pentaho

## Version 5.3


# Create Analysis, Interactive Reports, and Dashboards

# Copyright Page



Help and Support Resources

To view the most up-to-date help content, visit https://help.pentaho.com.

If you do not find answers to your questions here, please contact your Pentaho technical support representative.

Support-related questions should be submitted through the Pentaho Customer Support Portal at http://support.pentaho.com.

For information about how to purchase support or enable an additional named support contact, please contact your sales representative, or send an email to sales@pentaho.com.

For information about instructor-led training, visit http://www.pentaho.com/training.

Liability Limits and Warranty Disclaimer

The author(s) of this document have used their best efforts in preparing the content and the programs contained in it. These efforts include the development, research, and testing of the theories and programs to determine their effectiveness. The author and publisher make no warranty of any kind, express or implied, with regard to these programs or the documentation contained in this book.

The author(s) and Pentaho shall not be liable in the event of incidental or consequential damages in connection with, or arising out of, the furnishing, performance, or use of the programs, associated instructions, and/or claims.

Trademarks

The trademarks, logos, and service marks ("Marks") displayed on this website are the property of Pentaho Corporation or third party owners of such Marks. You are not permitted to use, copy, or imitate the Mark, in whole or in part, without the prior written consent of Pentaho Corporation or such third party. Trademarks of Pentaho Corporation include, but are not limited, to "Pentaho", its products, services and the Pentaho logo.

Trademarked names may appear throughout this website. Rather than list the names and entities that own the trademarks or inserting a trademark symbol with each mention of the trademarked name, Pentaho Corporation states that it is using the names for editorial purposes only and to the benefit of the trademark owner, with no intention of infringing upon that trademark.

## Third-Party Open Source Software

For a listing of open source software used by each Pentaho component, navigate to the folder that contains the Pentaho component. Within that folder, locate a folder named licenses. The licenses folder contains HTML.files that list the names of open source software, their licenses, and required attributions.

## Contact Us

Global Headquarters Pentaho Corporation Citadel International, Suite 460

5950 Hazeltine National Drive Orlando, FL 32822

Phone: +1 407 812-OPEN (6736)

Fax: +1 407 517-4575

http://www.pentaho.com

Sales Inquiries: sales@pentaho.com

# Introduction

The **User Console** is a fun, easy to use, web-based design environment where you can analyze data, create interactive reports, dashboard reports, and build integrated dashboards to share business intelligence solutions with others in your organization and on the internet. In addition to its design features, the User Console offers a wide variety of system administration features for configuring the Business Analytics (BA) Server, maintaining Pentaho licenses, setting up security, managing report scheduling, and tailoring system performance to meet your requirements.

## Prerequisites

Before you can work with the User Console, install the Pentaho software and configure the BA Server.

## Expertise

The User Console does not require any special skills or knowledge to use its design environment. However, to use its system administration features you should know where your data is stored and how to access it, as well as details about your system configuration and security providers.

## Tools

Through the **User Console** you can access these Pentaho tools and features, as well as the BA Repository on the BA Server.

- Analyzer
- Interactive Reports
- Dashboard Reports
- Dashboard Designer
- Data Source Wizard
- Data Source Model Editor

# Tour the Pentaho User Console

If you use file management tools or any web browser, you should feel right at home with the **User Console**. To familiarize yourself with the different pages and controls of User Console, let us take you through a quick tour.

## Login to the User Console

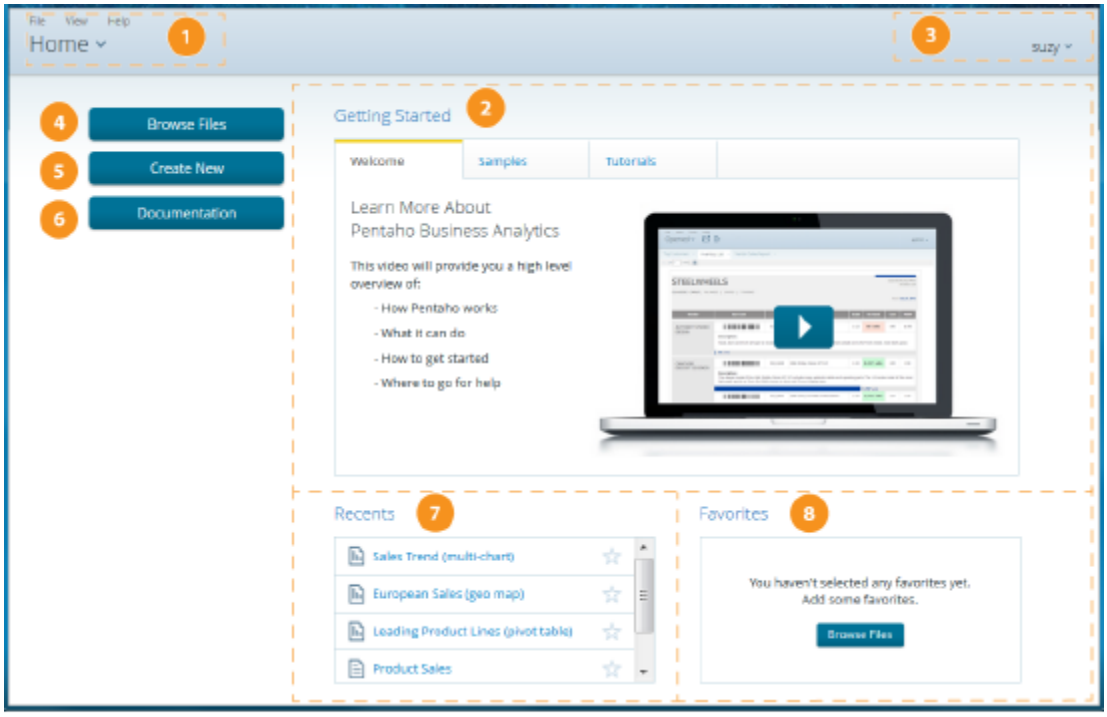
Follow these steps to login to the **User Console**:

1. Launch a Web browser and enter the URL of the Pentaho server. The page loads an introductory screen with a **Login** section.
2. Enter your user name and password and click **Login**.


You are now logged into the **User Console** and ready to start creating and running reports and dashboards.

## Home

The first thing you see after you log into the **User Console** is the **Home** page, which serves as the portal for you to access Pentaho tools and features. **Home** contains easy access buttons so that you can **Browse Files**, **Create New** reports and dashboards, view Pentaho **Documentation**, and quickly open recently viewed or favorite files.

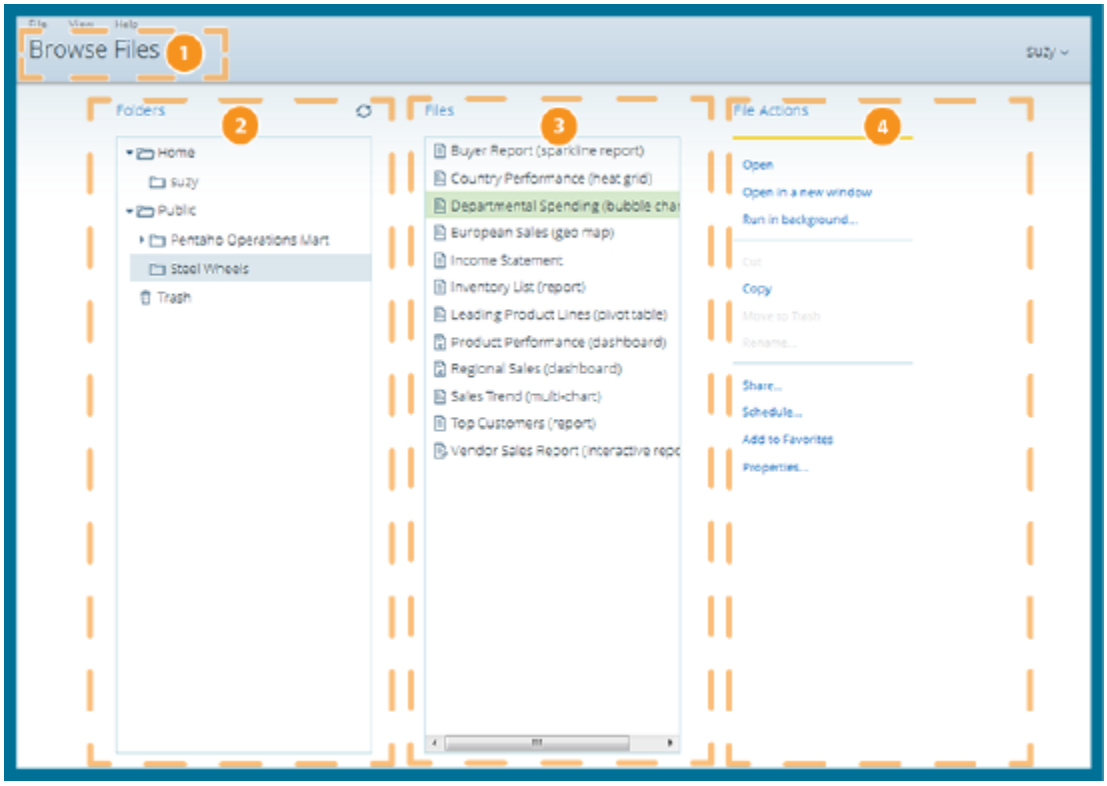



| Item | Name | Function |
|---|---|---|
| 1 | **Home** indicator | Indicates the current User Console perspective that you are using. The **Home** menu lets you flip easily from page to page, or return to your **Home** page. |
| 2 | **Getting Started** | Displays some resources to help you get familiar with the User Console. The **Welcome** tab shows an introductory video about Pentaho products. The **Samples** tab holds a variety of small sample reports and dashboards that you can use to get familiar with the software. The **Tutorials** tab contains a number of tutorial videos that give you a visual guide to the software. |
| 3 | **Current User** | Shows the name of the person currently logged in to the User Console. Clicking the arrow next to the name lets you log out of the User Console. |
| 4 | **Browse Files** | Brings you to the **Browse Files** window, where you can locate your files using the **Browsing** and **Files** panes, and manage them using the **Actions** pane. |
| 5 | **Create New** | Gives you the option to create a new Interactive Report, Analyzer Report, or Dashboard. If you have permissions to work with Data Sources, this button also gives you the option to create a new Data Source. |
| 6 | **Documentation** | Leads you to the Pentaho InfoCenter, which stores the documentation for Pentaho products. |

| Item | Name | Function |
|---|---|---|
| 7 | **Recents** | Shows a list of your most recently opened files. Clicking on the star next to a recently opened file adds it to your **Favorites** list. |
| 8 | **Favorites** | Shows a list of your favorite files for quick access. |

## Browse Files

The **Browse Files** page helps you keep your files and folders organized and makes them easier for you to find and work with.

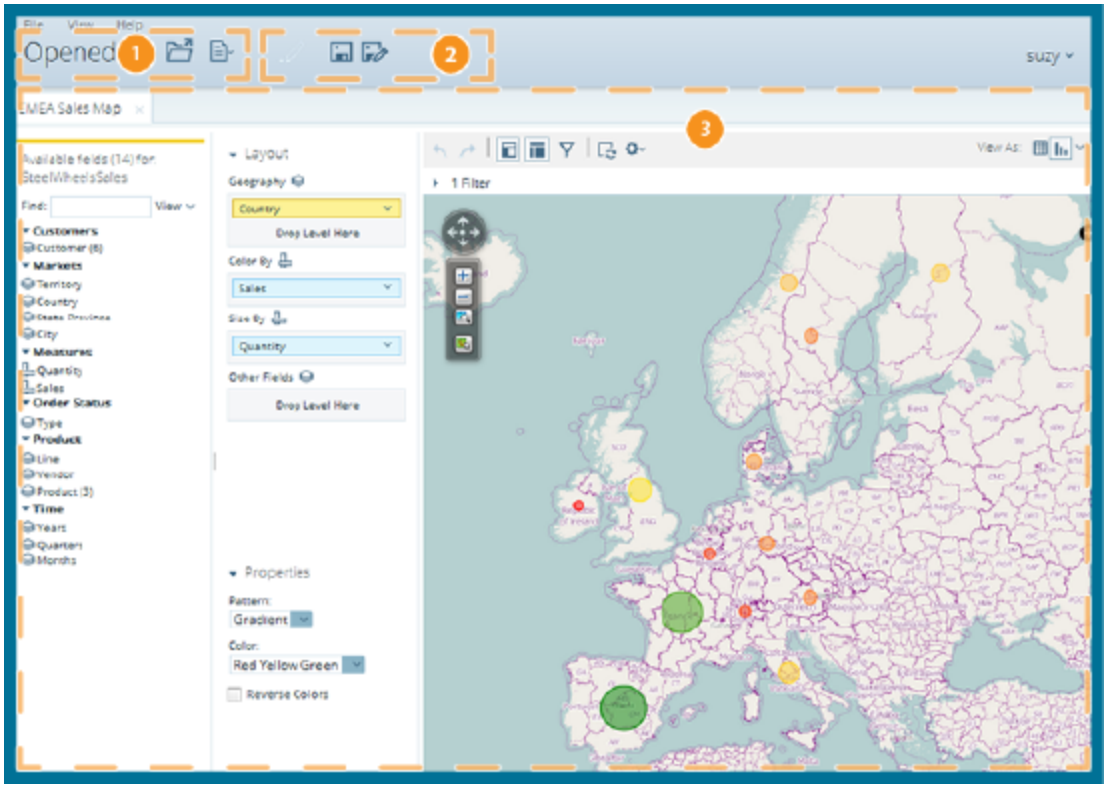



| Item | Name | Function |
|---|---|---|
| 1 | **Browse Files** indicator | Indicates the current User Console perspective that you are using. **Browse Files** shows you how to locate your files and folders and the different actions you can do with them.<br>Displays a series of three panes: the **Browsing**, **Files**, and **Actions** panes. |
| 2 | **Folders** | Shows a list of folders that you can browse through to locate your files. |

| Item | Name | Function |
| --- | --- | --- |
| | | You can also use the **Browsing** pane to create new folders or delete old ones.<br>After you select something in the **Browsing** pane, the **Actions** pane populates with a list of things you can do with the folders. |
| 3 | **Files** | Generates and shows a list of all files contained in the folder that is selected in the **Browsing** pane.<br>After you select a file, the **Actions** pane populates with a list of things you can do with the file. |
| 4 | **File Actions** | Shows a list of different things that you can do with the selected folder or file.<br>The **Actions** pane gives you the ability to:<br>• Quickly open files in the current window or in a new one<br>• Run files in the background<br>• Edit, delete, cut, copy, or paste files or folders<br>• Share files with others<br>• Schedule reports to run automatically<br>• Add files to your **Favorites** widget<br>• View the **Properties** of a file or folder |

## Opened

The **Opened** page activates after you open a file from the **Browse Files** page and provides a simple space to work with your files.




| Item | Name | Function |
|---|---|---|
| 1 | **Opened** indicator<br>**Open...**<br>New **Interactive**, **Analyzer**, **Dashboard**, or **Data Source** | Indicates the current User Console perspective that you are using. **Opened** displays the files that you access from the **Browse Files** pane.<br>• **Open...** serves as a quick way to browse for more files to open without leaving the **Opened** page. These additional files open in new tabs across the **Report Window**.<br>• Quick start buttons to create a new **Interactive** or **Analyzer**, **Dashboards**. You can also use this button to create a new **Data Source**, if you have permissions to work with data sources. |
| 2 | **Edit**, **Save**, and **Save As** | Gives you the ability to perform these functions on the active file in the **Report Window**: edit, save the file with a default name in the same location, or save the file with a different name and in any location on the repository or your desktop |
| 3 | **Report Window** | Displays the file or report that is currently opened, and lets you edit or work with the file. |

## Schedules

You can schedule reports to run automatically. All of your active scheduled reports appear in the list of schedules, which you can get to by clicking the **Home** drop-down menu, then the **Schedules** link, in the upper-left corner of the **User Console** page. You can also access the list of schedules from the **Browse Files** page, if you have a report selected.

