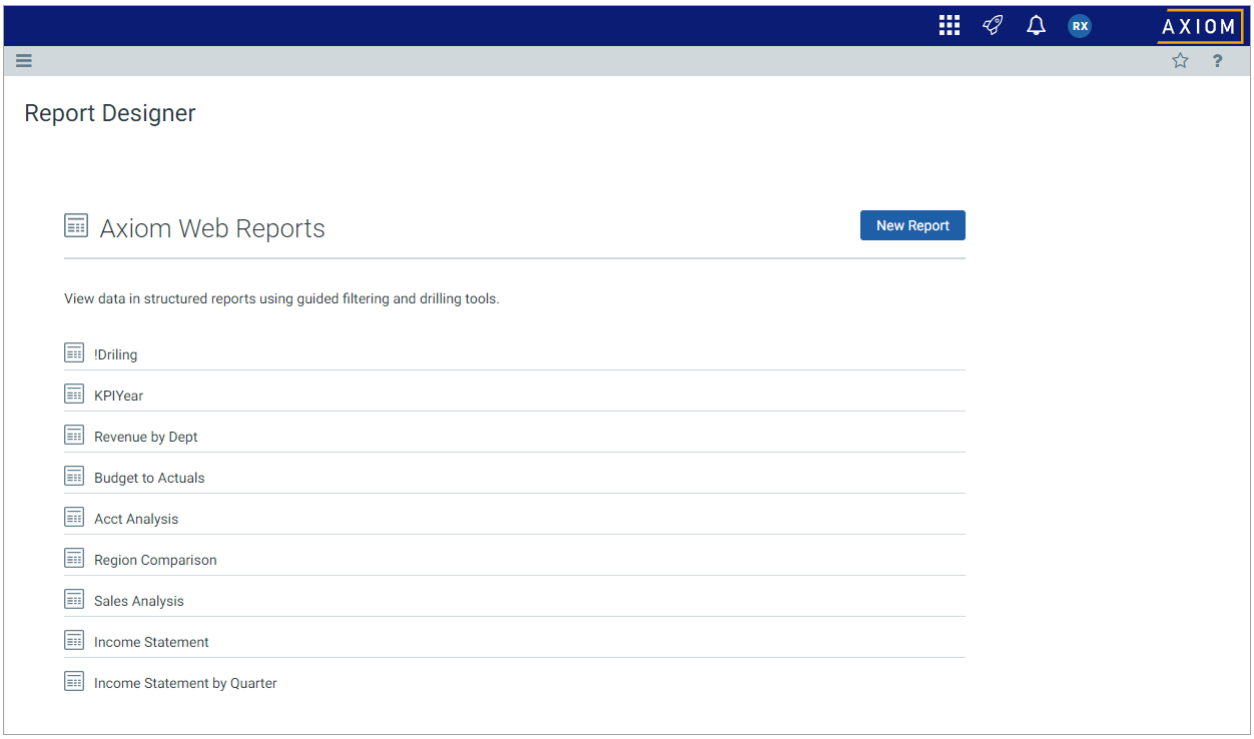


NOTE: If you do not see the Report Designer in the Navigation panel, this may mean that your organization's Navigation panel has not been updated (or that your organization has customized the panel to exclude it).

Alternatively, you can go to directly to the Report Designer page as follows:

Example On-Premise URL	`http://ServerName/Axiom/Reports` Where *ServerName* is the name of the Axiom Application Server, and Axiom is the default name of the virtual directory.
Example Cloud System URL	`https://ClientName.axiom.cloud/Reports` Where *ClientName* is the name of your cloud service system.

All of the web reports that you have permission to access are listed underneath the **Axiom Web Reports** header. To open a report, click on it.



Example Report Designer page with web reports

Reports are displayed in last-modified order, with the most recently created or modified reports on top. You can hover your cursor over a report to see when the report was last modified and by whom.

Opening a web report using the Desktop Client

You can open a web report from the Reports Library in the Desktop Client (Excel Client or Windows Client). You can differentiate web reports from other types of Axiom Software reports using the following icons:

- Web report
- Axiom form
- Spreadsheet Axiom file

To open a web report:

1. On the **Axiom** tab, in the **Reports** group, click **Reports** to bring up the Reports menu.

NOTE: If you are using an Axiom packaged product, this feature may be present on a different ribbon tab.

TIP: You can also open reports from the Explorer task pane or Axiom Explorer.

2. Use the Reports Library folders at the bottom of the menu to navigate to the specific web report that you want to open, and then click on it.

The web report opens in the Web Client using your default browser.

Using web reports

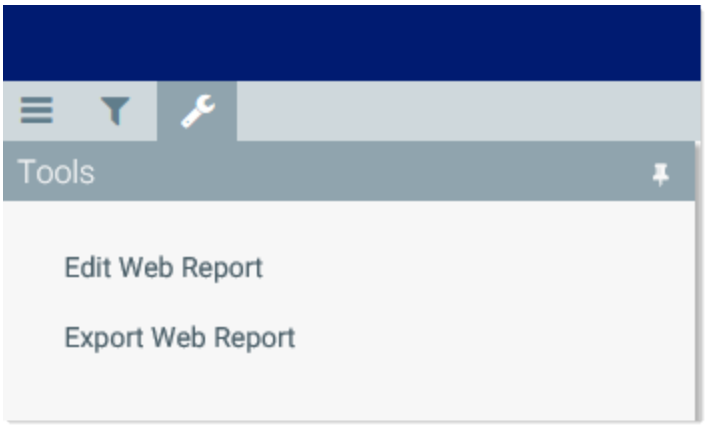
When you open a web report, it is automatically refreshed to show a predefined set of data. Depending on the report configuration, you may have the option to dynamically change the data shown in the report. If you have any questions about what you can do or see in a particular report, ask your system administrator or other local system contact.

Interacting with web report data

- **Data Grids**: Web reports may contain a data grid to display data. You can use the built-in data grid features to interact with the data, such as expanding / collapsing groups, filtering columns, sorting data, and more. For more information on what you can do in a data grid, see Using data grids in web reports.
- **KPIs**: Web reports may contain a series of boxes showing key performance indicators. If the box has an icon in the top right corner, you can click the icon to open a web page or an Axiom file relating to the KPI.
- **Filters**: Web reports may be designed so that you can filter the data in the report on demand, based on a predefined set of filter options. If the filter icon is present in the toolbar, you can use the **Filters** panel to change the data shown in the report. For more information on using the Filters panel, see Filtering data in web reports.

Advanced options

If you have read/write access to the web report, the following options are available from the **Tools** menu while you are in the report:

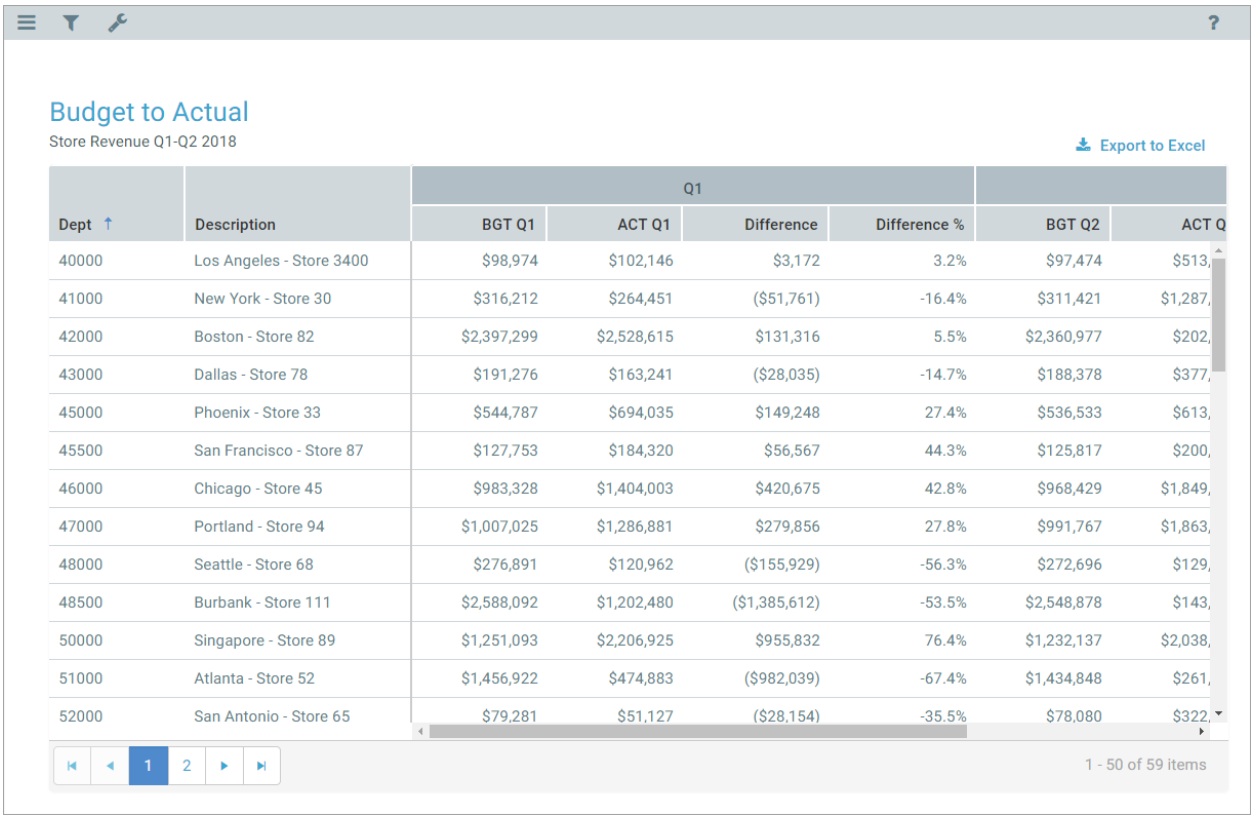


- **Edit Web Report**: Open the current report in the Report Designer for editing. For more information, see Using the Report Designer.
- **Export Web Report**: Download a copy of the AWR report file. Generally speaking, you would only use this to import the report into a different Axiom Software system, or for troubleshooting purposes when working with Kaufman Hall Software Support.

Using data grids in web reports

Web reports may contain one or more data grids to return data into the report. While viewing a data grid, you can make various adjustments to the display and also further explore the data.

This topic details the various features that you can use when viewing a data grid in a finished web report. For more information on creating a new web report and configuring a data grid, see Creating Web Reports and Data Grid component.



Budget to Actual

Store Revenue Q1-Q2 2018

Export to Excel

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1 - 50 of 59 items

Example data grid

NOTE: If you refresh the data shown in the data grid—such as by using the Filters panel—then all user changes to the grid are reset along with the new data.

Grid basics

Data grids show a specified number of records per page. This page limit is configured per data grid, by the report creator. If the data in your grid exceeds the page limit, you can move between pages using the page controls at the bottom left of the grid.

Page controls for data grids

- Click a page number to move directly to that page.
- Click the single arrow buttons to move one page back or forward.
- Click the double arrow buttons to move to the first page or the last page.

You can make minor adjustments to the column display as follows:

- To change the column width, hover your cursor along the right edge of the column header, then

drag to make the column thinner or wider.

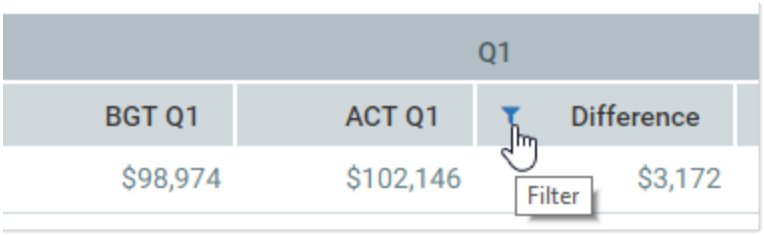
- To reorder columns, click on a column header and then drag it to a new location within the header. Note that columns cannot be moved in or out of a column group (meaning a set of columns grouped under header text). If a column belongs to a column group, you can change its order within the group but you cannot drag it out of the group.

Sorting and filtering data

To sort the grid by any column, click on the column header. Each click toggles between ascending sort, descending sort, and no sort. If the grid is currently sorted by a column, the sort direction is indicated by an arrow on the column header (up for ascending, down for descending).

Some columns may allow filtering the grid by the column data. For example, you might want to filter a data column to hide zero-value records, or to show all records above or below a certain value. You might want to filter a dimension column to hide or show certain dimensions (such as departments, accounts, and so on). The report creator determines whether a column is enabled for filtering.

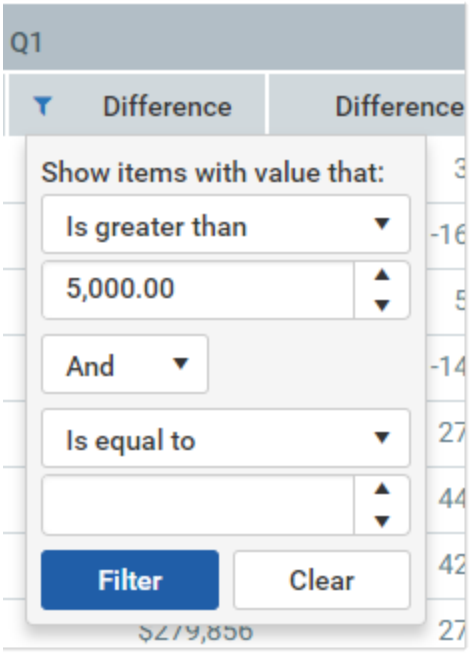
If a column allows filtering, the filter icon displays in the column header when you hover your cursor over the column header. The filter icon displays on the right side if the header text is left-aligned or center-aligned, and on the left side if the header text is right-aligned.



Filter icon for a column with filtering enabled

To filter the grid based on a column:

1. Click the filter icon in the column header to show the filter options.
2. Set the filter options as desired. You can set up to two filter options, combined with either AND or OR.



Example filtering options

3. Click **Apply**.

The grid updates to only show records that meet the filter. Additionally, the filter icon in the column header is now visible and blue to indicate that the grid is filtered by this column.

The filter is retained until you clear it, or until the data grid is refreshed with new data.

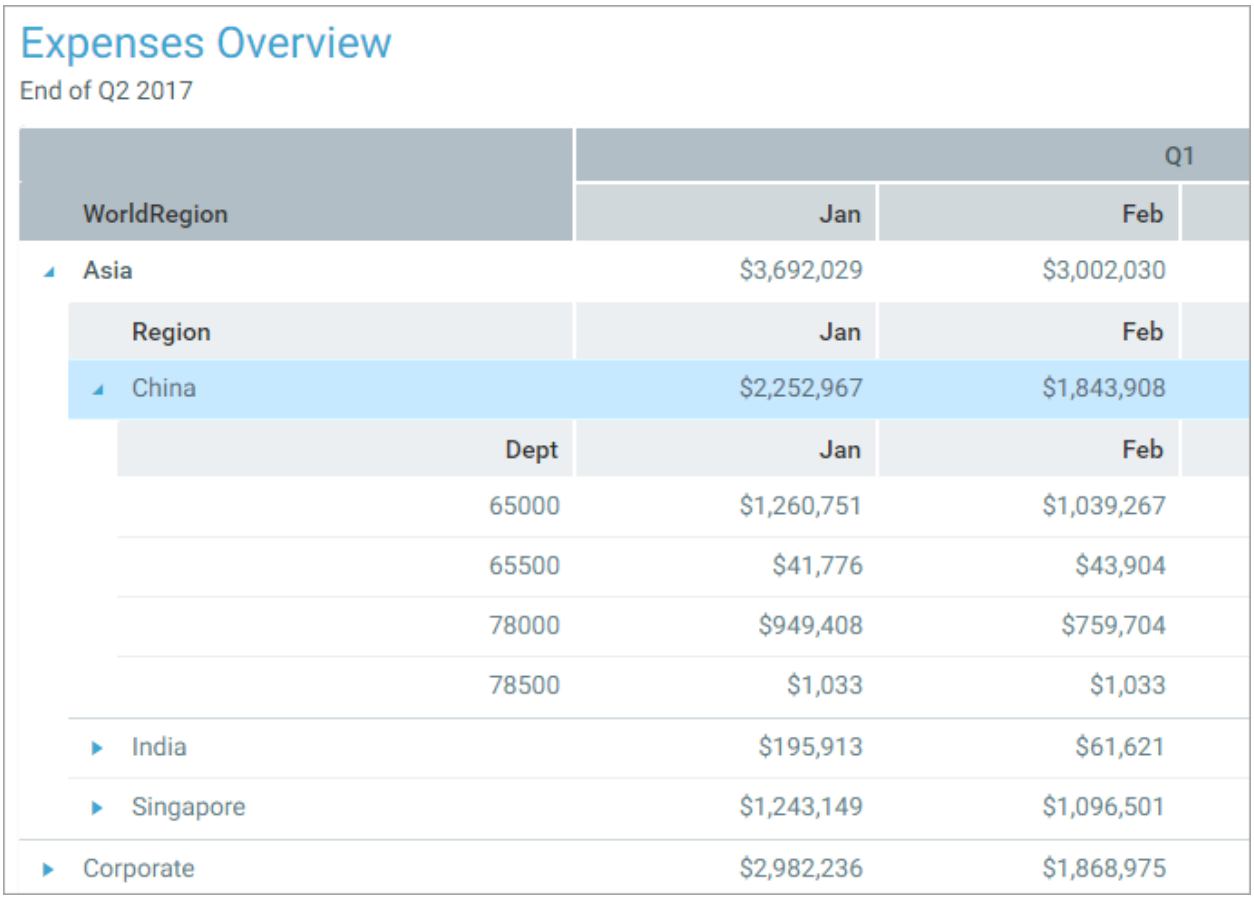
To clear a filter:

1. Click the filter icon in the column header to show the filter options.
2. Click **Clear**.

The grid updates to clear the filter. The filter icon is now only visible when hovering over the column header.

Viewing grouped data

Data grids may be configured to show data in hierarchical groups. For example, you may initially see the top level data by WorldRegion, then expand a world region to see the Region data within it, then expand a region to see the individual departments in that region. The report creator determines whether a grid is grouped or not, as well as the grouping levels.



Expenses Overview

End of Q2 2017

WorldRegion	Q1 Jan	Q1 Feb
Asia	$3,692,029	$3,002,030
Region	Jan	Feb
China	$2,252,967	$1,843,908
Dept	Jan	Feb
65000	$1,260,751	$1,039,267
65500	$41,776	$43,904
78000	$949,408	$759,704
78500	$1,033	$1,033
India	$195,913	$61,621
Singapore	$1,243,149	$1,096,501
Corporate	$2,982,236	$1,868,975

Example expanded groupings

If a grid is grouped, you can expand or collapse a grouping by clicking on the triangle icon in the left-hand side of the grid.

When viewing grouped data, the page controls apply to each grouping instead of to the overall grid. For example, if you expand a group and the next level of rows in that group exceed 50 rows (or whatever the configured row limit is), then the rows inside that group are paged.

Drilling data

If the data grid has been configured to enable drilling, you can drill any row in the grid as follows:

- Hover your cursor over the far left column in the grid so that a magnifying glass icon appears.
- Click the icon to drill the row.

DEPT.VP	GL2018.Q1
Bree Sigman	$6,781,793
Evan Simpson	$14,526,309
Frank Martinez	$529,937
Javier Guppy	$7,828,034

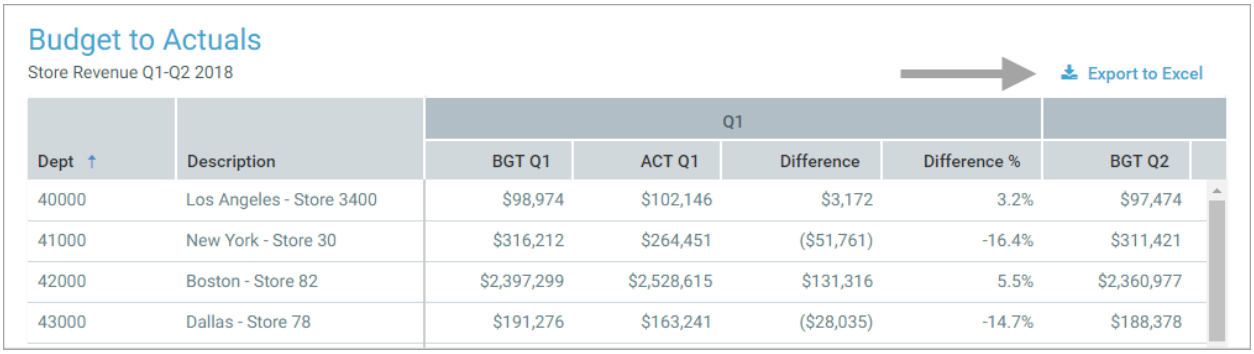
Hover and click to drill

You may be presented with a flat list of drilling levels, or you may be prompted to first select a drilling category and then choose a level within that category. The report creator determines whether a grid is enabled for drilling, and the drilling choices.

Once you select a drilling level, the drill results are displayed in a new tab. You can further drill the results if desired. If you drill the results, the new results are displayed in the same tab.

Export grid data to an Excel spreadsheet

If the data grid has been configured to allow exporting data, an **Export to Excel** button displays at the top right of the grid. You can click this button to export the grid data to a Microsoft Excel spreadsheet (XLSX file). The report creator determines whether exporting to spreadsheet is enabled.



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Data grid configured to allow export to spreadsheet

When you export data, all of the data in the grid is copied into an XLSX file. This file is then handled by your browser to determine how you can open and/or save the file locally.

Any user formatting applied to the grid is not retained in the export file. This includes sorting, filtering, and moving columns. The grid data is exported in its original state. However, if you have used the Filters panel to filter the file, that filter is applied to the exported data.

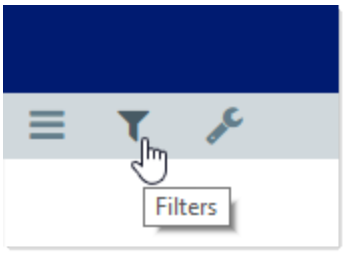
Filtering data in web reports

Web reports can be set up so that you can filter data based on selections made in the **Filters** panel. If filters are enabled for the report, you can apply and clear filtering options as desired to see the data that you want to see.

It is up to the web report creator to configure any desired filtering options using refresh variables in the Report Designer. If no refresh variables have been defined, the Filters panel is not available to the web report. For more information on creating web reports and configuring refresh variables, see Creating Web Reports and Configuring Refresh Variables.

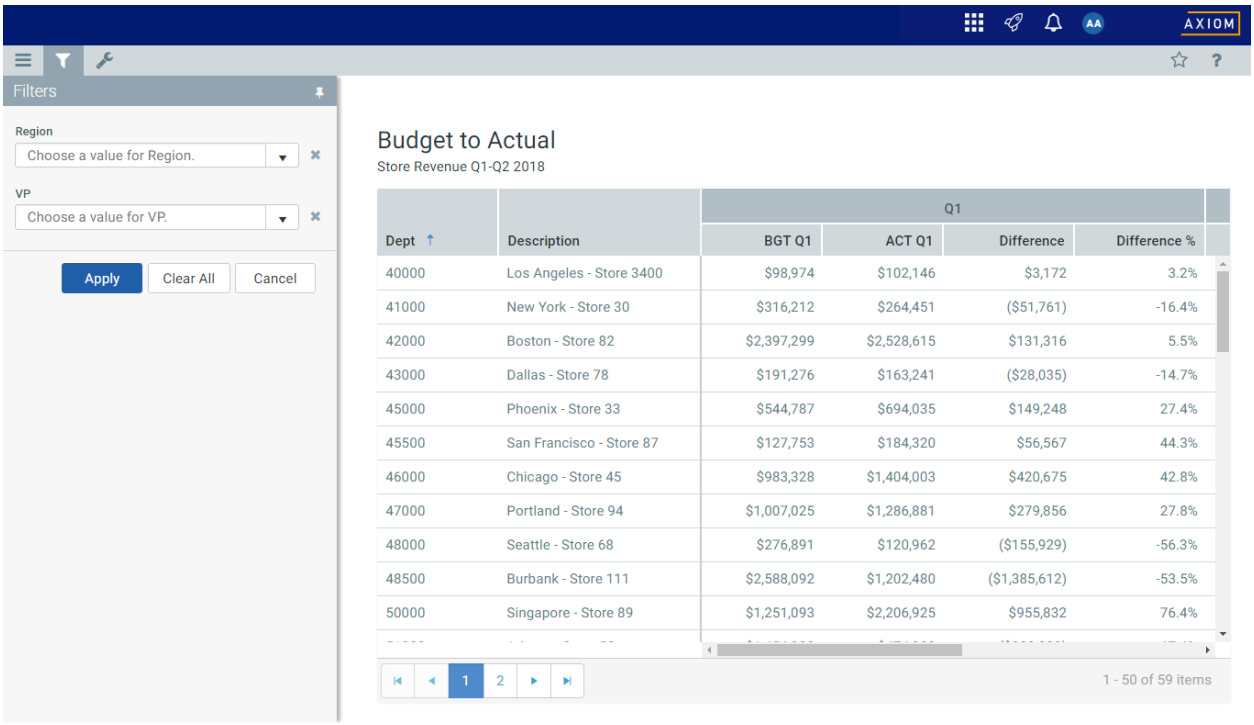
Using the Filters panel

Some reports may be configured so that the Filters panel automatically opens when the report is opened. If the Filters panel is not already open, click the **Filters** icon in the Web Client task bar to open it. If the Filters icon is not present, this means that the report does not have any filtering options.



Filters icon in the Web Client toolbar

The Filters panel displays the filtering options for the report. The following screenshot shows an example:



Example Filters panel for a web report

- To update the data in the report, make selections for each item as desired and then click **Apply**. The report is updated to show the latest data based on your selections.

  Filters can be required or optional. If the Apply button is inactive, this means that a selection has not yet been made for a required item. If an item is optional, then you can choose to leave it unselected.

- If the filters already have selected values, you can clear all existing values by clicking **Clear All**. You can then start over and select new values for each item. You can also clear any individual filter by clicking the **X** button to the right of the item.

- To close the Filters panel without changing the current report parameters, click **Cancel**. The form will not be updated, and any unapplied changes made to filter selections will be lost. (Note that if the panel is pinned open, clicking Cancel does not close it.)

The type and content of the filter options are up to the web report creator. Ideally, each filter should be named so that its meaning is obvious to you.

NOTE: If you are viewing the web report within the Desktop Client instead of within the Web Client browser, then the Filters panel is automatically open as a task pane in the Desktop Client. You can switch between the Filters task pane and other task panes by clicking the tabs along the left side of the task panes. In this environment, the task pane cannot be closed.

The visibility of the panel depends on whether it is opened as pinned or unpinned (as indicated by the pin icon in the top right corner of the panel).

- If pinned, the report contents are pushed to the side of the panel so that you can view the filter options and all of the report at the same time. The Filters panel remains open until you click the pin icon or the filter icon to close the panel.
- If unpinned, the panel overlays the report. When you click Apply or Cancel, the panel automatically closes so that you can view all of the report.

3

Creating Web Reports

You can create *web reports* to report on Axiom Software data using a lightweight, web-enabled reporting option.

In order to create a web report, you must have read/write access to at least one folder in the Reports Library, as defined in Axiom Software security. Also, if you have access to My Documents, you can create and save web reports there.

The basic web report creation process is as follows:

- You select a report template and define the name and folder location for the web report. The new web report is created using the selected template, and opens automatically in the Report Designer.
- You optionally specify an associated file group for the report. This filters the available tables and columns based on the file group, and leverages table variables in the report configuration.
- You define a data source for the report. All web reports have at least one data source that is used as the basis to query data for the report. The data source consists of a primary table and an optional filter.
- You configure the components in the report to show the desired data and other display details, like titles. The template determines the components in the report and their layout.

  The Data Grid component is the primary component used to display report data in web reports. To display data in the grid, you must add columns to the grid, set the sum by level for the grid, and configure other grid and column options.
- You optionally define refresh variables for the report and set up dependencies to the data source. End users can use refresh variables to change the data shown in the report on-the-fly.

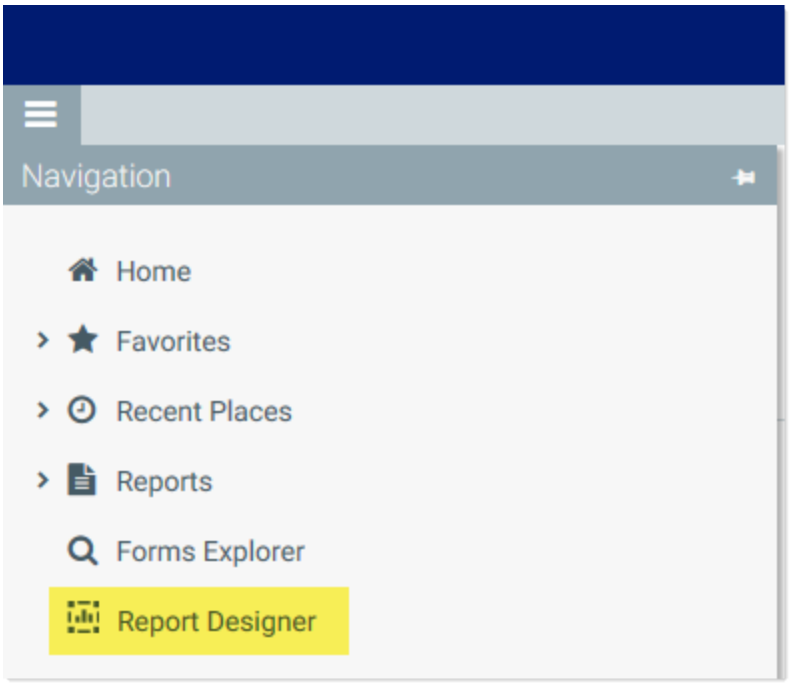
You can start the creation of a web report from either the Web Client or the Desktop Client. However, all web report creation and editing takes place in the Web Client. If you start the creation from the Desktop Client, you are automatically taken to the Web Client.

Creating a web report in the Web Client

In the Web Client, you can create new web reports using the Report Designer page.

To create a web report in the Web Client:

1. Click the menu icon in the left side of the Task Bar to open the Navigation panel. Then, select **Report Designer**.

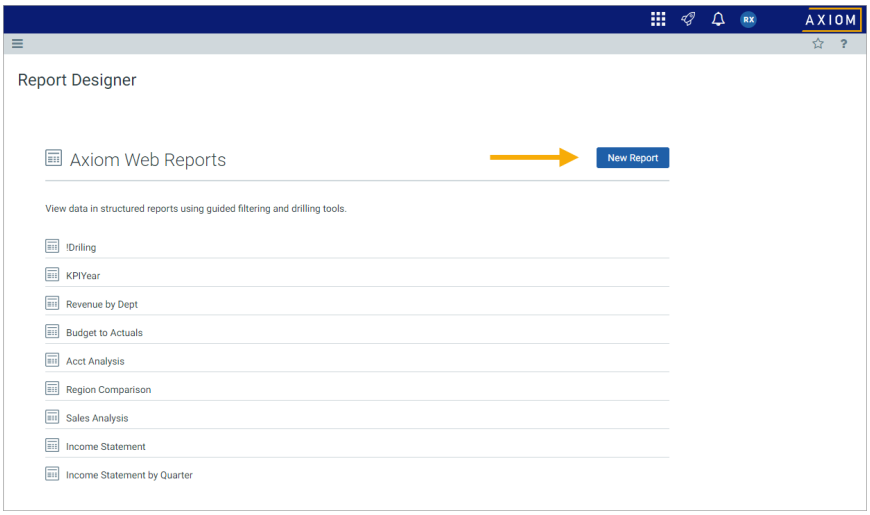


Alternatively, you can go to directly to the Report Designer page as follows:

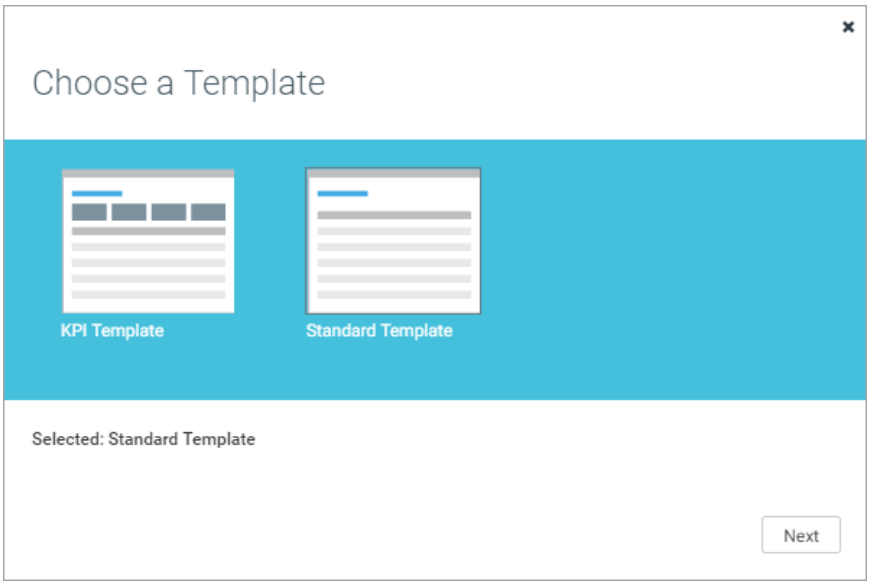
Example On-Premise URL	`http://ServerName/Axiom/Reports` Where *ServerName* is the name of the Axiom Application Server, and Axiom is the default name of the virtual directory.
Example Cloud System URL	`https://ClientName.axiom.cloud/Reports` Where *ClientName* is the name of your cloud service system.

NOTE: If you do not see the Report Designer in the Navigation panel, this may mean that your organization's Navigation panel has not been updated (or that your organization has customized the panel to exclude it).

2. In the Report Designer page, click the **New Report** button to the right of the **Axiom Web Reports** header.



3. In the **Choose a Template** screen, select the template that you want to use, and then click **Next**.

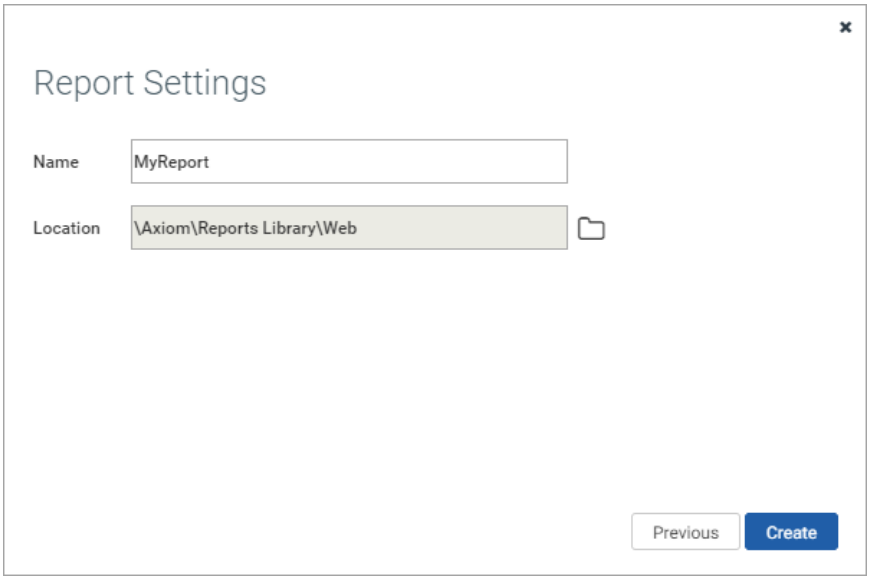


The template determines the report layout and the available components. Axiom Software provides two templates by default:

- **Standard Template**: Standard report configuration with a title and a subtitle, and a data grid to display data.
- **KPI Template**: A variation of the standard template that displays key performance indicators (KPIs) plus a data grid.

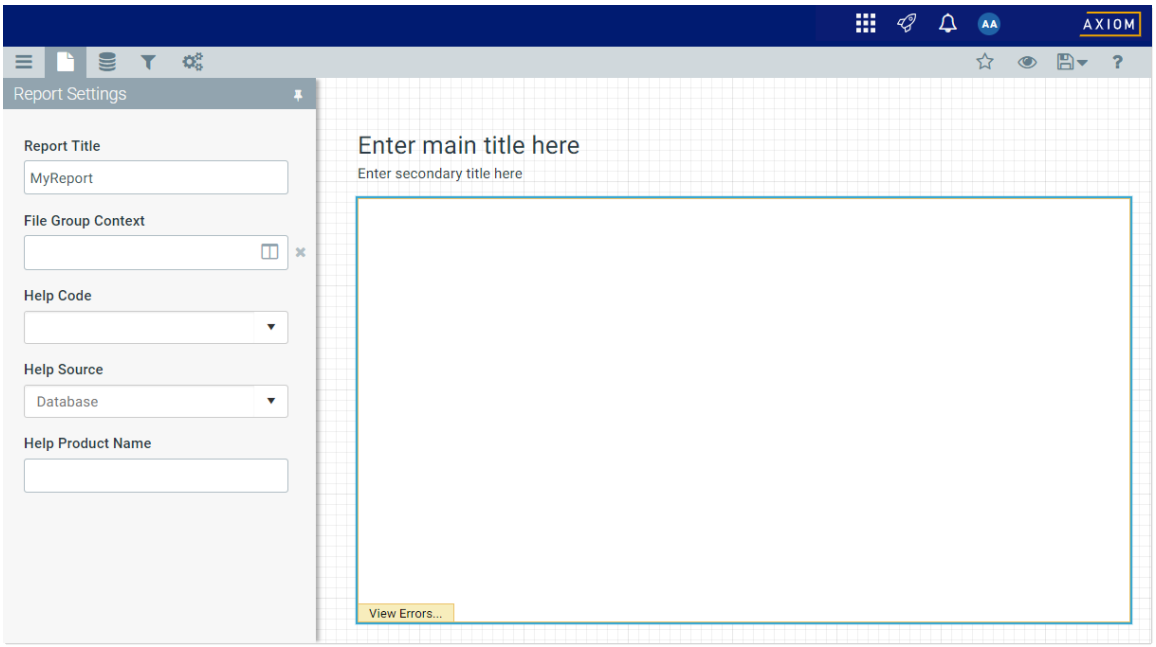
Your organization can optionally create additional web report templates, and/or you may have licensed a packaged product that includes additional templates.

4. In the **Report Settings** screen, complete the following settings and then click **Create**:
    - **Name**: Type the name of the report.
    - **Location**: Click the folder icon to the right of the box to select a folder location. In the **Select Folder** dialog, you can select any folder in the Reports Library where you have read/write access . If you have access to the My Documents folder, you can also save the report there.



Example Report Settings screen

When you click Create, the new report is created by copying the selected template. The new report is then automatically opened in the Report Designer, with the **Report Settings** panel active.



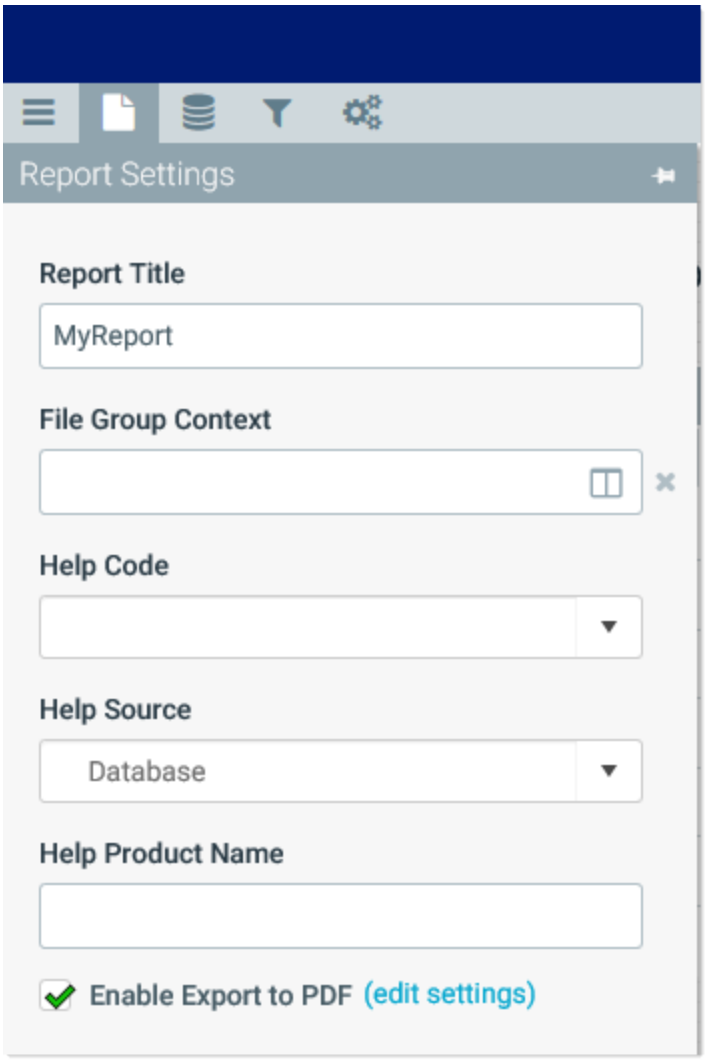
New report in the Report Designer using the Standard Template

The Report Designer is where you configure the report, including specifying a data source and configuring the components used in the report. For detailed information, see Using the Report Designer.

5. On the **Report Settings** panel of the Report Designer, complete the following optional settings as needed:
    - **Report Title**: Define a title for the report, to be displayed in the browser tab. By default, the file name is used as the report title if no alternate title is defined.
    - **File Group Context**: Select a file group if you want to associate this report with the file group. If a file group context is specified, the table variables in the file group are leveraged to streamline lists of available tables and to enable dynamic table and column references. For more information, see Associating a web report with a file group.

      NOTE: If you plan to use a file group context, this selection should be made first, before configuring other areas of the report.

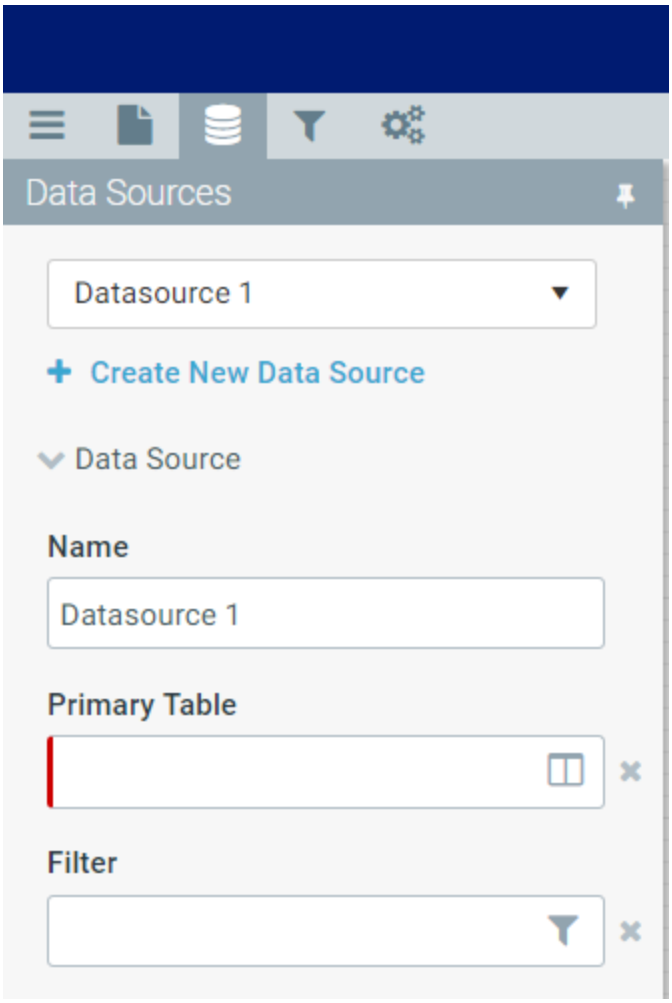
    For more information on other report settings, see Report Settings.



Example Report Settings tab of the Report Designer

6. On the **Data Sources** panel of the Report Designer, define a data source for the report. The data source is used by Data Grid components to determine the data that can be displayed in grids. Each web report must have at least one defined data source in order to display data in data grids.

   By default, all web reports start with an initial data source, **Datasource 1**. You can edit this data source to specify a primary table and an optional filter, and you can change the name of the data source. You can also create additional data sources as needed. For more information, see Defining data sources for Data Grid components.

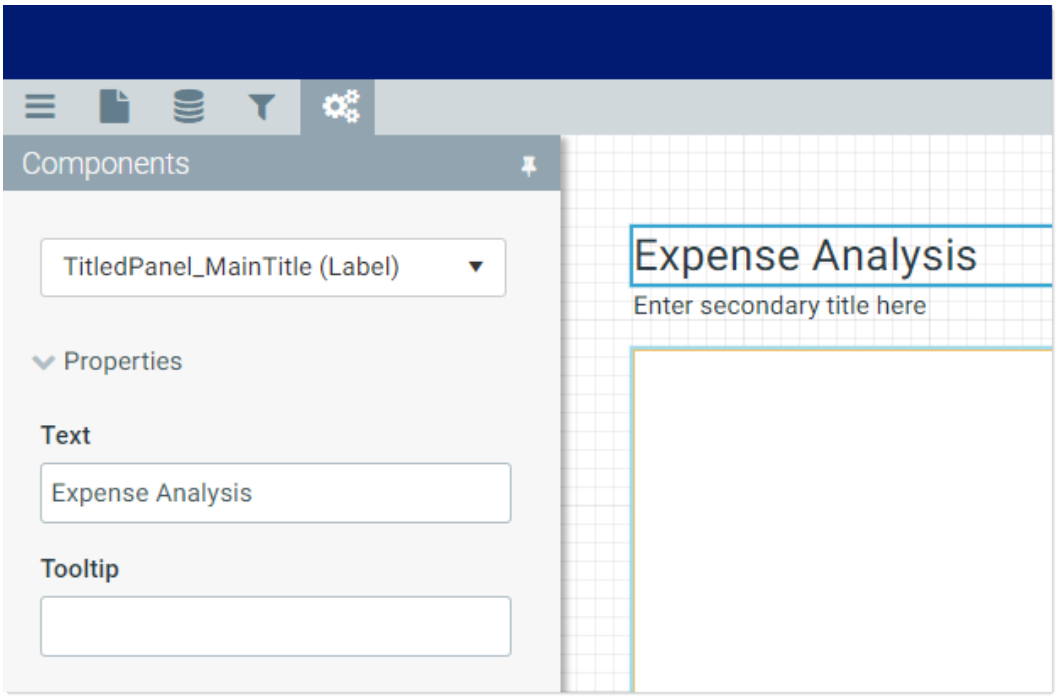


Example Data Source tab of the Report Designer

7. On the **Components** panel of the Report Designer, configure the report components as desired. To configure a component, select the component in the report canvas, or use the drop-down list at the top of the tab. Once you select a component, the properties for that component display in the tab. For more information, see Web Report Components.

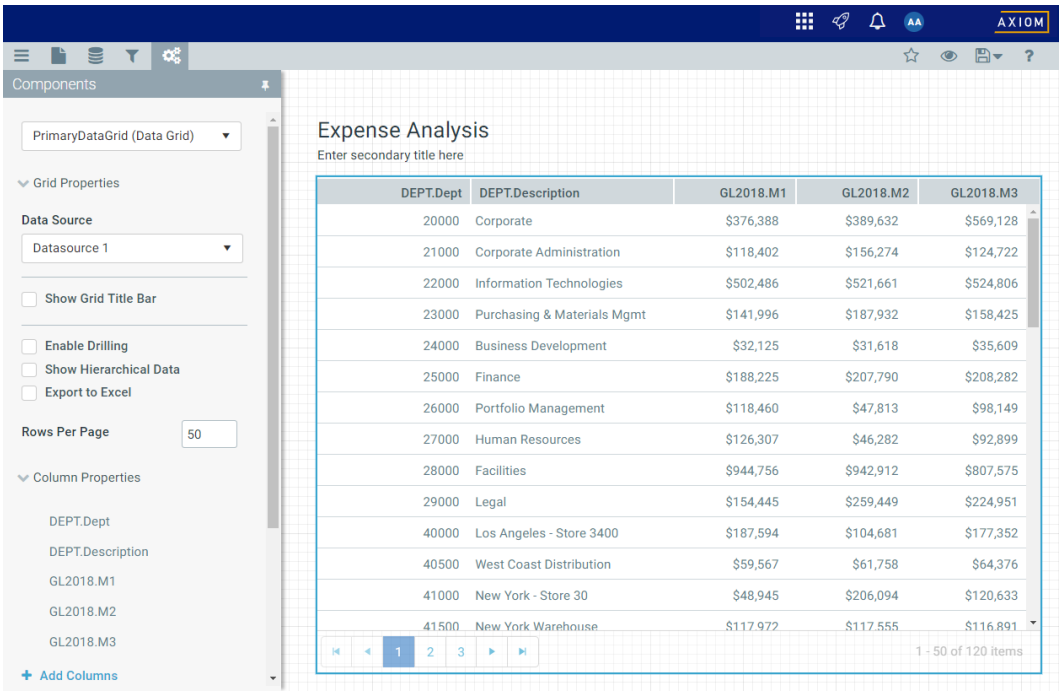
   For example, in the Standard Template provided by Axiom Software, you should configure the following components:

   - **TitledPanel_MainTitle** and **TitledPanel_SubTitle**: These Label components define the main title text and the subtitle text for the report. Select each component and type the desired title text into the **Text** field.



Example configured title text

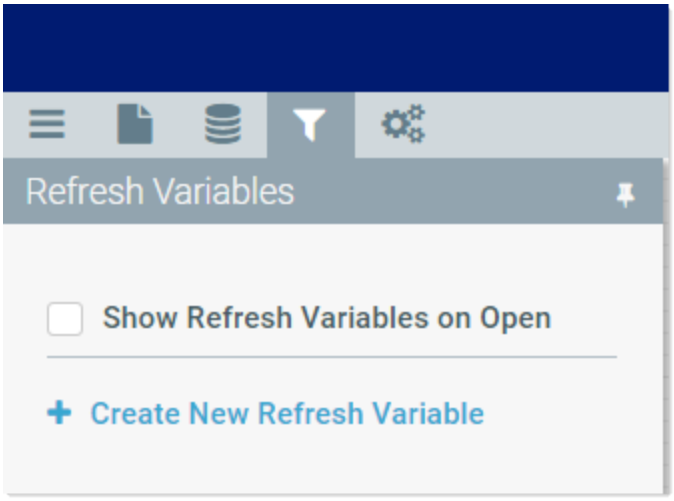
- **PrimaryDataGrid**: This Data Grid component should be configured to show the desired data. Select the component and then start adding table columns and calculations, set the sum by columns, and configure other grid and column properties.



Example configured grid after adding columns and setting the sum level

NOTE: You must have completed the configuration of at least one data source before you can configure components that reference table data, such as the Data Grid component.

8. Optional. On the **Refresh Variables** panel of the Report Designer, define refresh variables to allow users to change the data in the report based on selected values. For more information, see Configuring Refresh Variables.



Example Refresh Variables tab of the Report Designer

For example, you could set up a refresh variable for Entity, so that the data grid would be filtered to only show data for the selected entity. To do this you would first create the variable, then set up a dependency between that variable and the data source used by the grid.

9. After making configuration changes, click the **Save** button in the top right corner to save the report.

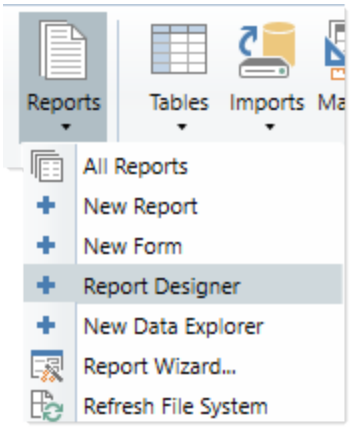
   You can also click the **Preview** button at any time to view and interact with the report as end users will see it. When you click **Preview**, the report is automatically saved. To return to the Report Designer from the preview, click **Leave Preview**.

Creating a web report in the Desktop Client

In the Desktop Client (Excel Client or Windows Client), you can create new web reports from the Reports menu.

To create a web report in the Desktop Client:

- On the **Axiom** tab, in the **Reports** group, select **Reports > Report Designer**.



NOTE: If you are using an Axiom packaged product, this feature may be present on a different ribbon tab.

The Web Client opens to the Report Designer page. From this point, all creation activities take place in the Web Client, and the steps are the same as described in the previous section.

Editing a web report

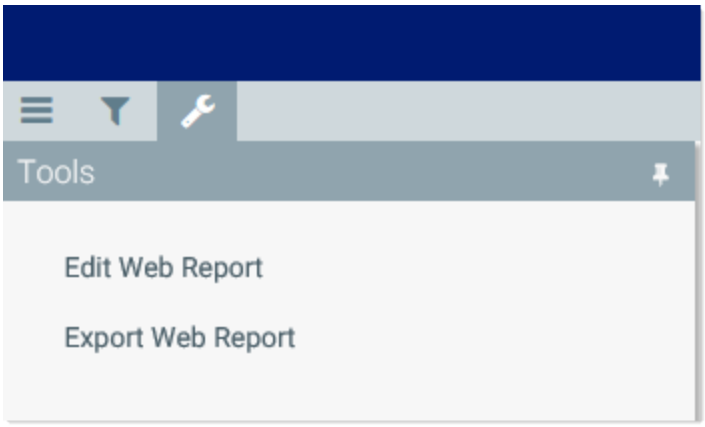
In order to edit an existing web report, you must have read/write access to that report, as defined in Axiom Software security.

Web reports can only be edited in the Web Client. Although you can open existing web reports from within the Desktop Client, you cannot edit them in that client. Once the report is open, all editing activities take place in the Web Client.

Only one user at a time can open a web report for editing in the Report Designer. If another user attempts to edit a web report while it is locked to another user, then it can only be opened as read-only. When a report is opened as read-only in the Report Designer, no changes can be saved, but Save As can be used to save a copy of the file. Although the report is locked for editing, other users can continue to view the report outside of the Report Designer as normal.

To edit a web report:

1. Open the report that you want to edit.
2. In the gray task bar, click the wrench icon to open the **Tools** menu, then select **Edit Web Report**.



   The web report opens in the **Report Designer**.
3. Using the Report Designer panels, edit the web report as needed. For more information, see Using the Report Designer.
4. After making configuration changes, click the **Save** button to save the report.

   You can also click the **Preview** button at any time to view and interact with the report as end users will see it. When you click **Preview**, the report is automatically saved. To return to the Report Designer from the preview, click **Leave Preview**.

Deleting a web report

Web reports cannot be deleted in the Web Client; they must be deleted in the Desktop Client.

In order to delete a web report, you must have read/write permission to the parent folder.

1. On the **Axiom** tab, in the **Administration** group, click **Manage > Axiom Explorer**.

   TIP: You can also use the Explorer task pane to delete a web report.

NOTE: If you are using an Axiom packaged product, you can access this feature from the **Admin** tab. Click **System Browser** to open Axiom Explorer.

2. Navigate to the **Reports Library**, and then locate the web report that you want to delete.
3. Right-click the report and then select **Delete**.

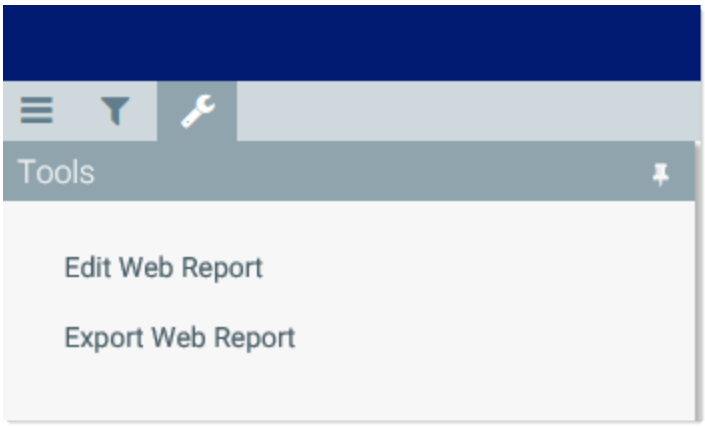
Using the Report Designer

Using the Report Designer, you can configure all aspects of a web report, including:

- Defining general report settings like the display title, PDF settings, and optional associated file group
- Defining one or more data sources to determine the data available to the report
- Configuring component properties to determine the data and/or text shown in each component, and other display properties
- Defining refresh variables to allow users to change the data in the report based on their selected values

The Report Designer is available as follows:

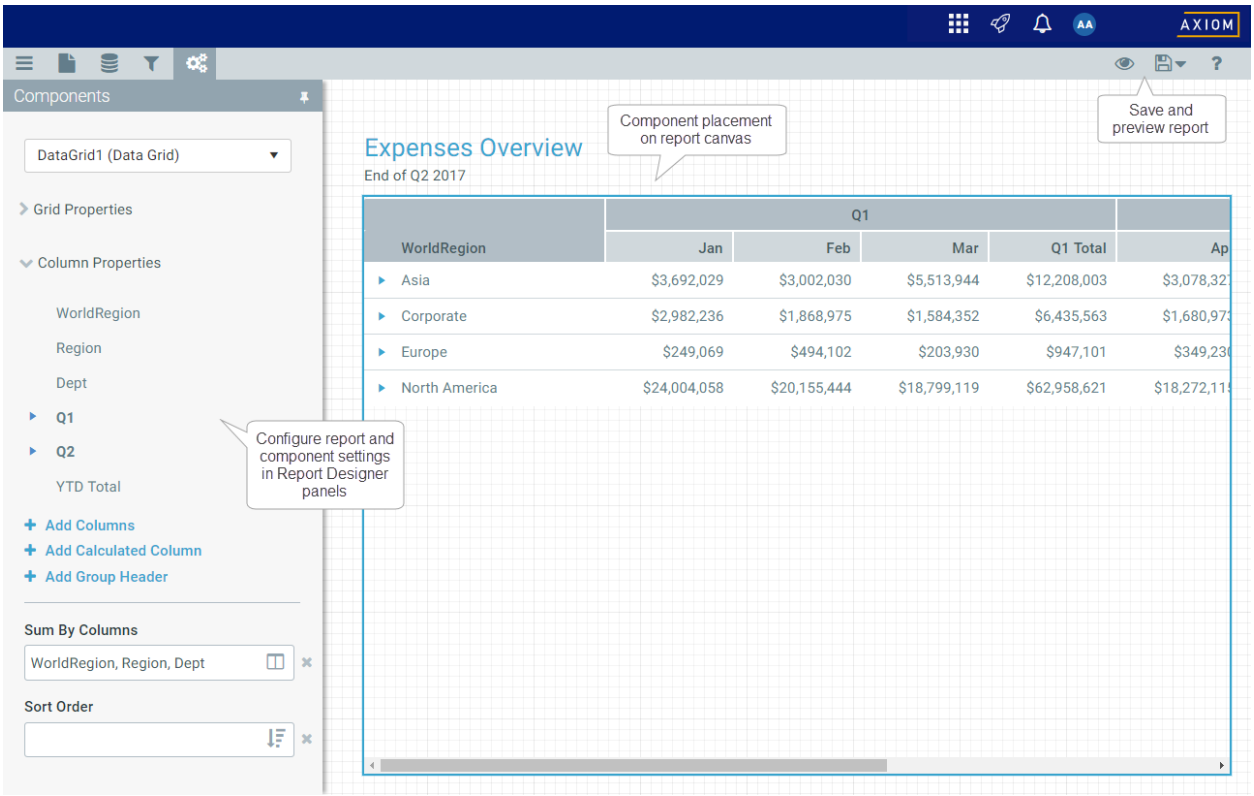
- When you create a new web report, the new report is automatically opened in the Report Designer.
- You can edit existing reports in the Report Designer. Open the web report that you want to edit, then select **Tools > Edit Web Report** to open the report in the Report Designer.



Report Designer overview

The Report Designer consists of the following:

- Configuration panels docked along the left-hand side of the screen, to configure various aspects of the report.
- A report canvas area showing the placement of the components in the report.
- A secondary toolbar in the right-hand side of the task bar to save and preview the report.



Example Report Designer

The Report Designer configuration is organized into the following panels. Select the icons in the left-hand side of the task bar to switch between different panels.

Report Designer Panels	Icon	Description
Report Settings		Optional. Define general settings for the report, such as a title and an associated file group.
Data Source		Define one or more data sources for the report. Data sources determine the data available to Data Grid components.
Refresh Variables		Optional. Define one or more refresh variables for the web report, to allow users to filter the report data on demand.

Report Designer Panels	Icon	Description
Components		Configure the components in the report, such as a Label component for the report title, and a Data Grid component to display data. Component properties determine the display and content of each component.

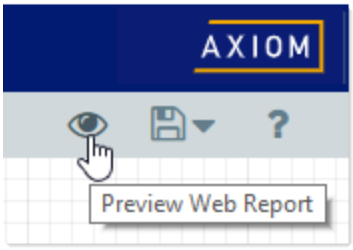
Previewing and saving the web report

At any time, you can save the current web report configuration by clicking the Save icon in the right-hand side of the task bar.

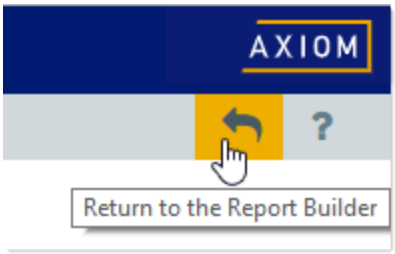
If you want to save a copy of the web report, click the down arrow next to the Save icon to open the Save menu, then click **Save As**.

Although the display of the web report in the Report Designer is close to the actual display, components are not fully interactive within the editor. If you want to see how end users can interact with the web report, you can use the preview feature.

- To preview the web report, click Preview (the eye icon) in the right-hand side of the task bar. This automatically saves the report and opens it in the normal web report view. You can then test interactivity as needed.



- To return to the Report Designer and make further changes, click Return (the back arrow icon) in the right-hand side of the task bar.

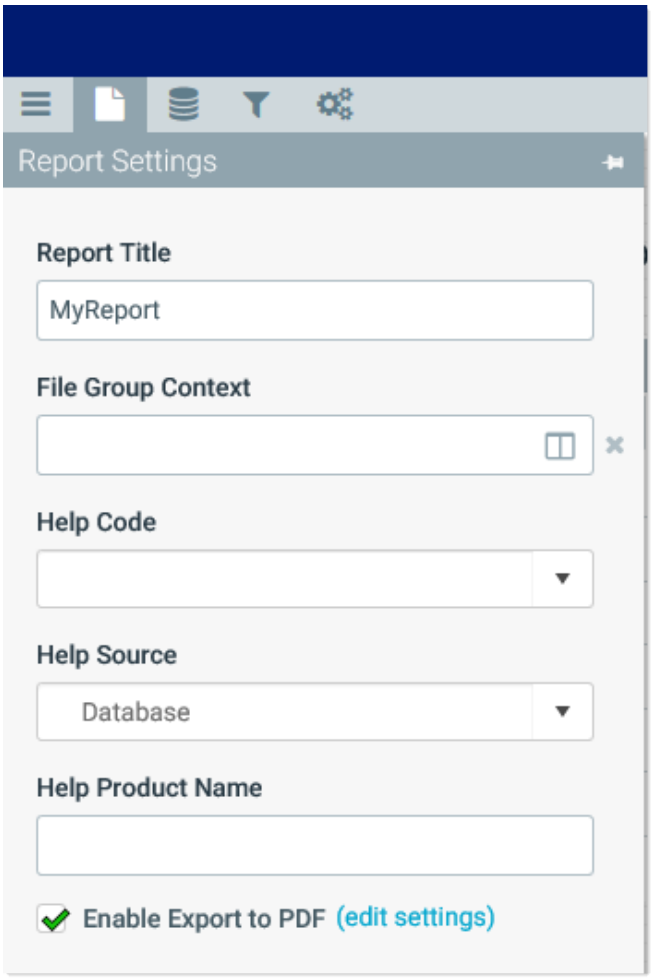


Report Settings

Each web report has a set of general report properties to define the following:

- Display title for the report browser tab
- Associated file group for the report
- Associated help code for the report
- PDF settings to enable and control PDF generation

The general report properties are defined on the **Report Settings** panel of the Report Designer. All of these settings are optional.



Example Report Settings panel

The following settings are available:

Item	Description
Report Title	Optional. Defines alternate title text to display in the browser tab instead of the full file name. By default, the file name is set as the report title.
File Group Context	Optional. Associates the web report with a file group. You can do this if you want to limit the available tables in the report to tables used by the file group, and you want the report to be dynamic based on file group table variables. For more information, see Associating a web report with a file group.
Help Code	Optional. Associates the web report with a custom help code, to provide report-specific help. Select any help code as defined in the Custom Help Admin area. For more information, see Associating a web report with a help code.

Item	Description
Help Source	Optional. The help source in which to find the help code. By default, this is set to **Database**, which means that the help code was defined using the Custom Help Admin feature and is stored in your Axiom Software database. Other entries of Product, Web, and Desktop are supported, but these are primarily used by product developers or implementation consultants.
Product Name	Optional. The product help in which to find the help code, when the **Help Source** is set to **Product**. This must match an installed product name.
Product Area	Optional. The product area that the file belongs to, for display purposes in the Web Client. This option is only present in systems with installed products.
Enable Export to PDF	Specifies whether users can generate a PDF of the web report, for printing purposes. By default, this is disabled, which means that the PDF icon is not available in the Task Bar for the report. For more information, see Configuring a web report for printing to PDF.

Associating a web report with a file group

You can optionally associate a web report with a file group, in order to leverage file group table variables in the report. When a file group is selected (using an alias or a file group name), it impacts the report as follows:

- When choosing a table or column for critical areas of the report, the chooser dialogs are limited to showing the tables associated with the file group by default. This can help streamline the report setup.
- When you select a table or column for critical areas of the report, it is stored using the table variable name for the file group. This enables the report to update dynamically when the target of the file group alias changes.

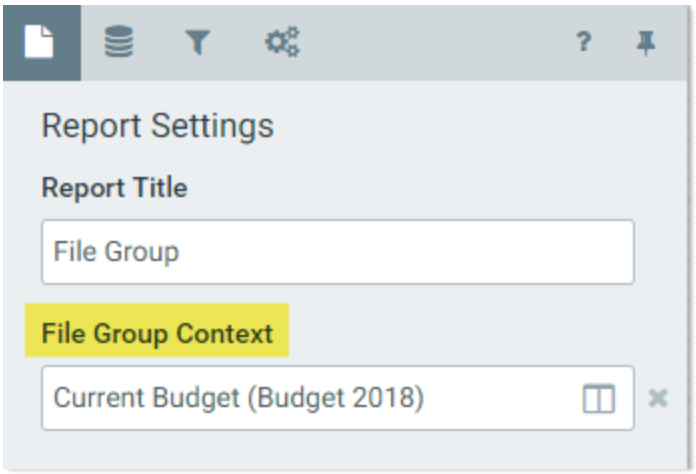
For example, you can select the file group alias Current Budget and set up the web report to reference tables that are associated with the current target of the alias (Budget 2019). Later, you can roll over the file group to create Budget 2020 and update the Current Budget alias to point to the new file group. The web report will automatically update to reference the tables used by the Budget 2020 file group.

IMPORTANT: If you want to associate the report with a file group, this should be one of the first things you configure for the report, before configuring data sources, components, or refresh variables. If you select a file group after configuring these other areas, it will have no effect on the previously selected tables and columns. You would have to clear the existing table and column selections and then reset them in the context of the file group. There is one exception to this rule: if you want to use a Year refresh variable to dynamically change years, then you cannot use file group table variables. In this case, you should either not associate the report with a file group, or wait until the report is fully configured before selecting the file group.

NOTE: Not all areas of the Report Designer support the file group context. In some areas, it may be necessary to directly specify a particular table instead of using a file group table variable. Depending on the relationship of that table to the file group, it may be necessary to manually adjust the table reference after updating the file group alias to point to a new file group.

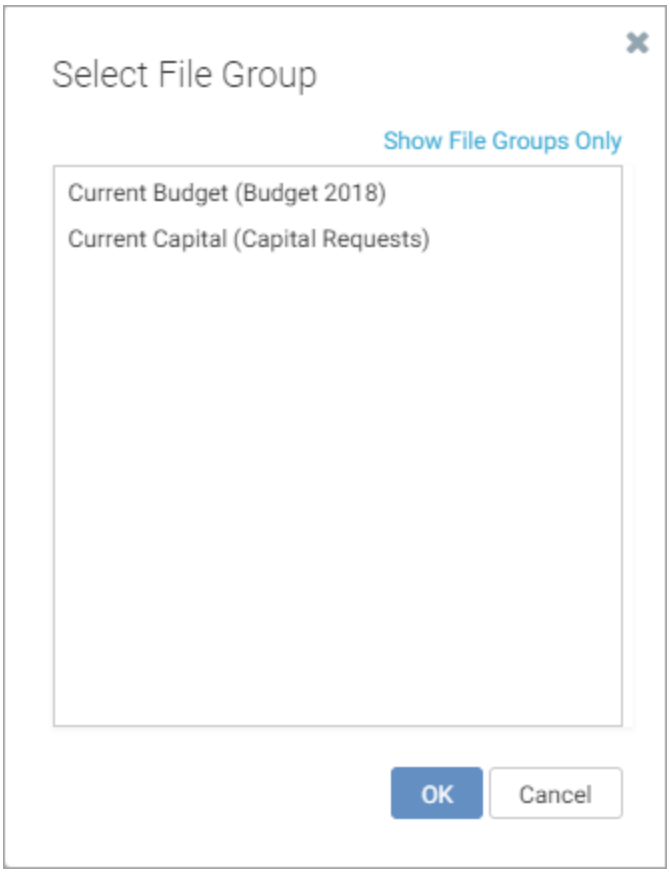
Specifying the file group context

To associate the web report with a file group, use the **File Group Context** field on the **Report Settings** panel of the Report Designer:



Example Report Settings with associated file group

Click the table icon in the right side of the box to select a file group. You can select any file group or alias. If you want the report to dynamically update as part of a file group rollover, then you must use an alias. If you select an alias, the current target of that alias displays in parentheses after the alias name.



Example Select File Group dialog showing aliases

By default, the **Select File Group** dialog shows only file group aliases. If you want to select a file group directly, click **Show File Groups Only** at the top right of the dialog, to toggle the dialog to show all file groups. You can toggle back to showing aliases by clicking **Show Aliases Only**.

Generally speaking, once you have selected a file group or alias and configured other report settings such as the primary table or data grid columns, the file group context should not be deleted or changed.

- If you delete the file group context, any selected tables or columns that use file group table variables are now invalid. You must clear these existing selections and then reset them using the regular table and column names.
- If you change the file group context to a different file group, this will only work if the new file group uses the same table variable names as the original file group. If any selected tables or columns use table variable names that do not exist in the new file group, these selections are now invalid. You must clear these existing selections and then reset them using the new file group context.

Selecting associated tables and columns for the report

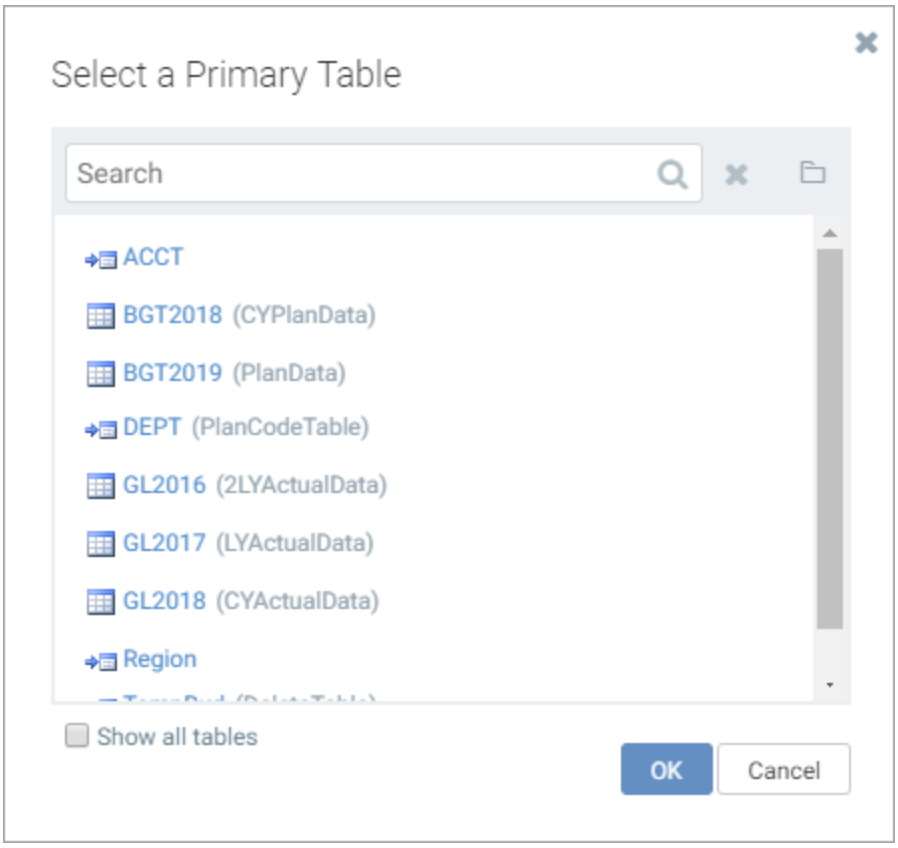
Once you have set the file group context, the table and column chooser dialogs for certain key settings of the report are now limited to showing the tables associated with the file group by default. This applies to:

- **Primary Table** for data sources

- **KPI Table** for KPI Panel components
- **Add Columns** for Data Grid components
- **Column** for Grid and Combo Box refresh variables

When you select a table or column for these affected settings, the list of tables is limited to showing the following:

- All tables referenced by table variables for the file group
- Any reference tables that these tables look up to

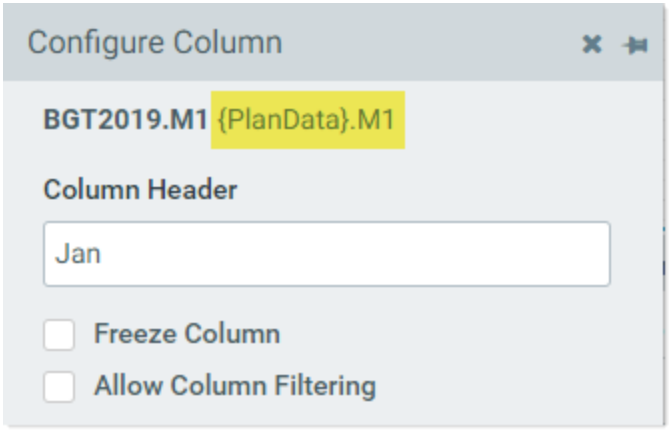


Example table chooser when report has an associated file group

In this example, both Dept and BGT2020 are referenced by table variables in file group Budget 2020, so these tables are both displayed in this dialog by default. You can see the table variable name listed after the table name in parentheses. Additionally, because BGT2020 has a lookup to Acct, this table is also listed, even though it is not referenced by a table variable.

If necessary, you can still select any table in the system by enabling the **Show all tables** option at the bottom of the dialog.

If you select a table or column that is referenced by a file group table variable, the selection is stored using the table variable name. This allows the table reference to update dynamically when the assigned table for the table variable changes (either due to changing the target of the file group alias, or by directly changing the table referenced by the variable).



Example table column using a table variable

For example, imagine that you select `BGT2020.M1` to display in a Data Grid component, where BGT2020 is referenced by table variable `{PlanData}`. Although this column displays in the report setup as `BGT2020.M1` so that you know which column is being queried, the actual column reference is stored as `{PlanData}.M1`. If the file group alias is later changed to point to Budget 2021, and `{PlanData}` resolves to BGT2021 in that file group, then the column reference for the data grid is now automatically updated to point to `BGT2021.M1`.

A few other areas of the Report Designer also support storing selected columns using the table variable name:

- **Sum By Columns** for Data Grid components
- **Sort Order** for Data Grid and KPI Panel components

In all other areas of the web report, the table and column choosers are not limited based on file group table variables (though associated tables still display with their variable name in parentheses), and do not store selections using the table variable name. This includes areas such as:

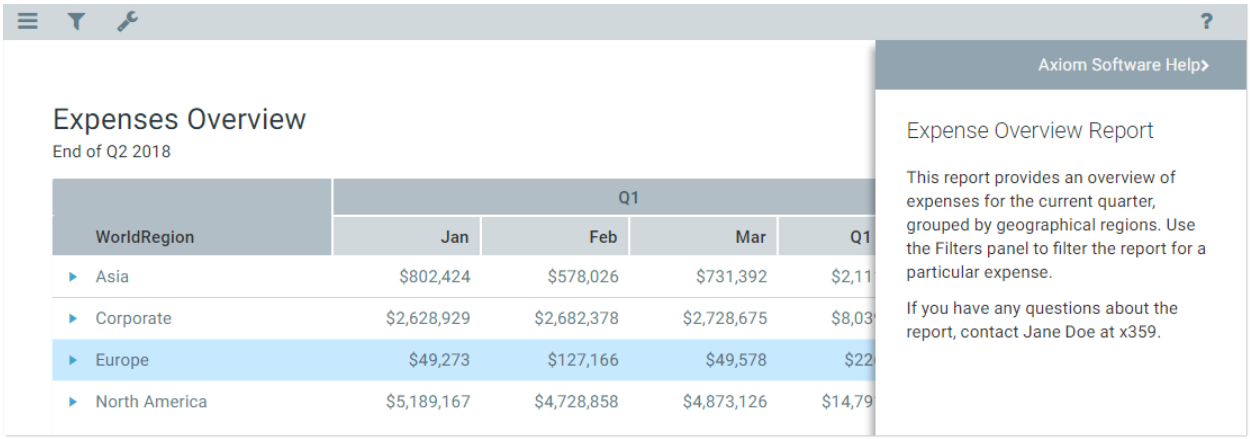
- Any filter such as the data source filter, column filter for data grid columns, and column filter for refresh variable columns
- Tooltip column on refresh variable columns
- Refresh variable dependencies (if a dependency path is specified)

If you select a table or column that is not stored with a table variable name, then the table or column reference is not dynamic. If you are using a file group alias and the alias is updated to point to a different file group, the table or column reference will remain the same. If the reference needs to be updated, you must manually update it in this case.

Associating a web report with a help code

You can associate a web report with a custom help code, in order to display report-specific help text when users are in the report.

When a help code is specified in the report settings, the help icon in the right-hand side of the Task Bar opens a help panel to show the associated help text, instead of opening Axiom Software Help.



Example help panel showing report-specific custom help

Users can still open Axiom Software Help as needed by clicking the link at the top of the panel.

To specify a help code for a web report:

- In the **Report Settings** panel of the Report Designer, complete the following fields:

Item	Description
Help Code	Enter the help code that you want to associate with the report. The code must match a help code defined in the Custom Help Admin area of the Web Client. You can type in a code manually, or use the drop-down list to select a code.
Help Source	By default, this is set to **Database** and should be left as is. The other supported options are intended for product development use (see Other uses of the help code).

Other uses of the help code

It is also possible to associate a web report with help content from Axiom Software help files, instead of with the custom help codes. This is primarily used by product developers to provide help for standard files that are delivered with packaged products. Most clients probably never need to use this feature on their own files, but should be aware that the feature exists.

The **Help Source** can use the following additional options to display help from Axiom Software help files:

- **Product**: The specified help code is found in a product help file. The **Product Name** field is used to specify the product help file.
- **Desktop**: The specified help code is found in the Desktop Client version of the platform Axiom Software help file.
- **Web**: The specified help code is found in the Web Client version of the platform Axiom Software help file.

For example, the settings could be completed as follows:

- **Help Code**: Spotlight_Report
- **Help Source**: Product
- **Product Name**: Strategy Management

When a user opens this web report and clicks the help icon in the task bar, the help panel opens and displays the content tagged as Spotlight_Report from the Strategy Management help file, to provide context-sensitive help for the web report. The `Spotlight_` convention tells Axiom Software to display the content in the help panel (otherwise, the full help file is opened in a new browser tab). The spotlight content likely contains links to other help topics for more information; clicking one of these links will open the product help file in a new browser tab.

If you copy a product asset to make a custom version for your own use, you may want to clear these fields or edit them to use a custom help code that you have created.

Configuring a web report for printing to PDF

If you want users to be able to print a web report, you should configure the report to allow PDF generation. Users can then print the PDF as needed. Although it is possible to print a web report using the native print features of the browser, this is unlikely to provide useful results.

The ability to generate a PDF of a web report is only available if you enable it for the report in the Report Designer. You can also configure the page size and orientation of the PDF.

To enable PDF generation for a web report:

1. In the **Report Settings** panel of the Report Designer, select **Enable Export to PDF**.
2. Click the **(edit settings)** link to the right to open the **PDF Settings** dialog. Complete the following settings and then click **OK**:

Item	Description
PDF Size	The default paper size for the PDF, such as A4, Letter, or Legal. The default size is **Letter**.
PDF Orientation	The default orientation for the PDF: **Portrait** or **Landscape**. The default orientation is **Portrait**.

PDF design considerations

Note the following design considerations when generating a PDF of a web report for printing.

Data Grid component

- The grid is automatically extended to show all rows in the PDF. It does not matter which rows are currently visible in the report.
- Grid columns are resized to fit the component width in the PDF, regardless of their configured column size. If the columns exceed the page width, the remaining columns are omitted from the PDF. You should set the PDF page size and orientation as needed to fit the columns. For example, a wide grid with many columns should be set to Landscape.
- User changes to the grid are reflected in the PDF. This includes filtered columns, sorting, and reordered columns.
- If the grid is grouped using **Show Hierarchical Data**, only the top-level grouping is shown in the PDF.
- Header groups are all shown in the same shade of gray in the PDF, instead of the varying shades shown in the report.

KPI Panel component

- The KPIs in the panel will flow to fill the PDF page width (assuming the KPI Panel is docked to fill the screen width, which is the configuration in the default template). If the KPIs in the panel exceed the page width, the remaining KPIs are omitted from the PDF. You should set the PDF page size and orientation as needed to fit the KPIs.
- The menu icon in the top right corner of KPI boxes is hidden in the PDF.

Configuring a web report to dynamically change years of data

You can set up a web report so that the data in the report dynamically changes based on a user's selected year. To do this:

- Set up the report using year-based tables, such as GL2018, BGT2019, and so on.
- Create a Year refresh variable and configure it as needed, so that users can select years as appropriate for the report setup and available data.

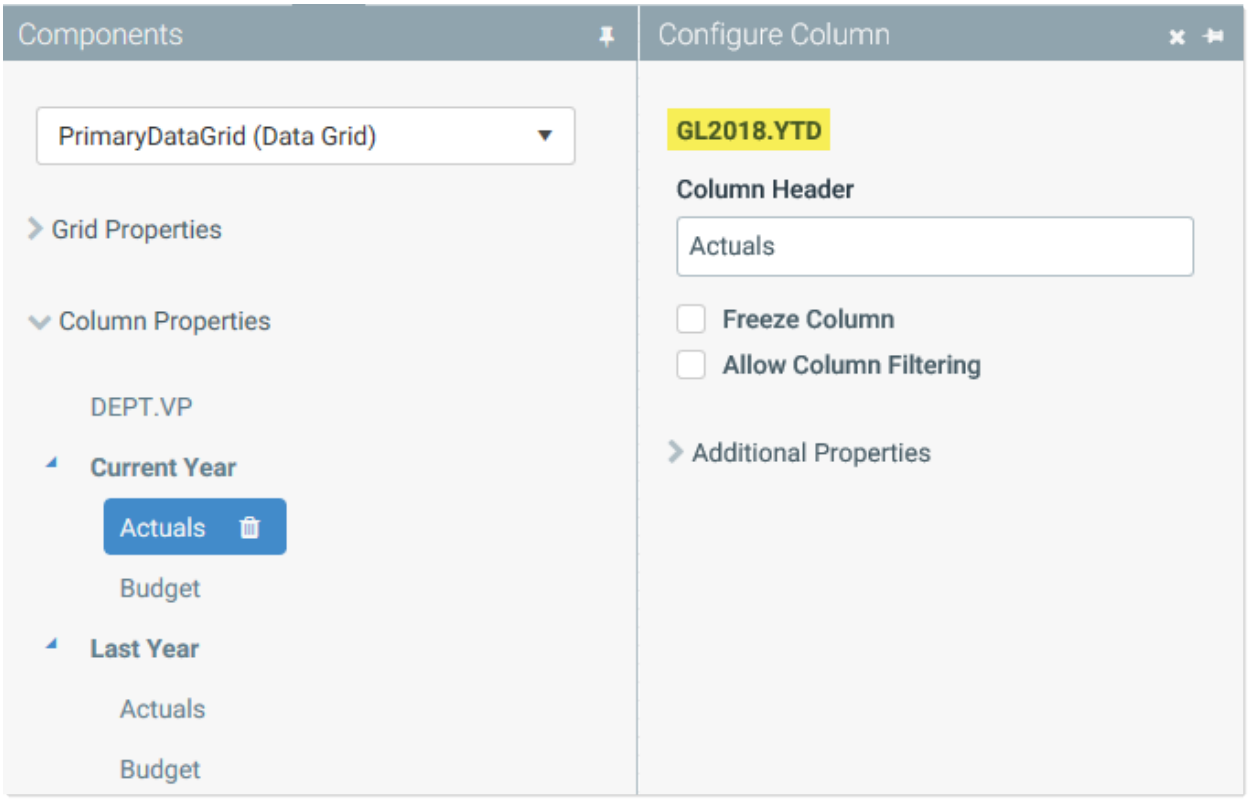
When users view the report, they can select a year for the Year refresh variable in order to adjust the "base year" of the report. The report is then refreshed with data relative to the selected year.