The list of schedules shows which reports are scheduled to run, the recurrence pattern for the schedule, when it was last run, when it is set to run again, and the current state of the schedule.


| Item | Name | Function |
|---|---|---|
| 1 | **Schedules** indicator | Indicates the current User Console perspective that you are using. **Schedules** displays a list of schedules that you create, a toolbar to work with your schedules, and a list of times that your schedules are blocked from running. |
| 2 | **Schedule Name** | Lists your schedules by the name you assign to them. Click the arrow next to **Schedule Name** to sort schedules alphabetically in ascending or descending order. |
| 3 | **Repeats** | Describes how often the schedule is set to run. |
| 4 | **Source File** | Displays the name of the file associated with the schedule. |
| 5 | **Output Location** | Shows the location that the scheduled report is saved. |
| 6 | **Last Run** | Shows the last time and date when the schedule was run. |
| 7 | **Next Run** | Shows the next time and date when the schedule will run again. |
| 8 | **Status** | Indicates the current **Status** of the schedule. The state can be either Normal or Paused. |
| 9 | **Blockout Times** | Lists the times that all schedules are blocked from running. |

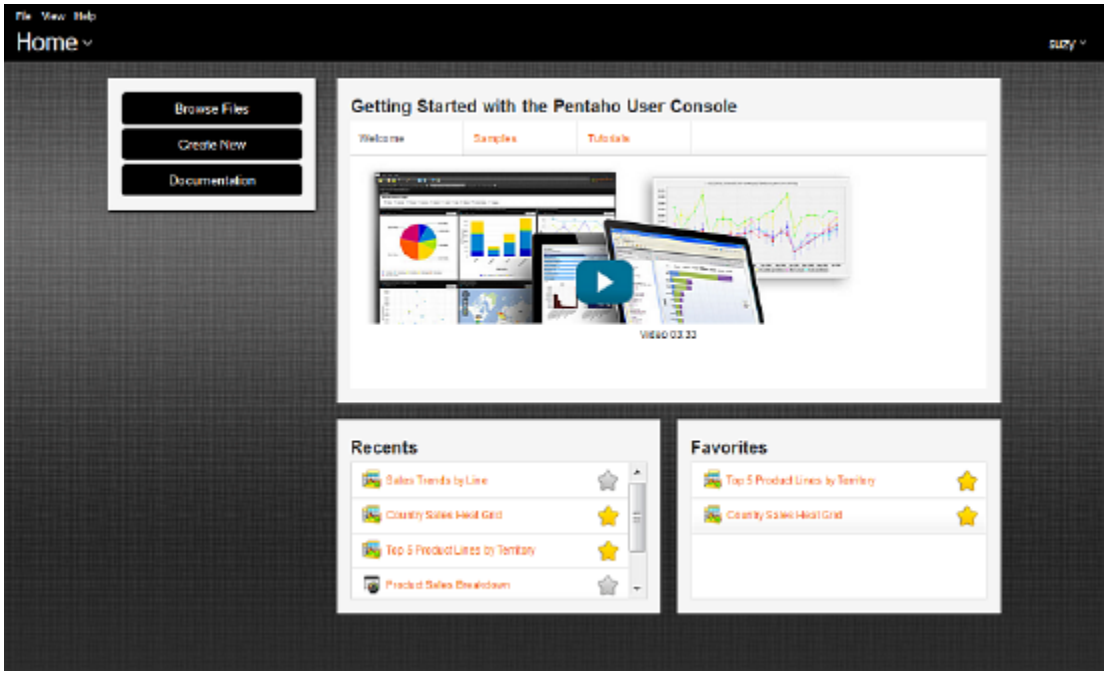
You can edit and maintain each of your schedules by using the controls above the schedules list, on the right end of the toolbar.

| Icon | Name | Function |
|---|---|---|
| | **Refresh** | Refreshes the list of schedules. |
| | **Run Now** | Runs a selected schedule(s) at will. |
| | **Stop Scheduled Task** | Pauses a specified schedule. Use **Start Schedule** to start paused jobs. |
| | **Start Scheduled Task** | Resumes a previously stopped schedule. |
| | **Edit Scheduled Task** | Edits the details of an existing schedule. |
| | **Remove Scheduled Task** | Deletes a specified schedule. If the schedule is currently running, it continues to run, but it will not run again. |

## Themes

The **User Console** has two themes built in, called **Crystal** and **Onyx**. The default display shows the **Crystal** theme, but if you prefer, you can change the theme so the console displays the **Onyx** theme.

1. From any page of the User Console, click **View** in the upper-left menu bar.
2. Select **Themes**, then **Onyx**, from the drop-down menu.



The Home page refreshes and appears with the **Onyx** theme.

# Tools

The User Console has three main tools. This table helps you decide what tools best fit for your needs and provides links to the corresponding articles.

| Explore Considerations | Choose Options | | |
|---|---|---|---|
| | Interactive Reports | Analyzer Reports | Dashboard Designer |
| **Summary** | **Interactive Reports** is a web-based design interface which is used to create both simple and on-demand operational reports without depending on IT or report developers. | **Analyzer Reports** is an analytical visualization tool that filters and drills down into business information contained in Pentaho Analysis data sources. | **Dashboard Designer** allows users to create dashboards with little or no training. The dashboard is several different reports brought together inside one screen. |
| **Expertise** | Basic computer skills and knowledge of web browsers. | Basic computer skills, knowledge of web browsers, familiarity with data structures. | Basic computer skills and knowledge of web browsers. |
| **Time** | Approximately 30 minutes. | Approximately 30 to 60 minutes. | Approximately 30 minutes. |
| **Recommendation** | Use **Interactive Reports** to create operational or financial reports, create reports that provide you with significant control over formatting elements such as fonts, background color, and column widths and sorting. | Use **Analyzer Reports** to perform advanced sorting and filtering of your data, create drill through reports to access underlying data, view chart visualizations, or to analyze business data quickly in a dynamic environment. | Use **Dashboard Designer** if you want to create an interface to view multiple reports at once, view charts and graphs within one space while you create reports in another, and have quick access to web pages that you visit often. |

# Use Pentaho Interactive Reporting

The intuitive, drag-and-drop, browser-based design environment for Interactive Reports enables you to quickly add elements to your report and format them any way you like. You do not need any special expertise to use Interactive Reports. You can also display Interactive Reports in a dashboard in the User Console.

Here is a list of the main Interactive Report features.

- Drag-and-drop report design
- Font selection
- Column resizing
- Column sorting
- Ability to rename column headers
- Copy and paste functionality
- Unlimited undo and redo functionality
- Ability to output reports as HTML, PDF, CSV, or Excel files
- Ability to display reports in a dashboard

Before you can create an Interactive Report, you must have access to a data source.

The data source for an Interactive Report is based on the Pentaho relational data model, also known as the metadata data model. This model enables the Pentaho system to present data in reports in meaningful business terms instead of in abstract terms. For example, a table referred to as **CUST_TBLE or ORDR_TBLE** in the data model can be presented in your report as **Customers and Orders**.

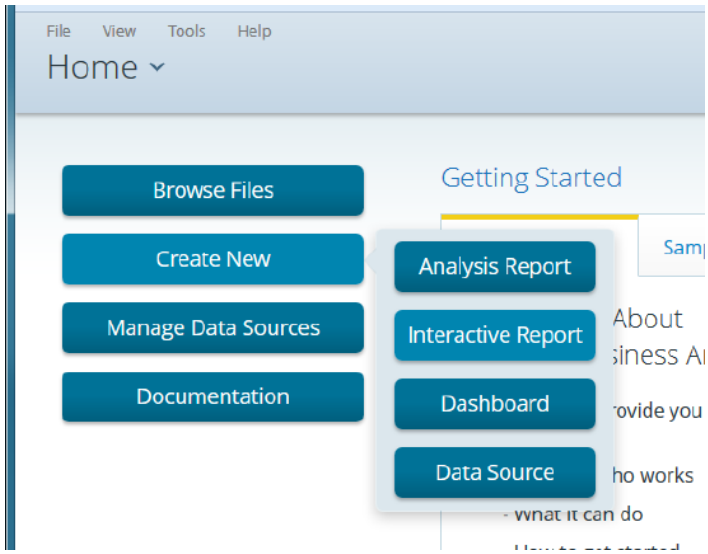
# Create an Interactive Report

Creating Interactive reports is easy to do from the **Home** page of the **User Console**. Interactive reports are built by clicking and dragging fields from your data source and on to a report canvas. You can see the report take shape as you drag fields to the canvas, and you can change the layout and format of the report as you go along.

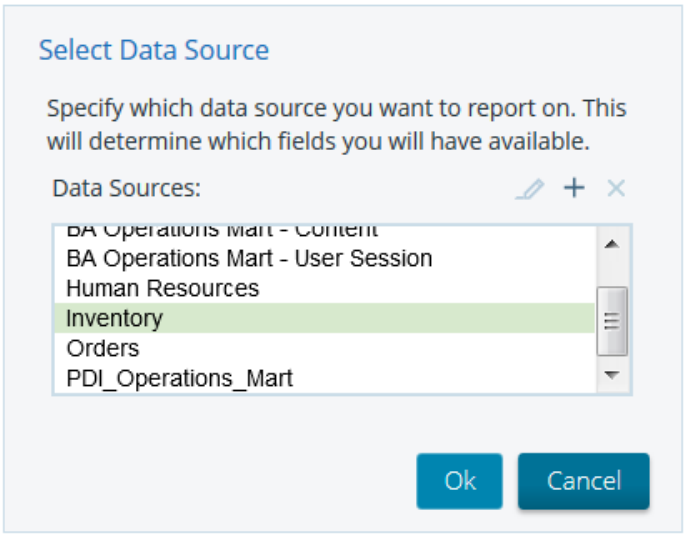
## Create an Interactive Report

These steps guide you through making an Interactive report.

1. From User Console **Home**, click **Create New**, then **Interactive Report**.




2. Choose a data source for the report from the **Select Data Source** dialog box. Click **Ok**.

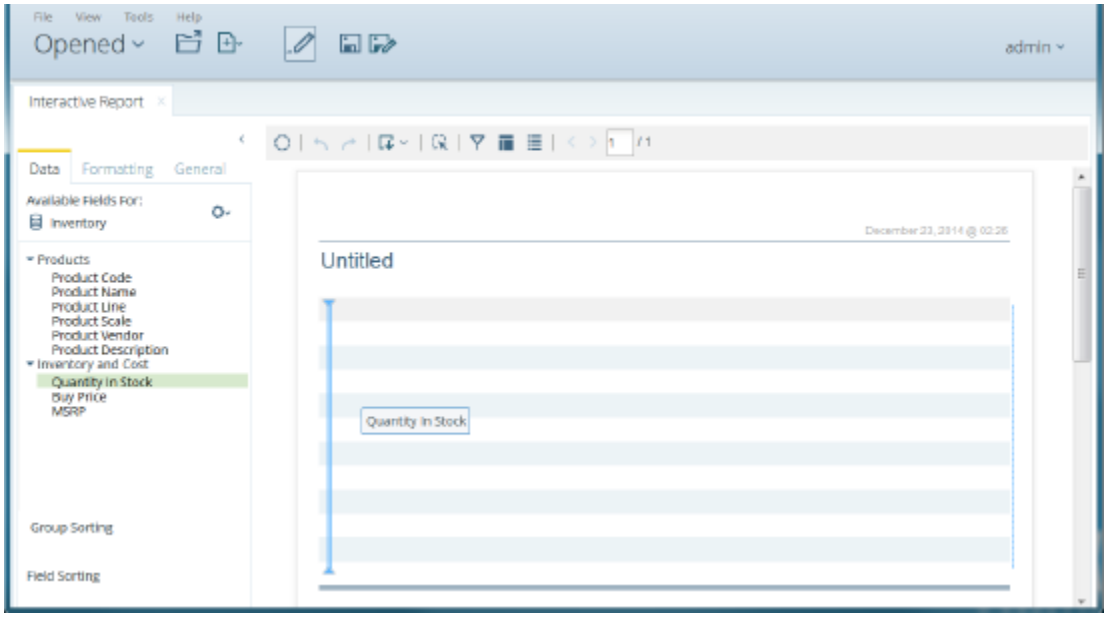



NOTE:

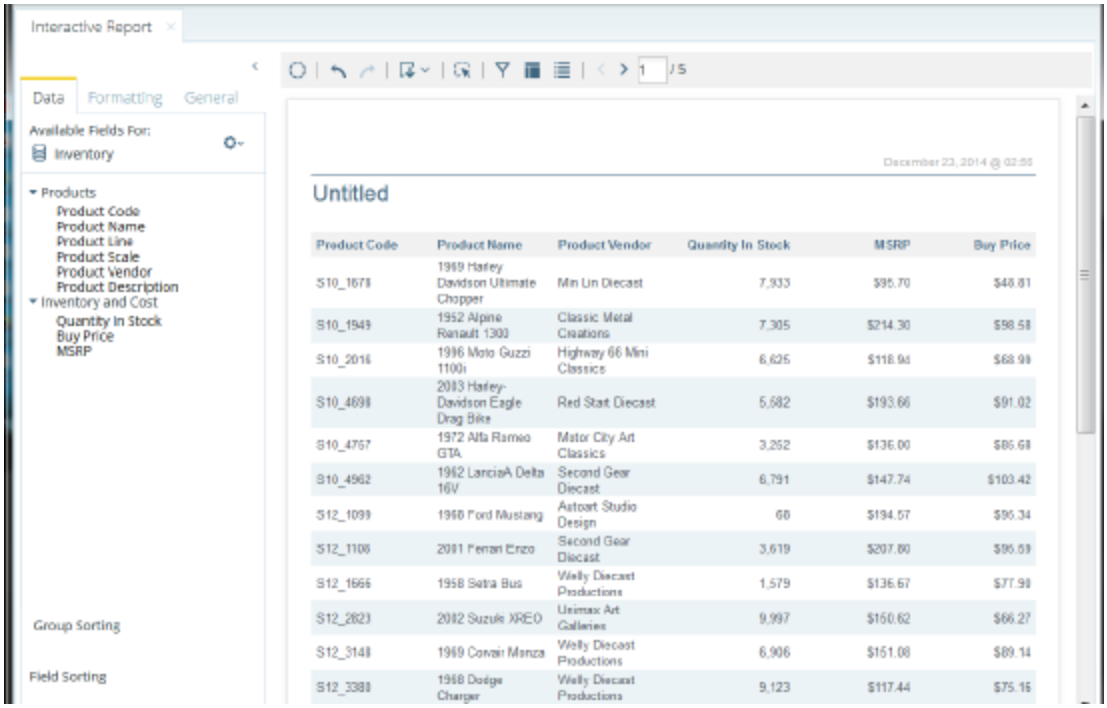
If no data source is listed in the dialog box, contact your administrator for help.

3. To add your first column, click and drag a field from the **Data** tab in the left panel.

4. Drag the field over the report canvas on the right until a vertical line appears, then drop the field in place. This field becomes a column in your report.



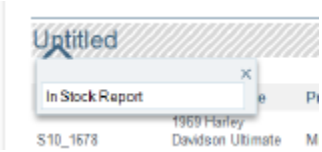

5. Continue to drag and drop fields on to the report canvas until you have all of the columns of your report in place.




NOTE:

You can rearrange the order of the columns by clicking on the headers and dragging the columns to the right or left of their current location. When a green line appears, you can drop the column there. You can also resize your columns by selecting the bar to the right or left of the column header and dragging it until your columns are the correct size.

6. Rename your report by double-clicking on **Untitled** in the **Report Canvas**, and typing a name in the field that appears.



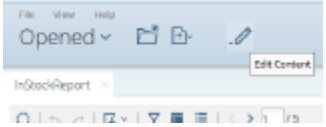

7. Click the **Save As** in the toolbar. When the **Save As** dialog box appears, type a file name for your report, choose a location to save it in, and click **Save**.

Your new Interactive report is created and saved in the location of your choice.

# Edit Your Interactive Report

Use these steps to edit your Interactive report.

1. Login to the User Console and click **Browse Files** to locate the folder containing your report.
2. Right-click the report name in the **Files** pane and choose **Edit** from the **Folder Actions** pane. Alternatively, double-click the report name to open it, then click **Edit** in the User Console toolbar.




3. Edit your report as needed.

4. Save your report.

# Read Your Interactive Report in View-Only Mode

After you save your Interactive report, browse for it in your BA repository. You can quickly identify an Interactive report by its icon. When the report appears, notice that the toolbar that allows you to perform certain actions on the report.


Hover your mouse over the icons in the toolbar to see which actions you can take. These actions include:

- Exporting a report as a PDF, HTML, Excel, or CSV file to be saved locally
- Adding filters for viewing report data
- Rearranging the report layout, such as moving, sorting, and removing columns from the report

You cannot save any changes to your report when you are in View-only mode. However, you can click **Edit** in the User Console toolbar to return to edit mode and save your changes.

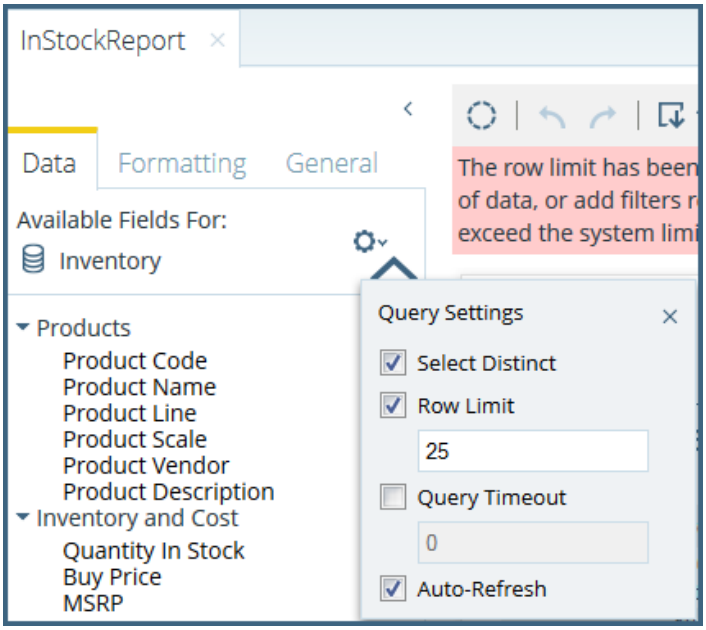
# Quick Tips for Building Large Reports

If you are building an Interactive report with a large amount of data, you might find that it is quicker to build the report if the data isn't constantly refreshing or returning a large number of rows. You can manually refresh the report to view your results at any point in the process.

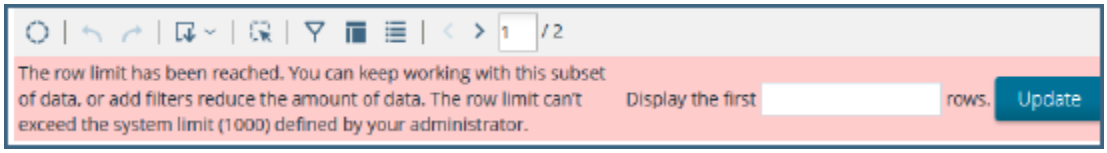
## Enable Row Limits and Query Timeouts

You can limit the number of rows that are displayed in your report. You can also limit the number of seconds a query runs before a timeout occurs. Imposing row limits and timeouts on queries is important to avoid out-of-memory errors, or processes that consume too many resources on the database server.