For example, imagine that a report shows 2018 actuals, with a comparison to the prior year (2017). If the user wants to see the same comparison for the previous year, they can use the year variable to change the base year to 2017. Now the report shows 2017 actuals with a comparison to the prior year (2016).

Setting up the report for dynamic years

The basic report setup is as normal, except that data components must use year-based tables if you want the data to change based on the selected year. A year-based table is simply a table with the year in the name, such as GL2018.

For example, you could set up a Data Grid component as shown in the following screenshot. This report shows current year actuals and budget (GL2018.YTD and BGT2018.YTD) as compared to last year's actuals and budget (GL2017.YTD and BGT2017.YTD). The report could also have calculated columns to show the difference and percent difference.



In this example, 2018 is the base year for the report, because the report is built for 2018 and uses columns from 2018 tables (and adjacent year tables). When the Year refresh variable is used to change the year, all table and column references are adjusted based on the difference between the base year and the selected year.

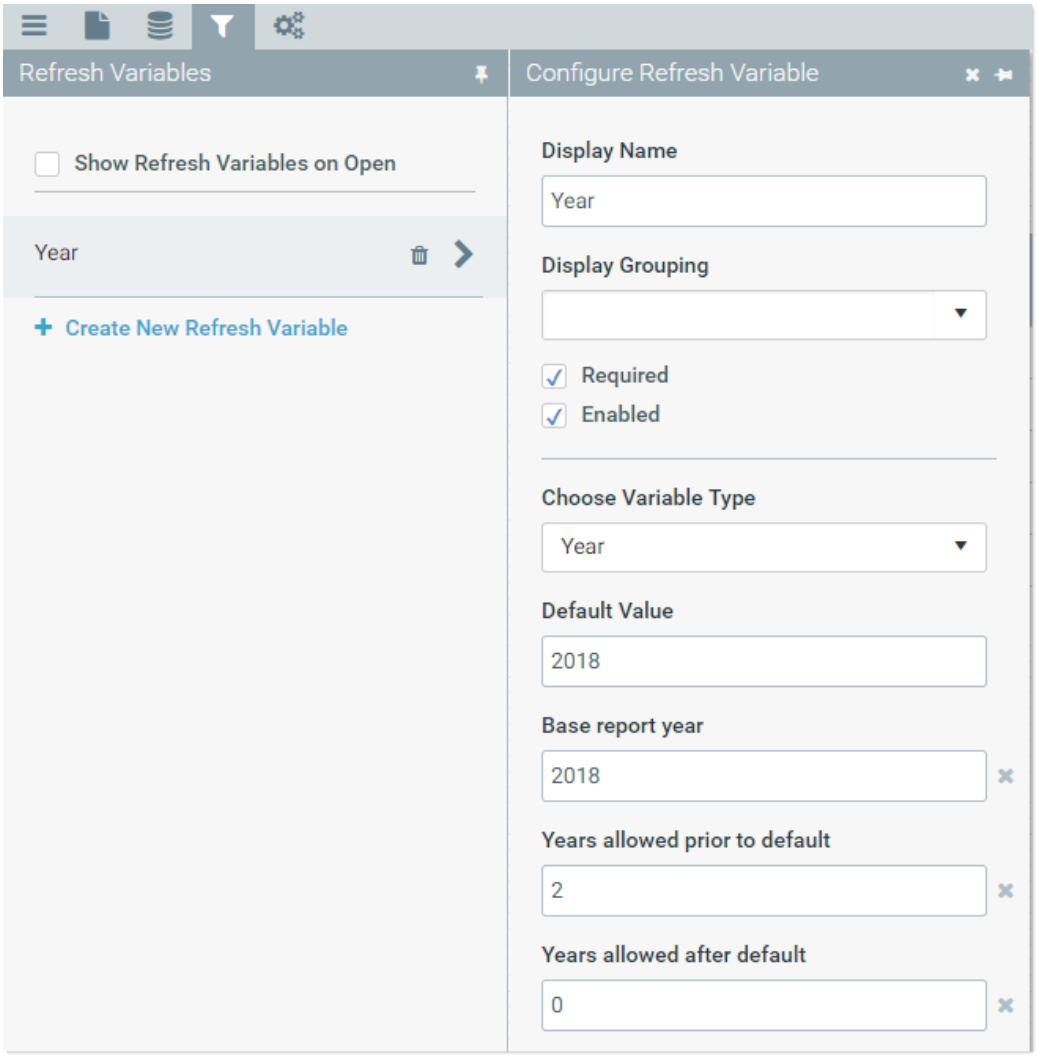
For example, if the user selects 2017 as the new value for the refresh variable, that selected year is one year less than the original base year of 2018. All references to year-based tables in the report are adjusted to be one year less. The reference to `GL2018.YTD` is adjusted to `GL2017.YTD`, and the reference to `GL2017.YTD` is adjusted to `GL2016.YTD`.

References to year-based tables are adjusted this way throughout the report. This includes the primary table for the report, table columns used in data grids, calculated columns used in data grids, and so on.

IMPORTANT: Table column references that use file group table variables *cannot* be used with the Year variable. The report cannot dynamically adjust for both the table variables and the Year refresh variable. This means that you should not associate the report with a file group (using File Group Context) until you have already configured all of your table column references. In this case, the only purpose of using the file group context is to dynamically set the default year for the Year variable to the file group year.

Creating the Year refresh variable

In order to change the year dynamically, create a refresh variable for the report and use the Year variable type.



Example Year variable type

When creating this variable, you define the following:

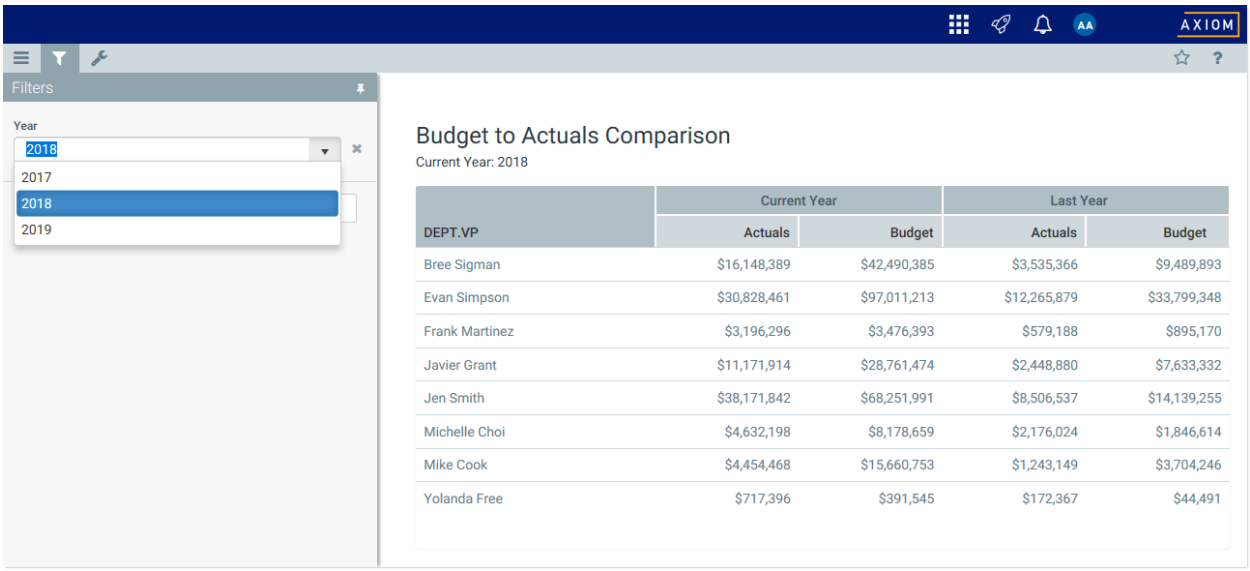
- **Base Report Year**: The year the report is built for, based on the tables and columns included in the report (as discussed in the previous section). This setting is required in order to set the baseline to adjust the year-based references in the report.
- **Default Value**: The year that you want the report to use by default when it is opened. When the report is first created, the default value and the base report year will likely be the same. In our example, we want the report to use 2018 by default.

  However, over time, the default value can change while the base report year remains the same. When 2019 starts, we can change the default value of the report to 2019 so that the report is refreshed based on 2019 data (adjusting references 1 year up from the base year of 2018). However, the base year of 2018 must remain the same, because the tables and columns referenced in the report have not changed.

  If the report uses a file group context, you can leave the default value blank to use the file group year by default. Otherwise, the default value is required.
- **Years allowed prior to / after default**: These two settings determine the years available for the user to select. If the prior-allowed years is set to 2 and the default year is 2018, then users can select 2018, 2017, and 2016. If the after-allowed years is set to 1, then users can also select 2019. These settings are optional and are interpreted as 0 if left blank.

  You should set these fields as appropriate depending on the purpose of the report and the available data. If you allow users to select a year which results in invalid tables, an error results. For example, if the report displays actuals data and you allow users to select years in the future, your system may not have actuals tables for those future years yet (and even if it does, those tables likely do not have any data).

When the user views the web report, they can now use the Year refresh variable to change the base year and refresh the file with applicable data.

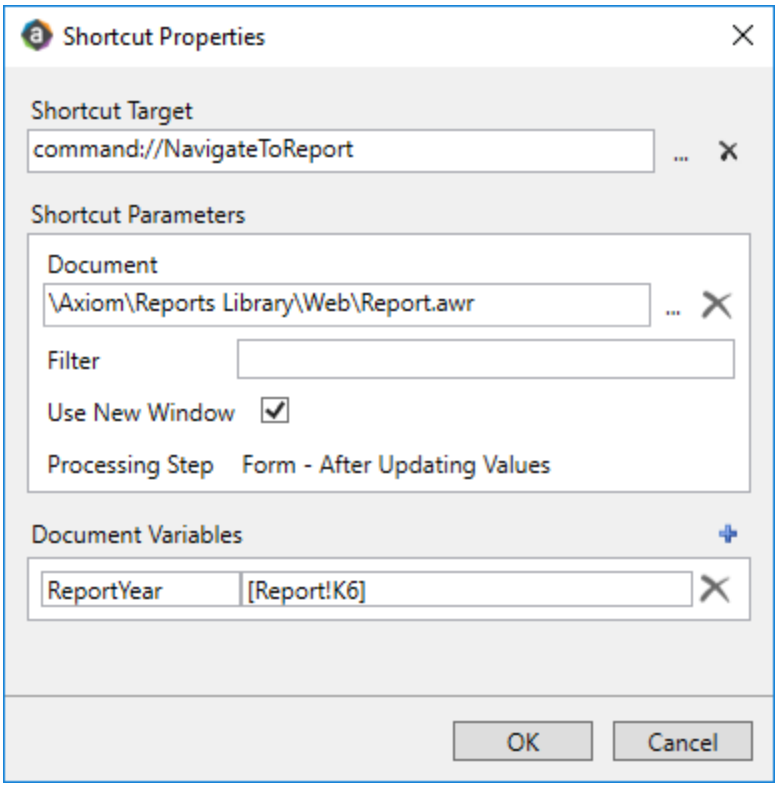


Example Year variable in Filter panel

Passing a year to a web report

You can open a web report from an Axiom form, and pass a default value for the Year refresh variable, so that the report is refreshed for the specified year.

The easiest way to do this is to use the Navigate to Report command with the reserved document variable name **ReportYear**. In the following example, the Navigate to Report command is configured to open a web report and pass a specified value for ReportYear. The value for ReportYear uses a bracketed cell reference to read the value from the form source file, so that the value can dynamically change based on inputs made to the form.



Example Navigate to Report command that passes a value for ReportYear

When this command is executed, the specified web report is opened, and the value for the Year refresh variable is set to the value passed from the form. It does not matter what the name of the Year refresh variable is—since each web report can only have one Year refresh variable, the ReportYear document variable is automatically associated with it.

Alternatively, you can manually append the ReportYear parameter to a generated URL for a web report, using the syntax `&ReportYear=year`. You can use the Axiom function GetWebReportDocumentURL to generate the URL, and then use a formula to append the parameter. For example:

```
=GetWebReportdocumentURL("\Axiom\Reports
Library\Web\Report.awr")&"&ReportYear=2018"
```

This example formula generates a URL such as:

```
https://mycompany.axiomepmcloud.com/reports?docref=9SCqQ5RkUXM7$wDGZcP0g
Hl-OSvgIU6of$t-GAeS4ujBRzGg0LBjXPBtivoiYJ$qa3Xa$EmT39se7o5mSQAm-A_
&reportyear=2018
```

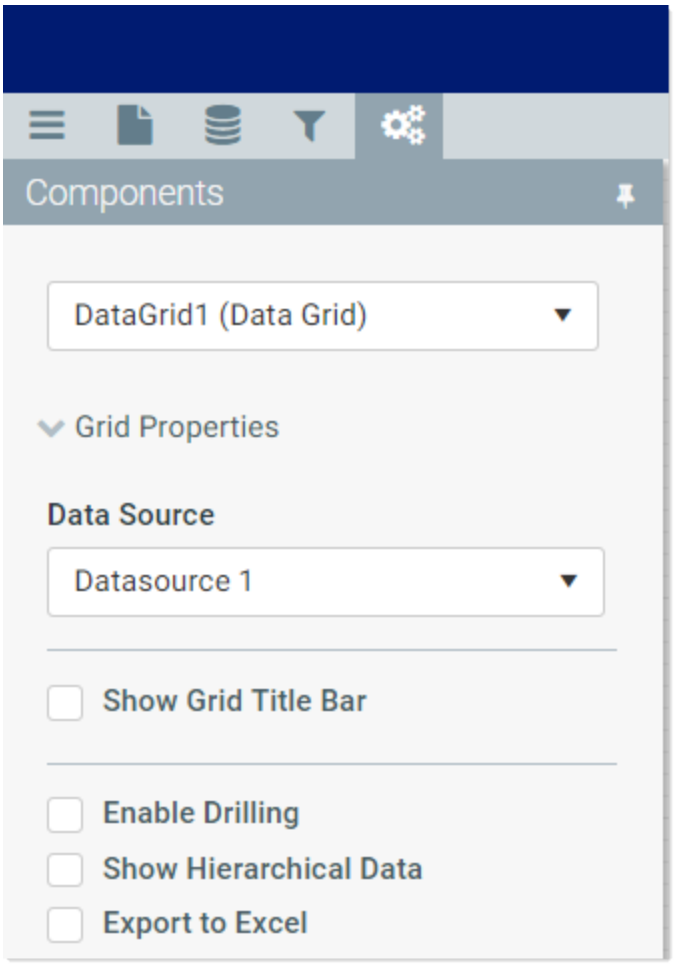
4

Web Report Components

When you create a new web report in the Report Designer, the report has one or more *components* as determined by the template used to create the report. The report components define the content of the report. Currently, it is not possible to add or remove components, or to move or resize components. However, you can configure the component properties.

Each component has properties that determine the display and content of that component. For each component in the report, you must review these properties and configure them as needed. For example, Label components have display text, and Data Grid components have selected columns to display in the grid.

Components are configured on the **Components** panel  of the Report Designer.



Example Components panel

To configure a component in a web report:

1. Select the component that you want to configure. You can do either of the following to select the component:
   - Click on a component in the web report canvas to select it.

     OR

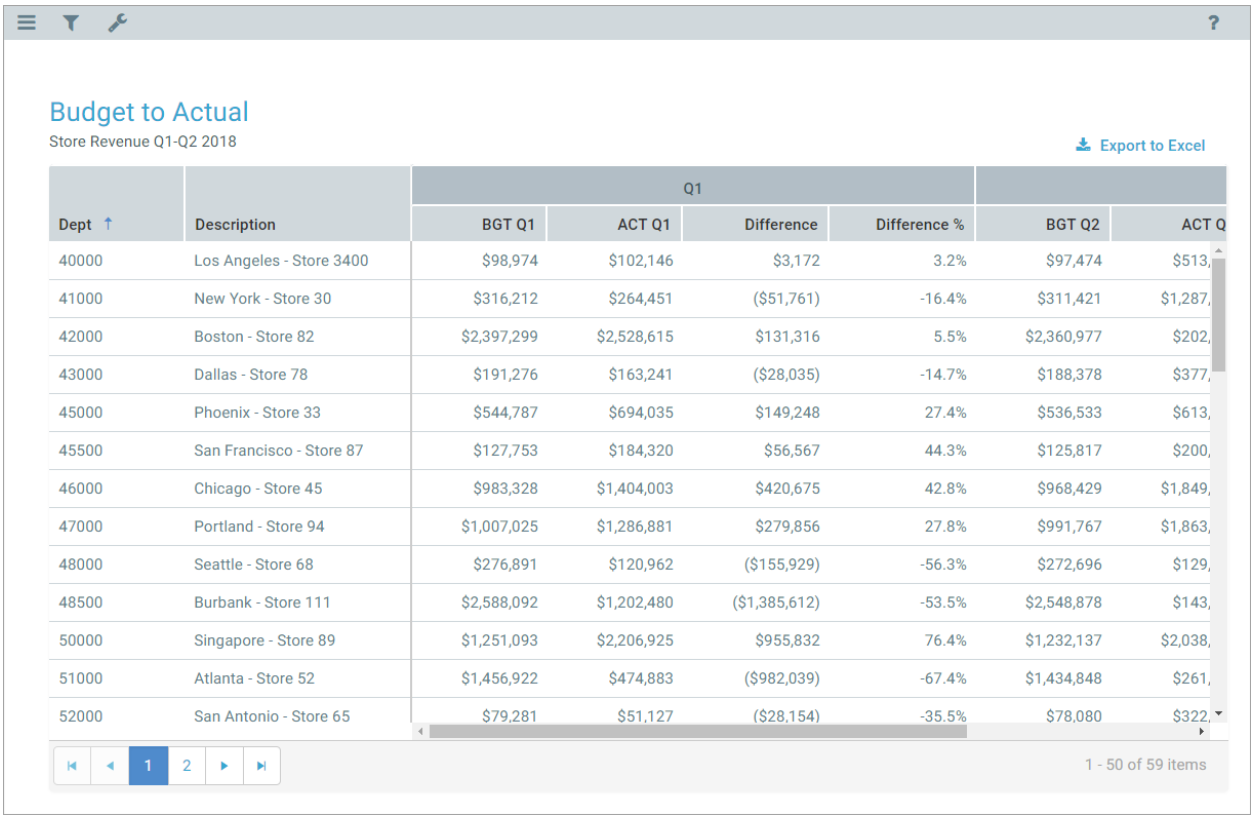
   - Use the drop-down list at the top of the **Components** tab to select a component. Components are listed by component name and type.

   The properties for the selected component display in the panel.
2. Edit the component properties as needed. The specific properties depend on the component type. For more information, see the topic for the appropriate component:
   - Data Grid: Query data from the Axiom Software database and display it in a grid.
   - Hyperlink: Users can click the hyperlink text to open a web page or a document.

- KPI Panel: Display key performance indicators (KPIs) in a series of automatically-formatted boxes.
- Label: Display small amounts of user-defined text, such as for titles, descriptions, or contact information.

Data Grid component

The Data Grid component queries data from the Axiom Software database and displays that data in a grid within the web report. This component is the primary means of returning data into a web report.



Budget to Actual

Store Revenue Q1-Q2 2018

Export to Excel

Dept	Description	Q1					
		BGT Q1	ACT Q1	Difference	Difference %	BGT Q2	ACT Q
40000	Los Angeles - Store 3400	$98,974	$102,146	$3,172	3.2%	$97,474	$513,
41000	New York - Store 30	$316,212	$264,451	($51,761)	-16.4%	$311,421	$1,287,
42000	Boston - Store 82	$2,397,299	$2,528,615	$131,316	5.5%	$2,360,977	$202,
43000	Dallas - Store 78	$191,276	$163,241	($28,035)	-14.7%	$188,378	$377,
45000	Phoenix - Store 33	$544,787	$694,035	$149,248	27.4%	$536,533	$613,
45500	San Francisco - Store 87	$127,753	$184,320	$56,567	44.3%	$125,817	$200,
46000	Chicago - Store 45	$983,328	$1,404,003	$420,675	42.8%	$968,429	$1,849,
47000	Portland - Store 94	$1,007,025	$1,286,881	$279,856	27.8%	$991,767	$1,863,
48000	Seattle - Store 68	$276,891	$120,962	($155,929)	-56.3%	$272,696	$129,
48500	Burbank - Store 111	$2,588,092	$1,202,480	($1,385,612)	-53.5%	$2,548,878	$143,
50000	Singapore - Store 89	$1,251,093	$2,206,925	$955,832	76.4%	$1,232,137	$2,038,
51000	Atlanta - Store 52	$1,456,922	$474,883	($982,039)	-67.4%	$1,434,848	$261,
52000	San Antonio - Store 65	$79,281	$51,127	($28,154)	-35.5%	$78,080	$322,

1 2

1 - 50 of 59 items

Example data grid in a web report

In order to configure a Data Grid, you must complete the following properties:

- **Data Source:** You must define a data source for the web report, and then assign that data source to the grid in the component properties. The data source determines the table columns available for display in the grid, and also determines whether users can filter the data grid using refresh variables. For more information, see Defining data sources for Data Grid components.

- **Columns:** You select a set of table columns to display in the grid, as well as their order in the grid and other display properties. The columns available to show in the grid depend on the primary table specified in the data source for the report. If the data source has a filter, the data grid also honors that filter when querying the data to display in the grid. See Defining columns for the grid.
- **Sum By:** You specify the sum level of the rows in the grid by configuring one or more columns as "sum by" columns. For example, if the sum by level is Dept.Dept, then each row in the grid represents the sum of data per unique department. If the sum by level is Dept.Dept and Acct.Acct, then each row in the grid represents the sum of data per unique department / account combination. See Specifying sum by columns for the grid.

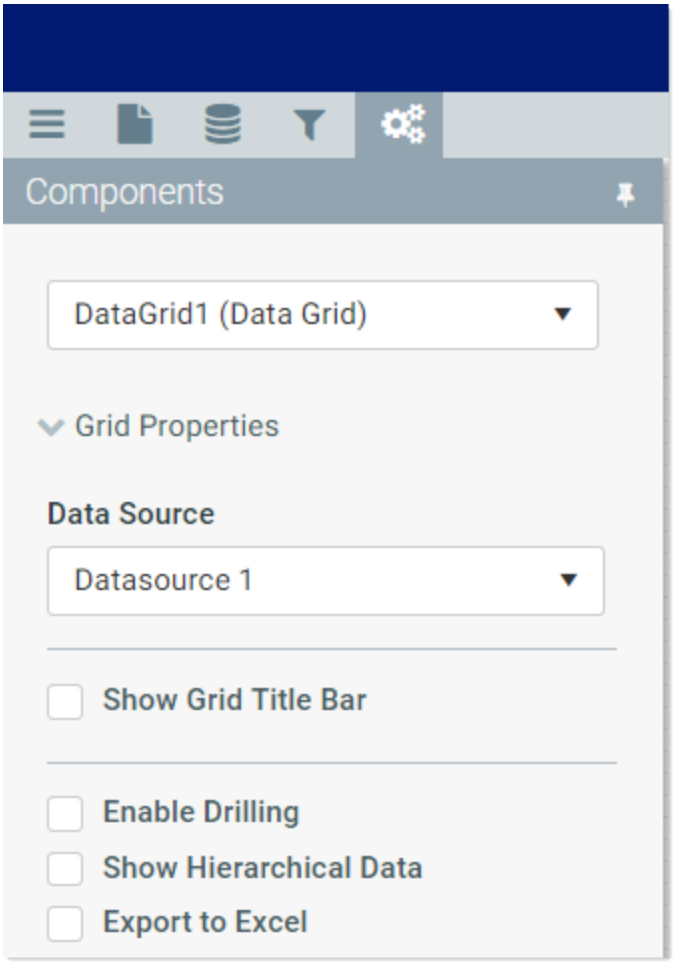
You can also optionally configure the following for a data grid:

- **Calculations:** You can create one or more calculated columns, to show the results of calculated data in the grid. For example, you can show the summed total of a set of columns, or the difference between two columns, and so on. See Defining calculated columns for the grid.
- **Group Headers:** You can create column groups, in order to display header text over groups of columns. For example, you may want the header text "Q1" over the three columns in the first quarter, "Q2" over the next three columns, and so on. See Defining group headers for the grid.
- **Sort Order:** You can define an initial sort order for the grid, by specifying one or more sort columns and the sort direction. When users view the grid, they can change the sort to use any column. See Specifying the sort order for the grid.
- **Additional features:** You can enable grid features such as hierarchical groupings, drilling, and export to spreadsheet. See General properties.

To configure component properties in the Report Designer, select the component in the report and then edit the properties as needed using the **Components** panel.

General properties

The general properties for a Data Grid component are located at the top of **Components** panel, in the **Grid Properties** section.



Example general properties for a data grid

You can define the following general properties for a Data Grid component. The **Data Source** is required; all other properties are optional.

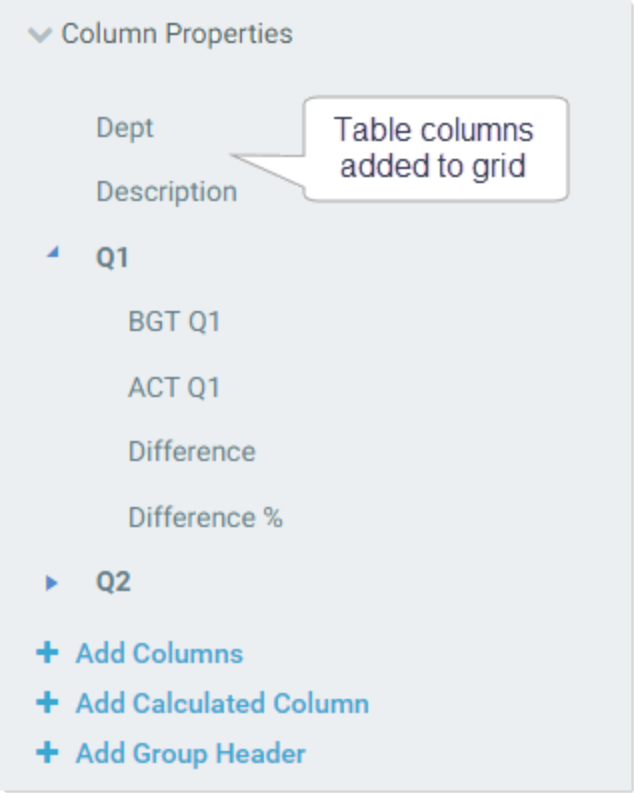
Item	Description
Data Source	Specifies the data source for the data grid. The data source determines the columns available for use in the grid. By default, new grids use the default data source for the web report. This data source is named **Datasource 1**, but it can be renamed. You can continue to use this default data source, or you can edit the grid properties to use any data source that you have defined on the **Data Source** tab. **IMPORTANT:** In order to configure the Data Grid component, at least one data source must be configured on the **Data Source** tab. If you are using the default data source, at minimum it must be assigned a primary table before the data grid can be configured. For more information, see Defining data sources for Data Grid components.
Show Grid Title Bar	Specifies whether the component has a title bar. • If enabled, the component displays in a bordered box with a title bar across the top. The defined title text displays within the title bar. • If disabled, the title bar and its border do not display on the component.
Title	The title text for the component. This text displays in the component title bar, if the title bar is enabled. If the title bar is disabled, then this text does not display at all in the web report. If **Export to Excel** is enabled, the name of the export file is the title if it is defined. If you want to define a title for use with the export but not show the title in the web report, then you can enable **Show Grid Title Bar** for purposes of defining the title text, then disable the title bar again. The title text will be retained for use with the export.
Enable Drilling	Specifies whether drilling is enabled for the data grid. • If enabled, users can "drill down" a row in the grid to see the data in that row at a different level of detail. • If disabled, drilling is not available. If you enable this option, then you must also complete the **Drilling Hierarchies**. For more information on the drilling options and how end users drill the grid, see Setting up drilling for Data Grid components.
Drilling Hierarchies	The hierarchies available for drilling, if **Enable Drilling** is enabled. For more information on the drilling options and how end users drill the grid, see Setting up drilling for Data Grid components.

Item	Description
Show Hierarchical Data	Specifies whether data in the grid is grouped based on hierarchical dimensions. • If enabled, the grid is grouped based on the sum by columns for the grid. The first sum by column determines the top-level grouping, the next sum by column determines the next level grouping, and so on. At least two sum by columns must be specified when grouping is enabled. • If disabled (default), all data returned by the query is displayed in a flat list with no grouping.
Export to Excel	Specifies whether users can export the grid contents to an Excel spreadsheet (XLSX). • If enabled, an **Export to Excel** button displays over the top right corner of the grid, so that users can export the grid contents. • If disabled (default), the button does not display. When a user clicks the **Export to Excel** button, the contents of the grid are exported to an Excel spreadsheet. Configured number formats are not preserved, but default number formatting is applied based on the column data type. User changes to the grid, such as changing the sort order or filtering a column, are not preserved. However, if a refresh variable is used to filter data in the grid, this is preserved. The name of the exported file is the **Title** for the component, if defined. Otherwise, a system generated name is used. It is recommended to define title text for this purpose when using the export feature, even if the title bar is not enabled. The following features are not supported with the export feature: • **Hierarchical groupings:** Groupings are disabled and data is exported as a flat list. • **Column group headers:** Column group headers are omitted from the export.
Rows Per Page	Determines how many rows are shown in each page of the grid. By default, the page size is 50. If the results returned by the query exceed the page size, then the grid data is separated into multiple pages. Users can use the page controls at the bottom of the grid to move among pages. If set to 0 or blank, all rows display on the same page. **NOTE:** The Report Designer is limited to showing no more than 50 rows per page, regardless of the grid configuration. If you have set your rows per page to more than 50, you must preview the report to see the result.

Defining columns for the grid

The columns in the data grid determine the data to display in the grid. You specify which columns to include and their order, as well as other display properties such as alignment and number format.

If columns have already been added to the grid, these columns are listed in the **Column Properties** section of the **Components** panel. From here you can add new columns, reorder existing columns, edit column properties, and delete columns.



Example columns in the Column Properties section

To add columns in the grid:

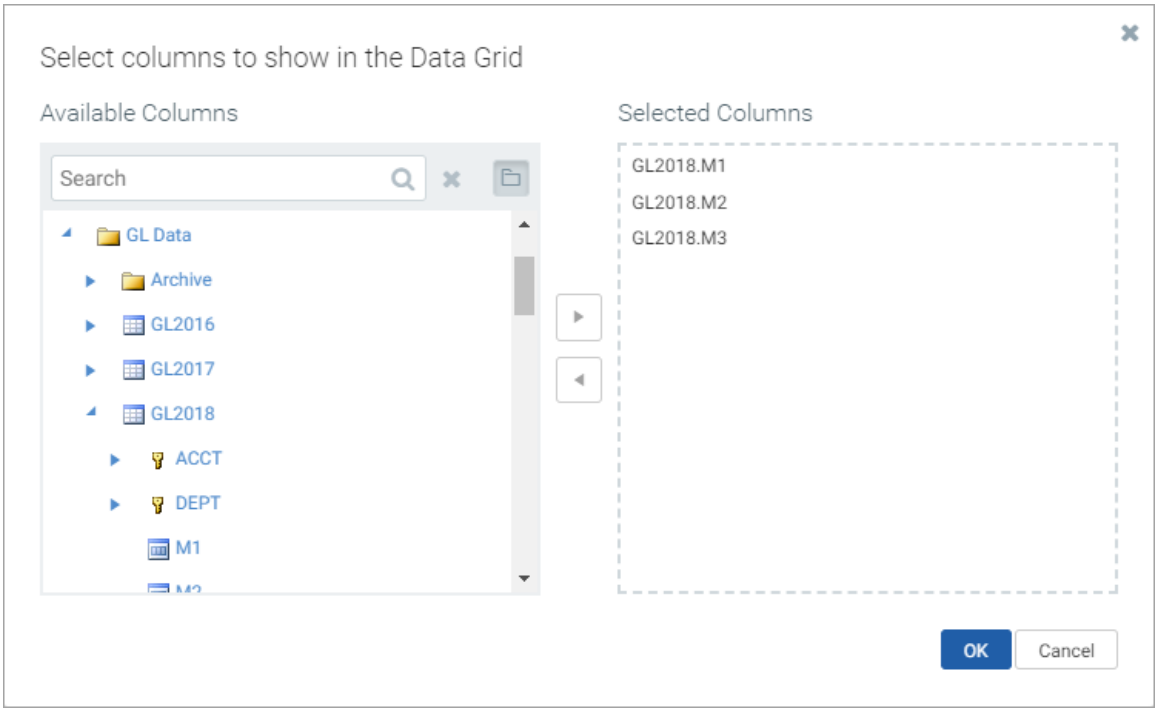
1. In the **Column Properties** section of the Data Grid component properties, click **Add Columns**.

   TIP: If you want to add one or more columns to a column group, select the column group before clicking **Add Columns**. The new columns will be added to the group instead of at the end of the columns list.

2. In the column selection dialog, locate the desired columns in the **Available Columns** box, and add them to the **Selected Columns** box. You can add regular table columns and calculated fields.

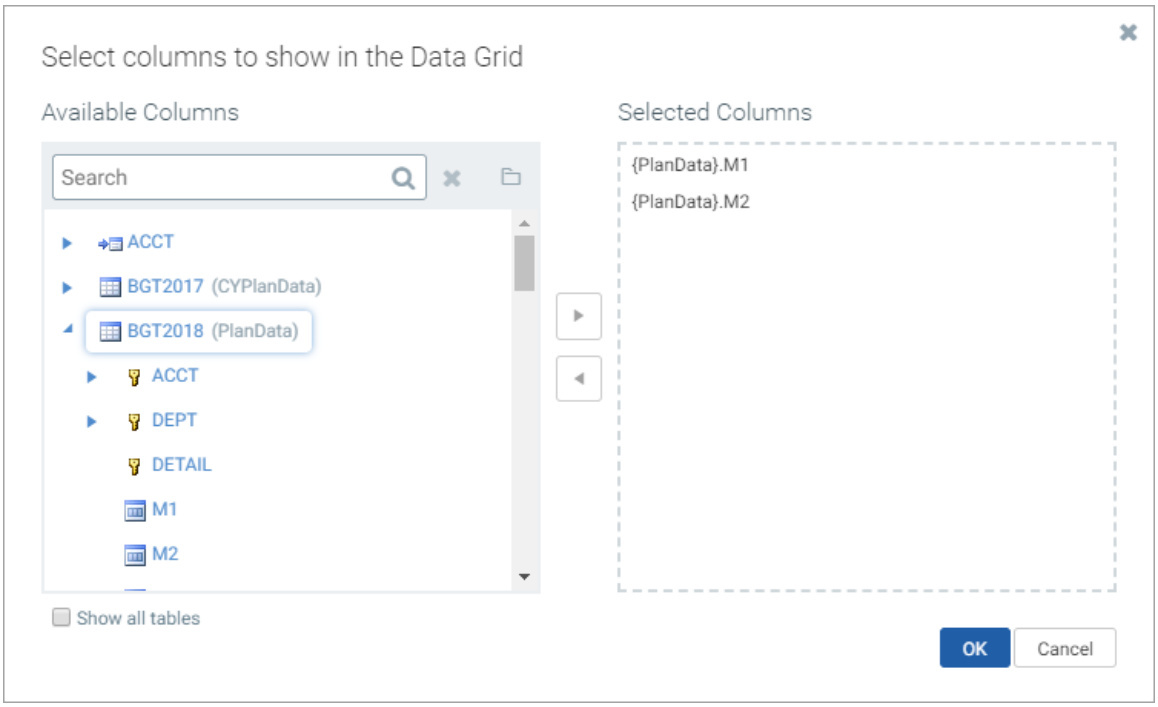
Available columns are listed by table in a treeview. You can click the folder icon to toggle the treeview from showing tables by folders or by table name. You can also use the **Search** box to filter the view by table name.

To add a column to the Selected Columns box, you can double-click it, or select it and use the arrow keys, or drag and drop it. Repeat this process for as many columns as you want to add at this time. Currently, it is not possible to multi-select columns in this dialog; you must add the columns to the Selected Columns box one-by-one.



Example column selection dialog for data grids

If the report has an associated file group, then the column selection dialog is limited by default to showing tables associated with the file group (and related lookup tables). Table variable names display in parentheses after the table names. If you add a column from a table with a variable, the column reference is stored using that variable name, so that it can dynamically change as the variable value changes.



Example column selection dialog limited by an associated file group

If you want to add a column from a table that is not associated with the file group, select **Show all tables** at the bottom of the dialog. The dialog updates to show all eligible tables, based on the primary table for the data source.

Eligible table columns

Only the tables that are eligible to be included in the grid are displayed in this dialog, based on the primary table specified for the web report's data source. This is determined as follows:

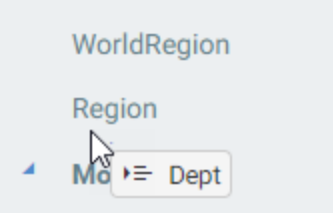
- If the primary table of the data source is a data table, you can include any column from the data table, as well as any reference table it looks up to (including multiple-level lookups). You can also include any column from other data tables that share at least one validated key column with the primary table.
- If the primary table of the data source is a reference table, you can include any column from the reference table, as well as any reference tables it looks up to. You can also include any column from a data table that looks up to the reference table.

NOTE: The column selection dialog only shows tables that meet these rules. However, tables that meet these rules may become invalid for inclusion in the grid based on other configuration settings in the grid. For example, imagine that the primary table is a data table with validated key columns of Dept and Acct. You can include a column from another data table if it also has a validated key of Dept. But if the sum by level for the grid is set to Acct, then the column from the other data table is no longer valid for inclusion, because it does not have the Acct key.

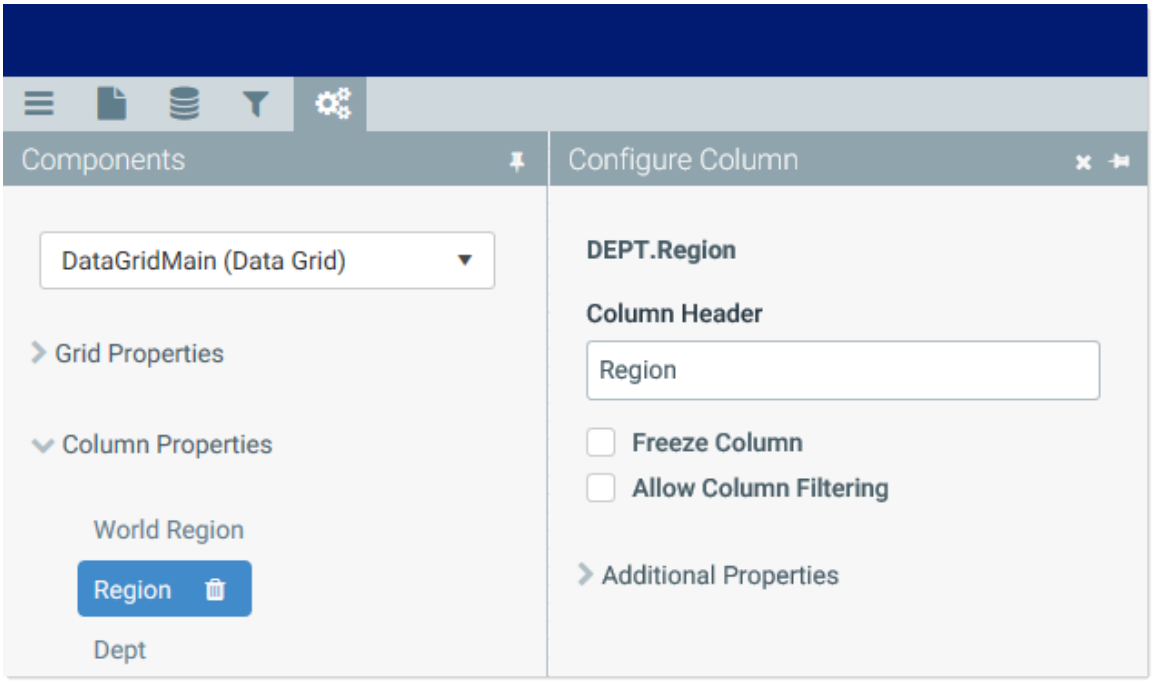
3. Click **OK** to add the selected columns to the data grid. The columns now display in the columns list.

Once columns have been added to the grid, you can reorder, edit, and delete columns as follows:

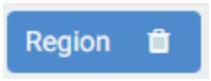
- **Reorder:** To reorder columns, drag and drop them in the columns list. When you drag a column above or below an existing column, you will see an icon as shown in the following screenshot. If you drop the column when that icon shows, the column will be moved to that location.



- **Edit:** To edit column properties, select the column in the columns list. This opens the **Configure Column** panel to the right. (You can also hover over the column name and click the pencil icon to open the panel.)