Both options are available in the **Query Setup** dialog box. In the **Data** tab, click the small icon in the upper-right corner to open the **Query Setup** dialog box. Make changes as needed and close the dialog box when you are done.




If you have exceeded the system maximum of rows, a help message pops up to guide you.




Maintain the BA Server Manually has information about how to define the system maximum row limit for Interactive Reports.

## Disable Auto Refresh Mode in Interactive Reports

When you disable the **Auto Refresh** mode in Interactive Report you can design your report layout first, including calculations and filtering, without querying the database until you are done. When the report layout is complete, you can re-enable Auto Refresh mode. Data retrieval occurs once, and your report displays the requested data. Disable auto refresh if you want to reduce the number of queries executed against the data source, or if you know that the data source returns data slowly.

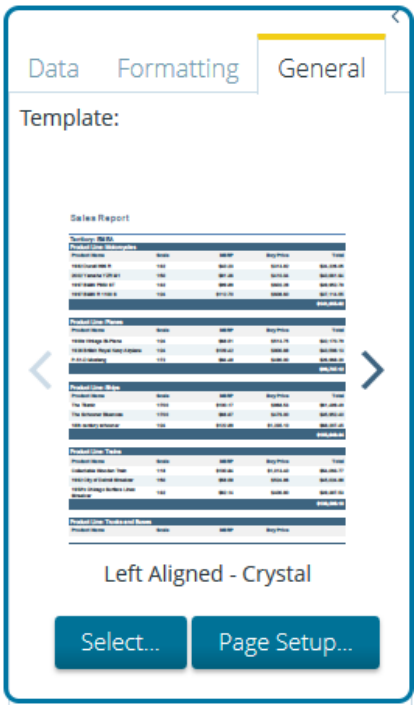
To disable **Auto Refresh**, click the small icon in the upper-right corner of the **Data** tab to open the Query **Setup** dialog box, then disable the **Auto Refresh** option.

# Enhance the Look of Your Interactive Report

You can use the **Formatting** tab in the left pane to change the appearance of your report, including font color, size, text alignment, background color options, and more.

## Use a Different Report Template

You can use the **General** tab in Interactive Reports to select a different template for your report.

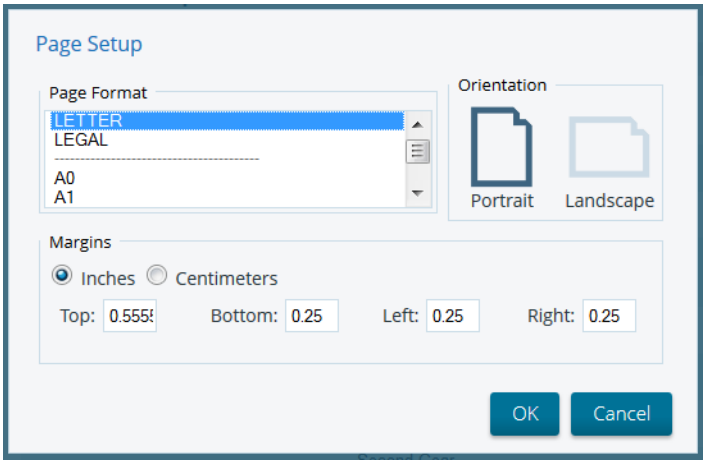



1. Click the **General** tab, then use the left and right arrows to scroll through available templates.
2. Chose a template by double-clicking on it.
3. Click **Yes** or **No** when prompted whether to keep that formatting display.

The report display is updated to reflect the new template.

## Change Page Format and Orientation

Interactive Reports creates a portrait mode page in Letter format (8.5" x 11") by default. You may want to change the page orientation or format.




For page orientation:

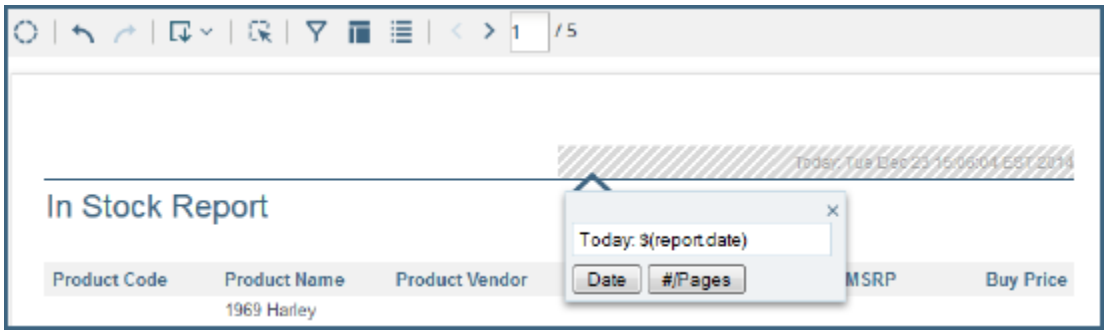
1. Click the **General** tab, then click **Page Setup**.
2. In the Page Setup dialog box, click the appropriate icon.
3. Click **OK** to save your changes.

For page format:

1. Click the **General** tab, then click **Page Setup**.
2. In the Page Setup dialog box, choose the correct page format for your report.
   A. Page margin measurements are displayed in the lower part of the dialog box. You can adjust the measurements as needed.
3. Click **OK** to save your changes.

# Edit Report Headers and Footers

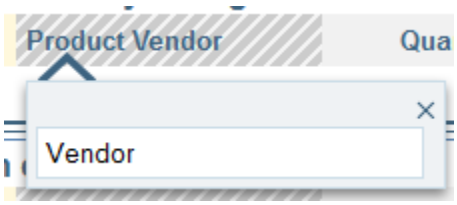
You can design your report headers and footers in a variety of ways. To get started, just double-click the upper or lower corners of the report and try any of the following customizations.




- Delete any existing words, or enter a new header and press <**ENTER**>.
- Click **Date** and press <**ENTER**> to insert a date and time stamp in the page header.
  - You can customize the date and page count by adding your own text, such as, **Today: $(report.date)**, instead of using the default, **$(report.date)**.
- Click **#/Pages** and press <**ENTER**> to insert the number of pages in the report.

# Change a Column Header Name

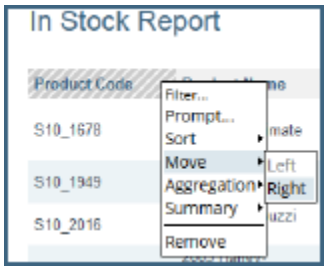
You can customize your column headers to make them more descriptive or simple.




1. To change a column header name, double-click the column header.
2. Type the new header name in the dialog box and press **Enter**.

# Reorder and Adjust Columns

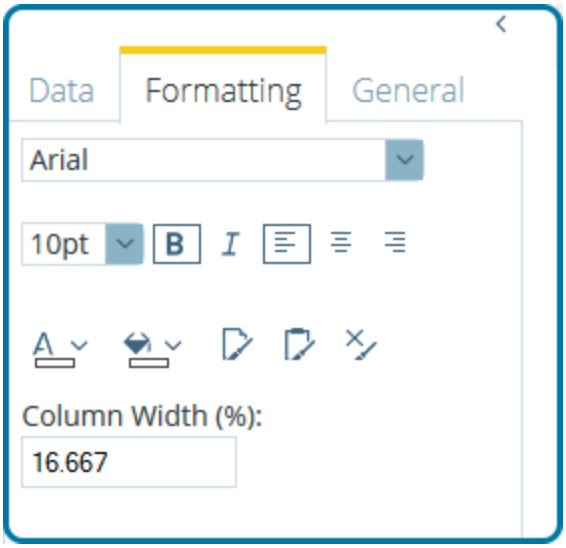
To change the order of columns in your report, choose the column you want to move, then drag it to the desired location. Alternatively, choose the column you want to move, click the down-arrow, and choose **Move (Left or Right) from the menu.**




To adjust a column's width, choose the column, then click the **vertical** line that divides the column headers. Move the line left or right to adjust the column width.


# Change the Format of Numeric Values

If your column contains numeric values, you may need to change the formatting associated with those values. Click inside the column you want to format, so it appears selected.



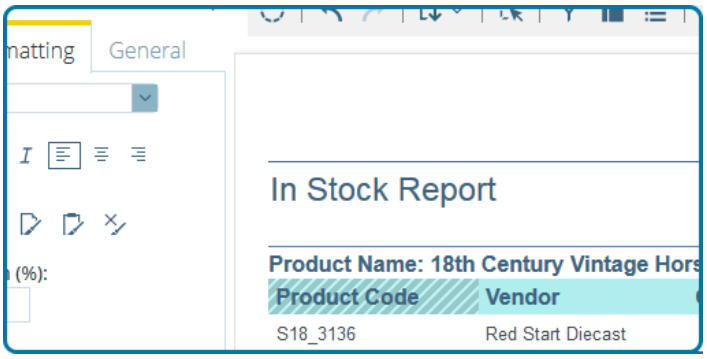

1. Click to highlight the column that you would like to format.
2. Click the **Formatting** tab at the left, then choose the appropriate format for the values in your column.

NOTE:

In some instances, you might notice that your numeric values have already been formatted. For example, money symbols are already included in sales figures. Such formatting is inherited from metadata associated with the data source. However, you can override inherited formats whenever you want.

## Apply Copy/Paste Formatting

Once you have one column formatted the way that you want, you can use the **Copy formatting/Paste formatting** options on the **Formatting** tab to copy the column formatting to other columns in your report.




1. Select the column that contains the formatting you want to copy, then click **Copy Formatting**.
2. Select the column to which you want to apply that format and click **Paste Formatting**.
3. If you want to remove the formatting that you applied to a column, click to select that column, then click **Remove Formatting**.

# Group and Filter Data in Interactive Reports

You can group data in your Interactive reports so that related items appear together. Filters can be used to restrict or limit data in a report, so that you can build the report to show only the information that you want to view.

## Group Data in Your New Interactive Report

You can organize the data in your Interactive reports by grouping it by different fields, such as geographic region, product line, or both.

Here are three quick ways to group data in your report:

1. To group data that is already a column in your report, click the column header and drag it up above the other headers in your report. Release the mouse button once the horizontal green line appears.
2. To group data in a field that is not already a column in your report, drag it from the **Data** tab in the left pane. Drop the field in the space above the report headers.
3. To group data by more than one field, you can nest it into a group by dragging the field or column header beneath the original group.

Now your data is grouped and organized in your Interactive report. You can also sort the data by clicking on the arrows that appear next to the group names, or create some filters to further refine your data.

After you are done, just click **Save** or **Save As** and choose the location to store your report.

## Add Filters to Your Interactive Report

Filters are used to restrict or limit data in a report, so that you can build the report to show only the information that you want to view.

For example, a typical report shows sales by product line. A time filter on **Quarter** restricts the data so that only sales for one quarter are shown. If you then add a regional filter for Europe, the report would display data pertaining to European sales for that quarter. If you add a filter on another field to exclude a product, the report would display data pertaining to European sales in that quarter, which are also not a part of the excluded product line.

These steps describe how to add filters to an Interactive report.

1. Login to the User Console, and click **Browse Files** to browse to the location of your Interactive report.
2. Open the report. Click the plus sign next to **No Filters** on the toolbar near the top of the report. A workspace for filters appears at the top of the report.
3. From the **Available Fields** panel, drag fields into the **Filter Panel**. The **Filter** dialog box appears. Notice that the values associated with the field are listed in the dialog box. You can choose one of these values, or you can enable **Match a specific string** to filter the report on a specific string of data.

4. Select the value or values that you want from the **Add Selected** list and click the arrow to move it into the right pane. The value appears with a green check mark next to it in the right pane.
5. After you have selected all of the values that you need from the list, click **OK** to exit the dialog box.
6. Repeat this process for each field that you want to filter on. The Interactive report displays data for the chosen values only.
7. Save your report.

Your report is filtered and saved. You can click Undo or Reset to return to the previous version of the report.

## Add a Filter on Date Fields

Use these steps to add a filter that matches a specific value.

1. In the toolbar, click **Filters**. The **Filters Panel** appears above the report.
2. Click and drag a **date field** from the right pane into the **Filters** area. The **Filters** dialog box opens.
3. Next to the field name, choose a date constraint from the list, then click the small arrow on the right to display the date picker. To create a "date range" you must add two filters: one for the start date, and one for the end date.
4. In the date picker choose your date.
5. Click **OK** to save your filter.

The report display updates as soon as the filter is added. The filter appears in the Filter box and an icon displays next to the field name in the **Data** tab. Also, the number of filters added to the report appears next to the filter icon in the toolbar.

You can edit the filter by clicking **Edit**. You can delete the filter by clicking the delete button.

## Flag a Filter Constraint for Use as a Dashboard Parameter

You can flag a filter constraint for as a parameter. The parameter name will appear on the **Parameters** tab in Dashboard Designer when you place the report into a dashboard panel. You can also edit parameters while working in Report Designer.

1. After you create your filter, enter the parameter name in the **Parameter Name** text box.
2. Click **OK**.
3. Save your report.

The parameter is ready to be used in Dashboard Designer. To see if the parameter appears in Dashboard Designer, insert your report into a dashboard panel. The parameter name will appear on the **Parameters** tab.

# Create Advanced Filters in Interactive Reports

You can create filters on multiple groups of fields, rather than a single group of fields. Filters with multiple groups are called advanced filters. To create an advanced filter, drag the fields into the **Filter Panel** and move items into multiple groups by moving them up, down, and indenting them to create a hierarchy.

## Apply a Summary Function

You can assign a summary function to columns that contain numeric values in your report. A summary function is a summarization technique that performs calculations on values in columns, groups, or in the entire report.

1. Click the down arrow next to a report column that contains numeric values.
2. Select **Summary** from the menu, then choose the summary type. These types are described in the table.
3. Save the report.

Summary Function Menu Descriptions

| Function Name | Description |
|---|---|
| None | No summary function assigned |
| Average | Calculates the average value in a given column |
| Count | Counts the items in a group or report, but does not require a numeric value. |
| Count Distinct | Counts the distinct occurrences of a certain value in a column; does not require a numeric value |
| Max | Identifies the highest or largest value in a column |
| Min | Identifies the lowest or smallest value in a column |
| Sum | Calculates a total sum of the group or report (group level, and running total in the report footer) |

## Apply an Aggregate Function

You can assign an aggregate function to columns that contain numeric and non-numeric values in your report. Aggregate functions return a single value (for example, Average, Maximum, Minimum), calculated from the

values in a column. For example, the sum of a column results from adding all the values in the column. The values in the column update.

1. Click the down arrow next to a report column that contains numeric values.
2. Select **Aggregation** from the menu, then choose the aggregation type. These types are described in the table.
3. Save the report.

Aggregate Function Menu Descriptions

| Function Name | Description |
|---|---|
| None | No aggregate function assigned |
| Average | Calculates the average value in a given column |
| Count | Counts the items in a column; does not require a numeric value |
| Count Distinct | Counts the distinct occurrences of a certain value in a column; does not require a numeric value |
| Max | Identifies the highest or largest value in a column |
| Min | Identifies the lowest or smallest value in a column |
| Sum | Calculates a running total sum of the specified column |

# Use Pentaho Analyzer

Analyzer has an easy to use, web-based, drag-and-drop design environment that can be used by anyone who wants to dynamically explore data and drill down to discover previously hiddent details. You do need any special expertise to user Analyzer. You can display Analyzer reports in a dashboard in the User Console.

Before you can use Analyzer, you must have access to a data source. Only system administrators can create data sources. The data source for Analyzer is based on the Mondrian multidimensional data model. The Mondrian data model enables you to choose which dimensions and measures you want to explore in your data.

- **Create a New Analyzer Report**

# Create a New Analyzer Report

Creating an **Analyzer** report allows you to easily compare data, such as the actual versus budgeted expenses by region for each of your departments, or the amount of sales by region.

**Analyzer** automatically fetches data in real time as you add and remove fields, so you may find it easier to build a report with the **Auto Refresh** feature turned off. This lets you design your report layout first, including calculations and filtering, without querying the database automatically after each change. Just click the auto refresh icon in the tool bar to toggle **Auto Refresh** On or Off, or you can click the **Refresh Report** button at any time.

1. From User Console **Home**, click **Create New**, then **Analysis Report**.
2. Choose a data source for the report from the **Select Data Source** dialog box. Click **Ok**.
3. From the **Available Fields** pane on the left, click and drag an object to the **Rows** or **Columns** area in the **Layout** panel. The data row or column appears in the table workspace.
4. In the list of fields, click and drag a measure to the **Measures** area in the Layout pane. The measure appears as a column in the table workspace.
5. If you want to rename or reformat your columns, right-click a column and choose **Column Name and Format** from the menu. The **Edit Column** window appears. You can also sort the data in your columns by clicking and choosing a sort-order from the drop-down menu.
6. Choose a format from the **Format** drop-down box, or choose a visualization from the drop-down menu. Click to refresh the report if you need to, then click **OK**.
7. Click **Save As**. Type a file name for your report and choose a location to save it in, then click OK.

The new **Analyzer** report is created and saved in a location of your choice.