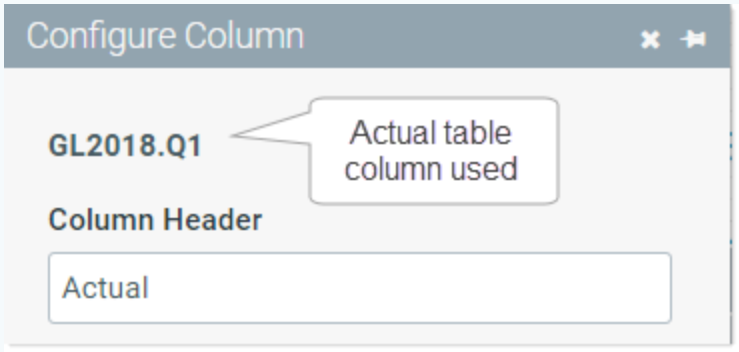


- **Delete:** To delete a column, select the column in the columns list and then click the Delete icon. (The icon is also available on hover.)



General column properties

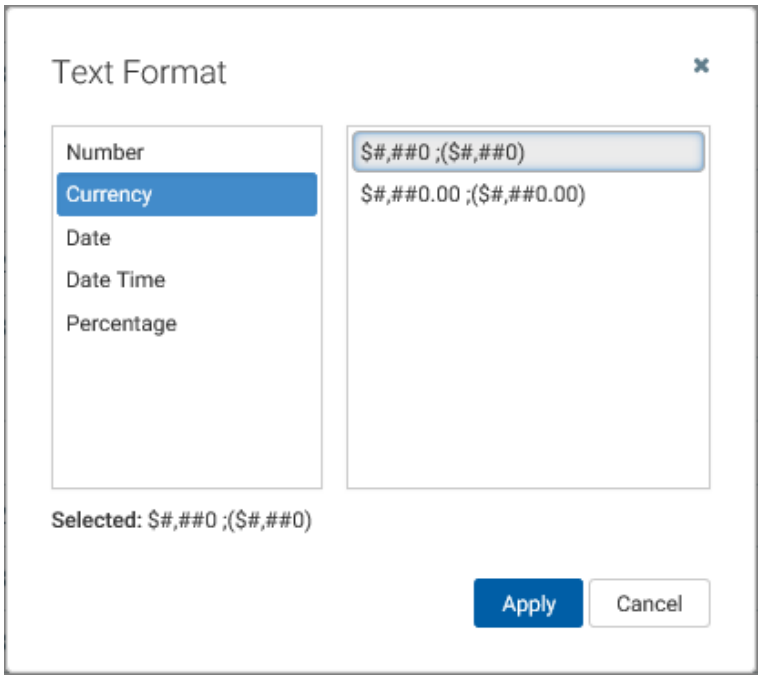
The following general properties can be defined for each column in the grid.

Item	Description
Column Header	The text to display in the grid header for the column. By default, the Table.Column value is used. Once header text is defined, the column displays using the header text in the column list. In order to see the actual Table.Column being displayed in the grid, you can view the column name at the top of the Configure Column panel.  If the report has an associated file group, and the column was selected from a file group table variable, then the table variable name displays after the actual Table.Column name.
Freeze Column	Specifies whether the column is frozen at the left-hand side of the screen for scrolling purposes. • If enabled, the column displays in the frozen area—before any unfrozen columns, regardless of its placement in the column list. Within the frozen area, the frozen columns display in the order they are located in the column list. • If disabled (default), the column displays in the unfrozen area, in the order it is located in the column list. If **Show Hierarchical Data** is enabled for the grid, then this option is unavailable. Columns cannot be frozen when using hierarchical groupings in the grid.
Allow Column Filtering	Specifies whether users can filter the grid by the displayed values in the column. • If enabled, then filtering controls are available on the column header in the rendered grid. These controls are visible when a user hovers over the column header. • If disabled (default), then filtering controls are not available for the column.

Additional properties

The following optional properties can be used to impact the display of the column and the data shown in the column.

Item	Description
Header Alignment	The alignment of the column header text. Select one of the following: **Default**, **Left**, **Right**, or **Center**. By default, the header text uses the same alignment as the column values.
Column Alignment	The alignment of the column values. Select one of the following: **Default**, **Left**, **Right**, or **Center**. The default alignment is as follows: • Values in frozen columns are left-aligned. • Values in non-frozen columns are left-aligned for strings and right-aligned for numbers.
Column Width	The width of the column in the grid, in pixels. If left blank, the default column width is as follows, depending on the column type: • Numeric, Date, Boolean: 120 • Integer (all variations), Identity (all variations), or DateTime: 150 • String: 200

Item	Description
Number Format	A valid format string to define the display format used by the column. To specify a format, click the edit icon in the right-hand side of the box. You can then select from several predefined formatting options. When you click **Apply**, the selected format string is placed in the Format box.  If you do not define a format for columns with numeric data, then the default format for the column's specified numeric type is used.
Visible on Grid	Determines whether the column is visible in the grid. This property is enabled by default. You can optionally use this property to include the column in the query but not display it in the grid. If a column is not visible but it is specified as a "sum by" column or as a sort column, then it will still be included in the data query and will impact the results. Columns are visible in the grid in the order they are defined in the column list, with frozen columns displayed first, followed by all other unfrozen columns.

Item	Description
Filter Column Data	An optional filter to limit the data queried for the column. Click the filter icon to create a filter using the Filter Wizard. The Filter Wizard is limited to only showing valid selections for the current column. Defining a column filter is different than enabling filtering in the grid using **Allow Column Filtering**. The column filter is part of the database query and limits the data returned into the grid for this column (same behavior as column filters in Axiom queries). In contrast, the filter controls on the column header allow users to perform ad hoc filtering based on the values displayed in the column. Also keep in mind that the column filter only affects the data in this particular column. If you want to filter the data coming into the entire data grid, then you must define a filter on the data source used by the grid. **NOTE:** If the report has an associated file group, the tables in the Filter Wizard show with table variable names (as applicable), but the filter is not stored using these variable names. The filter does not update for changes to the table variable values.
Aggregation	Specifies the aggregation type used to aggregate data in the column. In most cases this should be left at **Default** to use the default aggregation for the column—for example, to sum data columns. If you want to override the default aggregation type for a column, select a valid aggregation type. The behavior of the aggregation types is the same as when using an alternate aggregation in an Axiom query.

Specifying sum by columns for the grid

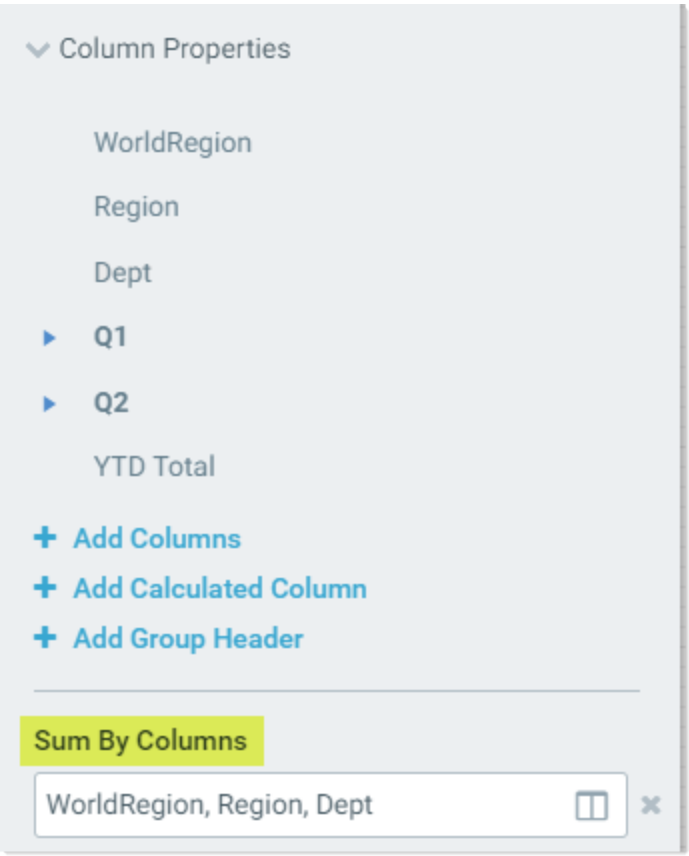
Each data grid must have at least one column specified as the "sum by" column for the grid. This determines the level of summation for each row of data in the query. The sum level is not assumed; it must be explicitly specified.

For example, if the sum by level is `Dept.Dept`, then each row in the grid represents the sum of data per unique department. If the sum by level is `Dept.Dept` and `Acct.Acct`, then each row in the grid represents the sum of data per unique department / account combination.

If **Show Hierarchical Data** is enabled for the data grid, then the sum by columns determine the hierarchical grouping levels for the grid. In this case, there must be at least two sum by columns, and the sum by columns must be in the intended order, with the top-level group listed first. For example, if you are grouping by Country > Region > Dept, then `Dept.Country` must be the first sum by column in the list.

If a column is designated as a sum by column, it is always included in the query, regardless of whether it is visible. Generally speaking, sum by columns should always be visible. If **Show Hierarchical Data** is enabled and a column is designated as a sum by column, that column is automatically visible.

The sum by columns are configured in the **Column Properties** section of the **Components** tab, using the **Sum By Columns** property. If sum by columns have already been specified, the names of the columns display in this field.



Example sum by columns for a data grid

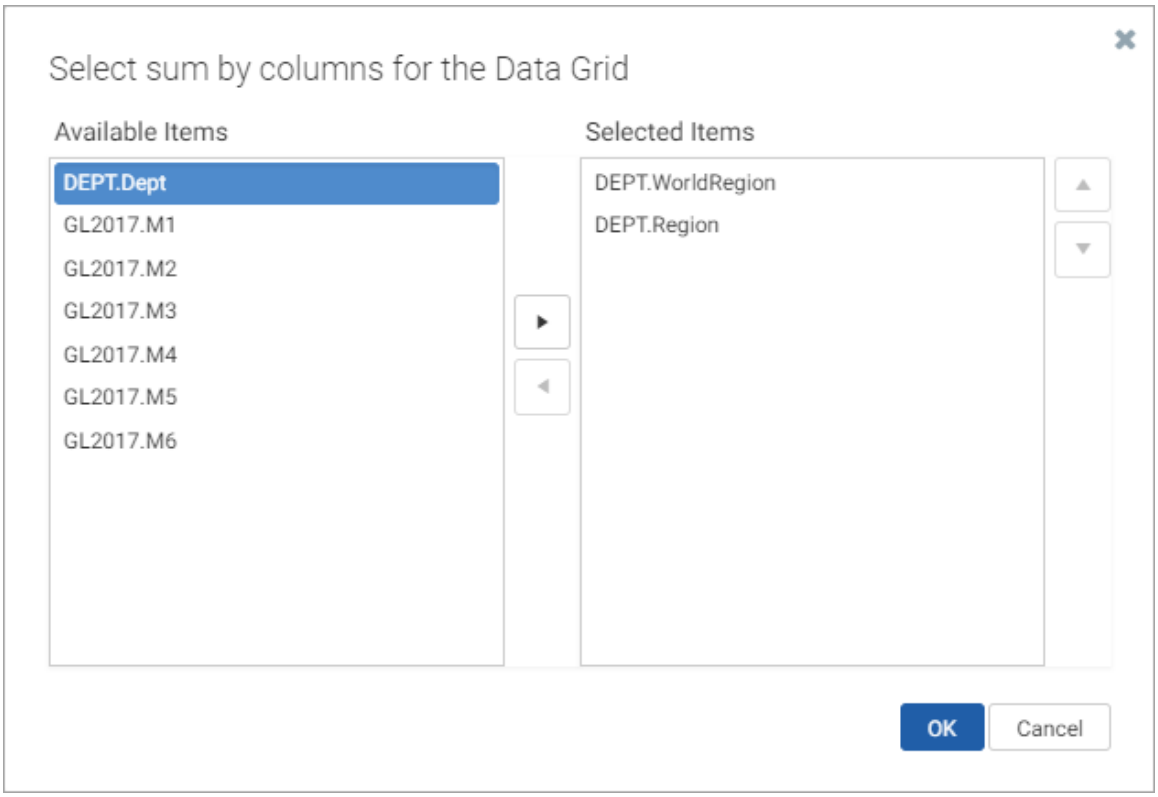
NOTE: The column must already be added to the grid in order to use it as a sum by column.

To specify the sum by columns for a data grid:

1. Click the table icon in the right-hand side of the **Sum By Columns** box.

2. Locate the desired columns in the **Available Items** box, and move them to the **Selected Items** box.

   You can select one or more columns (using CTRL or SHIFT to select multiple), and then use the arrow keys in the middle to move them between boxes. You can also double-click on an individual column to move it between boxes.



   The Available Items box lists all columns that have been added to the grid.

3. If **Show Hierarchical Data** is enabled for the grid, use the up and down arrows to order the sum by columns in the order that you want the groupings to display. The top column in the list is the top-level grouping.

   If you are not grouping by hierarchical data, then the order of the sum by columns does not matter.

4. Click **OK** to set the sum by level of the grid to the selected columns.

You can change the sum by columns using the same process, and you can clear the currently selected columns by clicking the **X** button to the right of the box. However, the data grid will not be valid unless at least one sum by column is specified (or two, if **Show Hierarchical Data** is enabled).

If the report has an associated file group, and a selected sum by column is from the target table of a table variable in the file group, then the column is stored using the variable so that it can change dynamically.

Valid sum by columns

The following columns are valid to be used as sum by columns for the grid, depending on whether the primary table of the data source is a data table or a reference table. The sum by dialog does not filter out invalid column selections. If you select an invalid column, an error will occur when the sum by level is applied to the data grid.

When the primary table is a data table and no other data tables are included in the grid, the following database columns can be used to define the sum level:

- Any column in the primary table.
- Any column in a lookup table.

When the primary table is a data table and additional data tables are included in the grid, the following database columns can be used to define the sum level:

- Any shared validated column in the data tables, key or non-key. The sum by must be set to the shared lookup column, not to the column in the data tables. For example, you can specify `Dept.Dept` as the sum by, but *not* `GL2019.Dept`. (Though if GL2019 is the primary table, this will still work and will be assumed as `Dept.Dept`.)
- Any column in a shared lookup table.
- Any shared non-validated column in the data tables, key or non-key. In this case you must specify the column from the primary table with the shared name. For example, if all of the data tables in the query have a column named Date, and the primary table is GL2019, you can specify `GL2019.Date` as the sum by.

When the primary table is a reference table, the following database columns can be used to define the sum level:

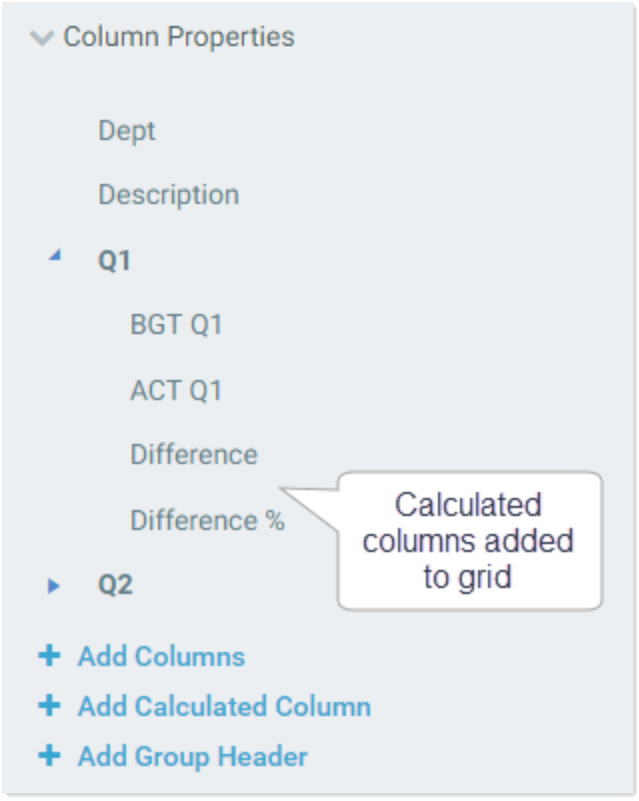
- Any column in the primary table.
- Any column in a lookup table.

Defining calculated columns for the grid

You can optionally add *calculated columns* to the data grid, to display custom calculations. Calculated columns can be used to display totals, differences, percentages, and other calculations.

NOTE: In this context, "calculated column" refers to a custom calculation that you define for use in the grid. It does not refer to calculated fields defined on tables. Calculated fields can be added to the grid like regular table columns, using **Add Columns**.

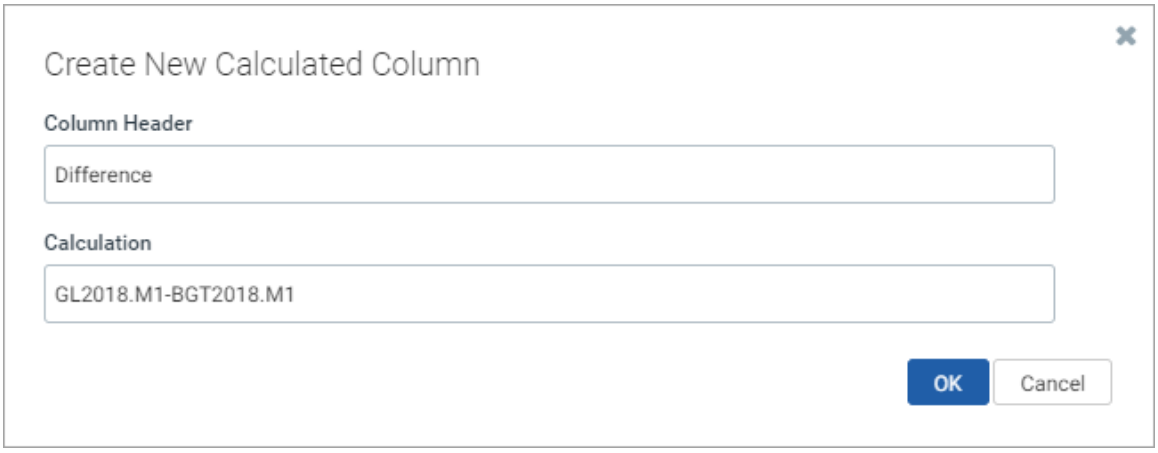
If calculated columns have already been added to the grid, these columns are listed in the **Column Properties** section of the **Components** panel. From here you can add new calculated columns, reorder existing columns, edit column properties, and delete columns.



Example calculated columns in the Column Properties

To add a calculated column to the grid:

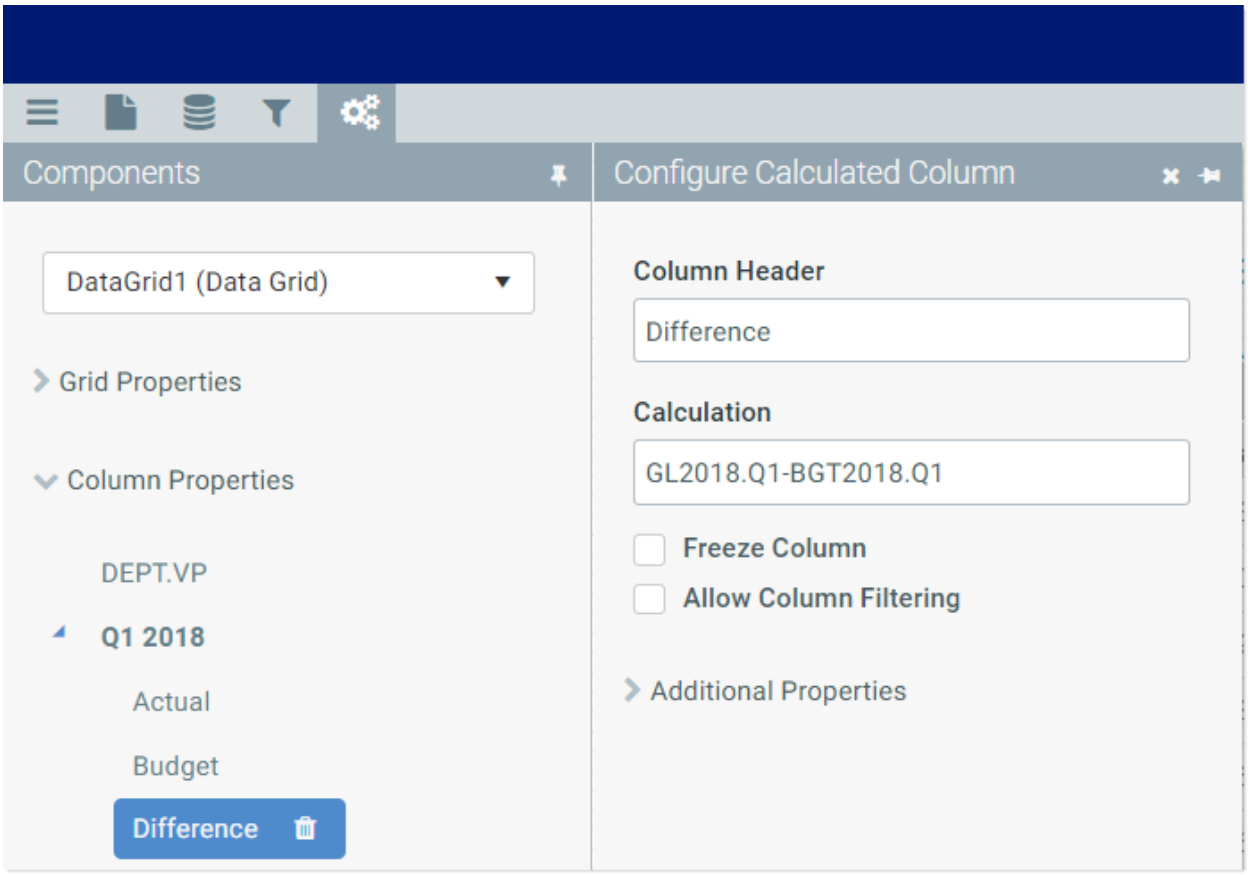
1. In the **Column Properties** section of the Data Grid component properties, click **Add Calculated Column**.
2. In the **Create New Calculated Column** dialog, define the **Column Header** text for the column, and the **Calculation**.



For more information on how to define the calculation, see the calculated column properties. If you are not ready to define the calculation at this point, you can enter anything into the Calculation field and then edit it later (however, the data grid may be invalid in the meantime).

3. Click **OK** to add the calculated column to the data grid. The column now displays in the columns list.

Once calculated columns have been added to the grid, you can reorder, edit, and delete them just like regular columns.



Example calculated column properties

General calculated column properties

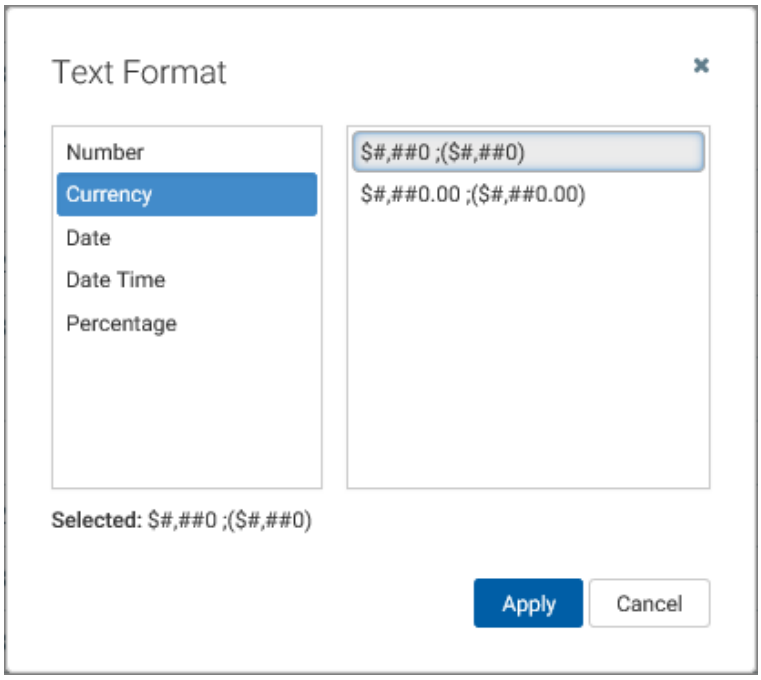
The following general properties can be defined for each calculated column in the grid.

Item	Description
Column Header	The name to display in the grid header for the column. This text is required for a calculated column.

Item	Description
Calculation	Enter the desired calculation as a text string, without an equals sign. The calculation must consist of valid database column names and one or more of the following operators: addition (+), subtraction (-), multiplication (*), division (/), remainder (%), or unary negation (-). For example: `GL2019.M1+GL2019.M2` This calculation displays the sum of the two columns, for each row of the grid. Use parentheses to determine calculation order, such as: `(GL2019.Q1-BGT2019.Q1)/BGT2019.Q1`. The calculation can use regular table column names, calculated field names, column alias names, and numbers. Table columns and calculated fields must use full Table.Column syntax. You can use any database column that would be valid for inclusion in the data grid, though the column does not have to be added to the grid in order to be used in the calculation. **NOTE:** Currently, it is *not* supported to use table variables in calculations when the report has an associated file group.
Freeze Column	Specifies whether the column is frozen at the left-hand side of the screen for scrolling purposes. • If enabled, the column displays in the frozen area—before any unfrozen columns, regardless of its placement in the column list. Within the frozen area, the frozen columns display in the order they are located in the column list. • If disabled (default), the column displays in the unfrozen area, in the order it is located in the column list. If **Show Hierarchical Data** is enabled for the grid, then this option is unavailable. Columns cannot be frozen when using hierarchical groupings in the grid.
Allow Column Filtering	Optional. Specifies whether users can filter the grid by the displayed values in the column. If enabled, then filtering controls are available on the column header in the rendered grid. These controls are visible when a user hovers over the column header.

Additional properties

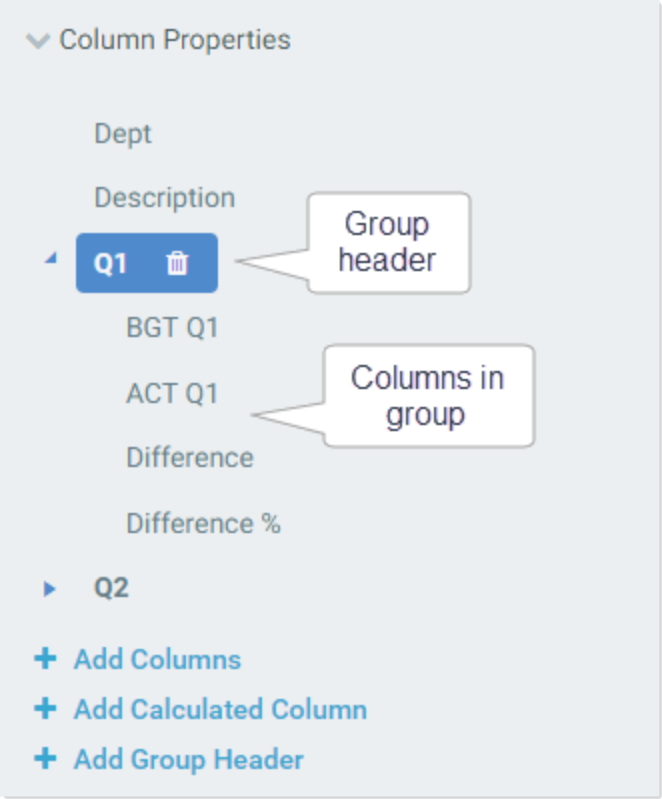
The following optional properties can be used to impact the display of the calculated column.

Item	Description
Header Alignment	The alignment of the column header text. Select one of the following: **Default**, **Left**, **Right**, or **Center**. By default, the header text uses the same alignment as the column values.
Column Alignment	The alignment of the column values. Select one of the following: **Default**, **Left**, **Right**, or **Center**. The default alignment is as follows: • Values in frozen columns are left-aligned. • Values in non-frozen columns are left-aligned for strings and right-aligned for numbers.
Column Width	The width of the column in the grid, in pixels. The default column width is 120px.
Number Format	A valid format string to define the display format used by the column. To specify a format, click the edit icon in the right-hand side of the box. You can then select from several predefined formatting options. When you click **Apply**, the selected format string is placed in the Format box. 
Visible on Grid	Determines whether the column is visible in the grid. This property is enabled by default. Columns are visible in the grid in the order they are defined in the column list, with frozen columns displayed first, followed by all other unfrozen columns.

Defining group headers for the grid

You can optionally add group headers, to define header text that spans across multiple columns. For example, you may want the header text "Q1" over the three columns in the first quarter, "Q2" over the next three columns, and so on.

If group headers have already been added to the grid, these groups are listed in the **Column Properties** section of the **Components** panel. From here you can add new groups, reorder existing groups, edit group properties, and delete groups.



Example group header in the Column Properties

Dept	Description	Q1			
		BGT Q1	ACT Q1	Difference	Difference %
40000	Los Angeles - Store 3400	$98,974	$102,146	$3,172	3.2%
41000	New York - Store 30	$316,212	$264,451	($51,761)	-16.4%

Example group header in rendered data grid

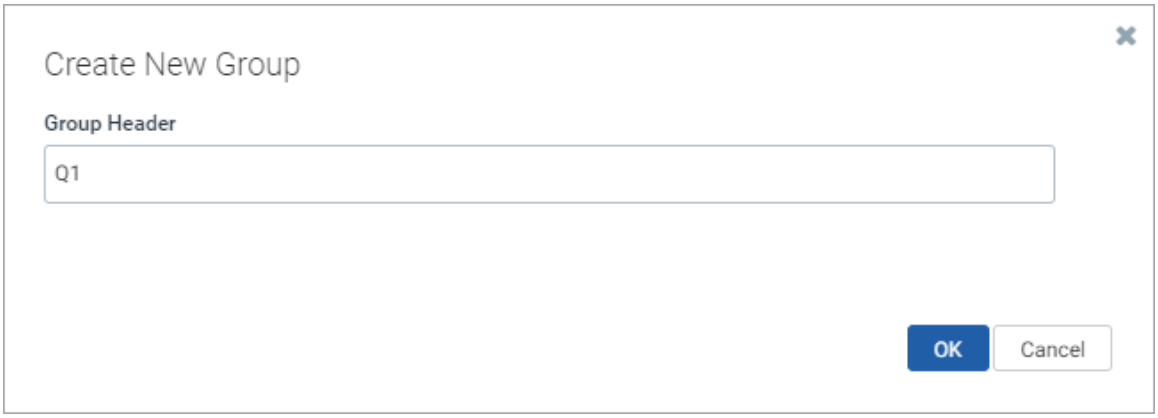
To add a group header to the grid:

1. In the **Column Properties** section of the Data Grid component properties, click **Add Group**

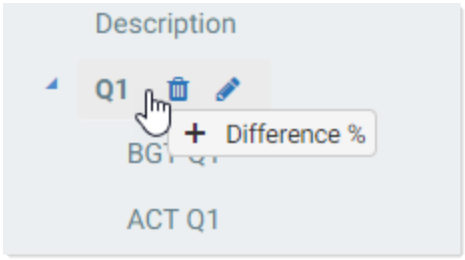
Header.

> **TIP:** If you want to create a nested group, select the existing parent group name first, then click Add Group Header. The new group will be created within the existing group. Alternatively, you can drag and drop groups to create nested groups.

2. In the **Create New Group** dialog, enter the **Group Header** name to use for this group. For example, the name might be something like Q1, Months, or 2019 Actuals. Click **OK** to add the group to the column list.



3. To add columns to the group, you can do either of the following:
   - Drag and drop existing columns to the group. When you drag a column onto the group name, you will see a plus icon. If you drop the column at that point, it is added to the group.

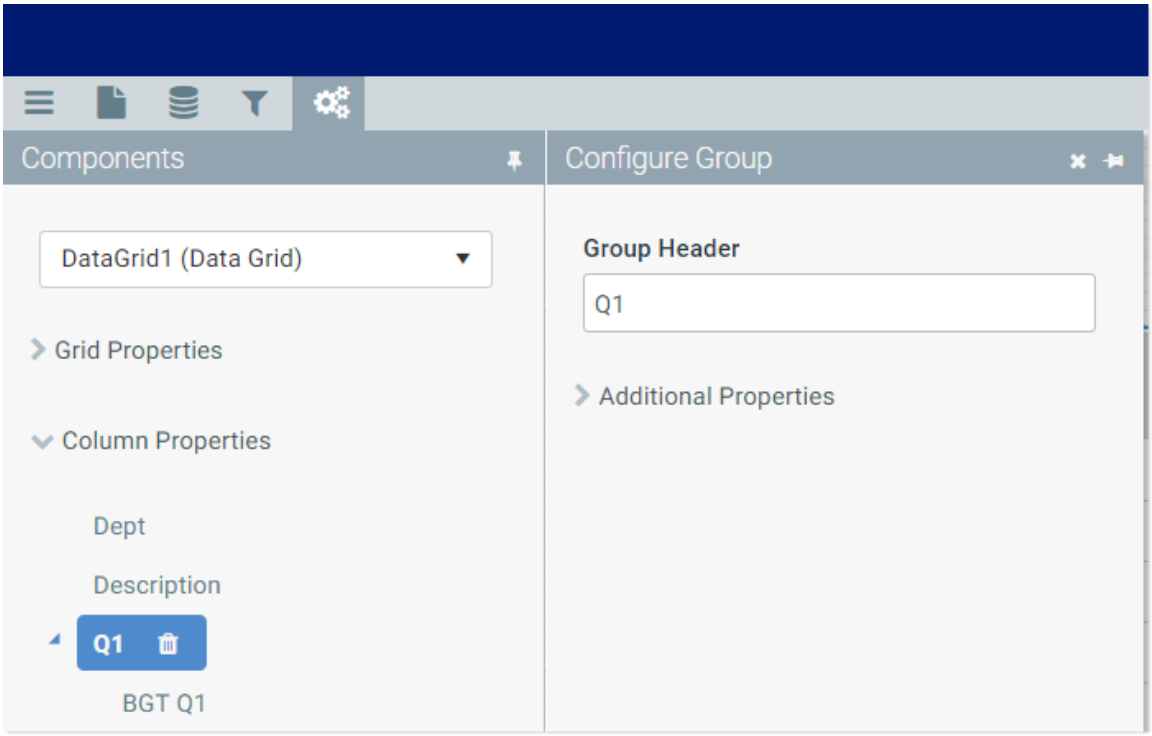


   - Select the group name and click **Add Columns** to add new columns directly to the group.

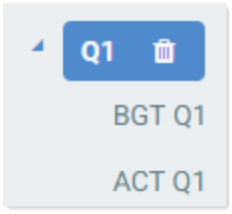
Once the group has been created, you can reorder it, edit it, and delete it as follows:

- **Reorder:** You can drag and drop columns within the group to change their order in the group. You can also select the group and move the entire column group to different locations within the column list (including underneath another group).

- **Edit:** To edit the group properties, select the group name in the column list. This opens the **Configure Group** panel to the right. (You can also hover over the name and click the pencil icon to open the panel.)



- **Add or Remove Columns:** You can drag and drop columns in and out of the group as needed. You can also delete columns in the group.
- **Delete Group:** To delete the entire group, select the group name and click the Delete icon. (The icon also displays on hover.)



If you delete a group, all columns in the group are also deleted. A confirmation dialog displays before proceeding, so you have an opportunity to cancel the process. If you don't want the columns to be deleted, remove the columns from the group before deleting the group.

General group properties

The following general properties can be defined for each group in the grid.

Item	Description
Group Header	The text to display in the group header. The group header spans above the columns in the group.

Additional properties

The following optional properties can be defined for each group in the grid.

Item	Description
Header Alignment	The alignment of the group header text. Select one of the following: **Default**, **Left**, **Right**, or **Center**. By default, group header text is centered across the columns in the group.

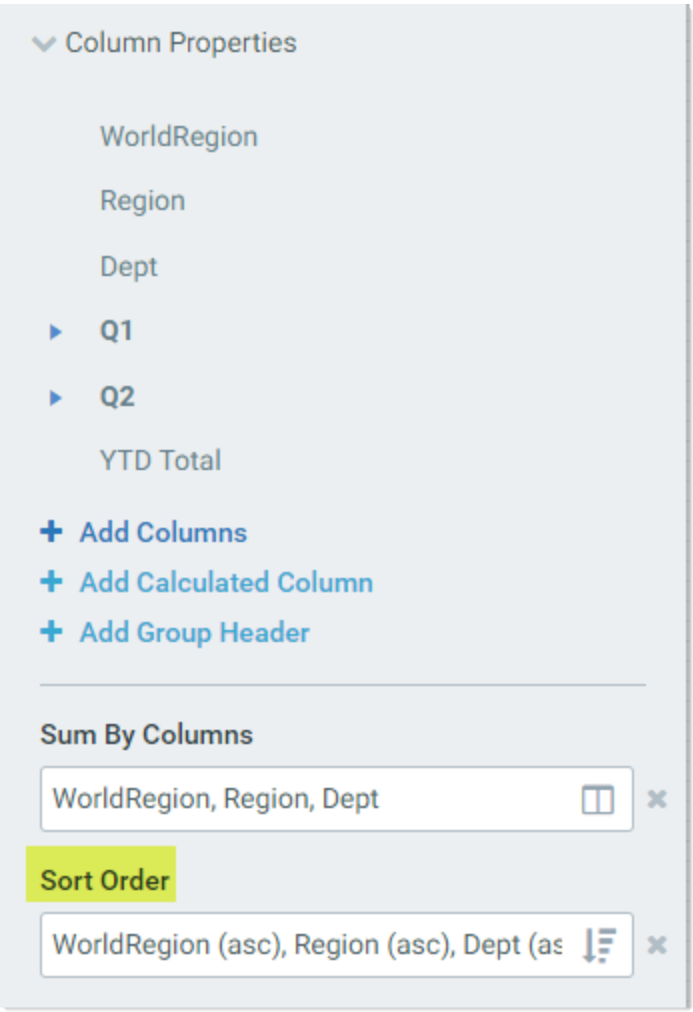
Specifying the sort order for the grid

You can optionally specify one or more sort columns to determine the initial sort order for the grid. Once the grid is rendered, users can change the sort as desired by clicking on a column header to sort by that column. Each click toggles between ascending sort, descending sort, and no sort.

For example, you can specify `Dept.Dept` as a sort column to sort the grid by departments. Or you can specify both `Dept.Region` and `Dept.Dept` to sort the grid first by region and then by department.

Sort columns can be table columns or calculated columns. The sort can be ascending or descending. If you do not define a sort column, by default the grid is sorted in ascending order using the sum by columns.

The sort columns are configured in the **Column Properties** section of the **Components** panel, using the **Sort Order** property. If sort columns have already been specified, the names of the columns display in this field.

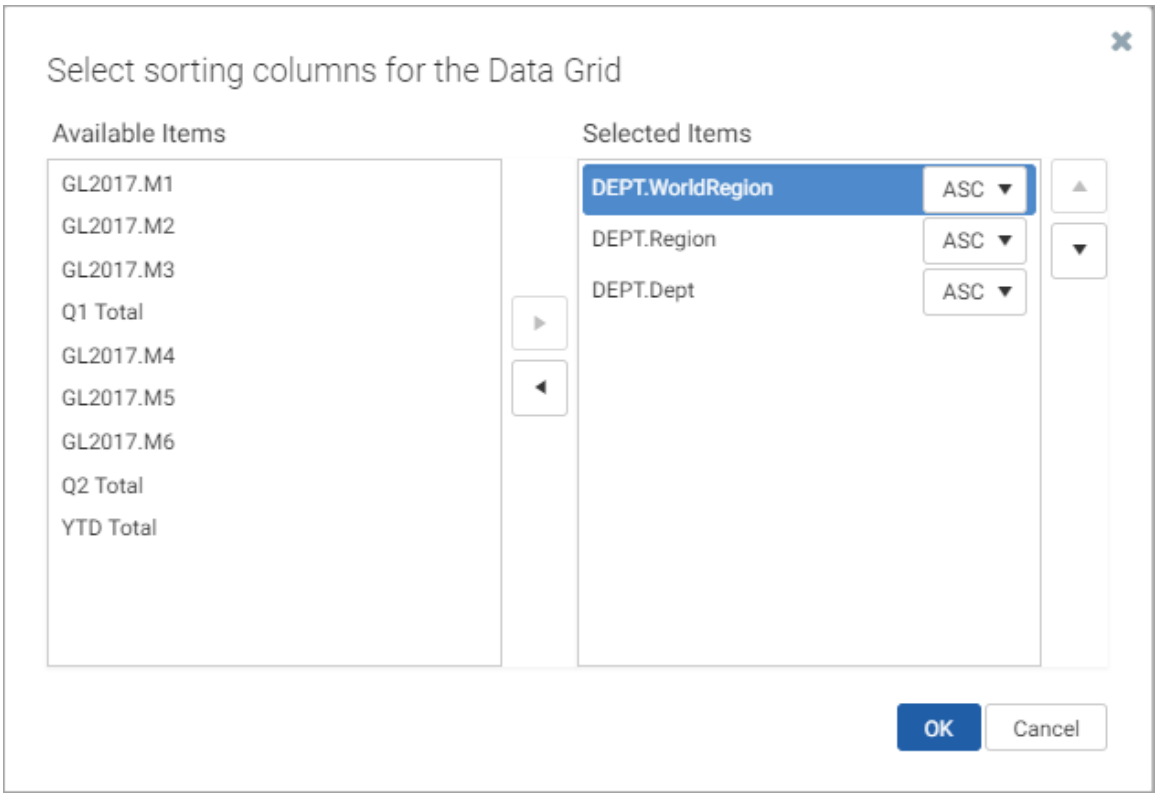


Example sort order for the data grid

NOTE: The column must already be added to the grid in order to use it as a sort column.

To specify the sort order for a data grid:

1. Click the sort icon in the right-hand side of the **Sort Order** box.
2. Locate the desired columns in the **Available Items** box, and move them to the **Selected Items** box. You can select one or more columns (using CTRL or SHIFT to select multiple), and then use the arrow keys in the middle to move them between boxes. You can also double-click on an individual column to move it between boxes.



The Available Items box lists all columns and calculated columns that have been added to the grid.

3. Use the up and down arrows as needed to arrange the columns in the desired sort order. The top column in the list is the top-level sort.
4. Use the drop-down list next to the column name to change the sort direction as needed. By default, the sort direction is ascending (**ASC**). If desired, you can change this to descending (**DESC**).
5. Click **OK** to set the sort order of the grid to the selected columns.

You can change the sort columns using the same process, and you can clear the currently selected columns by clicking the **X** button to the right of the box.

If the report has an associated file group, and a selected sort order column is from the target table of a table variable in the file group, then the column is stored using the variable so that it can change dynamically.

Defining data sources for Data Grid components

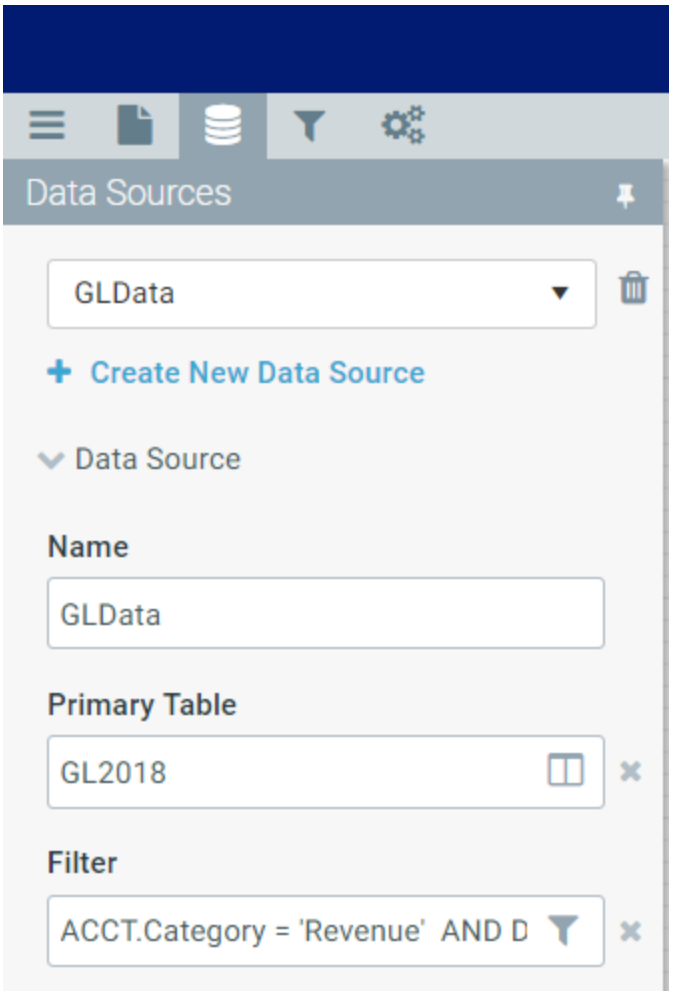
Web reports that use Data Grid components must have at least one *data source*. The data source specifies a primary table (such as GL2019 or Dept) and an optional filter. The data source can then be assigned to various Data Grid components in the web report to determine the data available to that component.

Data sources are defined separately from the Data Grid component properties, so that they can be controlled centrally. For example, you can have two or three Data Grid components that all use the same data source. If you decide you need to change the data source properties, you can do it in one place instead of needing to modify all of the components individually.

NOTE: If the report does not contain a Data Grid component, then you do not need to define a data source. Currently, the Data Grid component is the only component that uses data sources.

Managing data sources for a web report

Data sources are defined on the **Data Source** panel of the Report Designer.

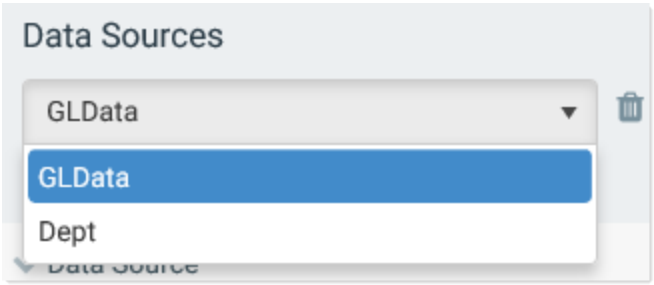


Example Data Source tab

When you first create a new web report, it has one data source named **Datasource 1** by default. Any Data Grid components in the report are configured to use this initial data source by default. You can edit this data source to define a primary table and optional filter, and change its name.

To edit a data source:

- Select the data source name from the drop-down list at the top of the panel.



The panel updates to show the properties for the selected data source. You can edit any of the data source properties as needed.

NOTE: If refresh variable dependencies have been created for the data source, the primary table cannot be changed. You must delete the dependencies first.

IMPORTANT: If you change the primary table for an existing data source, any components that use the data source may now have invalid configurations. For example, existing columns in a Data Grid component may now be invalid in the context of the new primary table. If that is the case, errors will occur when attempting to render the component. You must edit the component to remove or change any invalid settings.

To add a data source:

1. Click **Create New Data Source**.
2. In the **Create New Data Source** dialog, define the data source properties as needed. You must define a name and a primary table.

3. Click **OK** to save the new data source.

Remember, just creating a data source does not have any impact on the web report. You must assign the data source to one or more components in order to display data from the data source in the web report.

To delete a data source:

1. Select the data source name from the drop-down list at the top of the panel.
2. Click the **Delete Data Source** icon to the right of the name. Note that the icon does not display if there is only one data source, since that data source cannot be deleted.

   If the data source is assigned to one or more components, the data source cannot be deleted. You must first edit the components to use different data sources, and then you can delete the data source.

Data source properties

Item	Description
Name	The name of the data source. By default, the first data source is named Datasource 1. All newly created data sources start with the name Datasource 2, Datasource 3, and so on. When assigning data sources to components, you choose from a list of these data source names. You can change the data source name as needed. It is recommended to give it a name that is indicative of the data that can be queried using the data source. For example, you might name the data source something like "Actuals Data" or "Department Data". You might also want to use the name of the primary table as the data source name.
Primary Table	The primary table for the data source. Click the table icon to select a table. Each data source must have a primary table. In the **Select a Primary Table** dialog, the tables available for selection are determined as follows: • If the report does not have an associated file group, then you can select any table in the Table Library. • If the report has an associated file group, then the table list is limited by default to showing tables associated with the file group (and related lookup tables). Table variable names display in parentheses after the table names. If you select a table with a variable name, the table reference is stored using that variable name, so that it can dynamically change as the variable value changes. If you want to use a table that is not associated with the file group, enable **Show all tables** at the bottom of the dialog. The dialog updates to show all tables. The primary table determines the valid list of tables and columns for use in components that use the data source, and thereby determines the data that can be displayed in the components. • If the primary table is a data table, the valid tables include the primary table itself, reference tables that the primary table looks up to, and other data tables that share validated keys with the primary table. • If the primary table is a reference table, the valid tables include the primary table itself, reference tables that the primary table looks up to, and data tables that look up to the primary table.

Item	Description
Filter	Optional. Specify a filter criteria statement to limit the data available to components that use this data source. Click the filter icon to create a filter using the Filter Wizard. The Filter Wizard is limited to only showing valid selections for the primary table. When data is queried into a component that uses the data source, this filter is automatically applied (in addition to the user's applicable table security filters). **NOTE:** If the report has an associated file group, the tables in the Filter Wizard show with table variable names (as applicable), but the filter is not stored using these variable names. The filter does not update for changes to the table variable values.

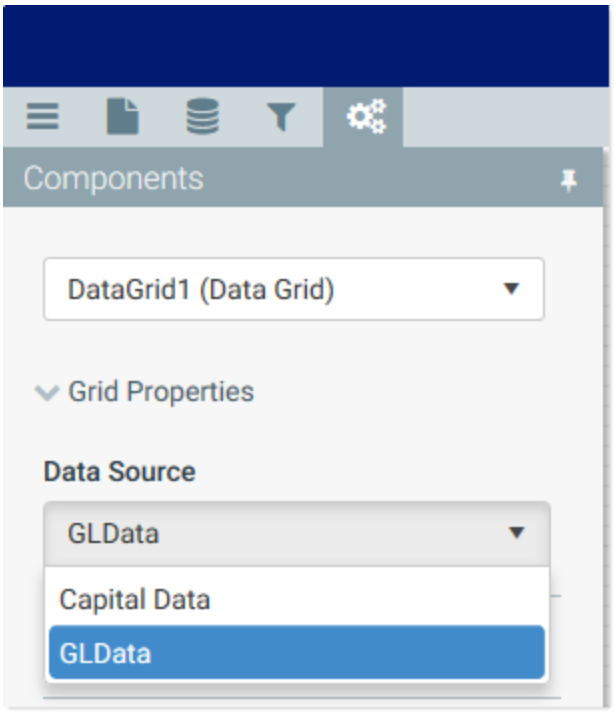
Assigning a data source to a Data Grid component

When you first create a new web report from a template, any Data Grid components in the report are automatically assigned to the default data source **Datasource 1**. Once you have configured the default data source, the Data Grid components are now ready to be configured if you want them to use that data source. However, if you have created additional data sources and you want the Data Grid components to use different data sources, then you must change the data source assignment in the component properties.

Data Grid components are configured on the **Components** panel of the Report Designer.

To assign a data source to a Data Grid component:

1. In the **Components** panel, select the Data Grid component that you want to configure. You can use the drop-down list at the top of the panel to select the component, or you can select the data grid directly in the web report canvas.
2. In the **Component Properties** section, use the **Data Source** list to select the desired data source.



Once a data source has been specified for a Data Grid component, the grid is now limited to using table columns that are valid within the context of the primary table for the data source. Dialogs such as the **Add Columns** dialog are automatically filtered to show valid selections.

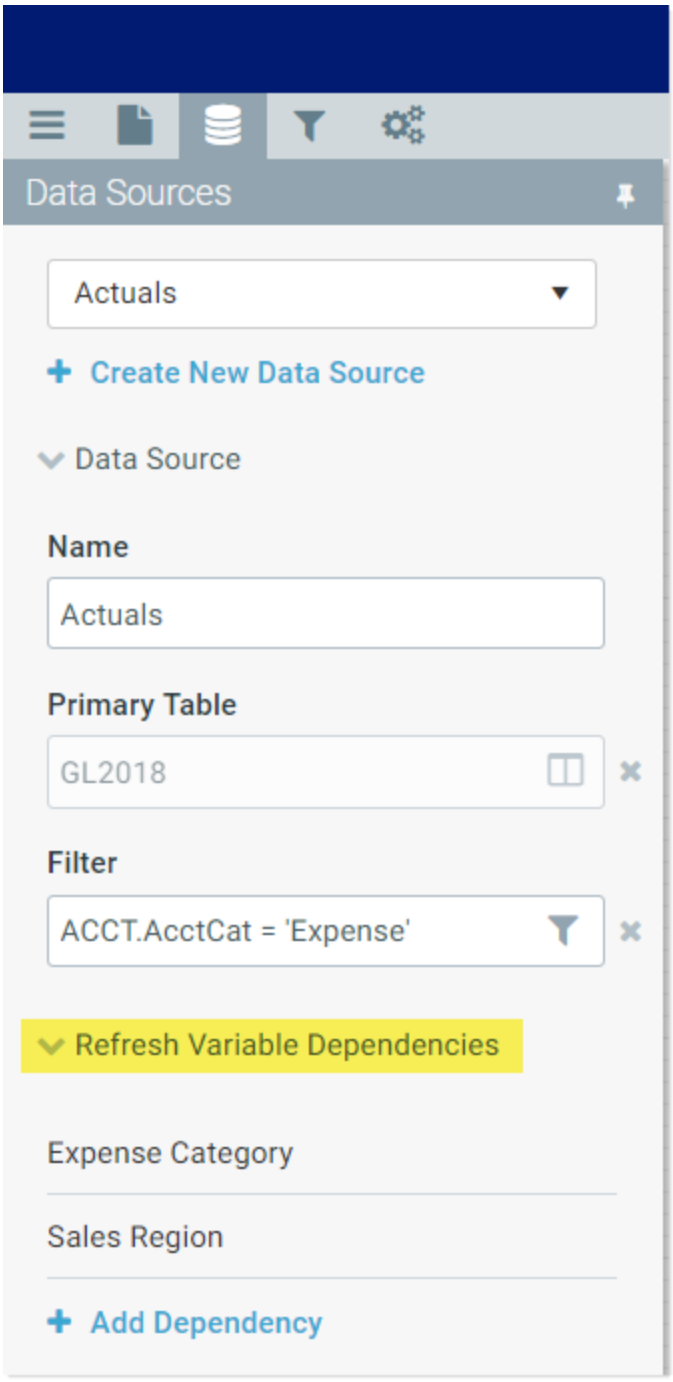
If you change the data source for a Data Grid component after columns have already been added to the grid, the existing columns may now be invalid in the context of the new data source. If the data grid has invalid columns, they must be removed in order to render the grid without error. However, if the existing columns are still valid in the new data source, then the data grid will continue to work after changing the data source.

Defining refresh variable dependencies for data sources

Data sources can be dependent on one or more refresh variables, so that users can filter the data in the associated Data Grid components on demand.

In order to create a dependency, the refresh variable must already be created on the **Refresh Variables** panel. For more information on creating refresh variables and how dependencies work, see Configuring Refresh Variables.

Refresh variable dependencies for data sources are defined in the **Refresh Variable Dependencies** section of the **Data Sources** panel. If the currently selected data source already has defined dependencies, they are listed in this section. Dependencies are listed by the name of the variable they are associated with.



Example refresh variable dependencies for a data source

To create a refresh variable dependency:

1. Select the desired data source from the drop-down list at the top of the panel. If your report only has one data source, then it is selected by default.
2. In the **Refresh Variables Dependencies** section, click **Add Dependency**.

3. In the **Create a Dependency** dialog, complete the following:

Item	Description
Variable	Select the name of the variable that you want to associate with this data source. You can select any variable defined on the Refresh Variables tab, except for Year variables. Year variables do not use dependencies.
Table Reference	This field only displays if the primary table of the data source has multiple column paths to the variable. In this case, you must select the column path that you want to use for this variable. If the primary table only has one column path to the variable, then this field does not display. You do not have to configure the column association between the data source and the variable because it is automatically set.

NOTE: If the primary table of the data source does not contain a path to the value column for the variable, the dependency cannot be created because there is no way to filter the data source based on the variable. In this case, the dialog displays a message "No dependencies available" after you select the variable name.

4. Click **OK** to create the dependency.

Refresh variable dependencies cannot be edited once they are created. They can only be deleted. To delete a dependency, hover your mouse over the dependency in the list and then click the Delete icon.

NOTE: If you change the value column or hierarchy for the refresh variable after you create the dependency, the dependency will still work as long as there is only one path to both the original and the new value column or hierarchy (and assuming the new selection is still valid against the data source). However, if the original dependency had a table reference, or if the new value column needs a table reference, then you must delete and re-create the dependency in order for the variable to work.

Setting up drilling for Data Grid components

You can enable drilling for Data Grid components in web reports, and configure the grid so that certain drilling selections are available to users. If drilling is enabled, users can drill any row in the grid by clicking on a drill icon that displays on each row. Users can select a drilling level from among the available selections, and then the drilling results are presented in a separate web page. Users can continue to drill the drilling results if desired, or return to the original grid and drill again from there.

When configuring drilling for the grid, you specify one or more hierarchies from a lookup table (based on the primary table of the data source). Users can then drill to any level of the hierarchy.

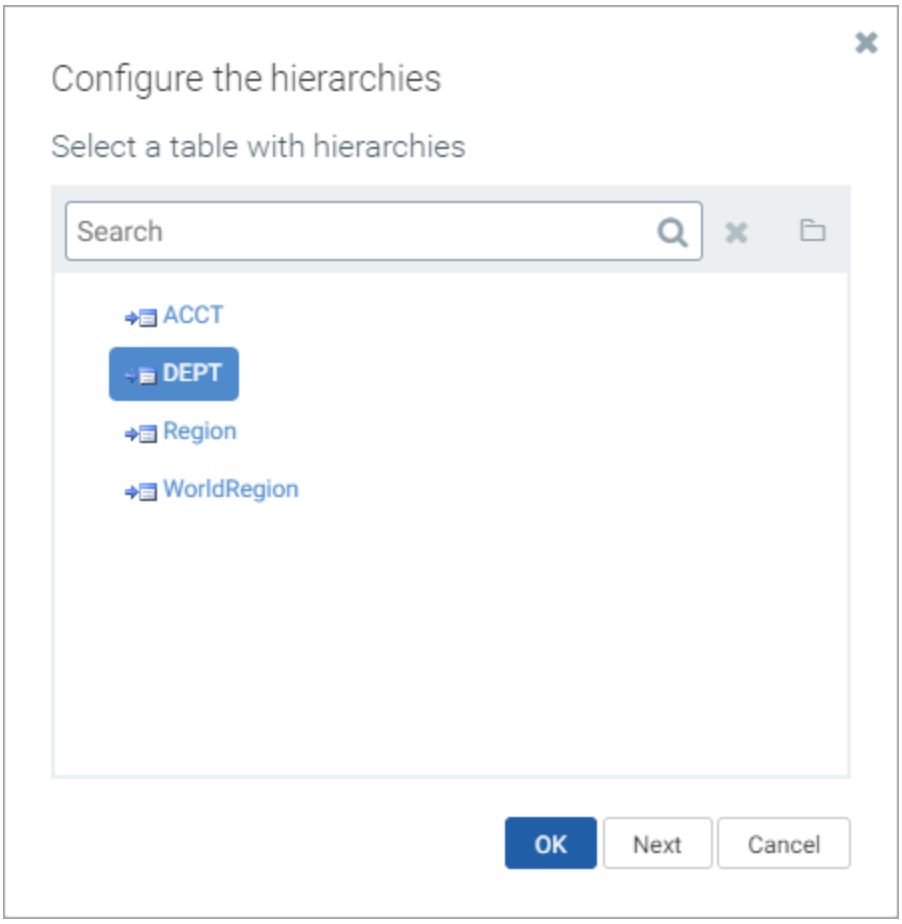
NOTE: Some browsers may require pop-ups to be allowed for the Axiom Software site in order to perform drilling in a web report.

Enabling drilling for a Data Grid component

Drilling is configured on the **Components** panel of the Report Designer. Select the grid that you want to configure, then complete the following properties in the **Grid Properties** section:

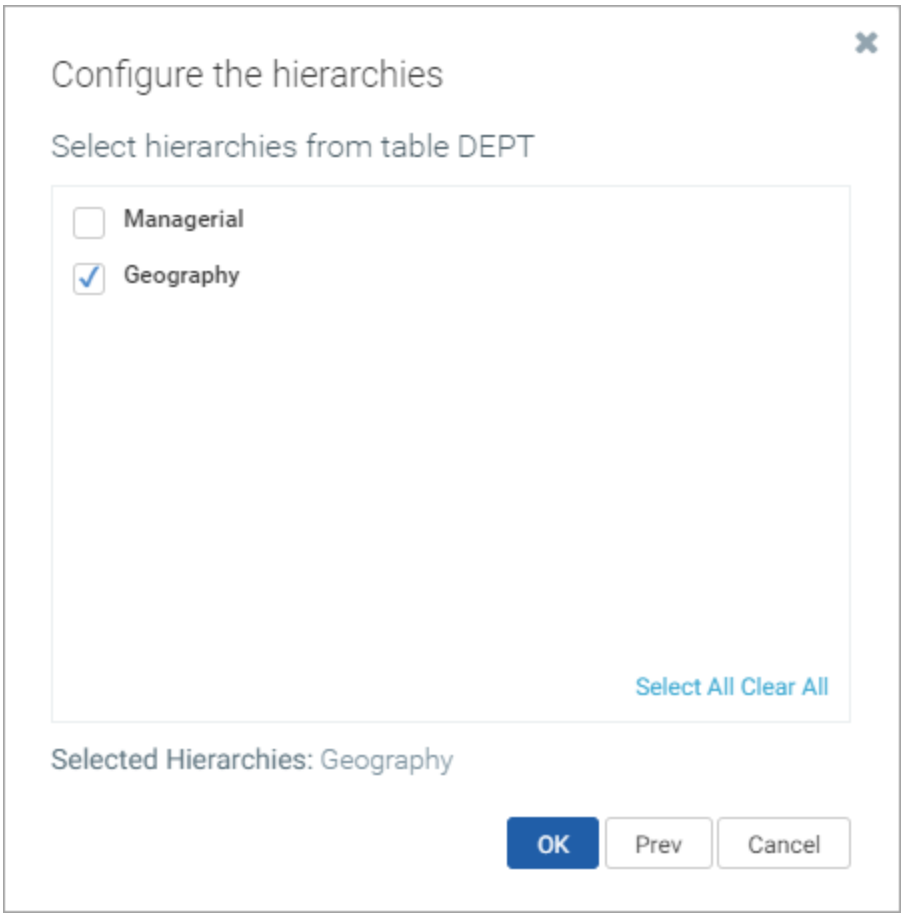
Item	Description
Enable Drilling	Select this check box to enable drilling for the data grid. If enabled, users can "drill down" a row in the grid to see the data in that row at a different level of detail.
Drilling Hierarchies	Specify one or more hierarchies in a lookup table to determine the drilling levels available to users. To select hierarchies, click the hierarchies icon in the right side of the Drilling Hierarchies box. Once you have made your selections, the Drilling Hierarchies box is populated with either the selected table name (if using all hierarchies on a table), or with the names of the selected hierarchies on that table. **NOTE:** If you leave the Drilling Hierarchies box blank, then the user can drill on any valid hierarchy. Essentially, this is as if you selected all tables in the Select Table dialog, showing all hierarchies on those tables.

When selecting hierarchies for drilling, you are first prompted to choose a table. The dialog is limited to showing only reference tables with hierarchies, where the primary table of the data source has a lookup relationship to the tables. Once you have selected a table, you can click **OK** to use all hierarchies on that table, or you can click **Next** to select specific hierarchies.



Example table selection for drilling hierarchies

If you click Next, the next screen prompts you to choose one or more hierarchies on that table. Select the hierarchies that you want to use, and then click **OK**.

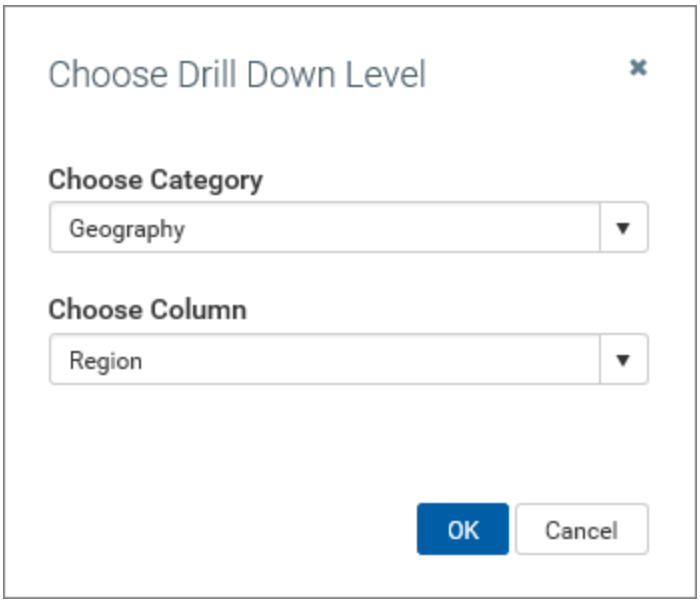


Example hierarchy selection for drilling hierarchies

For information on creating hierarchies, see the *System Administration Guide*.

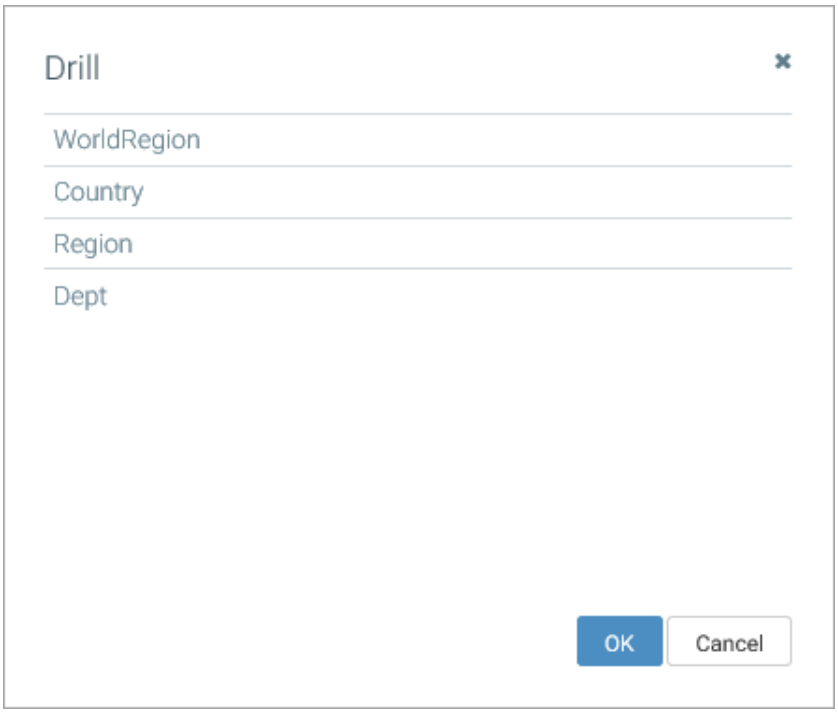
Display of drilling options

If multiple hierarchies are available for drilling, users first select a category (the hierarchy) and then select a column in the hierarchy. In the following example, the user has selected the Geography hierarchy and then the Region column, so the drilling data will use regions as the rows.



NOTE: If the query data contains multiple paths to the hierarchy columns, the same hierarchy will show multiple times (once for each valid path). The user must select the path that they want to use for the drill.

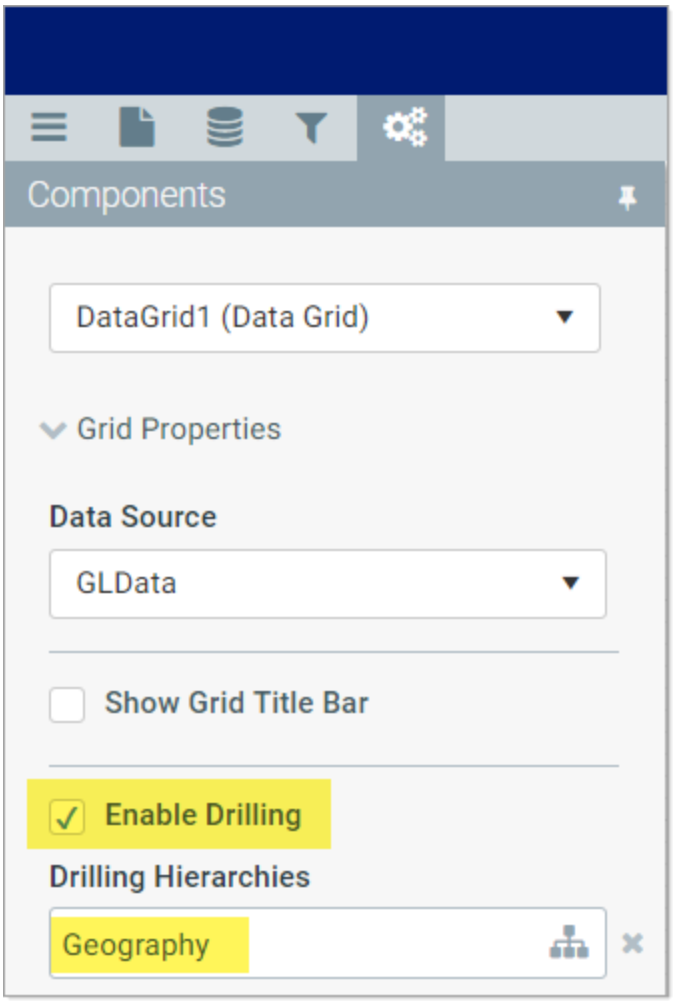
If only one hierarchy is available (and the data has only one path to that hierarchy), then the user does not have to select the hierarchy. Instead, the columns in the hierarchy are presented directly in the dialog. In the following example, the Geography hierarchy is the only available hierarchy, so the user can directly select any column in that hierarchy.



Drilling example

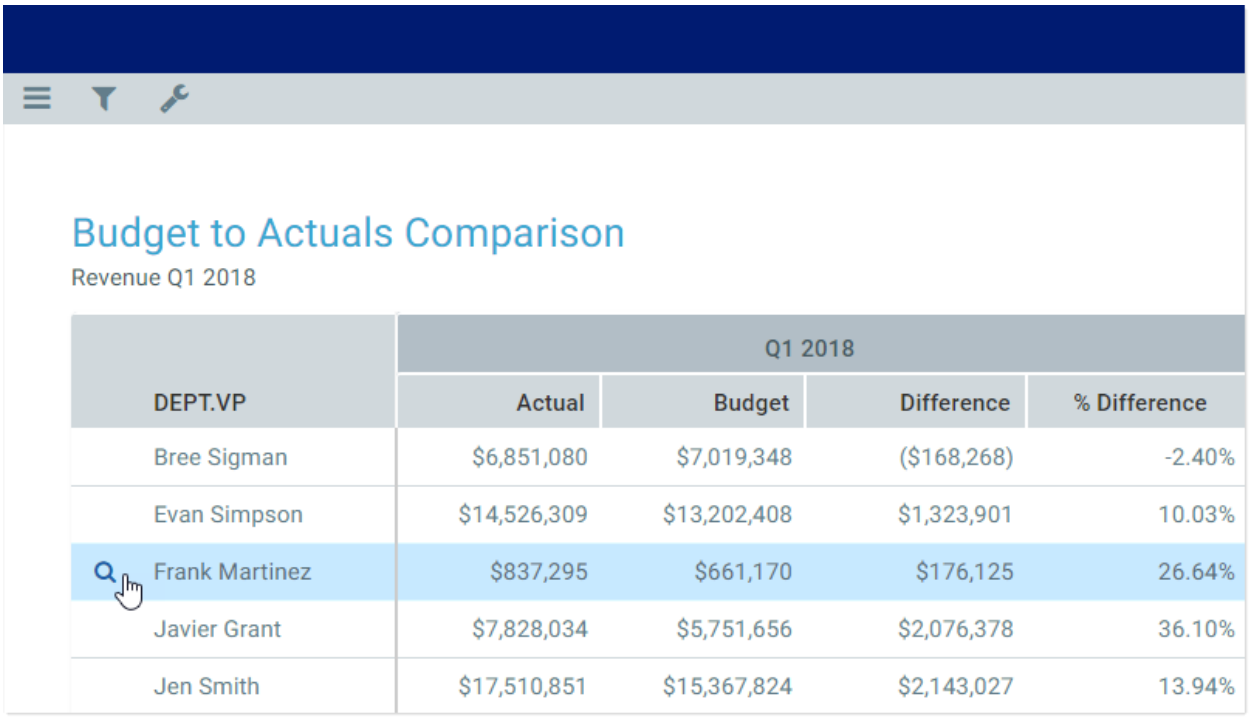
The following example is intended to give web report creators an idea of the user experience when drilling a Data Grid component.

In this example, the Data Grid component is configured as follows:



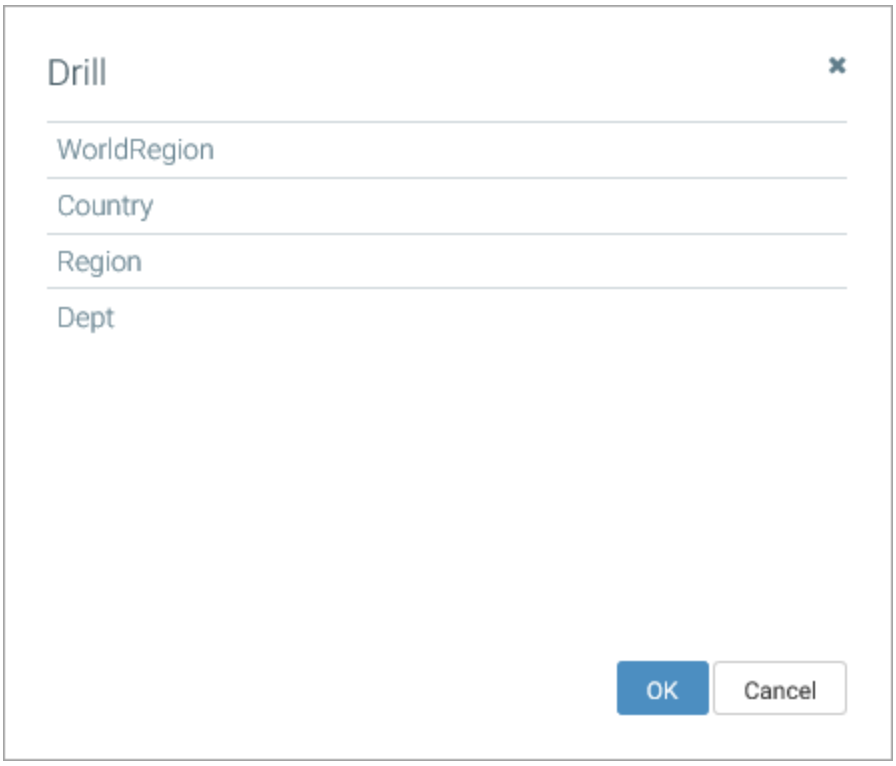
- The primary table of the assigned data source is GL2019.
- **Enable Drilling** has been enabled for the component.
- The **Drilling Hierarchies** property is set to the Geography hierarchy on the Dept table.

When the web report is viewed, the first column in the data grid is now the drill action column. When a user hovers their cursor in that column, they can see a drill icon (a magnifying glass) for the current row. The user can click on the icon to initiate a drill for that row.



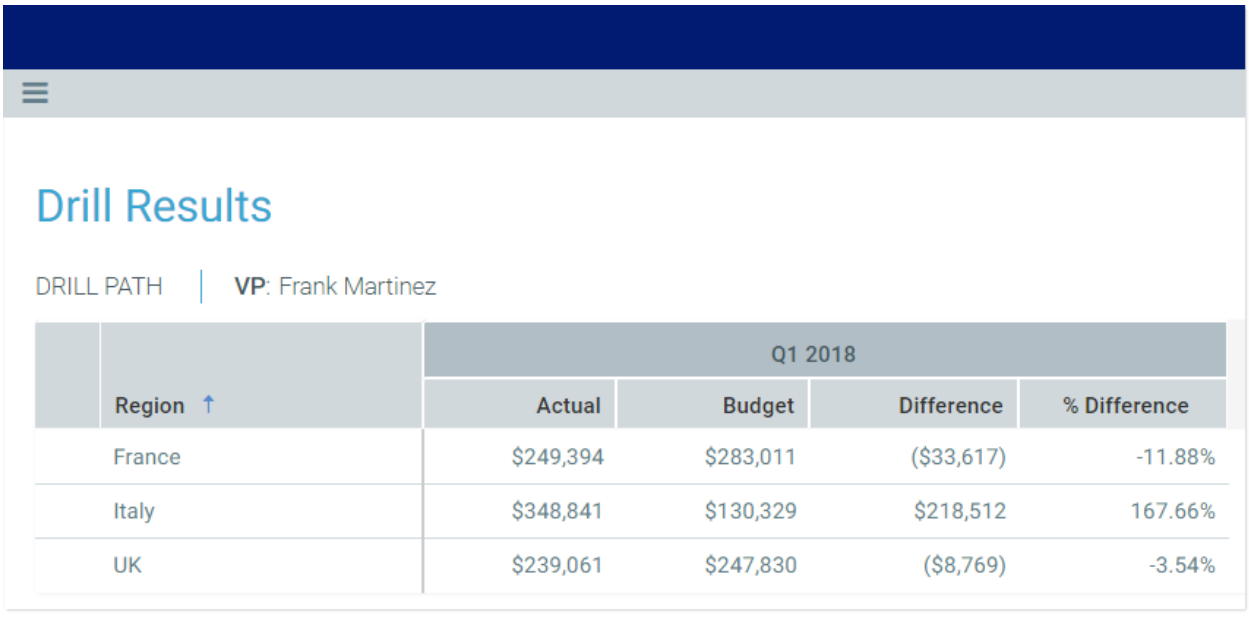
Drill action column displays drill icon on hover

Once the user has initiated the drill, a dialog opens to display the available drilling levels. In this example, these drill levels are the columns in the Geography hierarchy. (If instead multiple hierarchies were available for drilling, the dialog would first prompt users to select the hierarchy and then select the desired column in that hierarchy.)



User is prompted to select drill level

After the user selects a drill level, a new browser tab opens to display the drill results. In this example, the data for the VP Frank Martinez row is now shown at the region level.



	Region	Q1 2018 Actual	Budget	Difference	% Difference
	France	$249,394	$283,011	($33,617)	-11.88%
	Italy	$348,841	$130,329	$218,512	167.66%
	UK	$239,061	$247,830	($8,769)	-3.54%

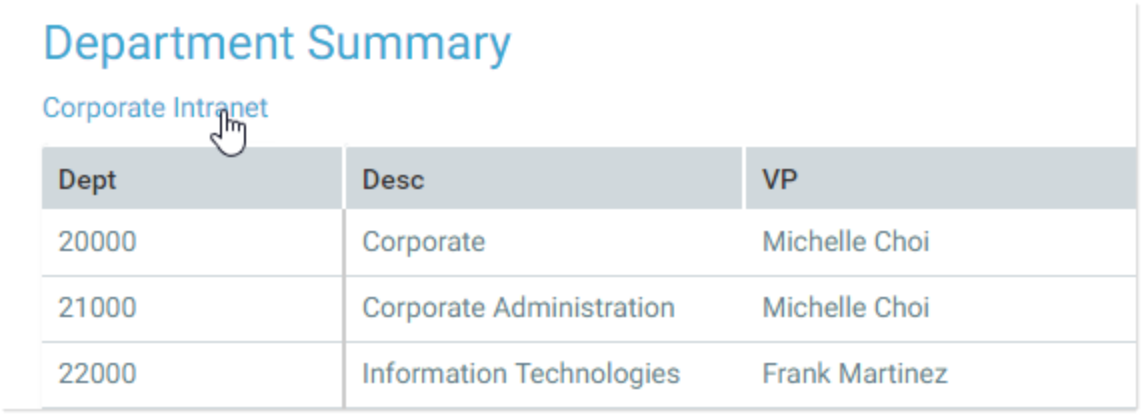
Drill results display in a new tab

The drill results automatically include all columns from the original data grid except for the sum by columns, which are replaced by the selected drill level. The current drilling path is displayed at the top of the page.

If desired, the user can further drill on the drill results, using the same drilling options. For example, the user could now choose to drill down to view the departments in a region. In this case, the drill results are presented in the same browser tab, replacing the current drill results.

Hyperlink component

The Hyperlink component displays a hyperlink to a given URL. Users can navigate to the URL by clicking the link text on the web report.



Example hyperlink in a web report

Component properties

You can define the following properties for a Hyperlink component. To configure component properties in the Report Designer, select the component in the report and then edit the properties as needed using the **Components** panel.

Item	Description
Text	The display text for the hyperlink.

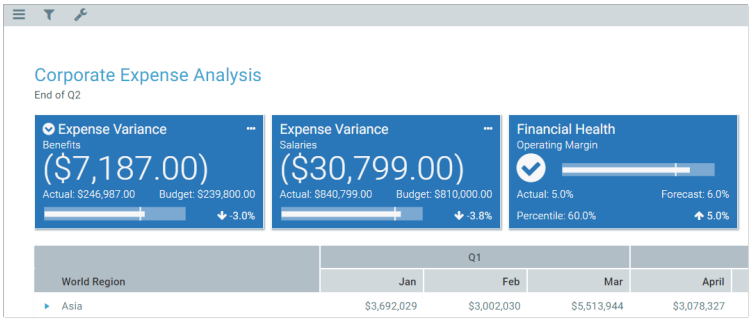
Item	Description
URL	The URL to launch when the button is clicked. The URL must use full HTTP syntax—meaning, use `http://www.axiomepm.com`, *not* `www.axiomepm.com`. If desired, you can use the URL to open an Axiom form, a web report, or a spreadsheet Axiom file. However, in order to do this, you must have access to the Desktop Client to generate the URL and copy it to the component properties. For example, you can use GetFormDocumentURL, GetWebReportDocumentURL, or GetDocumentHyperlink within a spreadsheet file to generate a hyperlink to a given file, and then copy the URL from the spreadsheet to the component properties.

KPI Panel component

The KPI Panel component displays key performance indicators (KPIs) in a series of eye-catching, automatically-formatted boxes. The design of the component is flexible to accommodate various numbers and display configurations.

The KPI Panel component displays each KPI using a primary value or status, and several optional supporting values. Each KPI can be shown with an optional bullet chart or sparkline chart. KPIs can be flagged as trending up or down, which is indicated using an arrow and a color (green for up, red for down). KPIs can also be configured to execute one or more actions using a button in the top-right corner or a fly-out menu.

The KPI values for the component must come from a KPI table. A KPI table is a special class of reference table that stores all of the properties necessary to display a KPI in the KPI Panel. The component reads the values from the specified table and displays them in the panel, using one KPI box per row of the table. You can define an optional filter on the component to determine which KPIs from the table display in the panel. If your system does not already have a KPI table, one must be created and populated before you can use the KPI Panel component in web reports.