# Visualizations for Analyzer

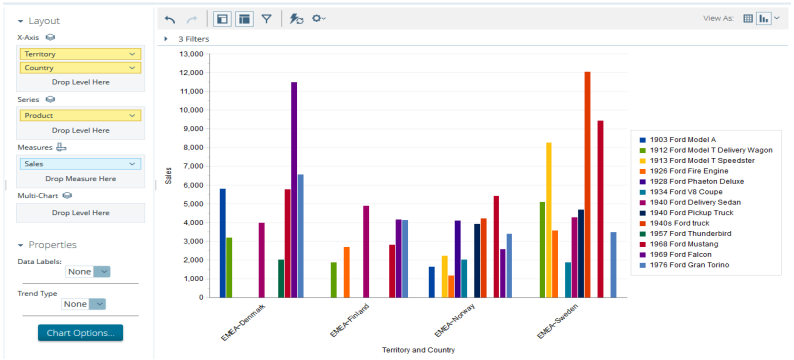
After you have created an analysis report, you will most likely want to make the report more visually pleasing and meaningful for your audience. Analyzer has quite a few built-in visualizations that give you an effective means for presenting your data in a way that people can intuitively understand. We also give you many different ways to customize your visualizations.

Both the **Layout** and **Property** panels in the Analyzer workspace dynamically change based on the visualization that you currently have selected. The **Layout** panel shows you what data is needed for that particular visualization, and the **Property** panel lets you add or change options such as data labels, color patterns, or bullet styles.

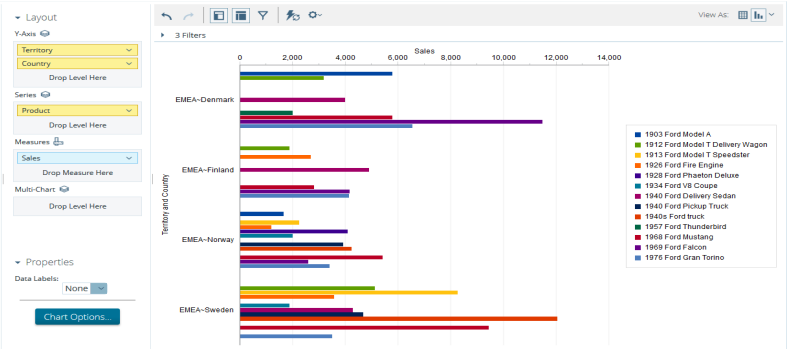
The optional properties for each visualization type are listed in each section. You can use any or all of these properties for each visualization to make your report more intuitive for your audience. The Chart Options dialog contains more ways to customize your reports.

## Column and Bar Charts

Column and bar charts are among the most recognizable visualizations for data. Column charts display their data vertically, while bar charts display the same data horizontally.




Column and bar charts are good for just about every kind of data; however, they tend to work best when you do not have a large number of variables to display. Drilling down into your data is easy: just double-click on a column or bar in the report.



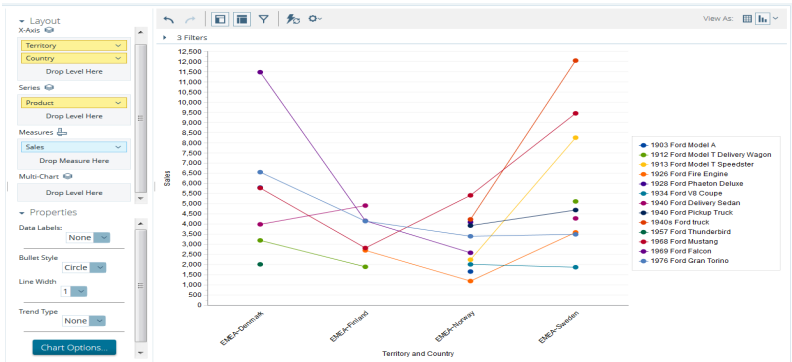

Optional Properties for Column and Bar Charts

| Property | Definition | Available In: |
|---|---|---|
| Data Labels | Use this to label the data features of your report with what is represented. You can also choose no Data Labels, or specify where you want them to appear. | all Column and Bar charts |
| Column or Line Data Labels | Use this to put data labels on your columns or lines, or both. | Column/Line Combo charts |
| Trend Type | Shows a trend type of none or linear. If you choose linear, you can name your trend line and set the width of it. | Column charts |

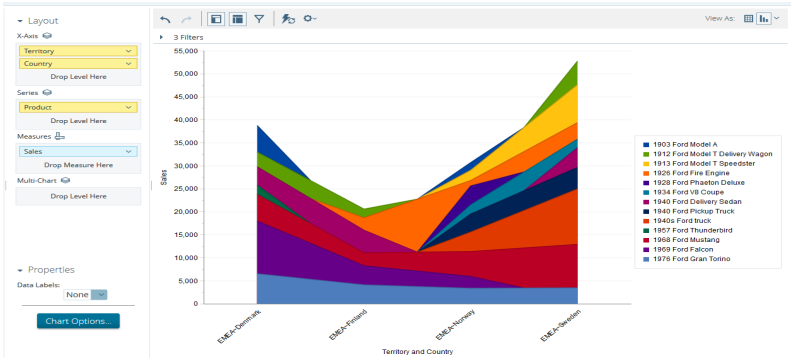
# Line and Area Charts

Line and area chart visualizations show data on a graph by connecting plotted points with a line. Each point represents a single value in your data. You can drill-down in both chart types by double-clicking on a data point.

A line chart shows just the line connecting the dots on the graph and works well if you have a large amount of data to analyze.



An area chart shows an aggregate of your data and helps you spot trends quickly, by showing totals and how they are moving relative to each other.




Both types of chart are good if you want to identify trends that happen over a period of time, such as for financial growth, real estate sales, or test scores.

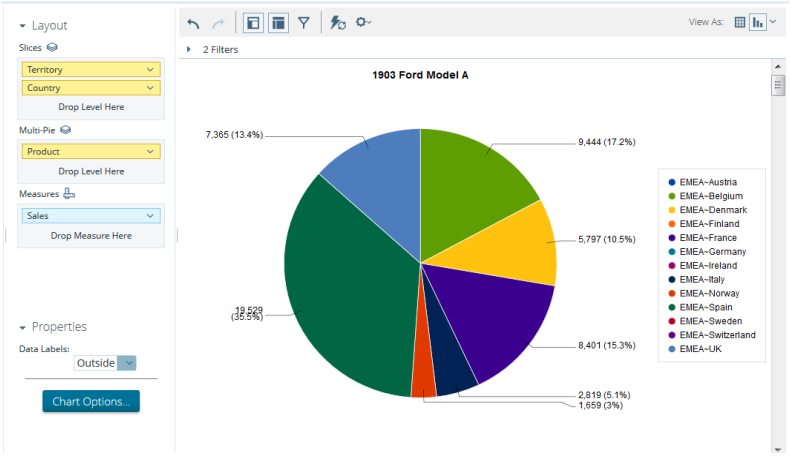
Optional Properties for Line and Area Charts

| Property | Definition | Available In: |
|---|---|---|
| Data Labels | Use this to label the data features of your report with what is represented. You can also choose no Data Labels, or specify where you want them to appear. | Line and Area Charts |
| Bullet Style | Choose the shape that you want to use for your bullets. | Line charts |
| Line Width | Specify the width lines on your report. | Line charts |
| Trend Type | Shows a trend type of none or linear. If you choose linear, you can name your trend line and set the width of it. | Line charts |

## Pie and Sunburst Charts

Pie charts are round representations of your data, cut into slices. Each slice represents a piece of data, and the size of the slice is proportionate to the data that it represents. Double-clicking on a slice lets you drill down into your data.

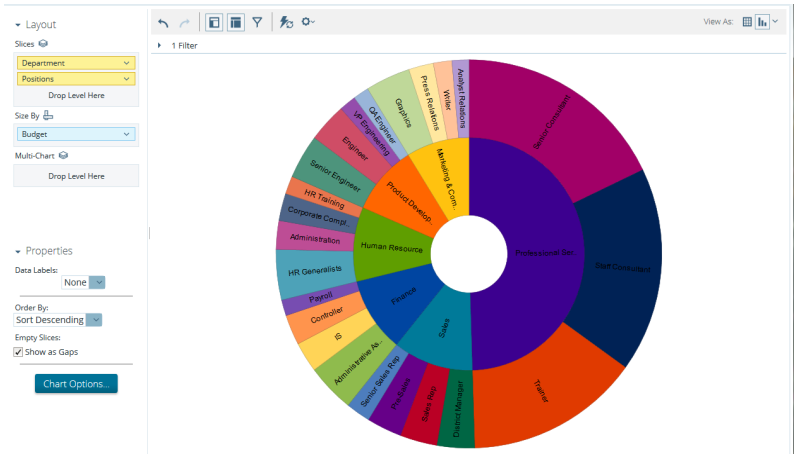
Pie charts are a great way to show numerical or financial data, in other words, what something is worth relative to the whole group.




Sunburst visualizations organize and display your data in a series of colorful rings. Starting with the center ring, each ring going outward represents more detailed information relating to the inner ring to which it is connected. These outer rings are arranged and colored to indicate their hierarchical relationship with the inner ring. Any fields that contain empty slices can be shown as gaps in the Sunburst.

You can drill-down into your data by double-clicking on a data slice. The Sunburst then rearranges itself to show the more detailed information.

Sunburst visualizations are particularly well-suited for numerical analysis of hierarchical data.




## Optional Properties for Pie and Sunburst Charts

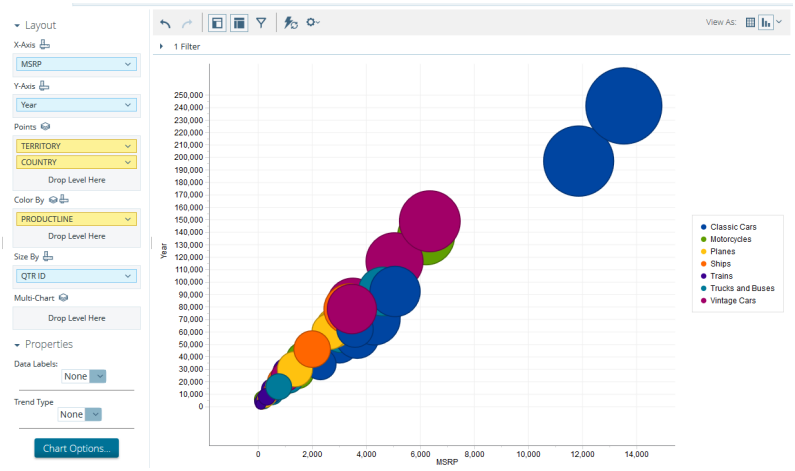
| Property | Definition | Available In: |
|---|---|---|
| Data Labels | Use this to label the data features of your report with what is represented. You can also choose no Data Labels, or specify where you want them to appear. | Pie and Sunburst charts |
| Order By | Allows you to decide how to sort your data on the report. | Sunburst charts |

| Property | Definition | Available In: |
|---|---|---|
| Empty Slices box | Check this box to show Empty Slices as gaps in the report. | Sunburst charts |

## Scatter Chart Visualization

Scatter charts are related to line and area charts, but show the intersection of *x* and *y* values at each data point. These values appear on the scatter chart as a series of bubbles on a graph, based on the attributes you used when you built your report.  You can then use a measure to color-code the bubble or use a measure to specify the size of the bubble. Drilling-down is accomplished by double-clicking on any data point on the chart.

Scatter charts work well to show the categorical relationship between two sets of numerical measures, such as between a budgeted amount and the actual amount of money spent.

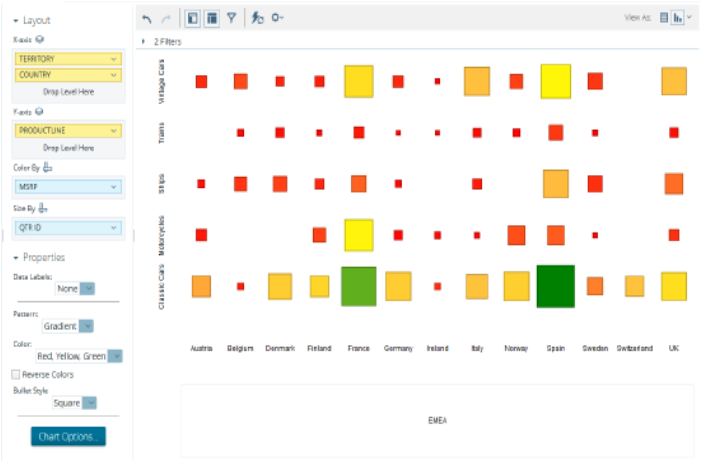



Optional Properties for Scatter Chart Visualization

| Property | Definition | Available In: |
|---|---|---|
| Data Labels | Use this to label the data features of your report with what is represented. You can also choose no Data Labels, or specify where you want them to appear. | Scatter chart visualization |
| Trend Type | Shows a trend type of none or linear. If you choose linear, you can name your trend line and set the width of it. | Scatter chart visualization |

# Heat Grid Visualization

Heat Grids give you the ability to visualize data so you can identify patterns of performance. This visualization type will color-code your results so you view complex business analysis in an easy-to-understand way. Drill-down in your data by double-clicking any square on the grid. Heat Grids are especially well-suited for comparing categorical data using color.



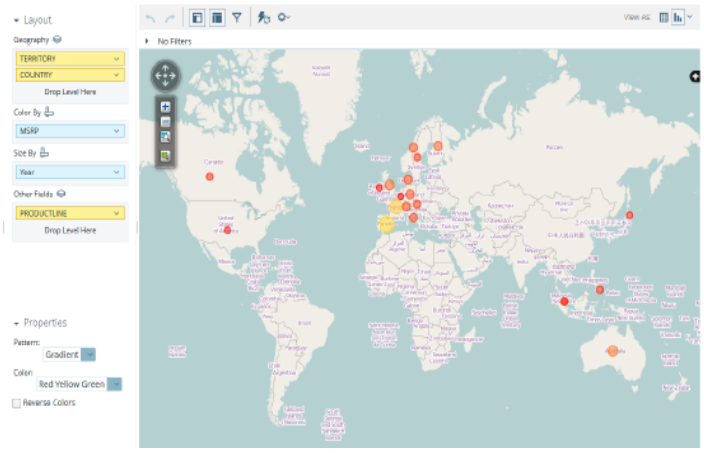

Optional Properties for Heat Grid Visualization

| Property | Definition | Available In: |
|---|---|---|
| Data Labels | Use this to label the data features of your report with what is represented. You can also choose no Data Labels, or specify where you want them to appear. | Heat Grid visualization |
| Pattern | Lets you choose from Gradient, 3 Step, or 5 Step patterns. | Heat Grid visualization |
| Color | Choose from different mixes of colors for your report. | Heat Grid visualization |
| Reverse Colors box | Reverses the order of colors in the report. | Heat Grid visualization |
| Bullet Style | Choose the shape that you want to use for your bullets. | Heat Grid visualization |

# Geo Map Visualization

Geo maps show a geographic summary of your data using size and color. This visualization type plots a pin on a map, based on the location attribute you used. You can add a measure to specify the size of the pinpoints, then use the properties panel to change the color of the pinpoints. Double-clicking on a pinpoint drills-down into your data. If your data model has geographic annotations, then the location information will be retrieved by the geoservice automatically. Geo maps are especially useful for retail or sales data.

You must have a license from Google if you choose to use Google Maps with Pentaho software for an internal BA deployment.




Optional Properties for Geo Map Visualization

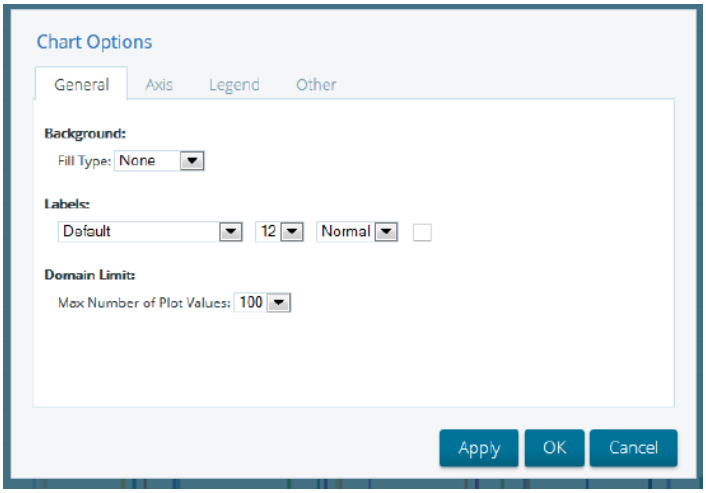
| Property | Definition | Available In: |
|---|---|---|
| Pattern | Lets you choose from Gradient, 3 Step, or 5 Step patterns. | Geo Map visualization |
| Color | Choose from different mixes of colors for your report. | Geo Map visualization |
| Reverse Colors box | Reverses the order of colors in the report. | Geo Map visualization |

# Chart Options for Analyzer Reports

The **Chart Options** dialog box is available if you have a visualization applied to your report. Just click on the Chart Options button in the Properties panel to bring up the chart options for that report. You can click **Apply** to update your report with your changes up to that point, and continue working with the Chart Options. After you are done setting options for your chart, click **OK**, and the report will refresh to reflect the options.

## General Tab

The **General** tab is where you can determine background colors, fonts, or set the domain limit for the maximum number of plot values for your report.