Example KPIs in a web report

How KPIs display in the component

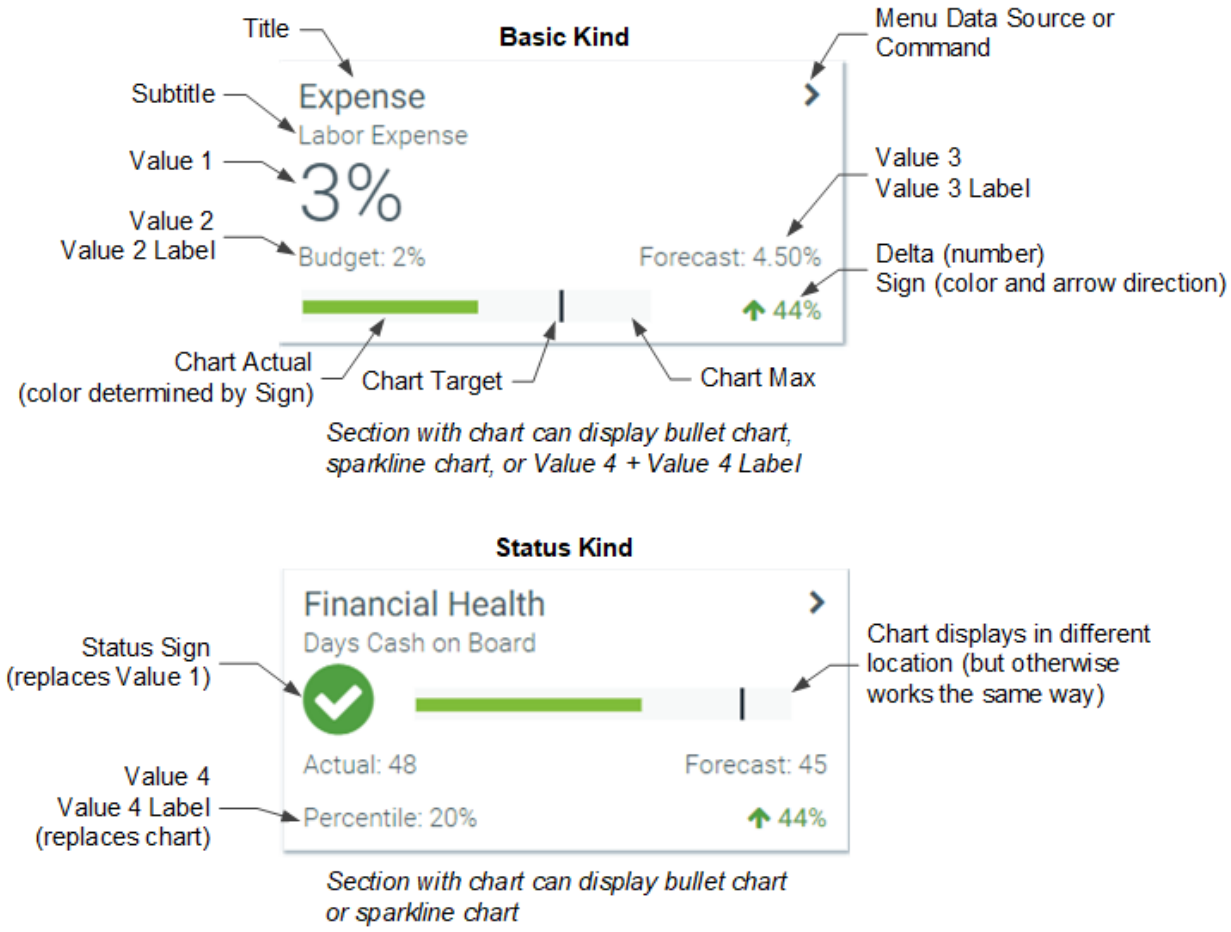
The KPI Panel component depends on a predefined data structure so that it can automatically format and position the KPI data into a series of KPI boxes. KPI tables provide this data structure using a set of required columns that are automatically created when the KPI table is created. For more information about the KPI table structure, see About KPI tables.

The KPI boxes automatically flow within the KPI Panel component, from right to left and then down. If the component is sized wide and short, the KPI boxes will flow horizontally across the page. If the component is sized tall and thin, the KPI boxes will flow vertically down the page. The size and position of the KPI Panel is determined by the template; it cannot be changed within the web report.

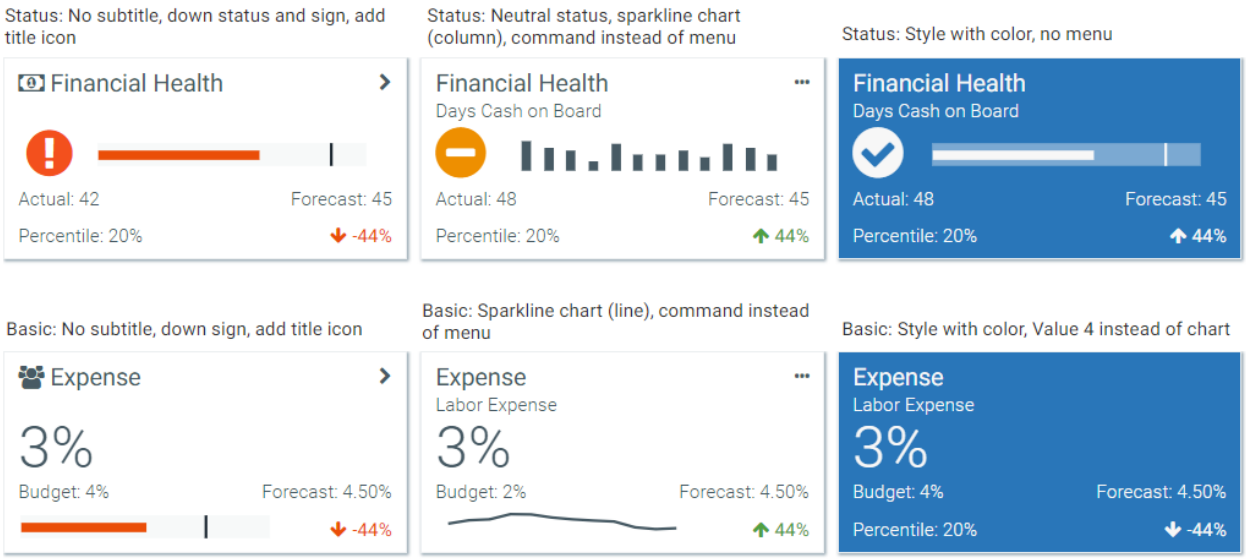
The KPI boxes in the panel can display in a variety of ways, depending on the following:

- **KPI Kind**: The kind specified for each KPI determines the information that displays in each KPI box. **Basic** KPIs emphasize numeric detail, whereas **Status** KPIs are intended to show whether a KPI is "good" or "bad" at a glance. Basic and Status KPIs can be mixed within the same panel.
- **Other KPI Properties**: The various properties that are populated for each KPI affect the display of that KPI. For example, a Basic KPI can display either Value 4 or a chart, but not both.
- **KPI Size**: The KPI size is set at the template level and determines how much detail displays in each box. Currently it is not possible to change the KPI size within a web report, because the template has been designed to accommodate a certain size of KPI.

The following diagram shows how the major KPI properties are displayed in Basic and Status KPIs, so that you can see how the data structure maps to the presentation of KPI boxes.

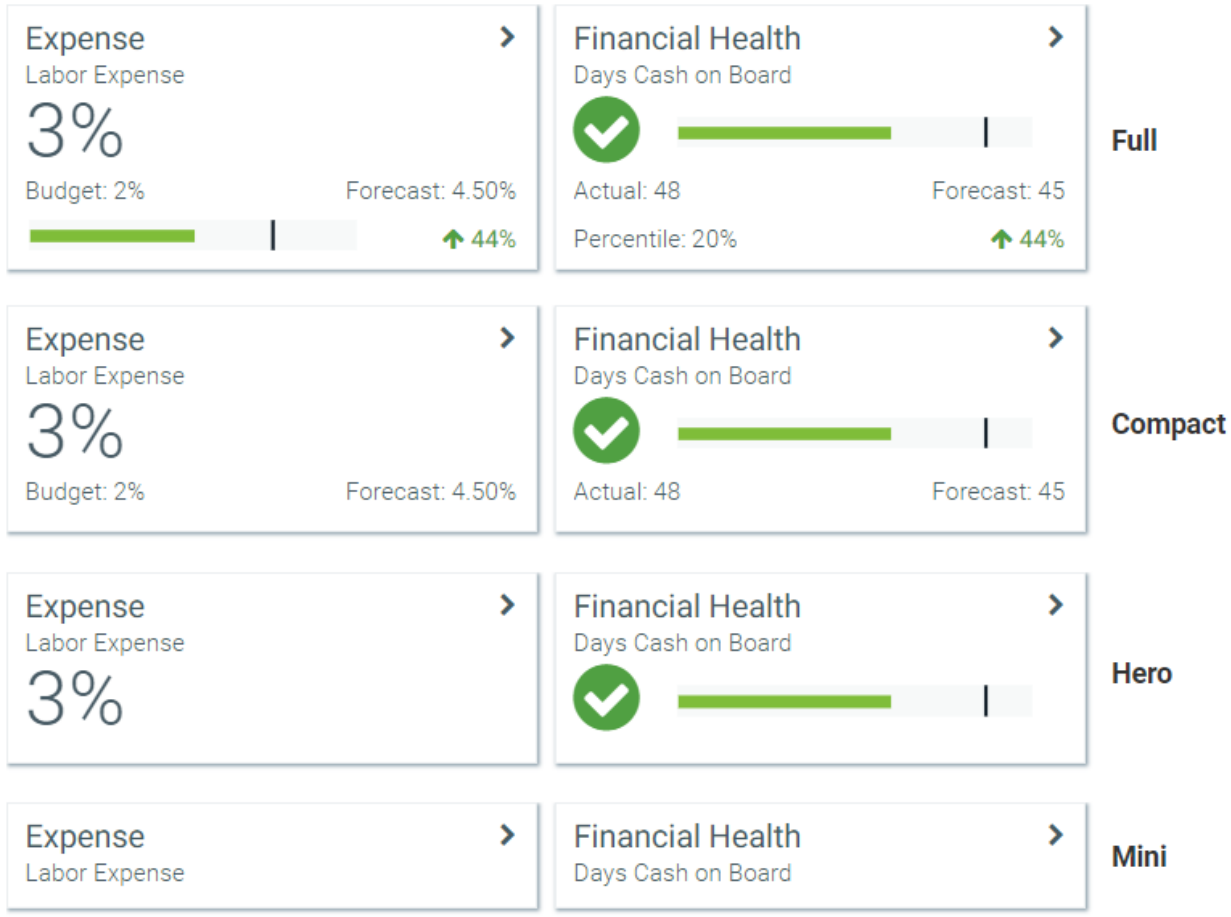


The following screenshot shows some common variations on this structure:



NOTE: If the value of any property is too long to display in its allotted space, the value is truncated and displays with an ellipsis. The full value is shown in a tooltip.

The following screenshot shows how the specified size affects the presentation of Basic and Status KPIs.



Component properties

You can define the following properties for a KPI Panel component. To configure component properties in the Report Designer, select the component in the report and then edit the properties as needed using the **Components** panel.

Item	Description
KPI Table	The table that contains the KPI values to display in the component. Click the table icon to select a table. Only KPI tables can be used, because KPI tables contain the necessary columns that map to the properties used by the KPI Panel component. In the **Select a KPI Table** dialog, the tables available for selection are determined as follows: • If the report does not have an associated file group, then you can select any KPI table in the Table Library. • If the report does have an associated file group, then the table list is limited by default to showing KPI tables associated with the file group (and related lookup tables). Table variable names display in parentheses after the table names. If you select a table with a variable name, the table reference is stored using that variable name, so that it can dynamically change as the variable value changes. If you want to use a table that is not associated with the file group, enable **Show all tables** at the bottom of the dialog. The dialog updates to show all KPI tables.
Filter	Optional. A filter to limit the KPIs shown in the component. Click the filter icon to create a filter using the Filter Wizard. **NOTE:** If the report has an associated file group, the tables in the Filter Wizard show with table variable names (as applicable), but the filter is not stored using these variable names. The filter does not update for changes to the table variable values. If no filter is defined, then all KPIs in the table display in the component by default (except for rows with the **Hidden** column set to **True**). If desired, you can set up refresh variable dependencies for the KPI Panel component, so that users can filter the KPIs shown in the component on demand. If the component has refresh variable dependencies, then any filter set here is applied in addition to any refresh variable values.

Item	Description
Sort Order	Optional. One or more columns to determine the sort order of the KPIs shown in the component. If no sort columns are specified, then by default the KPIs are sorted by the **Name** key column. Click the sort icon to select columns on the KPI table. In the **Select KPI Sort Columns** dialog: • Move the desired sort column(s) from the **Available Items** box to the **Selected Items** box. You can select one or more columns (using CTRL or SHIFT to select multiple), and then use the arrow keys in the middle to move them between boxes. You can also double-click on an individual column to move it between boxes. • Use the drop-down list next to the column name to change the sort direction as needed. By default, the sort direction is ascending (**ASC**). If desired, you can change this to descending (**DESC**). • If you have selected multiple columns, you can use the up and down arrows as needed to arrange the columns in the desired sort order. The top column in the list is the top-level sort. If the report has an associated file group, and the KPI Table is the target of a table variable in the file group, then the sort order column is stored using the variable so that it can change dynamically.

Defining refresh variable dependencies for KPI Panel components

KPI Panel components can be dependent on one or more refresh variables, so that users can filter the KPIs that show in the component on demand.

In order to create a dependency, the refresh variable must already be created on the **Refresh Variables** tab. For more information on creating refresh variables for web reports and how refresh variable dependencies work, see Configuring Refresh Variables.

In the Report Designer, refresh variable dependencies for KPI Panel components are defined in the **Refresh Variable Dependencies** section of the **Components** tab. If the currently selected component already has defined dependencies, they are listed in this section. Dependencies are listed by the name of the variable they are associated with.

To create a refresh variable dependency for a KPI Panel:

1. In the **Refresh Variables Dependencies** section of the **Components** tab, click **Add Dependency**.
2. In the **Create a Dependency** dialog, complete the following:

Item	Description
Variable	Select the name of the variable that you want to associate with this component. You can select any variable defined on the Refresh Variables tab, except for Year variables. Year variables do not use dependencies. The selected variable must reference the KPI table itself or a lookup table, in order to be valid for filtering the KPI Panel component.
Table Reference	This field only displays if the KPI table for the component has multiple column paths to the variable. In this case, you must select the column path that you want to use for this variable. If the table has only one column path to the variable, then this field does not display. You do not have to configure the column association between the component and the variable because it is automatically set.

NOTE: If the KPI table for the component does not contain a path to the value column for the variable, the dependency cannot be created because there is no way to filter the KPI Panel based on the variable. In this case, the dialog displays a message "No dependencies available" after you select the variable name.

3. Click **OK** to create the dependency.

Refresh variable dependencies cannot be edited once they are created. They can only be deleted. To delete a dependency, hover your mouse over the dependency in the list and then click the Delete icon.

NOTE: If you change the value column or hierarchy for the refresh variable after you create the dependency, the dependency will still work as long as there is only one path to both the original and the new value column or hierarchy (and assuming the new selection is still valid against the component). However, if the original dependency had a table reference, or if the new value column needs a table reference, then you must delete and re-create the dependency in order for the variable to work.

Executing commands from KPI Panels

You can configure a KPI box in a KPI Panel component to execute one or more commands. For example, you may want to launch a file with supporting information about the KPI.

There are several different ways that you can configure commands for KPIs. The approach to use depends on whether you need to execute one command or multiple, and whether you need to use custom icons with the command.

- **Basic Single Command:** If you only need to execute a single command, and you don't need a custom icon, then you can define the command in the Command column of the KPI table. The KPI

box displays with a three-dots icon in the upper right corner. Users can click this icon to execute the command.

- **Custom Single Command:** If you want to display a custom icon with a single command, then you can use a separate KPIMenu data source to define the command and its icon. The KPI box displays with the custom icon in the upper right corner. Users can click this icon to execute the command.
- **Custom Menu with Multiple Commands**: If you need to present multiple command options to users, then you can use a separate KPIMenu data source to define these commands. The KPI box displays with a carat icon in the upper right corner. Users can click this icon to open a fly-out menu that displays all of the commands using their defined names and icons.

Example KPIs with commands

If you want to use a KPIMenu data source with the KPI table, this must be part of the save-to-database file that is being used to save data to the table. See Saving KPIMenu values when using a KPI table for more information.

Valid command strings for use in KPIs

Command strings for KPIs can be any of the following items:

Valid Commands	Description
URL	Specify a URL (starting with HTTP/S) to open a web page, Axiom form, or web report. For example, you can use GetFormDocumentURL or GetWebReportDocumentURL to generate a URL to another Axiom file and launch it from the KPI.
Document shortcut	Specify a document shortcut to a file in the Axiom Software file system. Document shortcuts use the syntax `document://filepath`. For example: `document://\Axiom\Reports Library\Reports\expense_analysis.xlsx`

Commands from the Command Library cannot be used in web reports. If a command is used, no error displays and no action occurs when a user clicks on the menu item.

Creating a KPIMenu data source

Using the KPIMenu data source, you can define one or more commands to display with custom icons on a KPI box. When using the data source with a KPI table, the data source must be created in the save-to-database file that is being used to populate the table.

The tags for the data source are as follows:

Primary tag

[KPIMenu;*DataSourceName*]

The DataSourceName identifies this data source so that it can be assigned to a KPI in a KPI Panel. Data source names must be unique within a file and must start with a letter. Names can only contain letters, numbers, and underscores. Names are validated when the file is saved; an invalid name will prevent the save.

The placement of this primary tag defines the control column and the control row for the data source.

- All column tags must be placed in this row, to the right of the tag.
- All row tags must be placed in this column, below the tag.

Row tags

[MenuItem]

Each row flagged with this tag defines an item to display in the menu.

Column tags

[ID]

An ID that uniquely identifies each row in the data source. The ID can consist of numbers, text, or a combination of both, as long as it is unique for each row.

[Name]

The name of the menu item. This is the text that displays on the menu. The user clicks on the text to execute the menu item.

[Icon]

The name of an icon to display in the menu for this menu item. Enter any valid icon name, such as `fa-bar-chart`. The icon names are the same as the symbol names available for use in Axiom form components such as Formatted Grids.

To look up valid icon names, you can use the symbol choosers available for Formatted Grid, Label, and Button components. Currently, no helpers are available to populate the Icon column with icon names directly.

[Tooltip]

Optional. Defines text to display in a tooltip when a user hovers their cursor over the menu item.

[Command]

The command to execute when a user clicks the menu item. For more information, see Valid command strings for use in KPIs.

[Disabled]

Optional. Specifies whether the item is disabled on the menu (True/False). The default value is False if omitted or blank.

If True, then the item continues to display on the menu, but it is grayed out and cannot be selected. This option can be used to dynamically enable or disable a menu item based on a condition.

[Hidden]

Optional. Specifies whether the item displays on the menu (True/False). The default value is False if omitted or blank.

If True, then the item does not display on the menu. This option can be used to dynamically show or hide a menu item based on a condition.

NOTES:

- The primary tag must be placed in the first 500 rows of the sheet.
- Formulas can be used to create the tags, as long as the initial bracket and identifying keyword are whole within the formula.

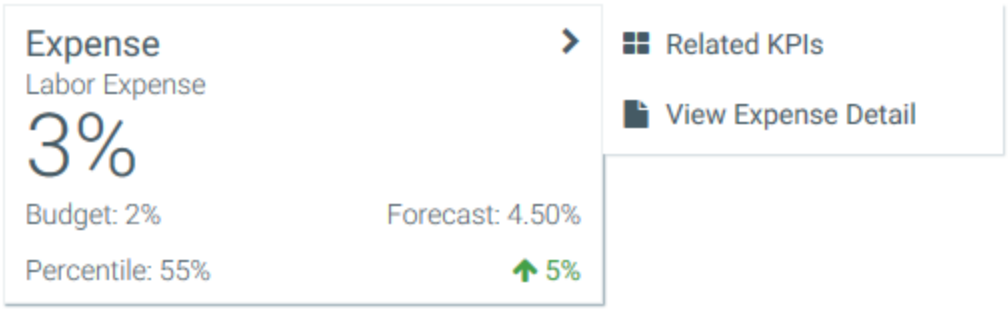
The following example data source defines a KPI menu with two items:

	B	C	D	E	F	G	H
19							
20		[KPIMenu;Menu]	[ID]	[Name]	[Icon]	[Tooltip]	[Command]
21		[MenuItem]	1	Related KPIs	fa-th-large	Related KPIs	document://\Axiom\SystemFolderName_ReportsLibrary\Forms\kpireport.xlsx?ds=Tr
22		[MenuItem]	2	View Expense Detail	fa-file	View Expense D	document://\Axiom\SystemFolderName_ReportsLibrary\Forms\expensereport.xlsx?c

Example KPIMenu data source

To use the Data Source Wizard to add the tags, right-click a cell and select **Create Axiom Form Data Source > KPI Menu**. You can right-click a single empty cell to place the initial tags and then fill out the data, or you can have the data already in the spreadsheet and highlight the applicable data to add the tags. The cells in the row above the data and the column to the left of the data must be blank in order for Axiom to place the tags in sheet.

The resulting menu would display on the KPI as follows:



Example fly-out menu on KPI

If the KPIMenu data source only contains one visible item, then that item displays directly in the top right corner of the KPI box, using the specified icon.

Saving KPIMenu values when using a KPI table

You can use a KPIMenu data source when saving KPI values to a KPI table. To do this, the save-to-database file that you use to save KPI data to the table must be set up as follows:

- The file must contain a KPIMenu data source. This data source is set up as normal, on any sheet of the file.
- When setting up Save Type 1 in the file, the contents of the MenuData column must contain the following special syntax to specify the KPIMenu data source to save:
  `[Datasource=`*`DataSourceName`*`]`.

For example, imagine that you have a KPIMenu data source named Menu, and you want to associate that data source with a KPI titled Expense. In the data to be saved to the database, the MenuData column for that KPI must contain the text `[Datasource=Menu]`.

	A	B	C	D	E
1					
2		[Save2db;DeptKPI;;;;;False]	Name	Title	MenuData
3					
4		[save]	Basic1	Expense	[datasource=menu]

Example save-to-database using special syntax to save KPI menu data

When the save-to-database is executed, Axiom Software finds the designated KPIMenu data source, and converts the contents of it into an XML string. That XML string is then saved to the MenuData column in the KPI table. When the KPI table is used with a KPI Panel component, the XML string is used to render the menu on the KPI box.

The MenuData column in KPI tables can only accept the special data source syntax when saving to the database using Save Type 1. If any other contents are present in the MenuData column within the sheet (even the resulting XML syntax), an error occurs when saving. If you want to modify and save the other columns in the table without modifying the MenuData column, then the MenuData column must be omitted from the save.

Displaying charts in KPI Panels

Each KPI in a KPI Panel component can include an optional chart. There are two options to display a chart:

- **Bullet Chart:** To display a bullet chart in the KPI box, complete the **ChartTarget**, **ChartActual**, and **ChartMax** columns in the KPI table.
- **SparklineChart:** To display a sparkline chart in the KPI box, first create an XYChart data source to define the data for the sparkline. Then, complete the **SparklineData** column in the KPI table.

Each KPI can use either a bullet chart or a sparkline chart, but not both. If both ChartMax and SparklineData are completed in a KPI table, the bullet chart takes precedence.

Both kinds of KPIs (Basic and Status) can display charts. In Basic KPIs, the chart displays at the bottom left of the KPI box. In Status KPIs, the chart displays in the middle of the KPI box, next to the status indicator.

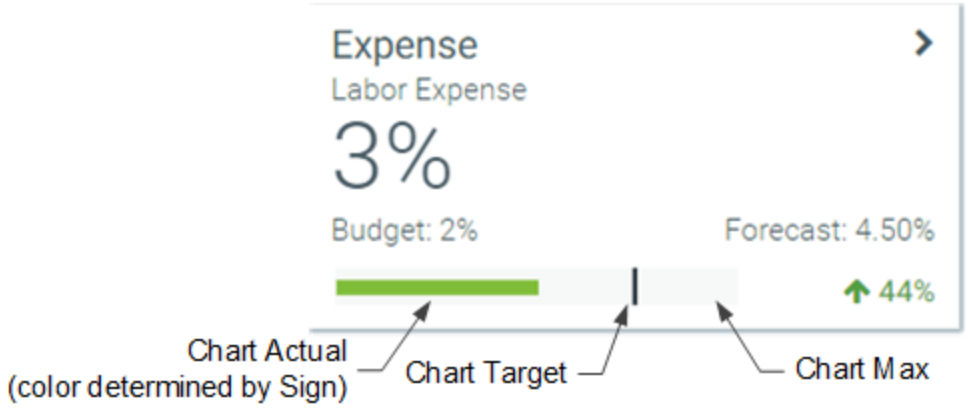
In Basic KPIs, the chart and Value 4 display in the same location, so only one or the other can be used per KPI. If both are defined, the chart takes precedence. This is not an issue for Status KPIs because the chart displays in a different location.

Displaying bullet charts in KPIs

To display a bullet chart in a KPI, complete the following columns in the KPI table.

- **ChartTarget**: A value that defines the target line for the bullet chart.
- **ChartActual**: A value that defines the actual line for the bullet chart.
- **ChartMax**: The maximum value of the bullet chart. The chart target and actual values are represented in relation to this maximum value.

  For example, if the actual value is 100 and the maximum value is 1000, then the actual bar will only take up 1/10 of the bullet chart. But if the maximum value is 150, then the actual bar will take up 2/3 of the bullet chart.



If the Style of the KPI is set to `white`, blank (transparent), or `S1`, then the actual bar of the chart displays in red or green, depending on the value of the Sign column. Otherwise, it displays in white.

NOTE: Tooltips display on bullet chart values within the KPI. However, these values display as unformatted numbers. When using a KPI table, there is no option to define numeric formatting for these values.

Displaying sparkline charts in KPIs

To display a sparkline chart in a KPI when using a KPI table, you must use special syntax to save the contents of a specified series in an XYChart data source to the SparklineData column of the table during a save-to-database.

The save-to-database file that you use to save KPI data to the table must be set up as follows:

- The file must contain an XYChart data source that is configured to display sparkline data. This data source is set up as normal, on any sheet of the file. See Creating an XYChart data source for a Sparkline chart.
- When setting up the Save Type 1 in the file, the contents of the SparklineData column must contain the following special syntax to specify the XYChart data source and series: `[Datasource=`*`DataSourceName`*`;Series=`*`SeriesName`*`]`.

For example, you can create an XYChart data source named Sparkline, with two series. One is a line series named LineSeries and the other is a column series named ColumnSeries.

	AB	AC	AD	AE	AF	AG	AH
5							
6		[XYChart;Sparkline]	[Kind]	[SeriesName]	[XValue]	[XValue]	[XValue]
7		[XValueName]			Jan	Feb	March
8		[Series]	Line	LineSeries	5	10	15
9		[Series]	Column	ColumnSeries	1000	800	700

Example XYChart data source

To save series data to a KPI table, you must place the special syntax in the SparklineData column for the save-to-database, as shown in the following screenshot:

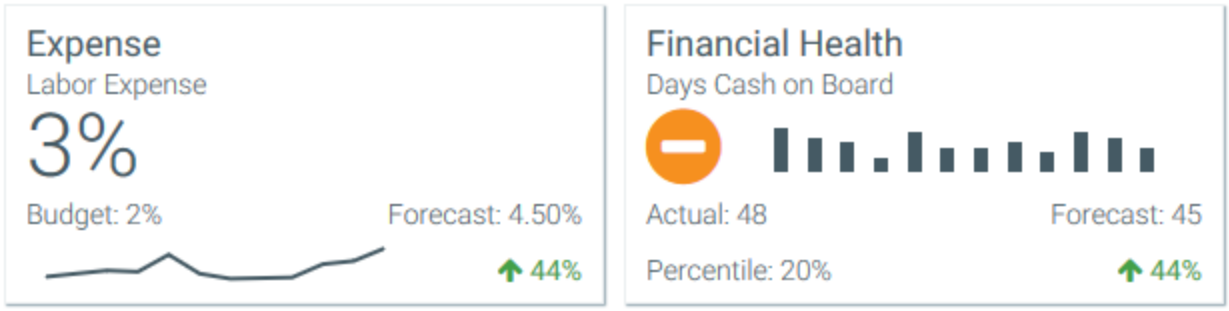
	A	B	C	D	E
1					
2		[Save2db;DeptKPI;;;;;False]	Name	Title	SparklineData
3					
4		[save]	Basic1	Expense	[datasource=sparkline;series=lineseries]
5		[save]	Status1	Financial Health	[datasource=sparkline;series=columnseries]

Example save-to-database using special syntax to save sparkline data

When the save-to-database is executed, Axiom Software finds the designated XYChart data source, and converts the contents of the specified series into an XML string. That XML string is then saved to the SparklineData column in the KPI table. When the KPI table is used with a KPI Panel component, the XML string is used to render the sparkline chart on the KPI box.

The SparklineData column in KPI tables can only accept the special data source syntax when saving to the database using Save Type 1. If any other contents are present in the SparklineData column within the sheet (even the resulting XML syntax), an error occurs when saving. If you want to modify and save the other columns in the table without modifying the SparklineData column, then the SparklineData column must be omitted from the save.

The following example KPIs show how a line and column sparkline chart appear in the KPI box:



Example KPIs with sparkline charts

NOTES:

- Sparkline charts in KPIs do not display using colors. They are black when the KPI box uses a light color and white when the KPI box uses a dark color.
- Tooltips display on sparkline chart values within the KPI. When using a KPI table, the tooltips display the unformatted numeric value.

Creating an XYChart data source for a Sparkline chart

The tags for the XYChart data source are as follows when using it to define a sparkline chart for a KPI. When using the data source with a KPI table, the data source must be created in the save-to-database file that is being used to populate the table, instead of in the form source file.

Primary tag

[XYChart;*DataSourceName*]

The DataSourceName identifies this data source so that it can be assigned to a KPI. Data source names must be unique within a file and must start with a letter. Names can only contain letters, numbers, and underscores. Names are validated when the file is saved; an invalid name will prevent the save.

The placement of this primary tag defines the control column and the control row for the data source.

- All column tags must be placed in this row, to the right of the tag.
- All row tags must be placed in this column, below the tag.

Row tags

[Series]

Each row flagged with this tag defines a series of data to be displayed in the chart. Each sparkline chart uses a single series in the data source.

Column tags

[SeriesName]

Defines the name of each series in the chart. The name identifies this series so that it can be assigned to a KPI.

[XValue]

Each column of data to be displayed in the chart must be marked with an XValue tag.

[Kind]

Specifies the kind of each series in the chart: `Line` or `Column`. Any other XYChart series kind listed here will render as Line.

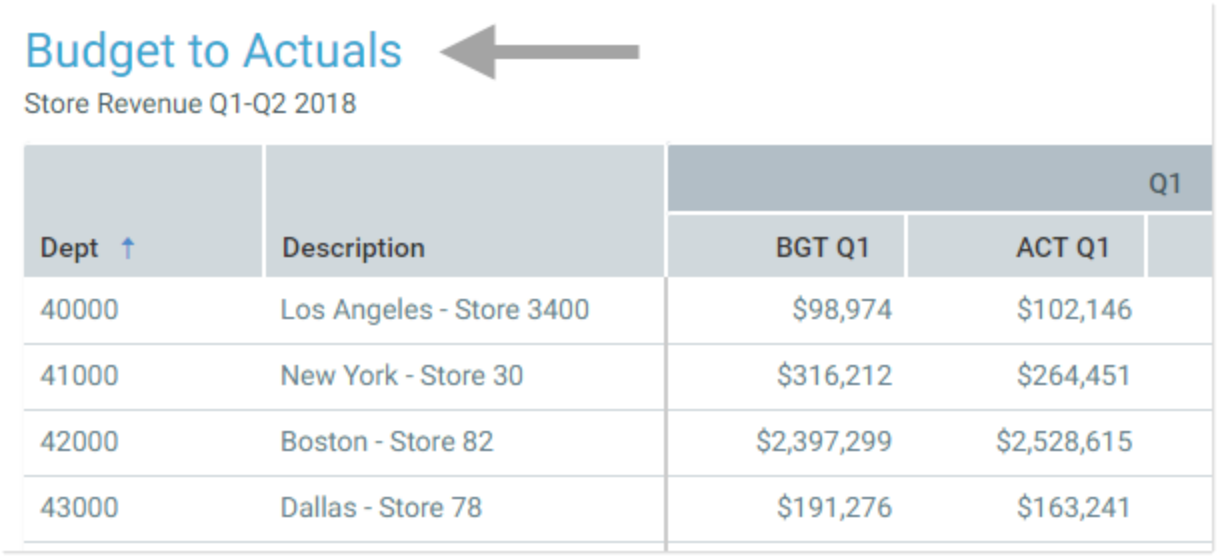
NOTES:

- The primary tag must be placed in the first 500 rows of the sheet.
- Formulas can be used to create the tags, as long as the initial bracket and identifying keyword are whole within the formula.
- Negative numbers in a data source must use the minus symbol or parentheses to indicate the negative value. Alternative negative formats such as red number text are not recognized and will display as positive values in the chart.

When using **Create Axiom Form Data Source** on the right-click menu, there is no separate option for Sparkline. Instead, you should select Line Chart or Column Chart to create an XYChart data source. You can modify the Kind column as needed to specify Line or Column for each series.

Label component

The Label component displays text on the web report, such as for a title, subtitle, or brief explanatory text.



Budget to Actuals

Store Revenue Q1-Q2 2018

Dept	Description	Q1	
		BGT Q1	ACT Q1
40000	Los Angeles - Store 3400	$98,974	$102,146
41000	New York - Store 30	$316,212	$264,451
42000	Boston - Store 82	$2,397,299	$2,528,615
43000	Dallas - Store 78	$191,276	$163,241

Example labels in a web report

Component properties

You can define the following properties for a Label component. To configure component properties in the Report Designer, select the component in the report and then edit the properties as needed using the **Components** panel.

Item	Description
Text	The text to display in the label. The syntax `{rv:VariableName}` can be used in the text, in order to display the currently selected value of a refresh variable in the label. For more information, see Configuring Refresh Variables.
Tooltip	Optional. The tooltip text for the component. When a user hovers the cursor over the component, the text displays in a tooltip.

5

Configuring Refresh Variables

You can define refresh variables for web reports, to allow users to filter the data in the report on demand. For example, you may want users to be able to dynamically filter the report by entity. You can set up a refresh variable that allows users to select an entity name. When the variable value is applied to the report, the relevant data queries are filtered by the selected entity.

The basic setup process for refresh variables in web reports is as follows:

- You define the refresh variables that you want to make available to users. Refresh variables have different types that control what users can select and how they select it.
- You create "dependencies" between refresh variables and data sources in the web report. The dependency tells the web report that the specified data source should be filtered by the variable value. All components that use the data source will then be updated to show the filtered data. This step is required for all refresh variables except the Year variable type.

To continue the previous example, imagine that your web report contains a Data Grid component that uses the GL2019 data source. In order for that data grid to be filtered by the user's selected entity, you must create a dependency between the Entity refresh variable and the GL2019 data source. When the user selects a value for entity and applies that value to the report, the GL2019 data source is automatically filtered by that entity, which in turn impacts the data shown in the data grid.

If a web report has defined refresh variables, those refresh variables display to web report users in the **Filters** panel. The user can open the Filters panel, define values for the variables, and then apply the selected values to impact the data shown in the report. For more information on how end users interact with the Filters panel, see Filtering data in web reports.

Differences when using refresh variables in web reports

The refresh variables available in web reports are essentially the same as the refresh variables available to spreadsheet Axiom files and Axiom forms. However, only a few variable types are currently supported for use in web reports, and there are some functionality limitations. For example:

- Web reports can only use the following refresh variable types: Combo Box, Grid (multi-select), Hierarchy Filter, and Year. The Year refresh variable is unique to web reports.
- Combo Box variables must use a table column as the data source. Other data options such as the ComboBox data source or an Axiom query are not supported in this context.
- The variables cannot be dependent on other refresh variables.

For these reasons, the web report refresh variables are documented separately, so that it is clear what is supported in web reports and what is not.

When you use refresh variables in spreadsheet Axiom files or Axiom forms, the variable setup is very manual but also very flexible. When a user selects a value for the refresh variable, that value is written back to the `[RefreshVariables]` data source. It is the responsibility of the file designer to configure the file to do something based on that selected value, but the value can be used for almost any purpose. For example, the value could be used to filter an Axiom query, or change the visible columns in a grid, or determine the visibility of a component.

When you use refresh variables in web reports, the variable set up is much simpler, but the variable can only be used to impact data queries in report components. The advantage to this setup is that once a dependency is created between the variable and a data source, there is nothing more that the file designer needs to do to make it work. The data source will automatically be filtered by the variable. The disadvantage to this setup is that refresh variables cannot currently be used for other purposes, such as to hide components or change the visible columns in a grid.

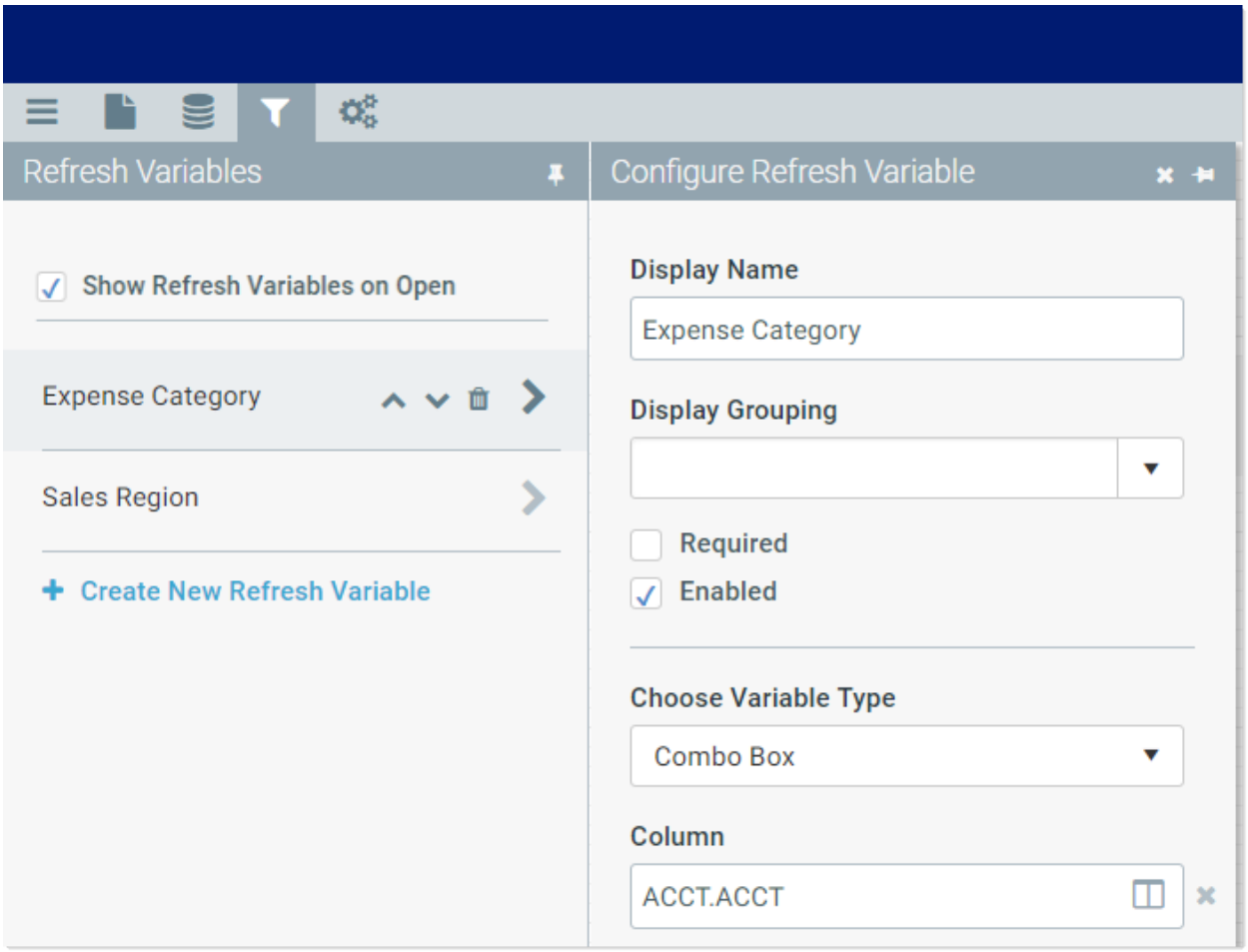
Defining refresh variables for a web report

Refresh variables for web reports are defined on the **Refresh Variables** panel of the Report Designer. If the report already has defined variables, they are listed here.

- To add a new variable, click **Create New Refresh Variable**. A new variable is added to the bottom of the list. You can define the name of the variable and other variable settings using the **Configure Refresh Variable** panel.
- To delete a variable, select the variable to display the action icons to the right of the variable name. Click the Delete icon to delete the variable. (These icons are also visible when you hover your cursor over the variable.)

  NOTE: Variables cannot be deleted if they are used in a refresh variable dependency for a data source. You must delete the dependency first, and then you can delete the variable.

- To edit the properties of an existing variable, select the variable to display the **Configure Refresh Variable** fly-out panel. You can then edit the variable settings as needed.
- To change the variable order, select the variable to display the action icons to the right of the variable name. Click the up arrow or down arrow to move the variable up or down in the list. The variable order determines the order that variables display to users in the Filters panel. (The up / down icons are also visible when you hover your cursor over the variable.)



Example refresh variable configuration for a web report

The behavior and configuration properties of a refresh variable depend on the variable type. For more information on how end users interact with each variable type and how each type is configured, see the following topics:

- Combo Box
- Grid
- Hierarchy Filter
- Year

IMPORTANT: Generally speaking, a refresh variable only impacts a web report if you define a dependency for the variable. If you do not define a dependency, then the variable still displays in the Filters panel, but applying a value for the variable has no effect. The exception to this rule is the Year variable, which automatically impacts all year-based tables in the report and does not require any dependency.

Refresh variable dependencies

Once you define a refresh variable for a web report, you must also define a dependency for the variable. The dependency creates an association between the refresh variable and components in the report, so that the components are automatically filtered by the selected variable value.

IMPORTANT: The exception to this rule is the Year variable, which automatically impacts all year-based tables in the report and does not require any dependency. For more information, see Configuring a web report to dynamically change years of data.

Refresh variable dependencies are based on the value column for the variable. For Combo Box and Grid variables, you specify a column directly, such as `Dept.Dept`. For Hierarchy Filter variables, the value column is determined based on the source table and the columns in the hierarchy. In order to create a dependency between the variable and a data source or component, the primary table of the data source or component must contain the value column, or contain a lookup path to the value column.

For example, imagine that the primary table of a data source is GL2019, and that table contains a column `GL2018.Dept` with a lookup to `Dept.Dept`. This means the data source can be associated with any refresh variable that uses columns from the Dept table. When a user selects a value for the variable and applies it to the report, Axiom Software automatically applies a filter to the data source such as `Dept.Dept=40000` (where Dept 40000 is the user's selected value for the variable). This impacts all components that use the data source.

Note the following considerations:

- Although you can configure a refresh variable to use `GL2019.Dept` as the value column instead of `Dept.Dept`, the variable is then only valid against the GL2019 table. If the data grid that uses the data source contains columns from other tables, such as BGT2019, then you must use the lookup column of `Dept.Dept` so that the filter can apply to all data tables in the query. Generally speaking, it is a best practice to use a lookup column for refresh variables, to accommodate the broadest range of query configurations.
- If the data source primary table contains multiple paths to the value column for the refresh variable, then you must explicitly specify which path you want to use when you configure the dependency. For example, you may have a primary table with two different columns that validate against the same lookup column—such as where `Encounter.PrimaryPhysician` and `Encounter.SecondaryPhysician` both look up to `Physician.Physician`. If the value column for the variable is `Physician.Physician` (or another column on the Physician table), then you must indicate whether you want the filter to go through PrimaryPhysician or SecondaryPhysician.