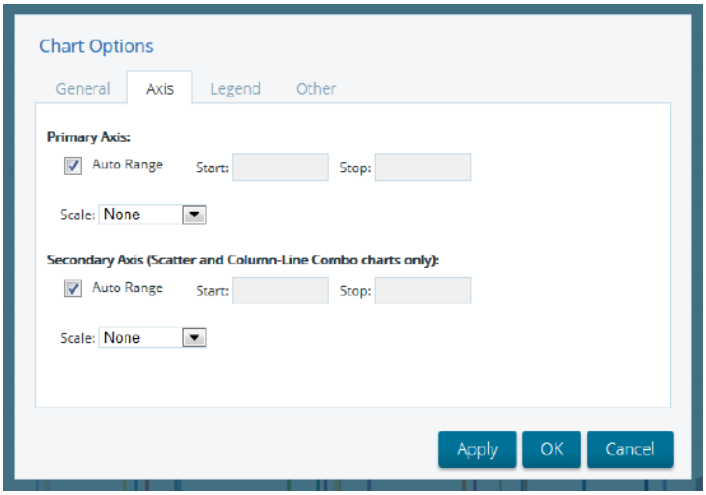



General Tab Description

| Option | Description |
|---|---|
| **Background:** | **Fill type** defines the background color of the chart and the fill colors used.<br>Choose **None**, **Solid**, or **Gradient** with the dropdown menu. |
| **Labels:** | Use the dropdown menus to choose a font for your data labels, specify the size and type for the font, and change the font color with the color picker. |
| **Domain Limit:** | **Max Number of Plot Values:** Use this to set the maximum number of plot values used in your report. |

# Axis Tab

The **Axis** tab is where you can define how the **x-axis** and **y-axis** appear on your report.

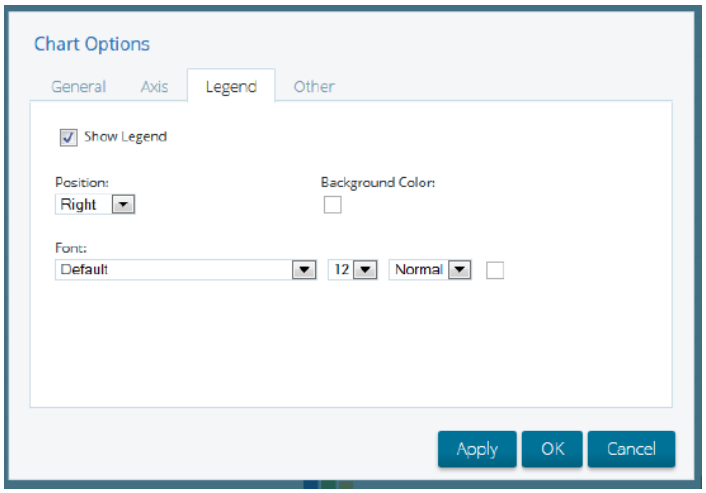



Axis Tab Description

| Option | Description |
|---|---|
| **Primary Axis:** | **Auto Range check box:** Calculates the **Start** and **Stop** value automatically. If you want to specify the values, uncheck the box and fill out the **Start** and **Stop** fields.<br>**Start:** Use to set the starting value for the axis.<br>**Stop:** Use to set the stopping value for the axis. |
| **Scale:** | Increase the scale for the primary axis, or leave it set to a default of **None**. |
| **Secondary Axis:** | Available for Scatter and Column-Line Combo charts only. Secondary Axis has the same options as Primary Axis. |

# Legend Tab

The **Legend** tab has a few features that you can use to customize the look of the legend that goes along with your report.

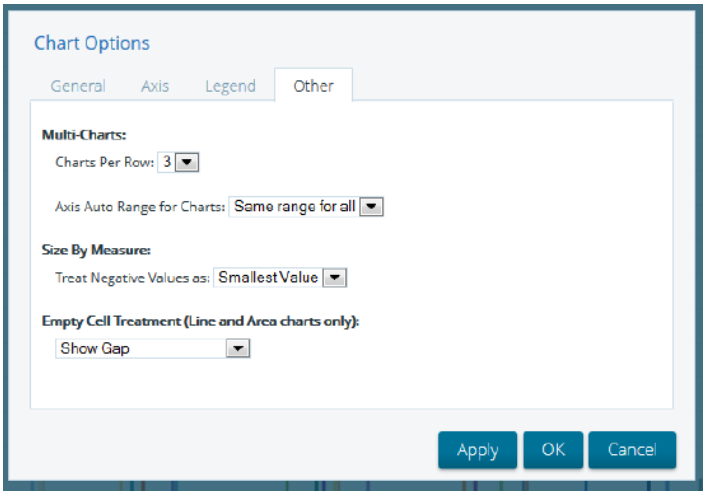



Legend Tab Description

| Option | Description |
|---|---|
| **Show Legend:** | Uncheck this box to remove the legend from your report. |
| **Position:** | Use the dropdown to move the legend to the **Top**, **Right**, **Bottom**, or **Left** of your report. |
| **Background Color:** | Use this to change the background color of the legend. Click on the Background Color box to bring up the color picker. |
| **Font:** | Use the dropdown menus to choose a font for your data labels, specify the size and type for the font, and change the font color of the legend. |

# Other Tab

The **Other** tab is where you go to tailor the look of the small charts for your report, if you have the **Multi-Chart** option selected. You can alter the size of negative values, or specify how you want Analyzer to show empty cells in your report.




Other Tab Description

| Option | Description |
|---|---|
| **Multi-Charts:** | **Charts Per Row:** Chose from the dropdown to specify how many multi-charts on each row appear.<br>**Axis Auto Range for Charts:** Use this to set the axis range for your multi-charts. You can use the same range for all of the small charts or set them independently. |
| **Size By Measure:** | **Treat Negative Values as:** Use the dropdown menu to choose either **Smallest Value** or **Absolute**. |
| **Empty Cell Treatment (Line and Area Charts Only):** | Controls how empty cells appear in your Line and Area charts. Choose from **Show Gap**, **Connect with Dotted Line**, or **Treat as Zero**. |

# Add Filters to an Analyzer Report

Filters are used to restrict or limit data in a report, building the report to show only the information that you want to view.

For example, a typical report shows sales by product line. A time filter on Quarter restricts the data so that only sales for the one quarter are shown.

If you add a regional filter for Europe, the report would display data pertaining to European sales for that quarter. If you add a filter on another field to exclude a product, the report would display data pertaining to European sales in that quarter, which are also not a part of the excluded product line.

Use these steps to add a filter to your Analyzer report.

1. Login to the User Console, and click **Browse Files** to browse to the location of your Analyzer report.
2. Open the report. Click blue plus sign next to **No Filters** on the toolbar near the top of the report. A workspace for filters appears at the top of the report.
3. From the **Data Source** pane, click and drag a field or column into the filter workspace. The **Filter** dialog box appears. Notice that the values associated with the field are listed in the dialog box. You can choose one of these values, or you can enable **Match a specific string** to filter the report on a specific string of data.
4. Select the value or values that you want from the **Add Selected** list and click the arrow to move it into the right pane. The value appears with a green check mark next to it in the right pane.
5. After you have selected all of the values that you need from the list, click **OK** to exit the dialog box. Your Analyzer report displays data for the chosen values only.
6. Save your report.

The Analyzer report is filtered and saved. You can click Undo or Reset to return to the previous version of the report.

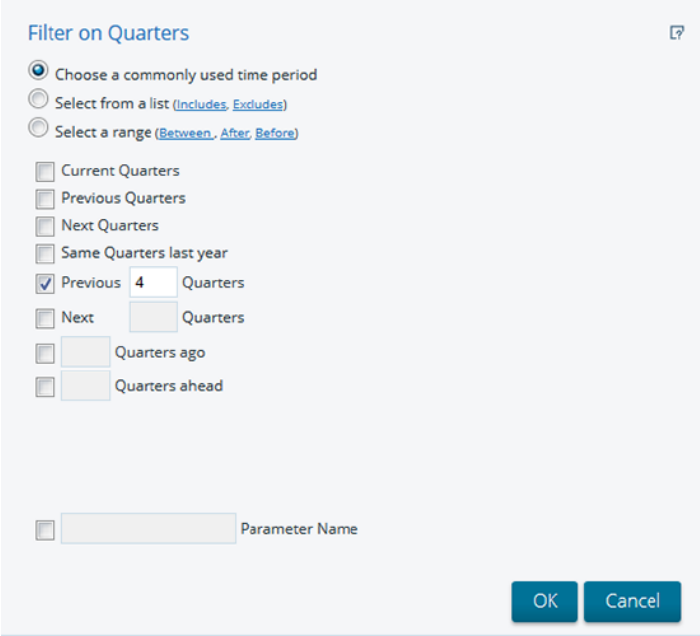
- Create Date Range Filters

# Create Date Range Filters

Date range filters enable you to show only data that meets the conditions of the filter in a report. For example, you can create filters to display data between 2010 and 2013, or all data after 2010. After you have applied your filter, the Analyzer report shows only data specified by the date ranges that you selected.

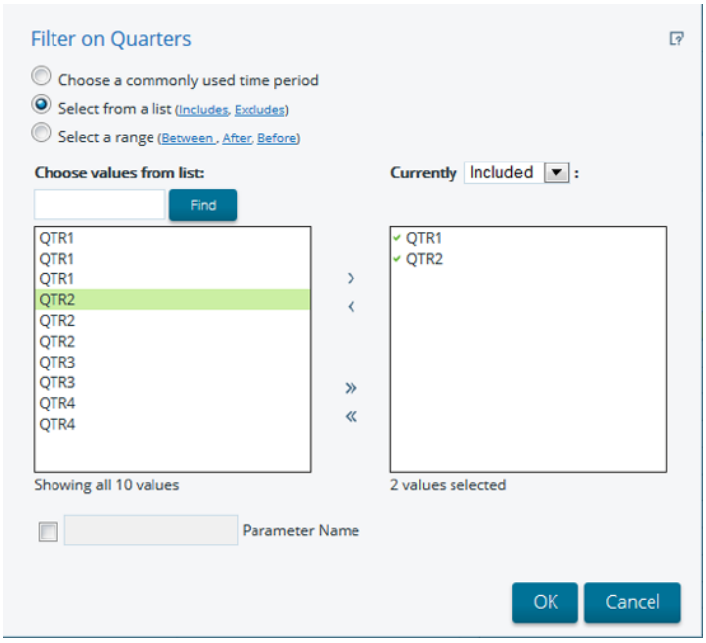
1. Log in to the User Console, then open an existing analysis report that contains a time dimension or choose **Create New > New Analysis**.
2. For a new report, select the data source that you want to use and click **OK**.
3. Create the report with a time dimension, such as year or quarter.
4. Click the icon to **Add A Filter**, then drag the time dimension that you want to filter on to the **Filters** board. You can also right-clicking on the dimension and adding it as a filter.
5. Choose one of these radio buttons to create your filter:

• Use **Choose a commonly used time period** to specify a time period; **Filter on Quarters** is used here as an example. Once you have your time period specified, click **OK** to apply the filter. This filter is dynamic and changes with the current date. The other date filters are static.

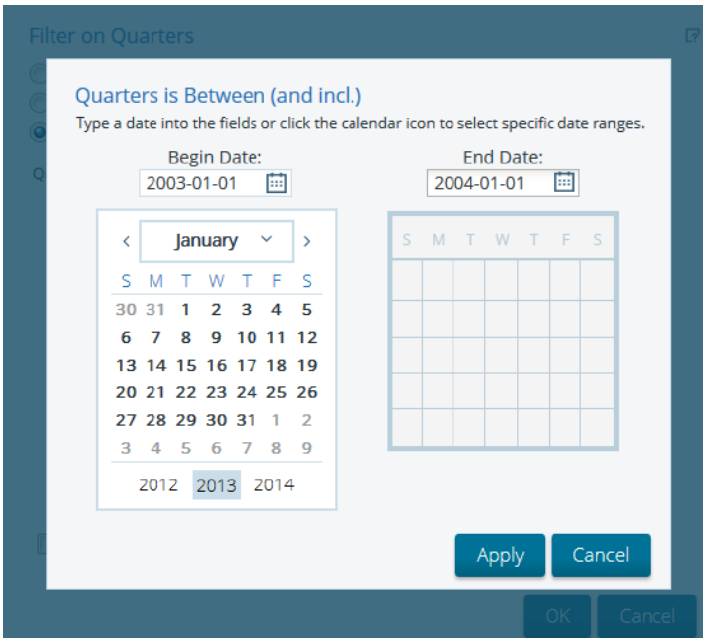



• **Select from a list** lets you choose values from a list. You can use the single right- or left- arrows to add or subtract one value at a time, or use the double right- or left-arrows to add or subtract all of the values in the list. Click **OK** to apply the filter to your report.

• If you choose **Select a range**, then click the **Select from date picker** link, you will be able to use the date picker calendars to select beginning and ending dates for your report data. Click **Apply**, then **OK**, to apply the filter to your report.




• Once you select a date, the data is validated to make sure that your date ranges actually contain that date. Analyzer searches for the nearest time period, up to plus or minus 30 time periods, if no date is found the first time. You will not be able to save the date filter if no dates are found.




NOTE:

When you create a date range filter using the **Between (and incl.)** operator and parameterize it, as described in Add Query Parameters in Analyzer Reports, you specify one parameter name, but two parameters are created. One parameter controls the start of the range, and another controls the end of the range. The start date parameter is **<YourParameterName>_START**, and the end date parameter is **<YourParameterName>_END**.

The **Choose a commonly used time period** and the **Between, After, Before** filters are available only if time dimension levels are set up with the AnalyzerDateFormat annotation.

# Enable Drill-Through Links

You use drill-through links in Analyzer to view all individual records that make up an aggregate value in your analysis report. This will turn all non-calculated number fields into links which, when clicked, bring up a configurable data grid that enables you to quickly view more details for that data point, without having to reconfigure your report. The drill-through grid shows all levels and non-calculated measures that are defined in the report cube by default.

If needed, you can select the columns you want to show in the grid so that report designers only see the selected columns. This is useful if your report cube contains many levels and measures and you want to show only specific data for analysis.

Note: Drill-through links are not available for any calculated measures, including schema-defined calculated measures and user-defined measures, such as Percentages, Running Sum, and Trend measures. Drill-through links are also not available on sub-totalled cells.

The directions below guide you through the process of setting up drill-through links.

1. Open the Analyzer report to add drill-through links.
2. Click the **More actions and options** icon in the report toolbar, and select **Report Options** from the drop-down menu. The **Report Options** dialog box appears.
3. Select the **Show drill-through links on Measure cells** check box.
4. Click the **Select Columns** link to choose the columns you want to appear.
5. Click **OK**. The measure fields in your report will turn into links.
6. Click a link in the report to see a data grid that shows all of the available details for that value.
7. You can also add or remove columns from this grid, by clicking **Select Columns** at the top of the data grid. You can also search and toggle the sort order in the same way as the **Available Fields** list.
    a. Click to deselect the columns that you want to hide.

You now have drill-through links for numeric, non-calculated members. If you choose, you can later disable the drill-through links by deselecting the **Show drill-through links ...** check box.

# Add Query Parameters to Analyzer Reports

You must be logged in to the User Console. Open the Analyzer report you created in *Add Filters to an Analyzer Report*.

You can parameterize a query in Analyzer.

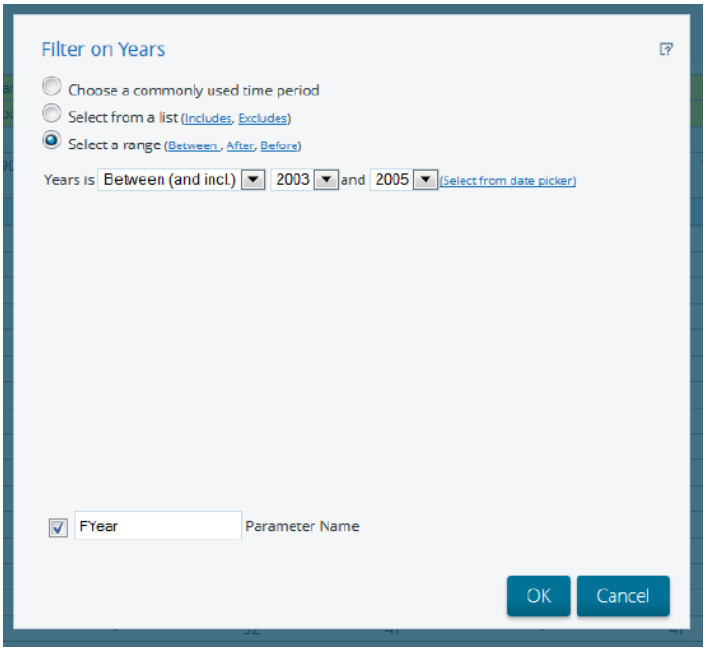
1. Drag and drop the dimension member you want to create a parameter for onto the **Filters** canvas.
2. Select the level you want to set as the default parameter value, then click the right arrow to move it to the list on the right.
3. Click the check box at the bottom of the window, then enter a name for the parameter in the **Parameter Name** field.
4. Click **OK**.

Your parameter is a filter in Analyzer. Whenever this Analyzer report is run, users will have a selection of columns to filter by.

## Passing the Parameter through a URL

After you have a parameter created, you can generate a URL to share with users. Just customize this sample URL to reflect your server name, user, report name, and parameter.

```
http://localhost:8080/pentaho/api/repos/%3Ahome%3Aadmin%3AAnalyzerFiltered.
xanalyzer/editor?FYear_START=2003&FYear_END=2005
```



# Define Hyperlinks

Presenting too much information in one report can overwhelm readers with distracting details, causing them to miss information that is important to them. You can manage the amount of information displayed in a report by hyperlinking from one report to other related reports, charts, dashboards, and URLs. For example, you can present basic information in an easy-to-comprehend report with hyperlinks to reports that contain details.