Currently, you can create refresh variable dependencies as follows:

- **Data Grids**: To use a refresh variable to filter a data grid, set the dependency on the data source used by the grid. The refresh variable will filter all Data Grid components that use the data source. See Defining refresh variable dependencies for data sources.

- **KPI Panels**: To use a refresh variable to filter KPIs, set the dependency on the KPI Panel component directly. The refresh variable will filter that KPI Panel component. See Defining refresh variable dependencies for KPI Panel components

A refresh variable can be used to filter just one data source or component, or multiple. If you want the refresh variable to filter multiple components, a dependency must be created on each data source or component that you want the refresh variable to filter.

If the primary table contains multiple paths to the variable, then you can create multiple dependencies for the variable on a particular data source or component, using a different path for each dependency. If multiple dependencies for the same variable are defined on a data source or component, then the filters resulting from the variable are combined using AND. For example, if you create two dependencies for the Physician variable on a particular data source—one for the PrimaryPhysician path and one for the SecondaryPhysician path —then when a user selects a physician name for the variable the resulting filter would be constructed as follows: `Encounter.PrimaryPhysician='Doe' and Encounter.SecondaryPhysician='Doe'`. This means that the selected physician would have to be present in both columns in order to meet the filter.

Displaying refresh variables on open

If refresh variable selections are crucial to the report, you may want to configure the report so that it opens with the **Filters** panel active. This is intended as a clear indication to the user that they need to make filter selections and apply them to the report.

To enable this behavior, select **Show Refresh Variables on Open** at the top of the **Refresh Variables** panel. This option is disabled by default. If enabled, the Filters panel is active when the report is opened.

If instead the refresh variables are optional, then you can leave this option disabled. This means that when the report is opened, the Filters panel is not active. The user must click the Filters icon in the Web Client toolbar in order to see and apply the refresh variables.

NOTE: Enabling this setting does not require the user to make variable selections before the report is refreshed. It simply opens the report with the Filters panel active, so that it is clear to the user that filtering options are available.

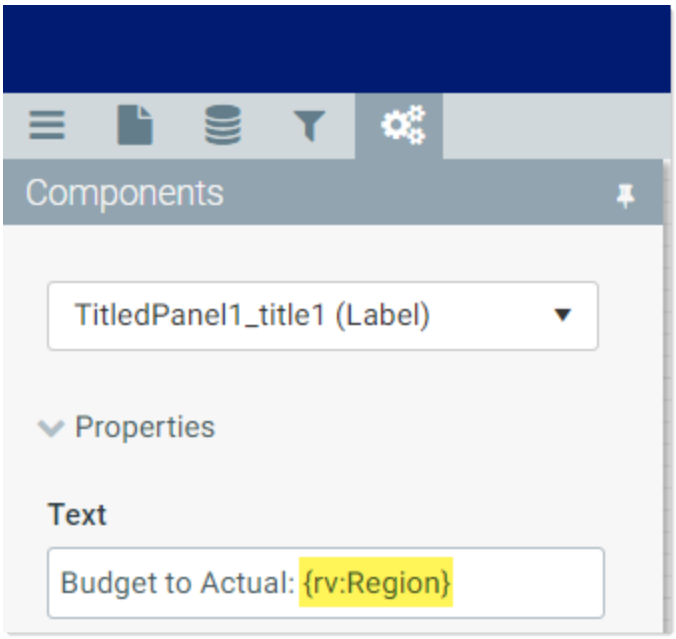
Referencing the current value of a variable

You can reference the current value of a refresh variable in Label components. This can be useful to create title text that updates dynamically based on the currently selected value.

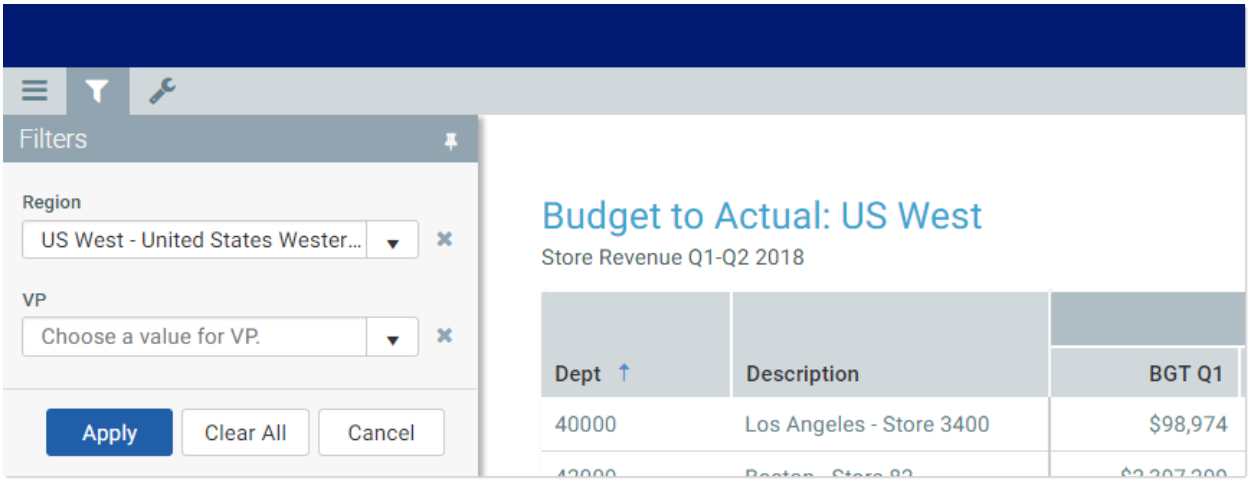
To reference the current value of a refresh variable, use the following syntax:

`{rv:VariableName}`

For example, if the variable name is Region, the label could look as follows:



When the label is rendered, the `{rv}` syntax is replaced with the currently selected value for the variable. For example:



When the file is first opened, if the refresh variable has a defined default value, this is used as the currently selected value.

NOTES:

- Currently, it is not possible to dynamically display different text in the label based on whether the variable has a selected value or not. If there is no selected value, the `{rv}` syntax returns blank.
- Once the `{rv}` syntax is saved in a label, the variable reference is stored using an ID instead of the name. This means that you can change the variable name without breaking the reference.

Combo Box refresh variable

ComboBox refresh variables prompt users to select a value from a specified table column. The selected value is used to filter the data sources in the report that are dependent on the variable.

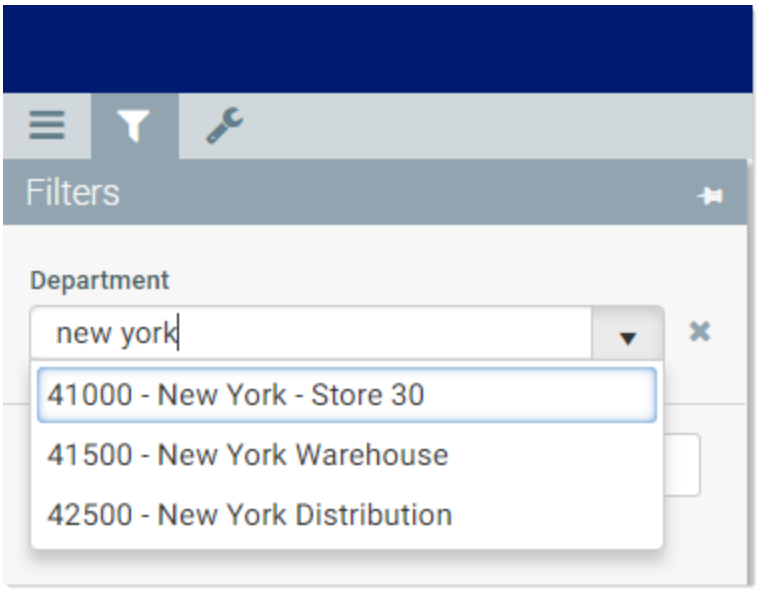
The list of values is displayed in a searchable drop-down list (the combo box). The list can be filtered to only show a subset of the values from the column.

This topic provides information on how Combo Box refresh variables behave in web reports and their configuration settings. For general information on defining refresh variables for web reports and creating dependencies between refresh variables and data sources, see Configuring Refresh Variables.

NOTE: When using a Combo Box refresh variable, the user can only select one value from the list. If you want the user to be able to select multiple values, use a Grid variable instead.

Variable behavior

The variable displays as a drop-down list with a searchable entry box. The user can scroll the list and select the value directly, or type into the box to find a particular value.



Example ComboBox refresh variable

The drop-down list is limited to displaying the first 100 values. However, all values can be found by using the search box. The search matches on the primary value, any description columns, and any additional columns included in the display format.

The values in the drop-down list are sorted based on the display format if defined, otherwise based on the value column.

Variable properties

This section explains how to complete the variable properties for a Combo Box variable in a web report.

General variable properties

All refresh variables use a common set of general properties such as the variable display name, and whether the variable is enabled or required. Any special considerations for Combo Box variables are noted.

Item	Description
Display Name	The display name of the variable. This name determines how the variable displays to end users in the Filters panel.

Item	Description
Display Grouping	Optional. Assigns the variable to a group. If a group is specified, then the variable will be displayed within an expandable / collapsible grouping in the Filters panel. If the group name that you want to use has not yet been created, type the group name into the Group field to create it. If the group name already exists, you can select it from the drop-down list. Groups are useful to organize variables into logical groupings, especially when the report has many variables.
Required	Specifies whether the user must enter a value for this variable: • If enabled, then the user must specify a value for this variable in order to perform the refresh. • If disabled, then the user can leave the variable blank (unset). Required variables that do not yet have a selected value are indicated with a red bar along the side of the variable field.
Enabled	Specifies whether the variable displays to users: • If enabled, then the variable will be included in the Filters panel. • If disabled, then the variable will not be included in the Filters panel. You might disable a variable temporarily while testing the report setup.

Variable-specific properties

The following additional properties apply to ComboBox variable types:

Item	Description
Choose Variable Type	Specifies the variable type. Select **Combo Box** to allow the user to select a single value from a table column.

Item	Description
Column	The column to provide the list of values for the variable. Click the table icon to select the column. You can specify any column from any client-defined table in your system. Multi-level lookups can be used. However, system tables such as Axiom.Aliases are not supported for use with refresh variables and cannot be used. For columns with lookups, the specified table impacts the list of items to be returned. For example, `GL2019.Dept` returns only the departments used in the GL2019 table, whereas `Dept.Dept` returns the full list of departments defined in the Dept table. **NOTE:** If the specified column uses multi-level syntax, then the resulting list will be sourced from the final lookup table, not the original table. For example, if you specify `Encounter.PrimaryPhysician.FirstName`, then the list will contain all first names from `Physician.FirstName`, instead of only the first names for the physicians used in the Encounter table.
Placeholder Text	Optional. Specifies placeholder text to display within the combo box until a value is selected. If blank, then the default text "Choose a value for *ColumnName*" is used.
Default Value	Optional. Specifies a default value for the variable. When the report is initially opened, the default value is used as the selected value for the variable, and the report is filtered by that value. The default value must be a valid value that could be selected by a user for the variable. If the default value is invalid, an error will occur when the file is opened, because Axiom Software will attempt to filter the report using the value.
Column Filter	Optional. Specifies a filter criteria statement to limit the list of values displayed to the user. Click the filter icon to define a filter.

Item	Description
Display Format	Optional. Defines a display format for the items in the list, and specifies additional columns to display. By default, items in the list are displayed as: *KeyColumn - DescriptionColumn* If you want to specify a different format and/or use additional columns, then you can indicate the display format here. Use fully qualified Table.Column syntax and place column references in curly brackets. For example, you could indicate something like: {Acct.Acct} - {Acct.Description} ({Acct.Category}) This would display account items in the following format: 8000 - Facilities (Overhead) Any columns listed should use fully qualified Table.Column syntax. If the value column uses a lookup, then any additional columns must be resolvable from the primary table, or must use a fully qualified path from the starting table. If a display format is defined, the items in the list are sorted based on the display format instead of the value column.
Tooltip Column	Optional. Specifies a column that defines tooltip text for each value shown in the list. Click the table icon to select the column. The tooltip column can use any column from the same table as the value column for the variable. When a user hovers over a value in the list, the corresponding text from this column is shown in a tooltip.

Grid refresh variable

Grid refresh variables prompt users to select one or more values from a designated table column. The selected values are used to filter the data sources in the report that are dependent on the variable.

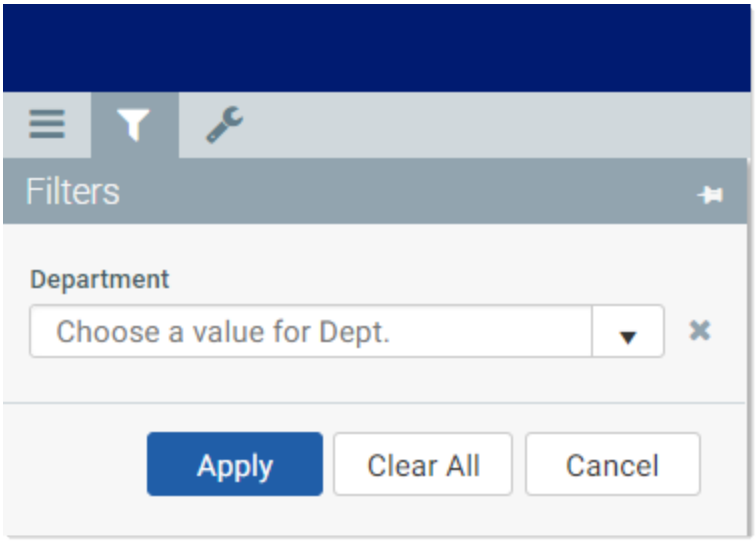
The list of values is displayed in a searchable multi-select dialog. The list can be filtered to only show a subset of values from the specified column.

This topic provides information on how Grid refresh variables behave in web reports and their configuration settings. For general information on defining refresh variables for web reports and creating dependencies between refresh variables and data sources, see Configuring Refresh Variables.

NOTE: In web reports, Grid refresh variables always allow selection of multiple values. You do not have to explicitly enable multi-select for the variable; it is always enabled. If you want to limit the user to only selecting a single value, use a Combo Box variable instead.

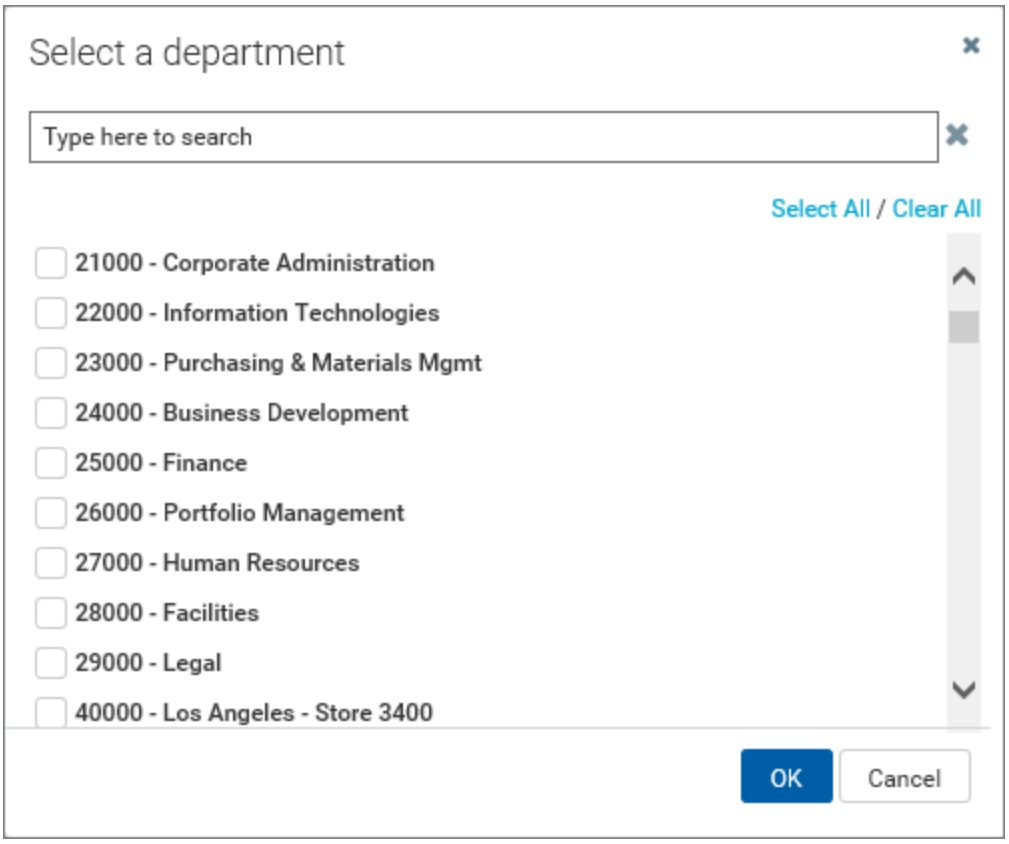
Variable behavior

The Grid variable displays as a read-only text box with a button next to it. The user can click the button to select items from the column.



Example Grid variable

Clicking the button opens the multi-select dialog. In this dialog, the user can select one or more items using check boxes.

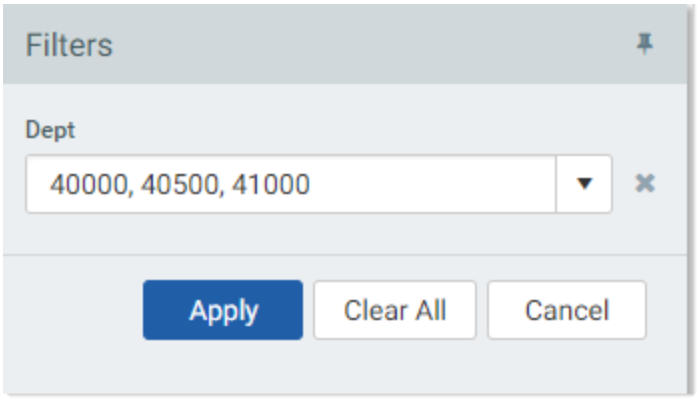


Example multi-select dialog

The dialog is limited to displaying the first 100 values in the list. However, all values can be found by typing into the search box at the top of the dialog. The search matches on the primary value, any description columns, and any additional columns included in the display format.

The values in the list are sorted based on the display format if defined, otherwise based on the value column.

When the user clicks **OK** to select the values, they display in the text box using the value from the value column, separated by commas.



Example selected values

Variable properties

This section explains how to complete the variable properties for a Grid variable in a web report.

General variable properties

All refresh variables use a common set of general properties such as the variable display name, and whether the variable is enabled or required. Any special considerations for Grid variables are noted.

Item	Description
Display Name	The display name of the variable. This name determines how the variable displays to end users in the Filters panel.
Display Grouping	Optional. Assigns the variable to a group. If a group is specified, then the variable will be displayed within an expandable / collapsible grouping in the Filters panel. If the group name that you want to use has not yet been created, type the group name into the Group field to create it. If the group name already exists, you can select it from the drop-down list. Groups are useful to organize variables into logical groupings, especially when the report has many variables.
Required	Specifies whether the user must enter a value for this variable: • If enabled, then the user must specify a value for this variable in order to perform the refresh. • If disabled, then the user can leave the variable blank (unset). Required variables that do not yet have a selected value are indicated with a red bar along the side of the variable field.
Enabled	Specifies whether the variable displays to users: • If enabled, then the variable will be included in the Filters panel. • If disabled, then the variable will not be included in the Filters panel. You might disable a variable temporarily while testing the report setup.

Variable-specific properties

The following additional properties apply to Grid variable types:

Item	Description
Choose Variable Type	Specifies the variable type. Select **Grid** to allow the user to select one or more values from a table column.

Item	Description
Column	The column to provide the list of values for the variable. Click the table icon to select the column. You can specify any column from any client-defined table in your system. Multi-level lookups can be used. However, system tables such as Axiom.Aliases are not supported for use with refresh variables and cannot be used. For columns with lookups, the specified table impacts the list of items to be returned. For example, `GL2019.Dept` returns only the departments used in the GL2019 table, whereas `Dept.Dept` returns the full list of departments defined in the Dept table. **NOTE:** If the specified column uses multi-level syntax, then the resulting list will be sourced from the final lookup table, not the original table. For example, if you specify `Encounter.PrimaryPhysician.FirstName`, then the list will contain all first names from `Physician.FirstName`, instead of only the first names for the physicians used in the Encounter table.
Placeholder Text	Optional. Defines placeholder text to display within the variable box until a value is selected. This text also displays at the top of the multi-select dialog. If blank, then the default text "Choose a value for *ColumnName*" is used.
Default Value	Optional. Specifies a default value for the variable. When the report is initially opened, the default value is used as the selected value for the variable, and the report is filtered by that value. The default value must be a valid value that could be selected by a user for the variable. If the default value is invalid, an error will occur when the file is opened, because Axiom Software will attempt to filter the report using the value. You can list multiple valid values, separated by commas. In this context, it is not necessary to enclose string values in single quotation marks.
Column Filter	Optional. Specifies a filter criteria statement to limit the list of values displayed to the user. Click the filter icon to define a filter.

Item	Description
Display Format	Optional. Defines a display format for the items in the list, and specifies additional columns to display. By default, items in the list are displayed as: *KeyColumn - DescriptionColumn* If you want to specify a different format and/or use additional columns, then you can indicate the display format here. Use fully qualified Table.Column syntax and place column references in curly brackets. For example, you could indicate something like: {Acct.Acct} - {Acct.Description} ({Acct.Category}) This would display account items in the following format: 8000 - Facilities (Overhead) Any columns listed should use fully qualified Table.Column syntax. If the value column uses a lookup, then any additional columns must be resolvable from the primary table, or must use a fully qualified path from the starting table. If a display format is defined, the items in the list are sorted based on the display format instead of the value column.
Tooltip Column	Optional. Specifies a column that defines tooltip text for each value shown in the list. Click the table icon to select the column. The tooltip column can use any column from the same table as the value column for the variable. When a user hovers over a value in the list, the corresponding text from this column is shown in a tooltip.

Hierarchy Filter refresh variable

Hierarchy Filter refresh variables prompt users to select one or more items from a defined hierarchy. A filter criteria statement is built from the user's selections. The filter criteria statement is used to filter the data sources in the report that are dependent on the variable.

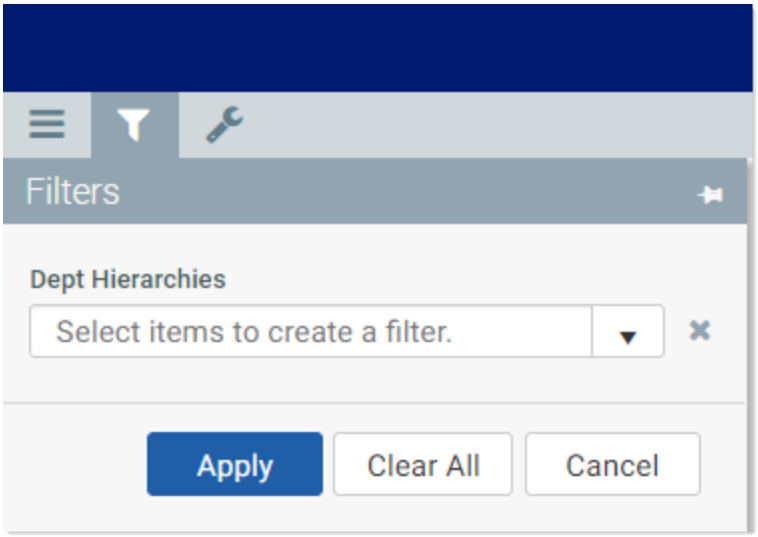
For example, you can prompt users to select a value from the Geography hierarchy defined on the DEPT table. If the user selects WorldRegion Europe in the hierarchy, this results in a filter criteria statement such as: `DEPT.WorldRegion='Europe'`. If the GL2019 data source is dependent on the variable, and a Data Grid component uses the GL2019 data source, then the data grid will be filtered to only show data from the Europe world region.

The variable has various options to control which hierarchies are shown to the user, to ensure that the hierarchies are relevant to the dependent data sources.

This topic provides information on how Hierarchy Filter refresh variables behave in web reports and their configuration settings. For general information on defining refresh variables for web reports and creating dependencies between refresh variables and data sources, see Configuring Refresh Variables.

Variable behavior

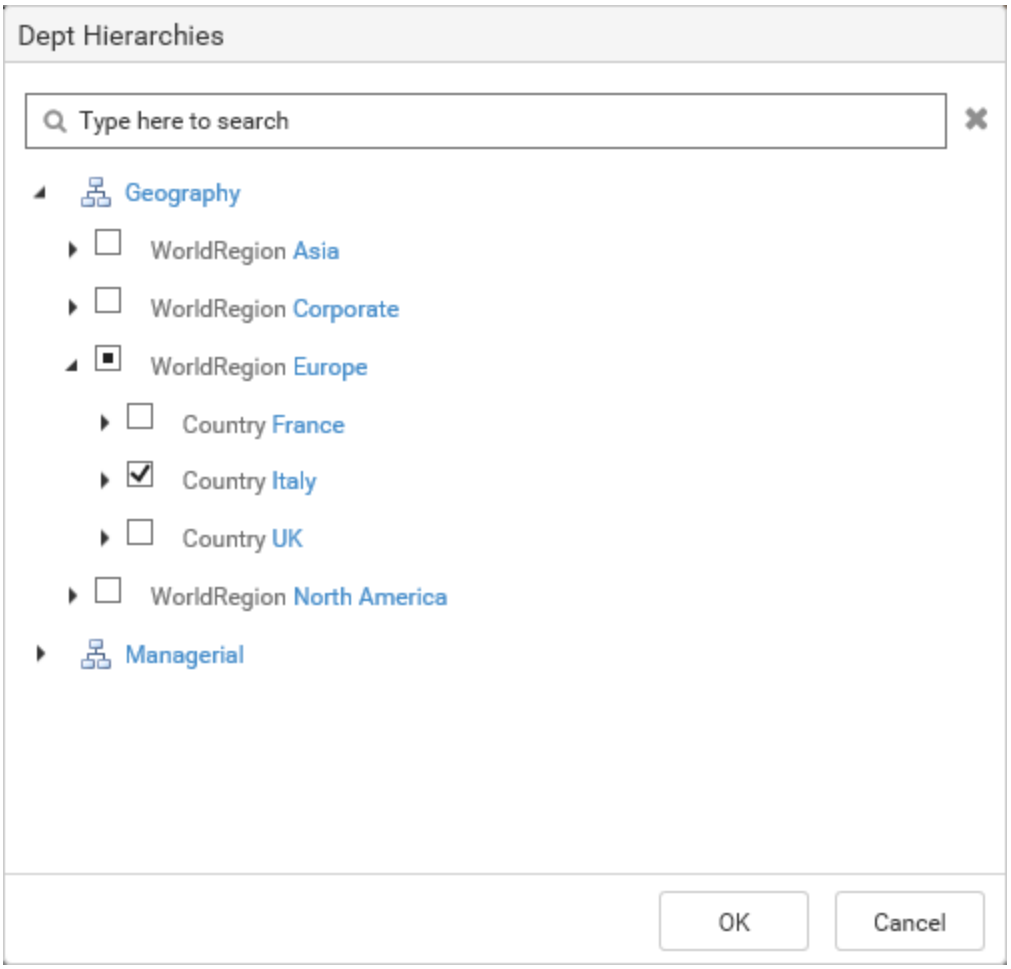
The variable displays as a read-only text box with a button next to it. The user can click the button to select items in the hierarchy.



Example Hierarchy Filter refresh variable

Clicking the button opens the **Hierarchy Filters** dialog. In this dialog, the user can select the desired hierarchy items to create a filter.

The Hierarchy Filters dialog displays the hierarchies allowed by the refresh variable configuration. Users can select one or more hierarchy items to create a filter. Users can manually expand hierarchy groupings to find items, or they can type into the search box at the top of the dialog to filter the items shown.



Example Hierarchy Filters dialog

When the user clicks **OK**, the user's selected hierarchy items display in the read-only text box for the refresh variable. In this example, the variable would display the text "Italy". Selections of up to 3 items are displayed in a comma-separated list. If more than 3 items are selected, the variable displays the text "Filter currently applied". The full list of selected items displays in a tooltip.

NOTE: If the user selects a value and closes the dialog, then opens the dialog again, the currently selected value does not display in the dialog. Each time the user opens the dialog, they must make their selections from scratch. It is not possible to modify an existing selection.

Variable properties

This section explains how to complete the variable properties for a Hierarchy Filter variable in a web report.

General variable properties

All refresh variables use a common set of general properties such as the variable display name, and whether the variable is enabled or required. Any special considerations for HierarchyFilter variables are noted.

Item	Description
Display Name	The display name of the variable. This name determines how the variable displays to end users in the Filters panel.
Display Grouping	Optional. Assigns the variable to a group. If a group is specified, then the variable will be displayed within an expandable / collapsible grouping in the Filters panel. If the group name that you want to use has not yet been created, type the group name into the Group field to create it. If the group name already exists, you can select it from the drop-down list. Groups are useful to organize variables into logical groupings, especially when the report has many variables.
Required	Specifies whether the user must enter a value for this variable: • If enabled, then the user must specify a value for this variable in order to perform the refresh. • If disabled, then the user can leave the variable blank (unset). Required variables that do not yet have a selected value are indicated with a red bar along the side of the variable field.
Enabled	Specifies whether the variable displays to users: • If enabled, then the variable will be included in the Filters panel. • If disabled, then the variable will not be included in the Filters panel. You might disable a variable temporarily while testing the report setup.

Variable-specific properties

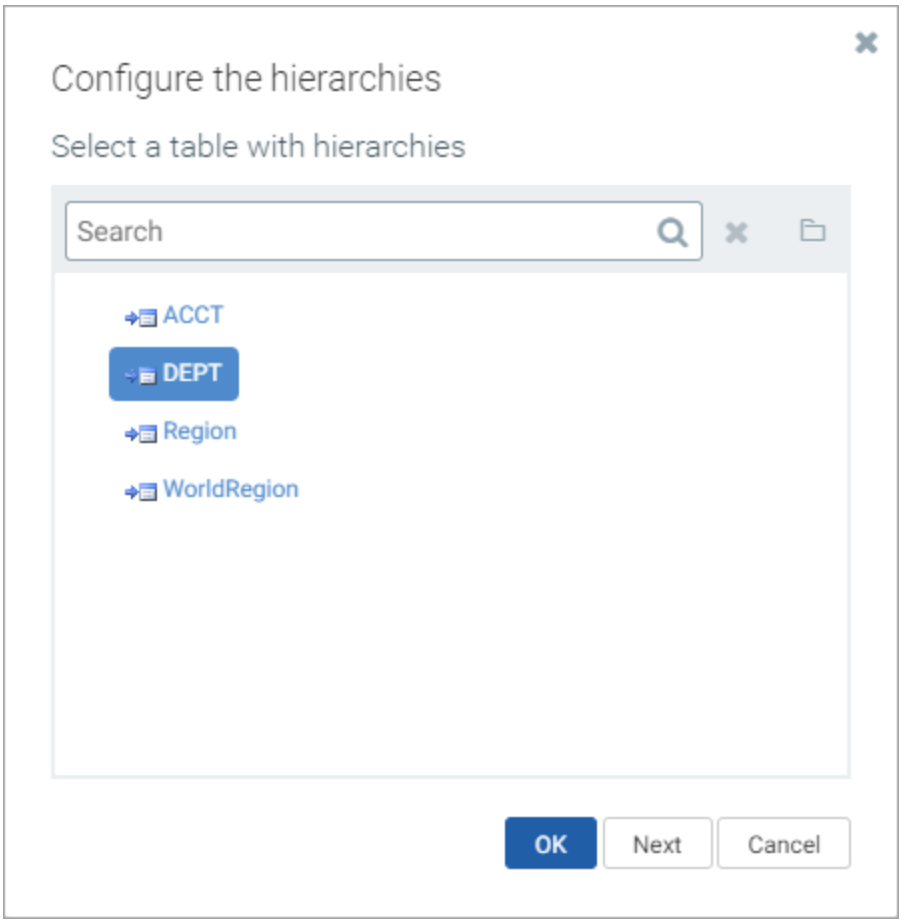
The following additional properties apply to HierarchyFilter variable types:

Item	Description
Choose Variable Type	Specifies the variable type. Select **Hierarchy Filter** to allow the user to select one or more values from defined hierarchies.

Item	Description
Hierarchies	Specifies one or more hierarchies to display to the user. To select hierarchies, click the hierarchies icon  in the right side of the Hierarchies box. See the discussion following this table for more information on the hierarchy selection dialog. Once you have made your selections, the Hierarchies box is populated with either the selected table name (if using all hierarchies on a table), or with the names of the selected hierarchies on that table. It is only possible to show hierarchies from a single table, because when you create a dependency for the variable, the dependency creates an association between the primary table and the hierarchy table. If you need to show hierarchies for different tables, you must create separate refresh variables.
PlaceholderText	Optional. Defines placeholder text to display within the variable box until a value is selected. This text also displays as a tooltip for the **Select Filter** button. If blank, then the default text "Select items to create a filter" is used.

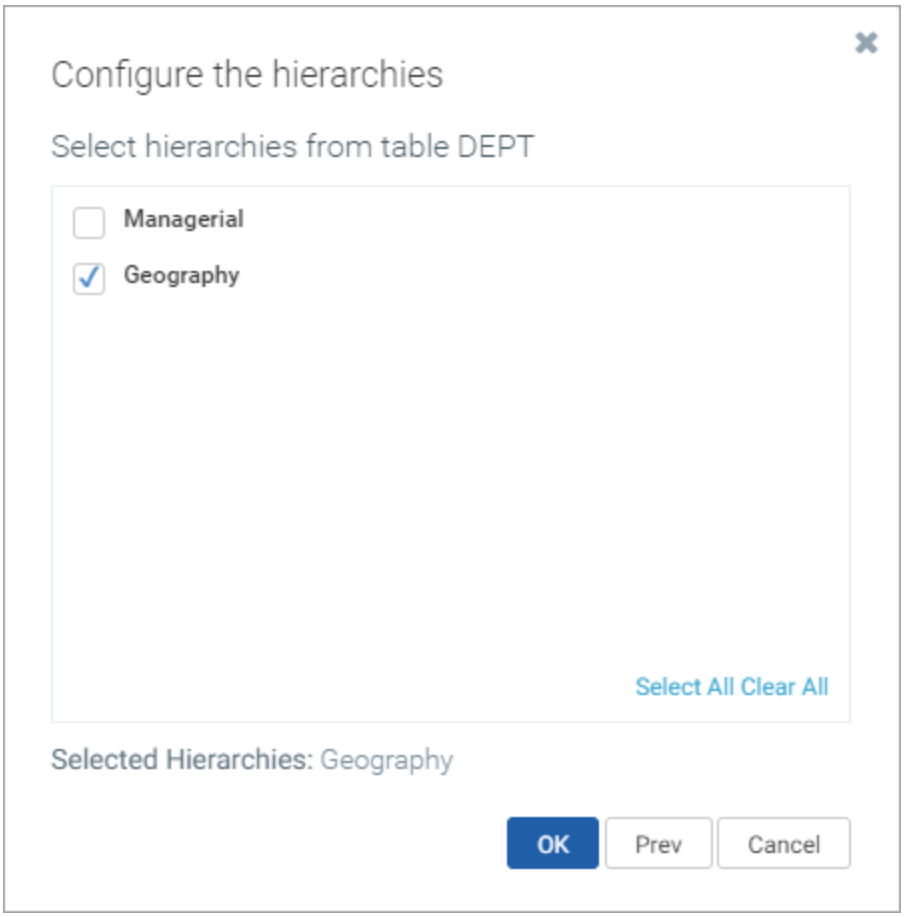
NOTE: It is not supported to specify a default value for a Hierarchy Filter refresh variable.

When selecting hierarchies for the variable, you are first prompted to choose a table. The dialog is limited to showing only reference tables with hierarchies. Once you have selected a table, you can click **OK** to use all hierarchies on that table, or you can click **Next** to select specific hierarchies.



Example table selection for Hierarchy Filter variable

If you click Next, the next screen prompts you to choose one or more hierarchies on that table. Select the hierarchies that you want to use, and then click **OK**.



Example hierarchy selection for Hierarchy Filter variable

For information on creating hierarchies, see the *System Administration Guide*.

Year refresh variable

Year refresh variables prompt users to select a year from a drop-down list. The selected year then becomes the base year of the report, and data is refreshed to reflect that year.

For example, imagine that a report shows 2019 actuals, with a comparison to the prior year (2018). If the user wants to see the same comparison for the previous year, they can use the year variable to change the base year to 2018. Now the report shows 2018 actuals with a comparison to the prior year (2017).

Year refresh variables work in conjunction with year-based tables, such as GL2019 or BGT2020. When you create the variable, you specify the base year for the report, which is the year the report is built for. In the previous example, the base year is 2019. When the user selects 2018 as the new value for the refresh variable, that selected year is one year less than the original base year. All references to year-based tables in the report are then adjusted downward by one year. If a Data Grid component references columns like GL2019.YTD and GL2018.TOT, those references are adjusted to GL2018.YTD and GL2017.TOT respectively.

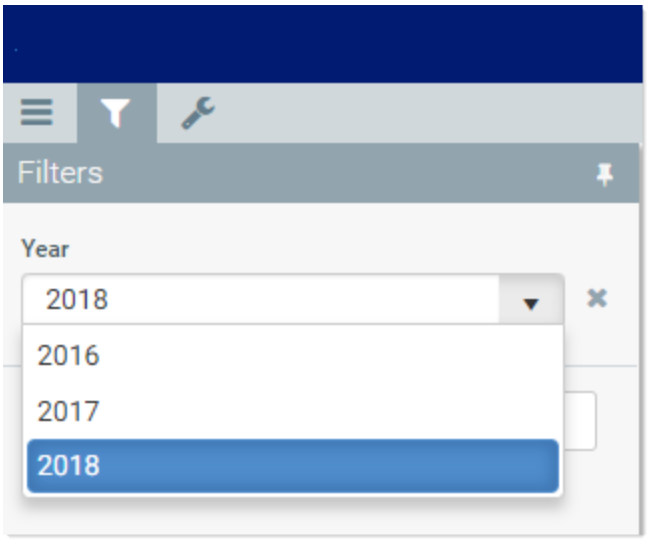
This topic provides information on how Year refresh variables behave in web reports and their configuration settings. For general information on defining refresh variables for web reports, see Configuring Refresh Variables. For more information on how to set up a web report to use a Year refresh variable, see Configuring a web report to dynamically change years of data.

NOTES:

- Year refresh variables do *not* require the creation of dependencies in order to impact the report. As long as the variable is enabled, all year-based tables in the report will adjust based on the variable value.
- Only one Year refresh variable can be present in a web report. Since all the year references are automatically changed by the variable, there is no need to have more than one.

Variable behavior

The variable displays as a drop-down list. The user can select the desired year from the list. The user can also type in the box to match a year in the list.



Example Year refresh variable

The available years in the list are based on the variable properties. Each variable must have a default year, and a number of allowed years before and after the default year. In this example, the default year is 2018, and the variable properties allow 2 years before the default year and 0 years after.

Variable properties

This section explains how to complete the variable properties for a Year variable in a web report.

General variable properties

All refresh variables use a common set of general properties such as the variable display name, and whether the variable is enabled or required. Any special considerations for Year variables are noted.

Item	Description
Display Name	The display name of the variable. This name determines how the variable displays to end users in the Filters panel.
Display Grouping	Optional. Assigns the variable to a group. If a group is specified, then the variable will be displayed within an expandable / collapsible grouping in the Filters panel. If the group name that you want to use has not yet been created, type the group name into the Group field to create it. If the group name already exists, you can select it from the drop-down list. Groups are useful to organize variables into logical groupings, especially when the report has many variables.
Required	Specifies whether the user must enter a value for this variable: • If enabled, then the user must specify a value for this variable in order to perform the refresh. • If disabled, then the user can leave the variable blank (unset). Required variables that do not yet have a selected value are indicated with a red bar along the side of the variable field.
Enabled	Specifies whether the variable displays to users: • If enabled, then the variable will be included in the Filters panel. • If disabled, then the variable will not be included in the Filters panel. You might disable a variable temporarily while testing the report setup.

Variable-specific properties

The following additional properties apply to ComboBox variable types:

Item	Description
Choose Variable Type	Specifies the variable type. Select **Year** to allow the user to dynamically change the data in the report based on the selected year.

Item	Description
Default Value	The default year for the variable. When the report is first opened, it will use this year to refresh the data in the report. Enter any year that makes sense within the report setup. If the report has a designated file group context, then you can leave the default value blank in order to use the file group year. If the file group context uses an alias, then the default value will update when the alias is updated to point to a new file group with a different file group year.
Base report year	Specify the base year for the report. This is the year that the report is built for, based on the tables and columns used in components such as the Data Grid component. When a user selects a year for the variable, the year-based tables in the report are updated based on the difference between the base report year and the selected year. For example, if the base report year is 2019 and the user selects 2018, then all references to year-based tables are adjusted downward by 1 year. This applies to all year-based tables used anywhere in the report. Generally speaking, the base report year should remain the same, while the default year can change over time. For example, when the report is originally built, the base report year and the default year will likely be the same (say, 2019). When the next year starts, you may want to change the default year to 2020, but the base year must remain the same so that year-based table references are adjusted appropriately. The only time the base year needs to change is if you update the report to use table columns from different year-based tables (which should not be necessary as long as your system still has the original tables).
Years allowed prior to default Years allowed after default	Specify the number of years allowed prior to the default year, and the number of years allowed after the default year. These two settings define the list of years available to the user. For example, if the default year is 2019, and you specify 2 years allowed prior to default, then the user can select 2017, 2018, or 2019. These properties should be set according to the available data and the intent of the report. For example, if the report only shows actuals data, and the default year is the current year, then it does not make sense to allow years after the default year because actuals data is not available for future years.

Reference

Creating custom templates for web reports

You can create custom templates and make them available to users who are creating new web reports in the Report Designer. You might create custom templates in order to provide different formats and layouts for web reports, or to provide "starter" reports that are already set up with some of your system's data structures.

To create a custom template for web reports and make it available to users, you must:

- Create an Axiom form that uses supported web report components.
- Save the Axiom form to the Report Builder folder in the Axiom System Document Templates library.

Although any user can create the Axiom form to be used as the template, only administrators have access to the Axiom System area.