For charts, hyperlinks take precedence over the drill-down chart feature. For example, when readers click a bar in a chart, it displays data related to the hyperlink you define, not the drill-down chart.

For reports, you can define a hyperlink on any row label or column header. When you define a hyperlink, the link is applied to all members within the row or column. In this source report, hyperlinks have been defined for the Positions row label and the Region column header. Notice how each of the row and column members have a blue underlined hyperlink.
When defining hyperlinks to a destination report that has parameters, you can map row labels and column headers in the source report to parameters in the destination report. This enables you to constrain the hyperlink result to display *only* data for the mapped parameters. If you do not restrain the results, all of the data appears and no filter applies.

For example, you can create a hyperlink in the source report for all the members in the **Position** row, and constrain the displayed data to only that related to each position and its department. To do this, you map the **Department** and **Position** row labels in the source report to the **Business Unit** and **Job Title** parameters in this destination report.
Each parameter added to the mapping constrains the data further. You can map any row labels that appear to the left, and column headers that appear above the member data.
Note: If you did not constrain the data with parameters, readers would see data for all Administrative Assistant Positions in all Departments.

## Create Hyperlinks to a Report in the BA Repository

1. Create an Analyzer report or open an existing one.
2. Right-click a row label or column header and select **Hyperlink**. The **Link on** dialog box appears.
3. Click **Enable Link** to activate the hyperlink feature. You can disable linking by clearing the **Enable Link** check box.
4. In the **Link To** drop-down menu, select **Pentaho Repository File**.
5. Click **Browse** to locate a report, chart, or dashboard in the BA repository and click **Open**.
    a. If the destination report has parameters, they automatically appear in the **Destination Parameter** list on the left. Map parameters to related row labels or column headers by selecting the check box for each parameter you want to use to constrain the resulting data. Enter the related names of the row labels or column headers within curly brackets.

b. If the destination report does not have parameters, the Destination Parameter list does not appear. Go to the next step.

6. Specify how hyperlink content displays by clicking the **Open in:** drop-down menu and selecting **New Tab**, **New Window**, or **Current Window**.
7. Enter a **Tool Tip** to be displayed when you hover over hyperlinks and click **OK.** Hyperlinks appear in the Analyzer report.
8. Click the links to ensure the content associated with them appears correctly and save the report.

## Hyperlinking to a URL

1. Create an Analyzer report or open an existing one.
2. Right-click a row label or column header and select **Hyperlink**. The **Link on** dialog box appears.
3. Click **Enable Link** to activate the hyperlink feature. You can disable linking by clearing the **Enable Link** check box.
4. In the **Link To** drop-down menu, choose **URL** from the dropdown menu.
5. In the **URL** field, enter the full web address you want the hyperlink to launch. For example, `http://www.yahoo.com`.
6. Choose how the URL displays by clicking on the **Open in:**drop-down menu and selecting **New Tab**, **New Window**, or **Current Window**.
7. Enter a **Tool Tip** to be displayed when you hover over hyperlinks and click **OK.** The new hyperlinks appear in the Analyzer report.
8. Click the links to ensure the website associated with them appears correctly and save the report.

# Display Member Properties

When a number in parenthesis appears next to a dimension in a list of **Available fields**, that dimension is associated with specific member properties. You can use those properties to constrain dimensions.

1. If you want to review available fields, click **Add more fields onto the report** on the report toolbar.
2. Locate a dimension in the **Available fields** list that includes a number in parenthesis. Examples: Customer (6), Product (3)
3. Locate the corresponding dimension on your report. Right-click the row or column header for that dimension, then click **Show Properties**. A menu displays member properties you can choose.
4. Select or clear the member property you want in the report, then click **OK**.

Your analyzer report is filtered by the choices you made.

# Simple Conditional Formatting of Measures

Conditional formatting in the Analyzer data grid means that cells will be physically affected by the data they contain. The most common form of conditional formatting is stoplight reporting, where cell backgrounds are colored red, green, or yellow depending on user-defined thresholds. Analyzer offers some simple pre-defined methods of conditionally formatting numeric data. Follow the directions below to implement conditional cell formatting.

1. Right-click a measure in the grid, then select **Conditional Formatting** from the context menu. A sub-menu with conditional formatting types will appear.
2. Select your preferred number format from the list.

The analyzer report will refresh and apply the formatting choice you specified.

- Conditional Formatting Types

# Conditional Formatting Types

| Indicator Type | Description |
|---|---|
| Color scale | The background cell color will be shaded according to the value of the cell relative to the highest and lowest recorded values in that measure. There are several color progressions to choose from. |
| Data bar | The cell background is partially filled with a solid color proportional to the scale of the cell's value relative to the highest and lowest recorded values in that measure. |
| Trend arrow | An upward or downward arrow is displayed to the right of the cell value depending on whether it contains a positive or negative value. |

# Export an Analyzer Report

You can export a report as a PDF, XLSX, or CSV file.

1. In the Analyzer toolbar, click **More actions and options** > **Export Report**, and choose the desired output format. The **Export** dialogue box appears.
2. If you export to a PDF, specify how you want the page formatted, then choose one of the following options.

| Option | Description |
|---|---|
| Done | Saves export settings, but does not export. |
| Export | Applies options and generates output. If your report includes a chart, it is included in the report, along with the table view. |
| Cancel | Discards all changes. |

You must save the report if you want it to keep the export settings. Metadata for report author, source file location, fields used and filter summary are included in the report.

# Use Dashboard Designer

Creating a dashboard in Dashboard Designer is as simple as choosing a layout template, theme, and the content you want to display. In addition to displaying content generated from Interactive Reports and Analyzer, Dashboard Designer can also include these content types.

- **Charts**: simple bar, line, area, pie, and dial charts created with Chart Designer
- **Data Tables**: tabular data
- **URLs**: Web sites that you want to display in a dashboard panel

Dashboard Designer has dynamic filter controls, which enable dashboard viewers to change a dashboard's details by choosing different values from a drop-down list, and to control the content in one dashboard panel by changing the options in another. This is known as content linking.
Note: All graphics displayed in this section show the Onyx theme.

# Create a New Dashboard

You must be logged into the User Console. Use these steps to create a new dashboard.

1. From the User Console **Home** page, click **Create New**, then select **Dashboard**.
2. On the bottom of the page, click the **Properties** tab, and enter a title for your dashboard page in the **Page Title** text box. The name you entered appears on the top left corner of the dashboard. This name helps you identify the page if you want to edit, copy, or delete it later.
3. Click **Templates** to choose a dashboard layout. A blank dashboard with the layout you selected appears.
4. Click **Theme** to choose a theme for your dashboard. The theme you selected is applied to your dashboard.

You now have the basic framework for a Pentaho dashboard.

- Work with the Chart Designer
- Add Data to a Chart
- Work with Pie Charts
- Work with Dial Charts
- Correct Scaling Issues
- Rotate Chart Axis Labels
- Edit a Chart
- Add a Data Table to a Dashboard
- Update the Data Table Display
- Add a Report Designer Report to a Dashboard
- Add an Analyzer Report to a Dashboard
- Add a Web Site to a Dashboard

# Work with the Chart Designer

The Chart Designer allows you to create bar, pie, line, dial, and area charts that can be added to a dashboard. Below are the general steps associated with creating a chart:

1. Select a data source.
2. Build a query.
3. Set the data definitions: values, series, category.
4. Select a chart type and theme.
5. Enter labels for the chart title, and x,y axes.
6. If applicable, adjust scaling and label rotation.
7. Place your chart in the dashboard.
8. Save your dashboard.

If you are new to charting, here are guidelines that may help you determine what type of chart is best suited for the data you want to present in your dashboard:

## Bar Charts

If you want to compare items during a specific time period, consider using a bar chart. Key words to think about when creating a bar chart are *compare* or *rank*. For example if you want to compare items sold to show which one made the most profit, you might create a bar chart that ranks the products from the lowest to highest profit. The bar's length determines its ranking; the label identifies the item. Bar chart data can be presented horizontally or vertically depending on your requirements.

## Pie Charts

If you are comparing parts of a whole, consider using a pie chart. Key words associated with charts include, *portion*, *share*, and *percentage*. If for example, you want to demonstrate the proportion of the company's budget spent on health insurance, use a pie chart. To make the chart easier to read, limit the number of slices to five. Pie charts can also be *exploded*, which means certain slices are pulled away from the remainder of the chart for emphasis.

## Line Charts

Line charts are useful for showing changes over time. Key words associated with data that is best suited for a line chart are *trend*, *growth*, and *decline*. If, for example, you want to show how product sales have changed over five years, use a line chart. The slope of the line helps users quickly identify the direction of the trend.

## Dial Charts

Dial charts are often associated with Key Performance Indicators (KPIs). Dial charts are circular and contain a scale, a needle, and one or more a dial sectors. The dial sector is used to identify a specified area on a dial chart using a particular color. For example, you could have a dial plotting inventory with a minimum dial value of 10000 and a maximum dial value of 50000. There could be a red dial sector for the region between 2000 and 4000 indicating that if the needle is in this area, there is a danger of a supply inventory shortage.

## Area Charts

Area charts can be used to show a comparison of the same thing during different points in time. Area charts are not designed to provide exact data but they do give users visual clues of the relative sizes of the items they are representing.

# Add Data to a Chart

Before you can start creating a chart you must choose a data source that contains the data you want to use. You must then define the data that will be displayed in the chart. If you are unsure what chart type is best for displaying your data, see Choosing the Correct Chart Type for more information.

Use these steps to add data to your chart.

1. In the Dashboard, choose a dashboard panel and click

   File:/select_content_type.png
   (Insert) and choose **Chart**. The **Select a Data Source** dialog box appears.
2. Select the data source from the list of available choices. The data source contains the content you want to display in your chart. The **Query Editor** appears.
3. The Query Editor allows you to retrieve dynamic data from a database for display in a chart. Defining your query is the first step in ensuring that the correct data is selected. In the Query Editor, click (+) next to a category name to display its associated table columns.
4. Click the small green arrow to place the column name under **Selected Columns**. In the example below, the **Customernumber** column has been selected and moved under Selected Columns. Notice that the column names appear under Selected Columns. Continue adding columns as needed.

   File:/06_mql_select_columns.png
5. Now add the **Conditions**; these are your constraints that filter what you are choosing. You can add multiple conditions. In the example below, the search is limited to customer numbers.

   File:/07_mql_where_clause.png
   Under **Combine**, you can choose your constraint (and, or, and not, or not) from the drop-down list. Under **Comparisons** you can click the drop-down list to display options for comparisons, =, <, >, and so on; (for example, where the customer number is *equal* to 144 *or* 145). You can also choose an aggregation type from the drop-down list for table columns that contain numeric data. The table below contains a definition for each aggregate type:

   | Aggregate Type | Description |
   |---|---|
   | SUM | Sums a column's values |
   | COUNT | Counts a column's values |
   | AVG | Averages a column's values |
   | MIN | Selects the minimum column value |
   | MAX | Selects the maximum column value |

   Click **Preview** at any time to view the data associated with your query.
6. Add the columns that you want to **Order By**. The ordering of the selected data is accomplished by one or more columns in a table. For example, you can sort the data by customer name and address.

7. Click **OK** in the Query Editor when you are done. The Chart Designer appears.
8. Under **Data**, click the drop-down arrow to display and choose the table columns.

   File:/17_drag_and_drop.png

| Data Definition | Description |
|---|---|
| Series Column | Series show up as the individual columns on a bar chart and as individual lines in a line chart. Area charts display each series as a point. |
| Category Column | Categories are displayed as bars or groups of bars on the x-axis (horizontal axis). In line charts, categories are usually associated with time periods. In area charts, the x-axis displays the category labels.<br>If you don't want to display categories, choose<br>**None**. |
| Values Column | The value is always numeric. The value determines the height of columns in a bar chart and the height of lines in a line chart. In area charts, the y-axis values determine the heights of the points. |

   File:/series_category_values.png

   A preview of the chart appears in a box in the upper-right corner of the Chart Designer as you choose your options.
9. Under **Chart Type**, click a chart type to choose it. By default, pie and dial charts display in "animated" Flash mode. You can turn animation off by disabling the **Animated** check box in the Chart Designer. Animated charts bring focus to important aspects of your data. For example, animation allows you to bring out a data point if it reaches a critical value, such as high or low sales numbers. If you selected a pie or dial chart, see Working with Pie Charts or Working with Dial Charts, respectively.
10. Under **Theme**, choose a theme from the list. The theme is applied to your chart.
11. Enter the labels for the **Chart Title**, **X Axis Title** (horizontal axis), and **Y Axis Title** (vertical axis). Entries are displayed in the chart preview.

    File:/09_chart_preview.png
12. Click **Apply** to see the chart preview.
13. Click **OK** display your chart in the dashboard panel.

# Work with Pie Charts

A pie chart gives dashboard consumers an immediate visual clue of the relative sizes of the shares of a whole. Categories are represented by individual slices. The size of the slice in a pie chart is determined by the value.

File:/10_pie_chart_preview.png

You can animate a pie chart if you want its pieces to be *exploded*, which means that the individual slices of the pie can be pulled away from the rest of the pie.

File:/19_pie_explosion.png

To animate a pie, enable **Animated** check box in the Chart Designer.

# Work with Dial Charts

For dial charts to display correctly, you must enter values for your range and the chart title. In the example below, the dial chart preview is displaying ranges associated with sales. Notice that each dial sector is represented by a color, red, yellow, or green. The needle is positioned in the 220796.48 range, indicating that total orders, while not stellar, are not near the danger zone indicated by the red sector in the dial.

File:/11_dial_chart_preview.png

## Changing Dial Sector Colors

You can change the color of a dial sector by clicking the small down arrow in the color boxes associated with Range. Select a color from the palette so that you can preview it on your dial chart. Click **Apply** to preview your dial chart. Click **OK** to place your dial chart into the dashboard.

File:/18_color_picker.png

# Correct Scaling Issues

Use the scaling feature in instances where numeric values in a chart are so long that they affect the display.

1. Preview your chart in the Chart Designer.
2. Under **Scale**, click to display the drop-down list of scaling options. In the example below, the scaling option used is "1000." Notice the change in the display of numeric values when scaling is applied. Users of the chart can see actual values when they hover over the bars in the chart.

   File:/25_scaling_example.png
3. Click **OK** to display the chart in the dashboard. The scaling feature is available for all chart types except pie.

# Rotate Chart Axis Labels

If your chart axis labels become unreadable because they are too long, **Label Rotation** may correct the problem.

1. In the Chart Designer, display your chart.
2. Under **Label Rotation**, choose **Diagonal** or **Vertical** and click **Apply**. The labels display with the rotation you set.
3. Click **OK** to display the chart in the dashboard panel.

# Edit a Chart

Use these steps to edit a chart.

1. In the Dashboard Designer, choose the panel that is displaying the chart you want to edit.
2. In the upper right corner of the panel click

   (Edit) The Chart Designer appears.
3. Click **Edit Query**. The Query Editor opens.
4. Edit the query as needed and click **OK**. The Chart Designer appears.
5. Select the appropriate data definitions to build the chart.
6. If applicable, change the chart type and theme and click **Apply** to see a preview of the edited chart.
7. Click **OK** to display the chart in the dashboard.

# Add a Data Table to a Dashboard

The Data Table feature allows you to display a tabular representation of a database query in a dashboard. It also allows you and consumers of the dashboard to manipulate the display of the data in the data table, while in the dashboard. For example, users can resize, sort, and change the order of columns. Follow the instructions below to add a data table to your dashboard.

1. Select a panel in the Dashboard Designer.
2. Click

   File:/select_content_type.png
   (Insert) and choose **Data Table**. The **Select a Data Source** dialog box appears.
3. Select a data source from the list of available data sources and click **OK**. The Query Editor opens.
4. Begin building your query. Click (+) next to the category name to display its associated table columns. When the column names appear, click to choose the column that contains the data you want displayed in your data table.
5. Click the small yellow arrow to place the column name under **Selected Columns**.
6. Now add the **Conditions**; these are your constraints that filter what you are choosing. You can add multiple conditions. Under **Combine**, you can choose your constraint (and, or, and not, or not) from the drop-down list. Under **Comparisons** you can click the drop-down list to display options for comparisons, =, <, >, and so on; (for example, where the customer number is *equal* to 144 *or* 145). You can also choose an aggregation type from the drop-down list for table columns that contain numeric data. The table below contains a definition for each aggregate type:

   | Aggregate Type | Description |
   |---|---|
   | SUM | Sums a column's values |
   | COUNT | Counts a column's values |
   | AVG | Averages a column's values |
   | MIN | Selects the minimum column value |
   | MAX | Selects the maximum column value |

   Click **Preview** at any time to view the data associated with your query.
7. Add the columns that you want to **Order By**. The ordering of the selected data is accomplished by one or more columns in a table. For example, you can sort the data by customer name and address.
8. Click **OK** in the Query Editor when you are done. The Data Table appears in the dashboard panel.

# Update the Data Table Display

You can edit the data table display directly in the dashboard panel.

## Sorting Column Data

To change the sort order data under a column, click the drop-down arrow in the header and choose **Sort Ascending** or **Sort Descending**. You can also hide one or more columns by disabling the appropriate check boxes next to the column names.

## Adjusting Column Width

You can adjust the width of a column by clicking the right border of the column header and dragging it to the right or left. Release the mouse button when you are done.

## Moving Columns

To move the placement of a column, click and drag the column it to the appropriate location in the Data Table as shown in the example below:

## Paginating

The pagination feature allows you to page through a large number of records.

# Add a Report Designer Report to a Dashboard

Use these steps to add a report created with Report Designer.

1. Select a panel in the Dashboard Designer.
2. Click

   File:/select_content_type.png
   (Insert) and choose **File**. A browser window opens.
3. Locate the appropriate report file.
4. Click **Select** to place the report inside the dashboard panel. Pagination control arrows at the top of a report allows you to scroll through long reports. Notice that the report file name, *Inventory.prpt*, appears under **Content:** in the dashboard edit pane in the sample below. This sample report contains parameters. You can enter values manually and link them to a dashboard filter in the text boxes under **Source**. When the report renders again, the parameter value(s) you entered are included in the report.

   Sample Report
   **Important:** If you choose a Report Designer file to place in a dashboard, but do not supply values for required parameters, the report will show up blank.

# Add an Analyzer Report to a Dashboard

Use these steps to display an Analyzer report in a dashboard.

1. Select a panel in the Dashboard Designer.
2. Click **Insert** and choose **File**.
3. Locate the appropriate Analyzer report and click **Select**. The Analyzer Report appears inside the dashboard panel.

# Add a Web Site to a Dashboard

Use these steps to display contents of a Web site in a dashboard panel.

1. Select a panel in the Dashboard Designer.
2. Click
   
   (Insert) and choose **URL**. The **Enter Web site** dialog box appears.
3. Enter the Web site URL in the text box and click **OK**.
4. If applicable, click
   
   (Edit) to make changes.
5. Save your dashboard when you are done.

# Use Prompts on Dashboards

Prompts display a subset of data based on the dashboard user's point of view. For example, a European user may only want to see EMEA region sales data, whereas the dashboard's default region is the NA region. To ensure that a prompt links to the correct content in a dashboard, the content to which you are linking (data table or chart) must contain at least one parameter.

Below are general instructions below for adding prompts to your dashboard:

1. In the dashboard page, choose **Edit** (the pencil icon), which will make the **Objects** pane appear.
2. Under **General Settings**, choose **Prompts**. The **Prompts** pane appears on the right. No prompts are listed if this is the first time you are assigning prompts.
3. To display a prompt toolbar to users of the dashboard, enable **Show Prompt Toolbar**. The prompt toolbar appears at the top of the dashboard.
4. Click the **Add** button to start adding prompts. The **Prompts** dialog box appears.
5. In the **Prompts** dialog box, enter a display name for the control label. For example, "Region."
6. Enable **Display Name as Control Label** if you want users to see the display name in the prompts toolbar.
7. Select your control type. Control types define how your prompt values are selected; for example, in a drop down list, radio button, check box, and so on.

   The table below contains a description of each control type.

| Control Type | Description |
|---|---|
| Drop Down | Users choose a prompt value from a drop-down list. |
| List | Users choose a prompt value from a scrolling list. This prompt control supports multiple selections. |
| Radio button | Users click a radio button to choose a prompt value. |
| Check box | Users enable a check box to choose a prompt value. This prompt control supports multiple selections. |
| Button | User click a button to choose a prompt value. This prompt control supports multiple selections. |
| Text Field | Users enter a text string or number into a text field manually. |
| Date Picker | Users examine prompt values based on calendar date. |

Your dashboard now has a prompt.

If you plan to provide hard-coded names and values for your dashboard users, or produce a dynamic prompt list, continue on to the next few sections.

- Add a Prompt to a Dashboard
- Create a Metadata List
- Create a Cascading Prompt
- Edit Prompts
- Link Dashboard Prompts to Analyzer Parameters

# Add a Prompt to a Dashboard

You can create a prompt tool bar that enables users to refine report results in a dashboard. First create the **Prompt Toolbar**. Then customize the toolbar so that the appropriate options appear.

## Creating a Prompt Toolbar for Dashboards

1. Open a dashboard that contains at least one parameterized report.
2. Click the **Edit Content** icon to open the editing options in the dashboard.
3. In the bottom section, inside the **Objects** pane, choose **Prompts** to access the Prompt pane.
4. Click **Show Prompt Toolbar** to display the prompt toolbar to dashboard users.
5. Click **Add** to add a prompt. The **Prompt** dialog box appears.
6. In the **Name** field, enter the title for the prompt toolbar.
7. In the **Control** box, click the format for the prompt options. For example, you can choose the **Drop Down** control if you want a list that appears when users click the first option.
8. Ensure that **Static List** is selected under **Type**.

## Customizing a Prompt Toolbar for Dashboards

1. In the **Data** box, click **Add**. The **List Value** dialog box appears.
2. In the **Label** field, enter the option name as you want it to appear to dashboard users.
3. In the **Value** field, enter the parameter source name. For example, using the Steel Wheels sample, enter `Classic Cars`.
4. Add labels and values for each parameter you want to filter. Click **Close** to exit the **List Value** dialog box. If you are filtering an Analyzer report and using a static list, you can add the option **All**. This option drops the filter from the report and shows all values.
5. In the **Control Properties** box, under **Initially Selected:**, choose which item you want to appear first in the prompt list. Choose **Use First Value** to set the default to the first value in the list, or you can choose **Specify** if you want a specific value to appear first.
6. Click **OK**.
7. In the **Objects** pane, choose the title of the report you want to filter. Click the **Parameters** tab and choose the correct **Source** for the parameter from the list. The source should be the name of your prompt.
8. Click **Save**.

# Create a Metadata List

You must have a data table or chart that contains at least one parameter for your prompt control to function correctly.

When you create a Metadata List, you are defining a query to retrieve a list of display names and

corresponding values from a metadata data source provided by your administrator.

File:/37_filter_props_metadata.png

1. In the dashboard page, under **General Settings**, choose **Prompts**. The Prompt Editor appears on the right. No prompts are listed if this is the first time you are assigning prompts.
2. To display a prompt toolbar to users of the dashboard, enable **Show Prompt Toolbar**. A placeholder for the prompt toolbar appears at the top of the dashboard.
3. Click

   File:/add.png
   (Add) to add a prompt. The **Prompts** dialog box appears.
4. In the **Prompts** dialog box, enter a **Name** for your prompt.
5. Under **Data Type**, choose **Metadata List**.
6. Click **Select** to choose the data source that contains the content you need to set options from the drop-down list and click **OK**. The **Query Editor** opens.
7. In the **Query Editor**, build a query to choose either a single column (that represents both a name and a value), or two columns representing the display names and corresponding values. If a single column query is defined, the values of that column will be used for both the display names and the values.
8. Click **OK** to exit the Query Editor. Your options appear under **Selected Items** in the Prompts dialog box.
9. Under **Control Properties**, enter a **Default Label/Value** for the *initially selected* option in your prompt control.

   File:/80_metadata_list_example.png
10. Select a **Label** to display in the prompt control; this is the user-friendly name that users will see in the dashboard.
11. Select the **Value**; this is the value in the database that is associated with the Label you selected in the previous step.
12. If applicable, choose your **Display** type from the list. Some prompt controls allow you to choose the position of your prompt options. If you have a long list of options, for example, a list of cities, options may not appear correctly in the user console unless you change the Display type to **Horizontal**.
13. Click **OK**.

The list of values appear in the prompts toolbar in the dashboard.

# Create a Cascading Prompt

A cascading prompt changes based on a value a user selects. When the value in the drop down list, (Country), changes, the prompt is automatically applied to the second prompt, (City) thus changing its values.

File:/82_cascading_filter_sample.png

The example above was created using a Metadata List for the drop-down prompt (Country).

File:/84_cascading_metadata_query_sample_filter.png

A SQL List that included a parameter, **${selected_country}**, in its associated query was used for the check box prompt (**City**).

File:/85_cascading_sql_query_sample_filter.png

The **Default Value** for the **selected_country** parameter was set to **USA** with New York City (**NYC**) as the initially selected value for the check box prompt.

File:/86_cascading_sql_query_parm.png

To link the City prompt to the Country prompt, another **Source** for the **selected_country** parameter was chosen. The alternate source is the **Country** prompt.

File:/87_cascading_filter_select_source.png

When the prompts are linked, users can choose a country and then choose a city (or cities) in the country of their choice.

Using this example, the report designer can now add a data table, chart, or other content in the dashboard that can be driven by the prompt he or she just created. Suppose the designer decides to add a pie chart to the dashboard. The pie chart will display the percentage of sales per city.

In the Query Editor, the report designer creates a parameter, {**City**}, with an extended default value: **NYC|Las Vegas**. The resulting pie chart displays values for New York City and Las Vegas. Under the Parameters tab associated with the pie chart, the **Source** value for the City parameter is changed to the **City** prompt.

File:/88_cascading_filter_init_piechrt.png

When the report is saved, users of the dashboard can see results for a country and multiple cities in that country.

File:/89_cascading_filter_final_piechrt.png

# Edit Prompts

You can edit prompts as needed. Use these steps to edit prompts.

1. Locate the prompts pane at the top of the panes in the dashboard.
2. Located the different prompts and the drop-down menus next to them.
3. Select the prompt you want to edit and choose an alternative prompt from the drop down menu. The prompt changes, causing the graphs and charts in the dashboard to change appropriately.

# Link Dashboard Prompts to Analyzer Parameters

This process only applies to dashboards that include parameterized Analyzer reports. You must have an Analyzer report with a query parameter in it in order to proceed.

The instructions below explain how to parameterize an Analyzer report.

1. In Analyzer, choose a field in your report to which you want to link; then, right-click and choose **Filter**.

   In the example below, data will be filtered by **Territory**.

   File:/44_ana_filter.png
2. In the **Filter** dialog box, enter a name for the parameter in the **Parameter Name** text box and click the check box to enable it.

   File:/45_ana_parm_name.png
3. Select the values you want associated with the parameter. Use the arrows to add values to the box on the right.

   File:/46_ana_filter_values.png
4. Click **OK** to exit the Filter dialog box.
5. Save your Analyzer report.

   In the upper left corner of the report, you can see that a filter is in use. Click

   File:/edit.png

   (Edit) to edit your filter; click

   File:/27_delete.png

   to delete the filter.

   File:/47_ana_filter_in_use.png
6. Create a dashboard and drag the Analyzer report into a panel.

   The name of the parameter appears in the lower portion of the dashboard under **Parameters**.
7. Add a filter to the dashboard based on the parameter you created in your Analyzer report. The filter appears in the dashboard.

# Dashboard Parameters

If you are placing a file, such as an .xaction or .prpt, inside a dashboard panel, it is possible that the author of the file defined meaningful parameters for the content. If previously defined, the parameters and their associated default values, appear under **Parameters** in the edit pane of the dashboard. In the example below, when the chart initially rendered, it displayed a parameter called, "chart_type" with a default value called, "bar." A user can change the value of the parameter to see the content rendered as a pie, line, or area chart.

Users can change the value of a parameter

Parameter names are "hard-coded," in the file; that means they cannot be changed. Neither can you change the number of parameters associated with a file. When you create a chart using the Chart Designer, embed a URL into a dashboard, or create a data table, you can change both the name and value of a parameter.

In Windows, the URL Parameters have a maximum limit of 2,048 characters, minus the number of characters in the actual path.

- Create Chart or Data Table Parameters With the Query Editor
- Dynamic Dashboard Titles

# Create Chart or Data Table Parameters With the Query Editor

When you place a chart in a dashboard panel, you use the Query Editor to retrieve data from a database for display on your chart or data table. If applicable, you can add conditions or constraints that filter the data so that the chart or data table displays the information you want dashboard consumers to see.

Using parameters is critical if you plan on using dashboard prompts or linking content in one dashboard panel to content on another dashboard panel. For example, suppose you create a pie chart and you want to filter details associated with an exploded pie slice in the adjoining data table as shown in the example below. In this instance, you must use a parameter that allows the data table to update when a dashboard consumer clicks on a pie slice. Optionally, you can parameterize the query condition so that the content is updated based on a user interaction, such as changing a prompt value.

Content Linking Sample

To create a parameter, in the **Value** field, enter the name of the parameter inside curly braces, as in **{Parameter Name}**. In the example below, the designer created a parameter called, *{TERRITORY}*; the default value, or source, for the parameter is, "NA" (North America). When a chart or data table renders, it displays data associated with North America. Remember that this a *default value*. When you enclose a parameter name with curly braces, you are creating a *parameter query*. That means, that users can change the query dynamically by replacing the default, "NA," with a different territory acronym, (for example, EMEA), when the query runs.

File:/49_filterparm_sample.png

You can define multiple default parameter values by adding a pipe (|) between the values, as in NA|EMEA|APAC.

Suppose a dashboard designer chooses to limit the data to North America (NA) exclusively? In this instance, he or she would not include the curly braces around "NA," (as shown in the example below), and **Default** (value) is disabled. This is an example of a static query.

File:/60_filterparm2_sample.png

# Dynamic Dashboard Titles

While in Dashboard, each panel has the ability to show a title with current parameters.

1. Click the edit (pencil) icon in the top toolbar. The Edit Pane appears at the bottom of the screen
2. Click the report that has the parameters you are going to change. You will need to go through this process for each report to which you want to add parameters.
3. Click the **Add Parameter** button.

   File:/parameter_added_callout.png
   Placed parameter appears after the title.
4. Click **Apply**
5. Close the Edit Pane by clicking the edit (pencil) icon.

   File:/parameters_applied.png
   The title will now show the parameters applied to it.

# Use Content Linking to Create Interactive Dashboards

Depending on your needs, you can create a "static" dashboard, which contains content in each panel that is separate but related. For example, you may provide users with a bar chart that contains total sales figures by region. Additionally, you may provide a data table that displays sales details for each state in a specific region. You may also want to provide sales data associated with each salesperson in a specific region. The content in your dashboard is useful to dashboard consumers, but to make it more "interactive," you may want to consider using *content linking*.

The content linking features in dashboards allow you to associate (link) content in one dashboard panel to content on another dashboard panel as long as query parameters have been defined. These features are particularly helpful for drilling down or for dynamic filtering; for example, when dashboard consumers explode a single slice in a pie chart to launch content in a data table associated with that pie slice. In this instance, dashboard consumers are moving from a summary view to a detailed view interactively.

You can use content linking if your dashboard panel contains a data table, chart, .xaction, .prpt, and Analyzer report.

## Content Linking and Query Parameters

Query parameters are required for content inside a dashboard panel to receive values used to filter data from a filter control. They are also required when receiving values from content in other dashboard panels that are broadcasting values associated with Content Linking. The way in which query parameters are defined is different depending on the type of content you are placing inside your dashboard panels:

| If | Then |
|---|---|
| You are defining parameters in the **Analyzer**... | See Adding Query Parameters to Analyzer Reports |
| You are defining parameters for a **chart** or **data table**... | Use the Query Editor to define your parameterized query. See Linking Charts and Data Tables and Linking Columns in a Data Table to Content in other Dashboard Panels |

- Link Charts and Data Tables
- Link Columns in a Data Table to Content in other Dashboard Panels
- Create Content to Content Links in an Analyzer Report
- Link an Analyzer Chart to a Report
- Control a Dashboard Parameter From a PRPT Hyperlink

# Link Charts and Data Tables

Below are general instructions for linking charts and data tables in a dashboard. This is just an example. You must adjust the instructions when working with your own data.

1. Create a simple dashboard that contains a chart and a data table. At this point, none of the content has been linked and you have a "static" dashboard.

   File:/48_simple_dshbrd_sample.png

   Notice the pie chart in the example above. You want dashboard consumers to click a slice (NA, APAC, Japan, EMEA) and have the data table on the right update with the values associated with that slice exclusively. For example, if a report consumer clicks the EMEA slice, the data table will display values associated with EMEA and nothing else. To get the correct filter display, you must first create a parameterized query that drives the content in the data table.
2. Click the **Edit** Button to open up the **Edit** Pane at the bottom of the screen. Within the **Objects** pane, choose the report you want to parameterize. Parameterizing a query, as described here, allows you to pass values dynamically and update the chart based on events triggered by other elements of the dashboard such as a user choosing an item from a filter control or following links defined in content associated with another panel in the dashboard.
3. Click the **{p}** button next to the **Title** box. The **parameters** will populate after the title in the **Title** box.
4. Click the **Parameters** tab and ensure that the parameters name is linking to the correct **Source**.
5. Click **Apply**.

   The new source for the parameter corresponds to the title of the dashboard panel that contains the chart as shown in the example above. This new source will now drive the display in the data table.
6. Click the **Edit** button (pencil icon) to exit the edit mode. The filters will appear after the panel titles.
7. Save your dashboard. See Saving Your Dashboard.

When users click a pie slice or bar in a chart, the data table displays content associated with that specific pie slice or bar. The currently applied filters appear after the title.

# Link Columns in a Data Table to Content in other Dashboard Panels

The instructions that follow show you how to link a chart to a column in a data table. You must adjust the instructions when working with your own data.

1. Create a simple dashboard that contains a data table and a bar chart. At this point, none of the content has been linked and you have a "static" dashboard.

   File:/55_content_link_on_column.png

   Notice the data table in the example above. You want dashboard consumers to click a product in the **Product Line** column and have the bar chart update with information about sales by territory for that specific product line.

2. Add a parameterized condition to the query for the bar chart by specifying a parameter name in curly braces in the **Value** text box; then, provide a default value for that parameter in the **Default** text box. In the example below, a parameter called **Productline** with a default value of **Classic Cars** has been created.