For information on creating Axiom forms, see the *Axiom Forms and Dashboards Guide*. For information on managing files using Axiom Explorer, see the *System Administration Guide*.

Designing an Axiom form as a web report template

Web report templates are created using Axiom forms. When designing an Axiom form to be used as a template, the form can only use certain supported components:

- Data Grids
- Hyperlinks
- KPI Panels
- Labels
- Panels

Place the desired components on the canvas, and set their size and position as desired. Remember that web report creators cannot change the size and position of components, and cannot add or delete any components. The components will be used "as is" in the report, except for certain exposed component properties.

Generally speaking, all other form properties should not be changed from the default settings. In most cases these properties do not apply to the web report and will be ignored. However, we recommend leaving any unsupported properties at their default settings in case of unexpected behavior in the web report environment.

NOTE: Currently, there is no way to set a **File Group Context** in a web report template. The user must manually set this in the Report Designer if they want to use it.

Data grids

The Data Grid component is the primary means of displaying data in a web report. Note the following design considerations:

- You can create and assign a `[DataGridColumns]` data source to the grid or not. If assigned, the current columns in the data source will be present in web reports created from the template, and these columns can be configured or deleted from the grid as desired.

  If no data source is present, the grid starts with no columns. The data source is created within the web report as the user adds columns.

- If the data grid has an assigned **Primary Table** and **Data Filter**, these settings will be added to the default data source (Datasource 1) in web reports created from the template. This is the only way to predefine a data source for the template. If these settings are not present in the template, the user must complete these settings for the data source before they can configure the data grid.

- You can enable various supported settings for the data grid—such as **Show Hierarchical Data** or **Enable Excel Export**—and these settings will start as enabled in reports created from the template. Unsupported settings, such as icons or **Enable Row Selection**, will be ignored. However, we recommend leaving any unsupported settings disabled in case of unexpected behavior in web reports. For more information on supported settings for web report data grids, see Data Grid component.

Hyperlinks

In the Report Designer, users can only configure the text and the URL of the hyperlink. All other component settings will be applied as is.

KPI Panels

In the Report Designer, KPI Panel components must use KPI tables to provide the KPI data. KPISource data sources are not supported. Users can configure the KPI table for the component, as well as an optional filter and sort column.

You must specify the desired **KPI Size** in the component properties and design the layout to handle that size. Users cannot change the KPI Size in the Report Designer.

Labels

In the Report Designer, users can only configure the text and the tooltip of the label. All other component settings will be applied as is, except for icons, which are unsupported and will be ignored.

Panels

Panel components can be used in the Axiom form to assist with positioning components. For example, you can start with a Titled Panel, and then replace the default Formatted Grid component with a Data Grid component. However, panels are not configurable in the Report Designer and will be used entirely as is. Users do not see panels listed as configurable components.

Refresh variables

If desired, you can define a `[RefreshVariables]` data source in the template, so that web reports created from the template start out with predefined variables. These variables can then be configured or deleted from the report as desired. Users can create their own refresh variables in the Report Designer as needed, so it is not necessary to predefine refresh variables for users unless it makes sense to do so for a particular template.

If you define refresh variables in the template, keep in mind the following:

- Only ComboBox, Grid, and HierarchyFilter variables are supported for use in web reports. For more information, see Configuring Refresh Variables.
- You do not need to set up the Axiom form to respond to the variable selection using formulas (and this will not be supported in the Report Designer if it is done). Instead, the report creator must define refresh variable dependencies for the data source in the Report Designer. Currently, it is not possible to predefine these dependencies in a template.

Publishing the template to users

To publish a web report template to users, you must copy and paste the Axiom form to the following location:

```
\Axiom\Axiom System\Document Templates\Report Builder
```

Only administrators have access to this location. Note that you cannot use Save As to save the form directly to this location. You must use Axiom Explorer to copy and paste the file.

All form-enabled files in this location are presented to users as templates when they create a new web report in the Report Designer. When a web report is created from the template, the form-based elements in the file are converted to the XML format of the web report. The user then uses the Report Designer to configure the web report.

If desired, you can copy and paste a PNG image to this location with the same name as the template, and that image will display as the thumbnail image for the template when users create new web reports. If no matching PNG file is present, the default thumbnail image is used.

About KPI tables

KPI tables store key performance indicators (KPIs) for your organization. These KPIs can be referenced in web reports and in Axiom forms using the KPI Panel component.

KPI tables have a predefined structure that maps to the properties used by the KPI Panel component. Once you assign the table to a KPI Panel component, the component automatically formats and positions the KPI data in the table into a series of KPI boxes. You can apply an optional filter to limit the KPIs shown in a particular component.

Creating KPI tables

KPI tables have a special editor in the Web Client, designed to make it easy for table administrators to create new KPI tables.

Currently, KPI tables can only be created in the Web Client. Once a table has been created, additional columns can be added as needed using the standard **Edit Table** feature in the Desktop Client.

To populate a KPI table with KPI values, you can use any of the standard features for populating tables, such as Save Type 1 and Open Table in Spreadsheet. In most cases, you would set up a Save Type 1 report that queries data and calculates KPIs, then saves that data back to the KPI table. The report can be scheduled to run periodically to update the table with the latest KPI data as needed.

Column structure for KPI Tables

KPI tables have a predefined column structure that corresponds to the values used by the KPI Panel component. All of the following columns are created by default when the KPI table is created, and cannot be deleted. All string columns are non-Unicode.

Name	Column Properties	Description
Name	String (100) Key Column	Defines a code that uniquely identifies each KPI in the table. The code can be anything you want, as long as it is unique. For example, you might use a meaningful code format like KPI_ExpenseVar or KPI_ExpenseVar_D42000 (where KPIs are stored by department).

Name	Column Properties	Description
Kind	String (32)	The kind of KPI, either `Basic` or `Status`. The kind determines whether the primary KPI value is numeric or a status icon. If this column is blank, or if it contains any value other than Basic or Status, the KPI kind is interpreted as `Legacy`. The Legacy kind is for backward-compatibility only, and it displays KPIs using the format and properties supported by KPIs created in 2018.1.
Title	String (250)	The title of the KPI, displayed at the top of the KPI box.
TitleIcon	String (64)	Optional. The name of an icon to display in the KPI title. Enter any valid icon name, such as `fa-dollar`. The icon names are the same as the symbol names available for use in Axiom form components such as Formatted Grids. If specified, the symbol displays in the far left of the title, before the title text. To look up valid icon names, you can use the symbol chooser available for Formatted Grid components. In a form-enabled file, right-click a cell and then choose **Insert Formatted Grid Tag > Symbol**. Then use the **[...]** button to the right of the **Symbol** box to open the **Choose Symbol** dialog. You can hover your cursor over an icon to see its name.
Subtitle	String (250)	Optional. The subtitle of the KPI, displayed directly beneath the title.
Value1	Numeric	The primary value to highlight for the KPI, when using the Basic kind. This value displays in large, bold font directly underneath the title. This is the value that you want to draw the most attention to. If you are using the Status kind, this value is ignored and instead the primary value is the StatusSign. The number format of this value is determined by the value specified in the NumericType column.

Name	Column Properties	Description
Value2	Numeric	Optional. A supporting value to show for the KPI. A label can be defined for this value, using the Value2Label column. The supporting values can be used to provide additional information about the primary value. For example, if the primary value is a variance, then Value 2 and Value 3 might display the actual and budget numbers used to calculate that variance. Or if the primary value is the actual number, then Value 2 and Value 3 might display the variance and the budget number to provide more context for the actual number. The values displayed are entirely user-definable. The number format of this value is determined by the value specified in the NumericType column.
Value2Label	String (100)	Optional. The label for Value 2. The label precedes the value and displays with a colon, such as "Actuals: *Value 2*". The label should explain what Value 2 represents.
Value3	Numeric	Optional. A supporting value to show for the KPI. A label can be defined for this value, using the Value3Label column. See the description of Value2 for more information. The number format of this value is determined by the value specified in the NumericType column.
Value3Label	String (100)	Optional. The label for Value 3. The label precedes the value and displays with a colon, such as "Budget: *Value 3*". The label should explain what Value 3 represents.

Name	Column Properties	Description
Value4	Numeric	Optional. A supporting value to show for the KPI. A label can be defined for this value, using the Value4Label column. See the description of Value2 for more information. When using the Basic kind, Value 4 and the chart are interchangeable. You can display either Value 4 or a chart, but not both. If both are defined, the chart takes precedence. When using the Status kind, the chart displays in a different place so you can display both if desired. The number format of this value is determined by the value specified in the NumericType column.
Value4Label	String (100)	Optional. The label for Value 4. The label precedes the value and displays with a colon, such as "Forecast: *Value 4*". The label should explain what Value 4 represents.
ChartTarget	Numeric	Optional. A value that defines the target line for the bullet chart. This value can be omitted if it is not needed.
ChartActual	Numeric	Optional. A value that defines the actual line for the bullet chart. This value can be omitted if the KPI does not use a bullet chart.
ChartMax	Numeric	Optional. The maximum value of the bullet chart. The chart target and actual values are represented in relation to this maximum value. For example, if the actual value is 100 and the maximum value is 1000, then the actual bar will only take up 1/10th of the bullet chart. But if the maximum value is 150, then the actual bar will take up 2/3rds of the bullet chart. This value is required if you want to display a bullet chart on the KPI. This value should be omitted if you don't want to display a chart at all, or if you want to display a sparkline chart instead by using the SparklineData column.

Name	Column Properties	Description
Delta	Numeric	Optional. A value that illustrates the positive or negative measure of the KPI. This value can be omitted if not needed. The Delta value displays in either red or green (as determined by the Sign value). The Delta value can be used to show a variance percent or a raw difference value. It can also be used to show the change in value since the last time the primary KPI value was measured. The number format of this value is determined by the value specified in the DeltaNumericType column.
Sign	String (8)	Optional. Specifies whether the primary KPI value is trending up (positive) or down (negative). Enter either `Up` or `Down`. If omitted, Down is assumed. • If Up, then an up-arrow displays in front of the Delta value. The value, arrow, and the actual bar of the bullet chart display in green. • If Down, then a down-arrow displays in front of the Delta value. The value, arrow, and the actual bar of the bullet chart display in red. If the style of the KPI is anything other than `white`, `S1`, or blank (transparent), then these items display in white instead of green or red. If the KPI does not have a defined Delta value, the Sign still determines the color of the bullet chart (if applicable).

Name	Column Properties	Description
StatusSign	String (8)	Specifies the status of the KPI, when using the Status kind. Enter one of the following: `Up`, `Down`, `Neutral`. The status displays as a colored circle with a positive, neutral, or negative indicator: Up  Neutral  Down  The green, orange, and red colors are only used when the style of the KPI is `white`, `S1`, or blank (transparent). If the box has a background color, then the status circle is white and the indicator uses the same color as the background.
Style	String (32)	Optional. Specifies a color style to set the background color of the KPI box. By default, the box is transparent. The following Axiom color styles are supported (specify one per KPI): S1, S6, A11, A51, P5, P6, P7, P9, P10. You can also specify `white`. When using darker background colors, the text in the KPI automatically adjusts to white.
Tooltip	String (250)	Optional. Defines a tooltip to display when a user hovers over the button in the top right corner of the KPI box. This applies as follows: • If you are using the Command column, the tooltip displays for the default three-dots icon. • If you are using the MenuData column and the KPIMenu data source contains multiple commands, the tooltip displays for the carat icon that opens the menu. • If you are using the MenuData column and the KPIMenu data source contains one visible command, the tooltip defined for that command displays on the custom icon (instead of this tooltip).

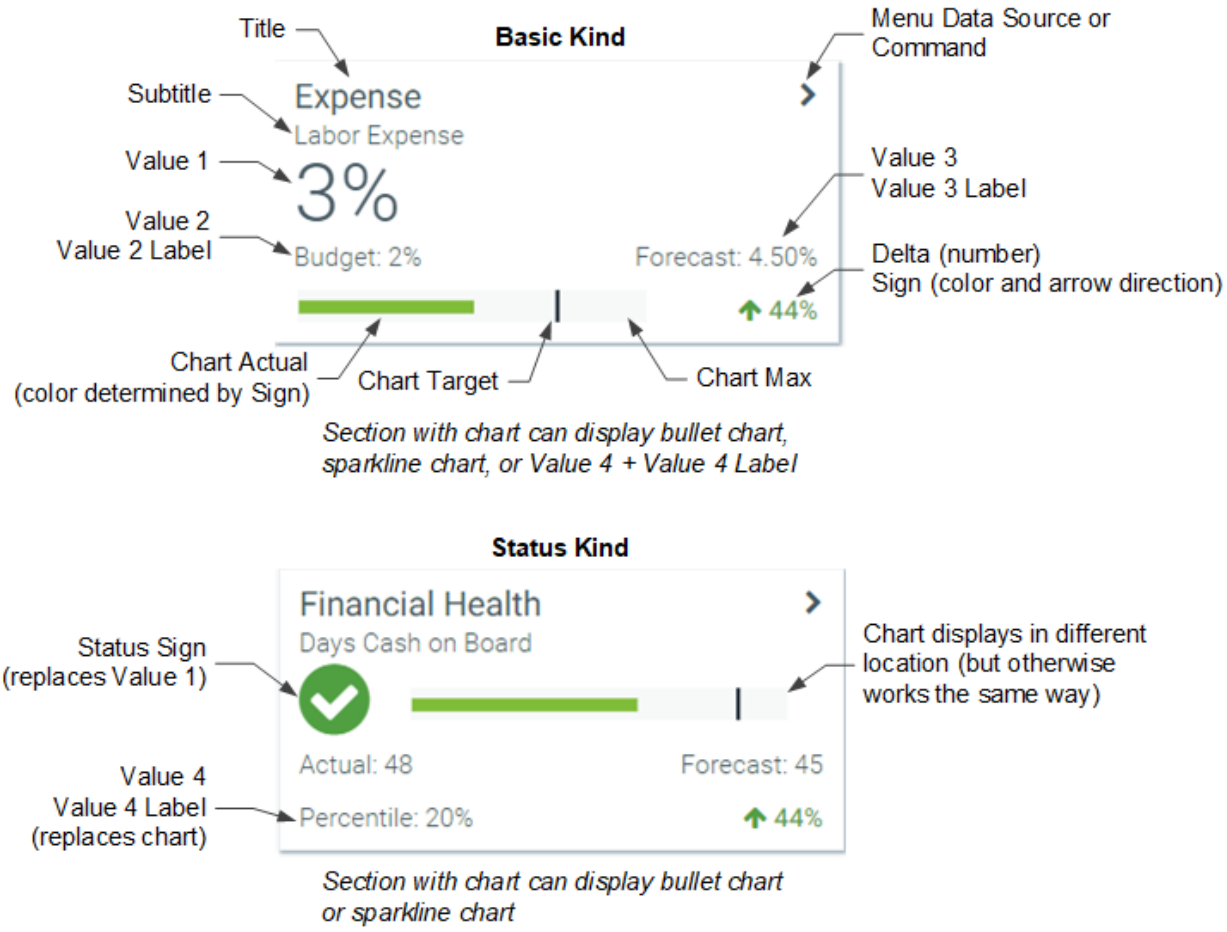
Name	Column Properties	Description
Command	String (1023)	Optional. Specifies a command to execute when the user clicks the icon in the top right corner of the KPI box. If you want users to be able to execute a command from the KPI box, you can use the Command column or you can use the MenuData column. • When using Command, you can define a single command to be triggered by a three-dots icon that displays in the top right corner of the box. This option is intended for cases where you only need to provide access to one command, and you don't need a custom icon. • When using MenuData, you can define one or multiple commands in a separate KPIMenu data source. This option is intended for cases where you need to present multiple command options to the user, or if you need to specify a custom icon for a single command. The valid entries for the Command column are the same that can be defined for the Command column in the KPIMenu data source.
NumericType	String (16)	Specifies the numeric type of the values in the value columns (1-4): • `Number` • `Currency` • `Decimal` This determines the format of these values within the KPI box. If blank, Number is assumed. The **Numeric Type** defined in the column properties for the individual value columns is not used.

Name	Column Properties	Description
DeltaNumericType	String(16)	Specifies the numeric type of the value in the Delta column: • `Number` • `Currency` • `Decimal` This determines the format of the Delta value within the KPI box. If blank, Number is assumed. The **Numeric Type** defined in the Delta column properties is not used.
MenuData	String(Max)	Optional. Stores the contents of a KPIMenu data source as an XML string. The XML string is used to render one or more menu items on the KPI box. In order to generate a valid XML string, the save-to-database file that populates the KPI table must contain a KPIMenu data source, and the MenuData column in the save must contain the syntax `[Datasource=`*`DatasourceName`*`]`. When the save occurs, Axiom Software reads the contents of the designated KPIMenu data source, creates the XML string, and saves it to the MenuData column in the table.
SparklineData	String(Max)	Optional. Stores the contents of a specific series in an XYChart data source as an XML string. The XML string is used to render a sparkline chart in the KPI box. In order to generate a valid XML string, the save-to-database file that populates the KPI table must contain a XYChart data source, and the SparklineData column in the save must contain the syntax `[Datasource=`*`DatasourceName`*`;Series=`*`SeriesName`*`]`. When the save occurs, Axiom Software reads the contents of the designated series in the XYChart data source, creates the XML string, and saves it to the SparklineData column in the table.

Name	Column Properties	Description
Hidden	Boolean	Specifies whether a KPI row is omitted from KPI Panel components (True/False). The default value is False. You can set this to True in order to temporarily hide a KPI, or to archive a KPI without deleting it.
CalculatedDateTime	DateTime	Optional. Specifies the date/time of the KPI calculation. If defined, this value displays on the tooltip for the KPI title. This is not an automatically calculated value, because the applicable date/time of the KPI may be different than the date/time the value was saved to the table. If you want to use this value, it must be explicitly defined and saved to the KPI table along with the other values.

The main column properties of KPI columns cannot be modified, such as column name, data type, key column status, etc. Only minor column properties such as read-only status can be modified.

The following diagram shows how the major KPI properties defined by the columns map to the KPI Panel component:



Using KPI tables

The primary purpose of KPI tables is to provide data for KPI Panel components. You can configure the component to use a KPI table, and then that component is automatically populated with the KPIs in the table.

KPI tables can be used KPI Panel components in Axiom forms and in web reports.

- In web reports, KPI Panel components are required to use a KPI table in order to provide KPI data to the component.
- In Axiom forms, KPI Panel components can use either a KPI table or a data source defined within the spreadsheet.

When configuring a KPI Panel component, you can optionally specify a filter to determine the KPIs that display in the component. For example, if you have added a Dept or Entity column to the KPI table, you can filter the component to only show KPIs relating to a particular department or entity. Any KPI with **Hidden** set to **True** is automatically hidden from all KPI Panel components.

KPI table restrictions and limitations

KPI tables follow the same general rules of reference tables, with some additional restrictions. In addition to the pre-set column structure, the following limitations and restrictions apply to KPI tables:

- KPI tables cannot be plan code tables.
- KPI tables cannot have column hierarchies, column sequences, or calculated fields.

When filtering a list of tables by table classification, KPI tables will display along with the other reference tables, unless they are being omitted from the list as invalid selections.

Generally speaking, whenever a feature says a reference table is valid for use, a KPI table can be used as well. Any exceptions are noted in the specific feature documentation.

KPI table security

By default, non-admin users do not have access to the data in KPI tables. When a new KPI table is created, you must configure read-only or read / write access to the table as needed (unless the KPI table is assigned to a table type to inherit permissions).

Note the following considerations for KPI table security:

- KPI tables can belong to table types, for purposes of easily granting full read or write access to a set of related tables. You can then grant access at the table type level, to be inherited by all tables in the table type. KPI tables can belong to any table type that uses the reference table classification; there is no special table type classification for KPI tables.
- KPI tables can be created by administrators or by users with the **Administer Tables** permission. There is no special permission specifically for administering KPI tables. Once a KPI table is created, standard table and table type permissions apply.

Managing custom help codes

You can define custom help text for use within browser-based files in Axiom Software (Axiom forms or web reports). This feature is intended to provide custom documentation for individual files—for example, to provide instruction on how to fill out the fields in an input form, or to provide more information on the data and terms shown in a dashboard.

To create custom help text, you define the following:

- A user-defined help code that identifies the help text
- A title for the help text
- Body text to define the instructional or informational text for the form user

Once the help text is defined, it can be used in Axiom forms and web reports, using the following features:

- **Help Code** property at the file level

- Form Help component (Axiom forms only)
- Menu component (Axiom forms only)

When a user clicks a help icon that is associated with a custom help code, a panel opens along the right-hand side of the page to show the associated help text.

NOTES:

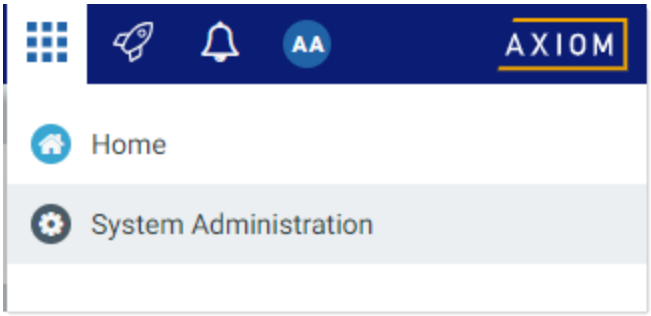
- Only administrators can create, edit, and delete custom help text for Axiom forms.
- The ability to define custom help text is separate from the Axiom Software Help delivered with the software. The form help feature is intended to support form-specific, context-sensitive help for the unique forms in your system.

Accessing the Custom Help Admin page

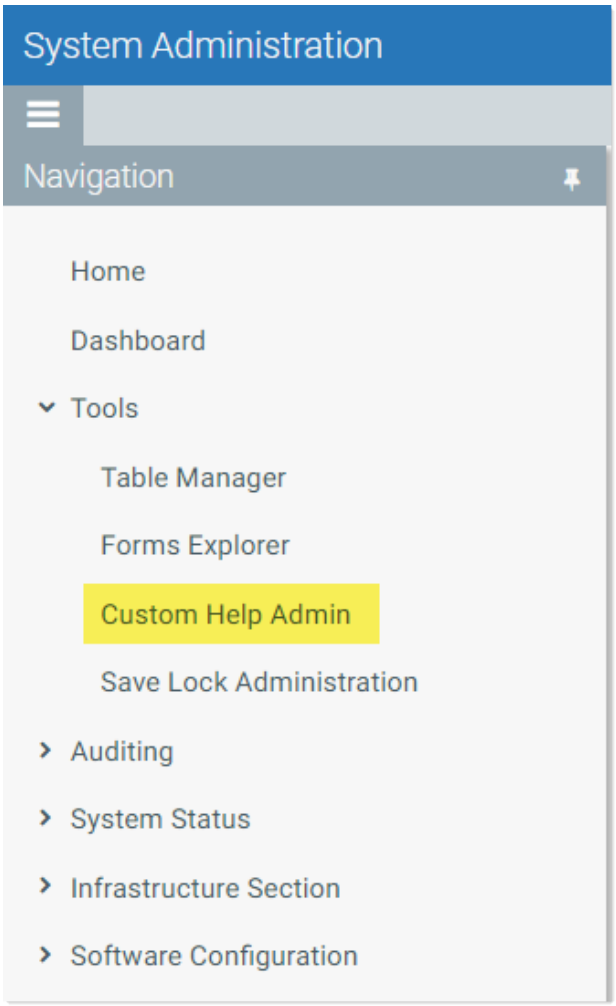
Help codes are managed in the Web Client, on the Custom Help Admin page.

To access the Custom Help Admin page:

1. In the Web Client, click the menu icon in the Global Navigation Bar. From the Area menu, select **System Administration**.



2. From the Navigation panel, select **Tools > Custom Help Admin**.



You can also access the Custom Help Admin page directly using the following URL:

Example On-Premise URL

`http://ServerName/Axiom/FormHelpSearch`

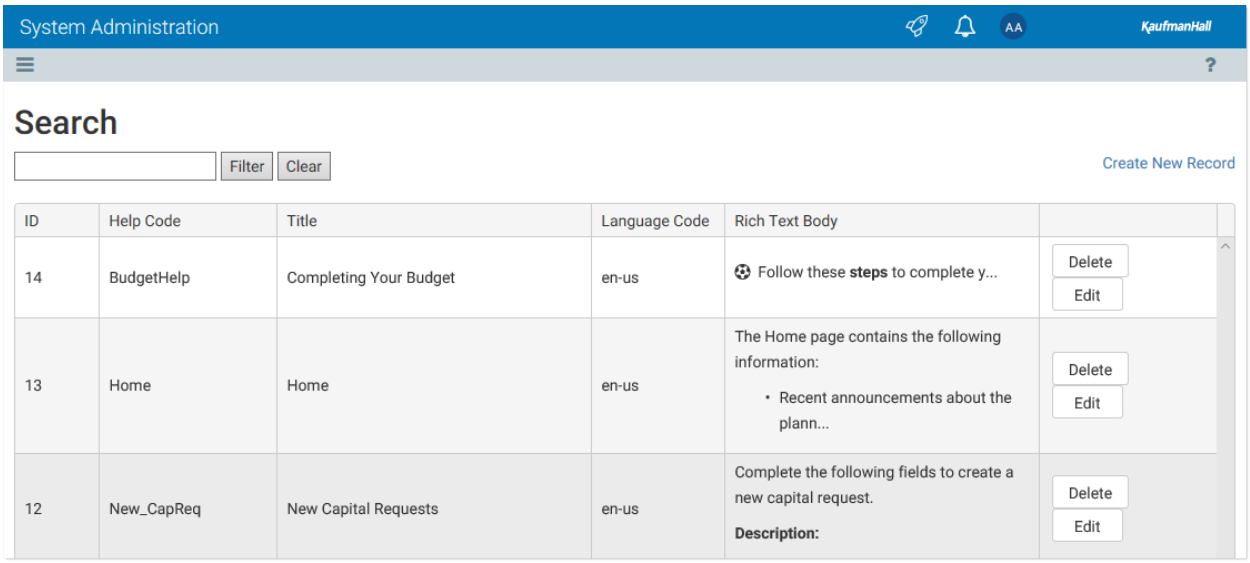
Where *ServerName* is the name of the Axiom Application Server, and Axiom is the default name of the virtual directory.

Example Cloud System URL

`https://ClientName.axiom.cloud/FormHelpSearch`

Where *ClientName* is the name of your cloud service system.

The Custom Help Admin page displays a grid with all of the help codes defined in your system. If the grid is blank, then no help codes have yet been created. If your system has one or more installed products, then you may see help codes that were created as part of the product installation, for use in files provided by the product.



Example Custom Help Admin page

You can use the Search box at the top of the page to filter the grid. The search checks for matches in the following fields: Help Code, Title, and Rich Text Body. This can be helpful to locate a particular help code.

Adding a help code

You can add as many help codes as needed. Each help code must have a unique help code / language code combination.

To add a new help code:

1. In the Custom Help Admin page, click **Create New Record**.
2. In the Create New Custom Help page, complete the following:

Item	Description
Help Code	The code to identify the help text. This is the code that you will use in Axiom forms and web reports in order to display the help text. The code can be up to 50 characters, and can use numbers, text, spaces, and special characters. When viewing custom help in the help panel, the help code displays in a tooltip when hovering your cursor over the help title.
Title	The title for the help text. This text displays using a title format at the top of the help panel. The title text can be up to 100 characters, and can use numbers, text, spaces, and special characters.

Item	Description
Language Code	The language to associate with this help code, so that users running Axiom Software in that language will see this help text. Currently, there are two available choices: • **en-us** (default): English • **fr-fr**: French If all of your users run Axiom Software in the same language, select that language if it is available. Otherwise, use the default of en-us. If you have a multi-language deployment and you want to define help codes that work with multiple languages, see Using multiple languages with help codes.
Rich Text Body	The body text for the help. You can use the rich text editor to apply formatting to the text. For more information, see Defining the help text in the rich text editor.

3. If you want to see what the help code will look like when it is viewed in a file, click **Preview**. This will show the help text in the same help panel that is used in Axiom forms and web reports.
4. Click **Save** to save the new help code.

The new help code can now be used in Axiom forms and web reports.

Editing a help code

You can edit help codes that your organization has created at any time. Generally speaking, users will see these changes immediately (though, not if the help code is currently open in a panel).

If your system contains help codes that were created as part of a product installation, these topics should not be edited.

To edit a help code:

1. In the Custom Help Admin page, locate the help code that you want to edit, and then click **Edit** on that row. You can use the search box at the top of the page to find the code.
2. In the Edit Custom Help page, edit any of the help properties as needed. Keep in mind the following:
   - If you change the help code, this will break any references to the code in Axiom forms and web reports. You should not change the help code unless you know that the code is not being used, or you are prepared to manually locate and update all files that use the code.
   - If you change the body text, the changes will be immediately viewable by end users as soon as you click save. If you need to make extensive changes to body text that may take several revisions, and the help code is referenced by files that are actively being used by end users,

you may want to make your changes in a new help code. When you are done, you can either edit your files to point to the new code, or delete the old code and give the new topic the old code.

3. If you want to see what the help code will look like when it is viewed in a file, click **Preview**. This will show the help text in the same help panel that is used in Axiom forms.
4. Click **Save** to save your changes.

Deleting a help code

You can delete help codes that your organization has created at any time. Keep in mind that if you delete a help code that is referenced by an Axiom form or web report, that reference will now cause an error. You should be sure that the help code is no longer needed before deleting it.

If your system contains help codes that were created as part of a product installation, these topics should not be deleted.

To delete a help code:

- In the Custom Help Admin page, locate the help code that you want to delete, and then click **Delete** on that row. You can use the search box at the top of the page to find the code.

The help code is deleted. There is no way to undo this action.

Using multiple languages with help codes

You can configure help codes to display in multiple languages, so that users see the correct language version for the specified help code. This feature works as follows:

- When a particular help code is opened in the help panel, Axiom Software first looks to see if that help code has an entry with a language code that matches the current language (as determined by the browser's configured language).
- If a match is found for the help code and language code, that help code is displayed. Otherwise, the English (en-en) version is displayed.

For example, if you have users that use both English and French, you can provide help as follows:

- Create one help code with a code of DashboardHelp, language set to en-us, and body text written in English.
- Create another help code with a code of DashboardHelp, language set to fr-fr, and body text written in French.
- Set up the file to use the help code DashboardHelp.

In this example, when a user running an English system views the file, they will see the English version of the help code. And when a user running a French system views the file, they will see the French version of the help code. If users are running a third language, such as Swedish, those users will see the English version of the help code (because there is no match for the specified help code with a Swedish language code).

Defining the help text in the rich text editor

When you create or edit a help code, you can define the body text for the help using the rich text editor. The rich text editor provides basic font formatting, as well as lists and alignment.

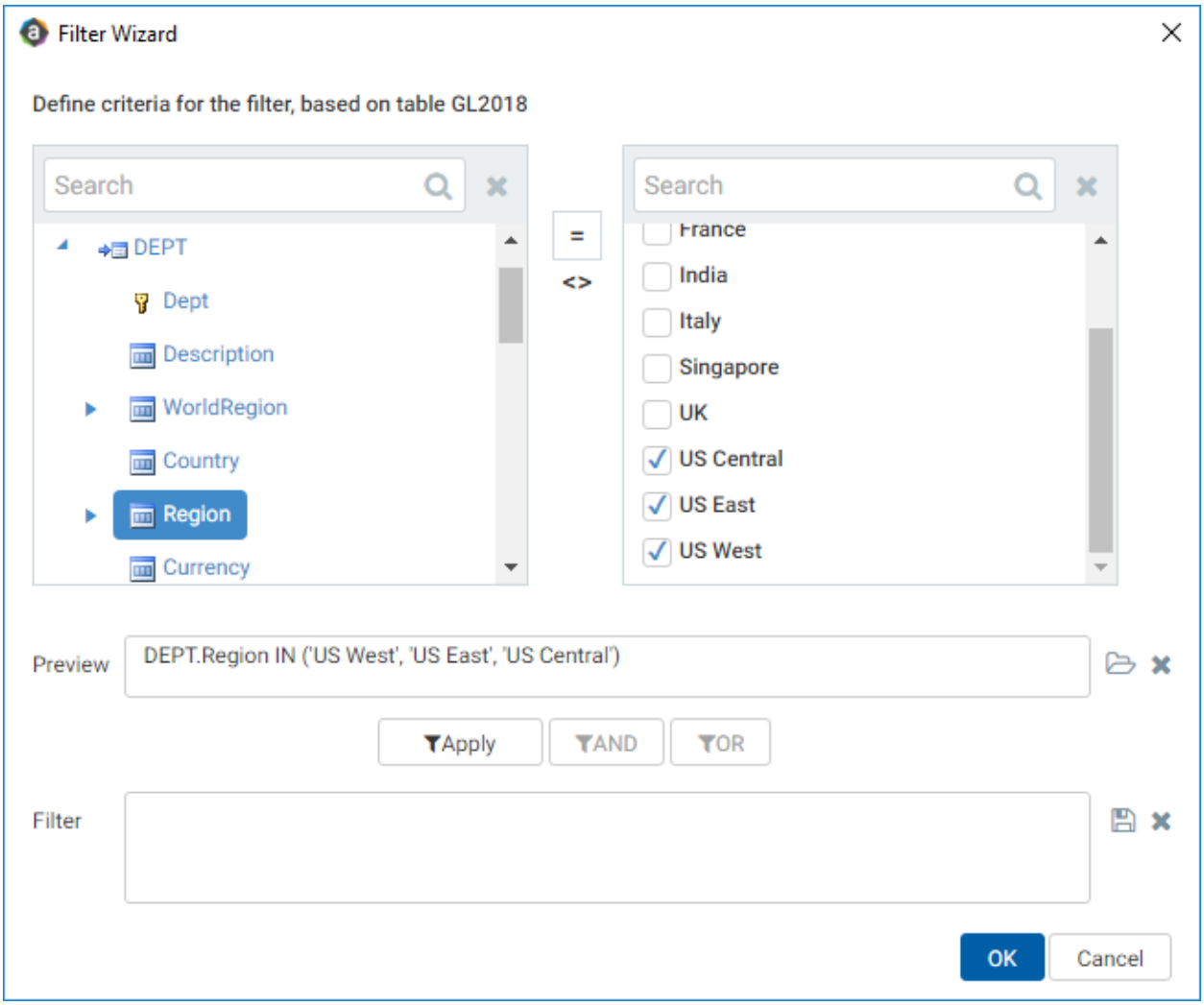
If you want to add a symbol or a link to the text, you must edit the HTML directly. Click the **</>** button to open the **View HTML** window. Within this window, you can manually add the following:

Item	Description
Symbols	To display a symbol in the help text, use syntax such as the following: `<span class="fa fa-soccer-ball-o"></span>` Where the text in the class parameter is the symbol name. You can use any symbol that is available for use in the Symbol tag and other areas of Axiom forms. The Symbol Chooser dialog in Axiom forms can be used to find the symbol name.
Hyperlinks	To include a link in the help text, use syntax such as the following: `<a href="http://www.axiomepm.com" target="_blank">Axiom Software</a>` Where the text in the href parameter is the URL, and the text in between the `<a>` tags is the display text. The link opens in a new window using this syntax.

When creating the help text, it is recommended to only use the rich text editor to apply formatting, and only use the View HTML window to add these special items or to troubleshoot formatting issues. Any HTML manually added to the help text is done at your own risk.

Using the Filter Wizard

The Filter Wizard is available in various locations to assist you in building a valid filter criteria statement.



Example Filter Wizard

The tables available in the wizard depend on the current context. For example, if you are creating a data source filter for a web report, the wizard only shows valid tables in relation to the specified primary table for the data source. In other areas, the tables in the wizard may be limited based on other factors.

To create a filter:

1. In the left-hand side of the dialog, select the table column on which you want to base the filter.

   For example, if you want to create a filter such as `DEPT.DEPT>=5000`, then you must select the DEPT column from the DEPT table.

   To find the desired table and column, you can filter the list by typing into the Search box. The filter matches based on table and column names.

   Once you select a table column, the values in that column display in the right-hand side of the dialog.

TIP: Alternatively, you can use the folder icon to the right of the **Preview** box to load a previously saved filter from the Filters Library. If you do this, your selected filter is placed in the Preview box, overwriting any current content in the preview. Skip to step 4.

2. In the right-hand side of the dialog, select the value(s) on which you want to base the filter.

   You can type into the filter box below the list of values to filter the list. Your current typed value is always placed at the top of the list. You can select this typed value regardless of whether it currently matches an actual value in the column. This behavior is to allow you to create a filter for empty tables, or for tables where the value you want to filter on is not yet present in the column. This is why you may see the "no matches" message but still have one value in the list—your typed value.

3. In the space between the two selection boxes, select the operator to use for the filter criteria statement, such as equals, not equals, greater than, or less than. By default, the filter statement uses equals (=).

   Note the following about filter operators:

   - Greater than / less than options are only available if the column data type holds numbers or dates.
   - If multiple items are selected, then IN and NOT IN syntax is automatically used for equals and not equals respectively.
   - If the column is a string column and the value contains an apostrophe (such as O'Connor), the wizard automatically converts this value to double apostrophes so that it is valid for use in the filter (O''Connor). Apostrophes in string values must be escaped this way so that they are not interpreted as the closing apostrophe for the filter criteria statement.
   - The LIKE operator is supported, but is not available for selection in the Filter Wizard. You must manually edit the filter criteria statement if you want to use it. Only advanced users with knowledge of valid SQL LIKE syntax should do this.

4. Review the filter criteria statement in the **Preview** box to ensure that it is as intended. If you need to make changes, you can manually edit the statement, or you can start again with a new statement. If you want to clear the statement, click the **X** icon to the right of the Preview box.

   For more information on valid syntax, see Filter criteria syntax.

5. If no filter is currently present in the **Filter** box, click **Apply** to move the filter down to the Filter box. If a filter is currently present in the Filter box, you can do one of the following:
   - Click **Replace** to overwrite the current filter with the preview filter.
   - Click **AND** or **OR** to add the preview filter to the current filter. This creates a compound criteria statement.

You can repeat the filter creation process as many times as necessary to create the desired statement. You can also manually modify the filter in the Filter box as needed, such as to add parentheses to group statements.

6. When the filter in the Filter box is complete, click **OK**.

> **TIP:** If you want to save the filter you have created for future use, click the save icon to the right of the Filter box. You can select a folder location in the Filters Library (or My Documents if applicable), and specify a name for the filter. This option is only available if you have read/write access to at least one location where filters can be stored.

Filter criteria syntax

Several areas of Axiom Software use criteria statements to define a set of data. The syntax for these criteria statement is as follows:

```
Table.Column='Value'
```

- *Table* is the name of the database table.
- *Column* is the name of the column in the database table.
- *Value* is the value in the column.

If the column is String, Date, or DateTime, the value must be placed in single quotation marks as shown above. If the column is Numeric, Integer (all types), Identity, or Boolean, then the quotation marks are omitted.

For example:

- To filter data by regions, the filter criteria statement might be: `DEPT.Region='North'`. This would limit data to only those departments that are assigned to region North in the Region column.
- To filter data by a single department, the filter criteria statement might be: `DEPT.Dept=100`. This would limit data to only department 100.

If the table portion of the syntax is omitted, then the table is assumed based on the current context. For example, if the filter is used in an Axiom query, then the primary table for the Axiom query is assumed. If the current context supports *column-only syntax*, and the specified column is a validated key column, then the lookup table is assumed.

Operators

The criteria statement operator can be one of the following: =, >,<,<>,<=,>=. Greater than or less than statements can only be used with numeric values. For example:

```
ACCT.Acct>1000
```

SQL IN and LIKE syntax can also be used. For example:

```
DEPT.Region IN ('North','South')
```

Compound criteria statements

You can use `AND` and `OR` to combine multiple criteria statements. If you are creating long compound criteria statements with multiple ANDs or ORs, you can use parentheses to group statements and eliminate ambiguity. For example:

```
(DEPT.Region='North' OR DEPT.Region='South') AND (ACCT.Acct=100 OR
ACCT.Acct=200)
```

NOTES:

- When filtering on multiple values in the same column, you must use OR to join the statements, not AND. In the example above, if the statement was instead `DEPT.Region='North' AND DEPT.Region='South'`, that statement would return no data because no single department belongs to both the North and South regions. When you use OR, the statement will return departments that belong to either the North or the South regions.
- Alternatively, you can use the SQL IN syntax to create a compound statement for values in the same column. For example, the statement `DEPT.Region='North' OR DEPT.Region='South'` can also be written as `DEPT.Region IN ('North','South')`. The Filter Wizard uses IN syntax by default.

Using criteria statements in functions

If you are using a criteria statement in a function, such as GetData, you must place the entire criteria statement in double quotation marks. For example:

```
=GetData("Bud1","DEPT.Region='North'","GL1")
```

You can also place the criteria statement in a cell and then use a cell reference in the function. In this case, you do not need to use double quotation marks in the function, unless you are concatenating text and cell reference contents within the function.

Referencing blank values in filters

If a string column contains a blank value, you may want to create a filter that includes or excludes records with these blank values. For SQL Server, the blank value is stored as an empty string. This empty string is indicated with empty quotation marks in the filter. For example: `ACCT.CMAssign=''` or `ACCT.CMAssign<>''`

If you use the Filter Wizard to construct the filter, it will automatically use the appropriate syntax.

Referencing values with apostrophes in filters

If a string column contains a value with an apostrophe (such as O'Connor), then that apostrophe must be escaped with another apostrophe so that it is not read as the closing apostrophe for the filter criteria statement. For example:

`Dept.VP='O'Connor'`

Invalid. This construction does not work because Axiom Software reads it as Dept.VP='O' and then does not know what to do with the rest of the text.

`Dept.VP='O''Connor'`

Valid. The extra apostrophe tells Axiom Software that the apostrophe is part of the string value and is not the closing apostrophe.

NOTE: This syntax must use two apostrophe characters in sequence and *not* a double quotation mark. If you create the filter using the Filter Wizard, Axiom Software will construct the appropriate syntax for you.

Referencing Date or DateTime values in filters

If your locale uses a date format where the first value is the day, filters using that date or date-time value will not process correctly. Instead, the date or date-time value must be in standard format. Standard format is `YYYY-MM-DDTHH:MM:SS` for DateTime and `YYYY-MM-DD` for Date.

If you use the Filter Wizard to construct the filter, it will automatically convert the date or date-time value to the appropriate syntax.

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