   File:/56_content_linking_parm_query.png

3. In the Chart Designer, set the data definitions for the series, category and values columns associated with your bar chart and click **OK**.
4. Under **General Settings**, choose the data table and click the **Content Linking** tab. Enable content linking on the column in your data table that will filter content in your chart. Each of the columns in a data table are able to broadcast values to other dashboard components.

   File:/58_parm_value_for_linking_2.png

5. Under **General Settings**, choose the chart and click the **Parameters** tab. Click the down arrow, in the **Source** text box to display another source for the parameter you created. In the example below, notice that **Order Details - Product Line** , (this is the name of the dashboard panel that contains the data table), can now be selected as a source for the **Productline** parameter.

   File:/64_parm_new_source.png

6. Save your dashboard.
7. In the data table, choose an item in the column that has content linking enabled. The content in the chart updates in response to the item that was clicked in the data table.

In the example below, the **Product Line** column was enabled for content linking.

File:/59_completed_linked_bar_chart.png

# Create Content to Content Links in an Analyzer Report

Below are general instructions for creating content links in an Analyzer report, (inside a dashboard), that can be used to drive the parameter values of content in other dashboard panels. You must adjust the instructions when working with your own data.

1. Create a simple dashboard that contains an Analyzer Report and a data table. At this point, none of the content has been linked and you have a "static" dashboard.

   File:/65_analyzer_table_content_linking.png

   In the example above, when content linking is achieved, the list of territories (APAC, EMEA, Japan, and NA) will become hyperlinks that, when clicked, will update customer details data table. To get the correct filter display, a parameterized query that drives the content in the data table must be created.

2. Add a parameterized condition to the query for the data table by specifying a parameter name in curly braces in the **Value**text box; then, provide a default value for that parameter in the **Default** text box. In the example below, a parameter called **TERRITORY** with a default value of **NA** has been created. Parameterizing a query, as described here, allows you to pass values dynamically and update the chart based on events triggered by other elements of the dashboard such as a user choosing an item from a filter control or following links defined in content associated with another panel in the dashboard.

   File:/49_filterparm_sample.png

   Under **General Settings**, click the data table and examine its available parameters. In the example below, there is an available parameter called **TERRITORY** with a default source value of NA (North America). A drop-down arrow in the **Source** text box indicates that there are additional values to control the available parameter. In this example, there are no additional source values that control the TERRITORY parameter.

   File:/66_parameter_query_on_territory.png

3. Under **General Settings**, choose the Analyzer report. Click the **Content Linking** tab then click the check box next to the field/column name you want enabled for content linking. Click **Apply**.

   File:/68_content_linking_enabled_fields.png

   In the Analyzer report, the values under the **Territory** become hyperlinks.

   File:/69_analyzer_hyperlinks.png

4. Under **General Settings**, choose the data table and examine its available parameters. Notice that there is a drop-down arrow in the **Source** text box. Click the down arrow to display and choose a new source value for the available parameter. Click **Apply**.
5. Save your dashboard.

In the example below, content linking was applied. When users click a territory hyperlink in the Analyzer report, the data table updates and displays customer-related details associated with that specific territory exclusively.

File:/70_analyzer_table_content_linking_complete.png

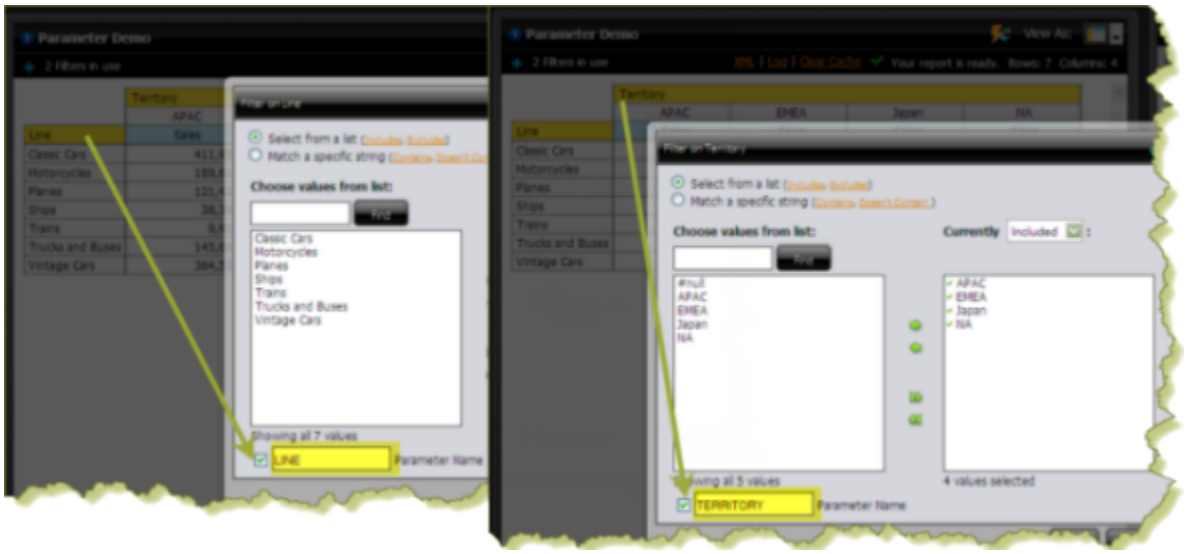
# Link an Analyzer Chart to a Report

You can create content-to-content links between an Analyzer chart and any other parameterized report such as a Report Designer report, a data table, or another Analyzer report.

Below are general instructions for linking an Analyzer chart to a report. You must adjust the instructions when working with your own data.

1. Create a simple dashboard that contains an Analyzer chart and a parameterized report. The example above displays an Analyzer chart and an Analyzer Report displayed as a table view. At this point, none of the content has been linked and you have a "static" dashboard.

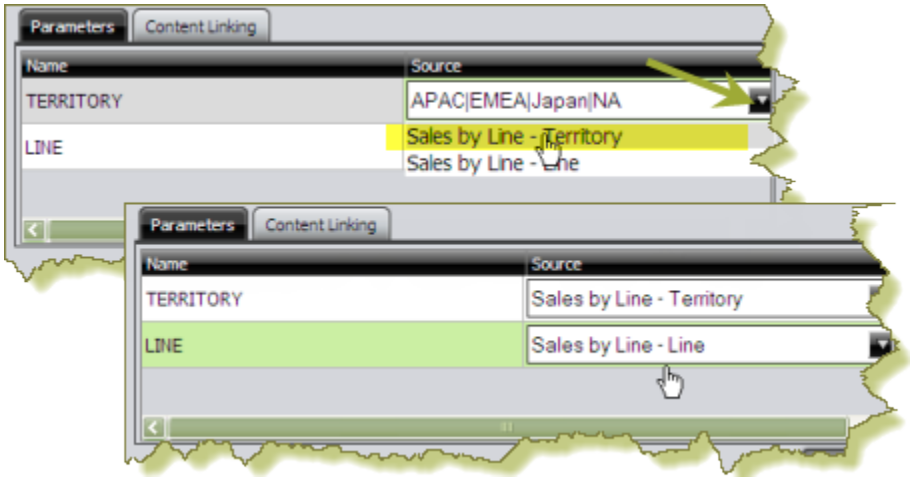
   Hypothetically, if you want users to be able to click a bar in the bar chart and update the Analyzer table view, the table must contain at least one parameter. In the example below, there are two parameters, (LINE and TERRITORY), associated with the Analyzer table.




2. Under **General Settings**, choose the Analyzer chart. Click the **Content Linking** tab then click the check box (or check boxes) next to the field/column name you want enabled for content linking. Click **Apply**.


3. Under General Settings, choose the Analyzer Report (table view) and click the **Parameters** tab. Click the down arrow, in the **Source** text box to display another source for the parameters you created. In the

example below, notice that **Sales by Line**, (this is the name of the dashboard panel that contains the chart), can now be selected as a source for both the TERRITORY and LINE parameters.




4. Save your dashboard. See Saving Dashboards for steps.

In this example, content linking is applied when users click a bar in the bar chart. The data table updates and displays sales details for a product line in a specific territory.

# Control a Dashboard Parameter From a PRPT Hyperlink

You must have a report (.prpt) that contains a hyperlink before you can complete this task. See the Design Print-Quality Reports section for instructions about adding hyperlinks to a report.

The instructions that follow show you how a link inside a Report Designer report (.prpt) can drive a parameter in content on another dashboard panel. You must adjust the instructions when working with your own data.

1. Create a simple dashboard that contains a .prpt report and a data table. At this point, none of the content has been linked and you have a "static" dashboard.

   File:/71_prpt_content_linking.png

   Notice the report (.prpt) in the example above. You want dashboard consumers to click a territory (APAC, EMEA, etc.), hyperlink and have the data table update with information about that territory specifically.

2. Under **General Settings**, choose the report (.prpt) and click the **Content Linking** tab. Click the checkbox next to the field you want used for content linking.
3. Add a parameterized condition to the query for the data table by specifying a parameter name in curly braces in the **Value**text box; then, provide a default value for that parameter in the **Default** text box. In the example below, a parameter called **TERRITORY** with a default value of **NA** has been created.

   File:/49_filterparm_sample.png

   Parameterizing a query, as described here, allows you to pass values dynamically and update the data table based on events triggered by other elements of the dashboard such as a user choosing an item from a filter control or following links defined in content associated with another panel in the dashboard.
4. Under **General Settings**, choose the data table and click the **Content Linking** tab. Click the drop-down arrow, in the **Source** text box to display another source for the parameter you created. In the example below, notice that **Product Line Share by Territory - Territory** , (this is the name of the dashboard panel that contains the .prpt), is now selected as a source for the **Territory** parameter.

   File:/72_prpt_content_linking_select_parm.png
5. Save your dashboard. See Saving Dashboards.

When content linking is achieved, the data table updates when a link in the report (.prpt) is clicked as shown in the example below.

File:/73_prpt_content_linking_final_result.png

# Add Content to a Dashboard Using Drag-and-Drop

Use these steps to add an existing chart, table, or file to your dashboard panels using the drag-and-drop feature.

1. Create a new dashboard. See Creating a New Dashboard for specific instructions.
2. In the left pane of the Pentaho User Console, under **Files**, locate to the content (chart, table, or file) you want added to your dashboard.
3. Click and drag the content into a blank panel on your dashboard. You will see the "title" of the content as you move it around the dashboard. Notice that the title background is red; it turns green when you find a panel where the content can be dropped.

   Repeat steps 2 and 3 until your dashboard contains all the content you want to display. To swap content from one panel to another, click the title bar of the panel that contains the content you want moved and drag it over the panel you want swapped. You will see the swap icon as you are moving the content.

   If you are working with an existing dashboard, you can perform steps 2 and 3 steps; however, a warning message appears when you try to place content in a panel that already contains content. The new content will override the existing content.
4. Save your dashboard.

# Adjust White space in Dashboard Panels

Sometimes you must adjust the white space in dashboard panels, (or the filter panel), so that content appears correctly. Use these steps to adjust white space.

1. Open an existing dashboard.
2. In the lower pane, click **General Settings** and then click the **Properties** tab.
3. Click **Resize Panels**. The white space between the dashboard panels turns blue.
4. Adjust the panel size by clicking and holding the left mouse button down as you move the blue lines (white space) around. Release the mouse button when you are satisfied with the positioning of the panel.

   File:/42_dshbrd_resize.png
5. Click **Close** in the lower-right corner of the dashboard to exit resize layout mode.
6. Examine the dashboard contents to make sure they are placed correctly. You can return to the resize layout mode if you need to make additional changes.
7. Save your dashboard.

# Set the Refresh Interval

The content in your dashboard may need to be refreshed periodically if users are examining real-time data. You can set refresh intervals for individual panels on your dashboard or for the entire dashboard.

To set the refresh interval for *individual panels* in the dashboard, click the edit button and the choose the panel that contains the content you want refreshed in the **Objects** panel . Under **Refresh Interval (sec)** enter the interval time in seconds and click **Apply**.

If you want the *entire dashboard* to refresh, click the **Prompts** tab in the dashboard and set your refresh interval.

# Schedule Reports

You can use the Schedules page of the **User Console** to schedule a report to run at regular intervals, on certain dates and times, and with different parameters. You can also set a scheduled report to be emailed automatically, if your system administrator has configured the server for emailing reports. After you schedule a report, you can pause or delete a schedule, as well as edit the schedule to change the frequency of the report, parameters, or email settings.

The system administrator may set up times when you cannot run a scheduled report, for example, to perform system maintenance, or to minimize scheduling during peak times. If any blocked out times are set up, you can view these times so you can choose an alternate schedule.

## Schedule a Report

You can create a schedule and designate the frequency of the scheduled report, report parameters, and email settings.

1. Login to the User Console, and click **Browse Files** to browse to the location of your report.
2. Double-click the folder containing your report in the **Browsing** pane on the left, then click to select the report you want to schedule from the middle pane. The **File Actions** pane on the right of the **Browse Files** window populates with a list of actions that you can do with the selected report.
3. Select **Schedule** from the **File Actions** pane. The **New Schedule** window appears.
4. Enter a name for the schedule in the **Schedule Name** field. If no name is entered in the **Schedule Name** field, the default is the name of the report file.
5. Choose a time interval for the report from the **Recurrence** list. To enter a custom time interval, choose **Cron** and consult the Quartz reference to learn the Quartz Cron syntax. If blockout times have been scheduled by your administrator, a **View Blockout Times** button appears on the bottom of the **New Schedule** window. A list of blockout times is viewable by clicking **View Blockout Times**.
6. Choose a **Start Time** and a **Recurrence Pattern**, as well as **Start** and **End Dates** for the report. Click **Next**.
7. Choose what type of file you would like the schedule to create from the **Parameters** field. Click **Next**. The email option will only appear if your system administrator has enabled email on the server.

   h. A. If you do not want to email a copy of the report, choose **No**.

   i. B. If you want to email a copy of the report, choose **Yes**. Type to fill in or edit the fields that appear.
8. Click **OK**.

The schedule is created and appears in the list in the **Schedules** window of the console.

## Edit a Schedule

You can edit a schedule to change the frequency of the scheduled report, report parameters, and email settings.

1. Click the **Home** drop-down menu on the upper-left and click the link to the **Schedules**. The list of schedules appears in the **Schedules** page.
2. Click the schedule you want to edit in the list, then click **Edit** in the scheduling toolbar. The **Edit Schedule** window appears.
3. Type to rename the schedule in the **Schedule Name** field.
4. Choose a new time interval for the report from the **Recurrence** list.
5. Choose a new **Start Time** and **Recurrence Pattern**, as well as new **Start** and **End Dates** for the schedule. Click **Next**. If blockout times have been scheduled by your administrator, a **View Blockout Times** button appears on the bottom of the **New Schedule** window. A list of blockout times is viewable by clicking **View Blockout Times**.
6. Choose what type of file you would like the schedule to create from the **Parameters** field. Click **Next**. The email option will only appear if your system administrator has enabled email on the server.
   g. A. If you do not want to email a copy of the report, choose **No**.
   h. A. If you want to email a copy of the report, choose **Yes**. Type to fill in or edit the fields that appear.
7. Click **OK**.

The schedule is edited and appears in the list in the **Schedules** window of the console.

# Delete a Schedule

After you have scheduled a report, you can easily delete the schedule without deleting the report.

1. Click the **Home** drop-down menu on the upper-left and click the link to **Schedules**. The list of schedules appears in the **Schedules** page.
2. Click the schedule that you want to delete in the list. The schedule is highlighted.
3. Click **Delete** in the upper right of the toolbar to delete the highlighted schedule. This deletes the schedule while leaving the report intact.

The previously scheduled report no longer runs at the specified interval.

# Quartz Cron Attributes

The Quartz cron engine supports a seven-attribute time declaration with many possible values. The number format is the same for every expression, even if the values are different -- it must be listed as seconds, minutes, hours, day of month, month, day of week, then the year. A space separates each attribute.

These are the possible values for each attribute: 0 to 59 for seconds and minutes, 0 to 23 for hours, 1 to 31 for days, 1 to 12 for months, 1 to 7 for day of week, and a four-digit year. Alternatively, you can use three-letter values for the day of week (MON, TUE, WED, THU, FRI, SAT, SUN), and three-letter values for the month (JAN, FEB, MAR, APR, MAY, JUN, JUL, AUG, SEP, OCT, NOV, DEC).

An asterisk (*) indicates *all values*, so an asterisk in the minute field would mean that the report runs once every minute. You can specify a range of values with the - (dash) operator, and you can specify multiple individual values with a comma. If you need to excuse a value in the day of month and day of week field from a cron job, you can use the question mark (?) character to indicate that this value doesn't matter. If you need to split values, you can do so with the slash (/) character -- this operator literally means "every," so */15 would mean "Every 15." In the day of month field, you can use the # character to indicate a certain instance of a day of the month, for instance the second Friday of the month would be 6#2. Lastly, you can use a capital L in the day of month and day of week field to indicate "Last," as in the last day of the week. A capital C in either of these fields means "Calendar," and combined with a number means that the report should execute a the interval indicated by the C number according to the loaded calendar. A capital W in the day of month attribute means "Weekday," which only encompasses Monday through Friday. Most of these values can be combined to create unusual cron schedules.

| Attribute | Conditionals and Operators |
|---|---|
| Seconds | , - * / |
| Minutes | , - * / |
| Hours | , - * / |
| Day of month | , - * ? / L W C |
| Month | , - * / |
| Day of week | , - * ? / L C # |
| Year | , - * / |

Here is how you would execute a report at 10:15 AM on every last Friday of every month during the years 2008, 2009, 2010, 2011, 2012, and 2013.

```
0 15 10 ? * 6L 2008-2013
```