



Getting Started with the Pentaho BI Suite 4.1



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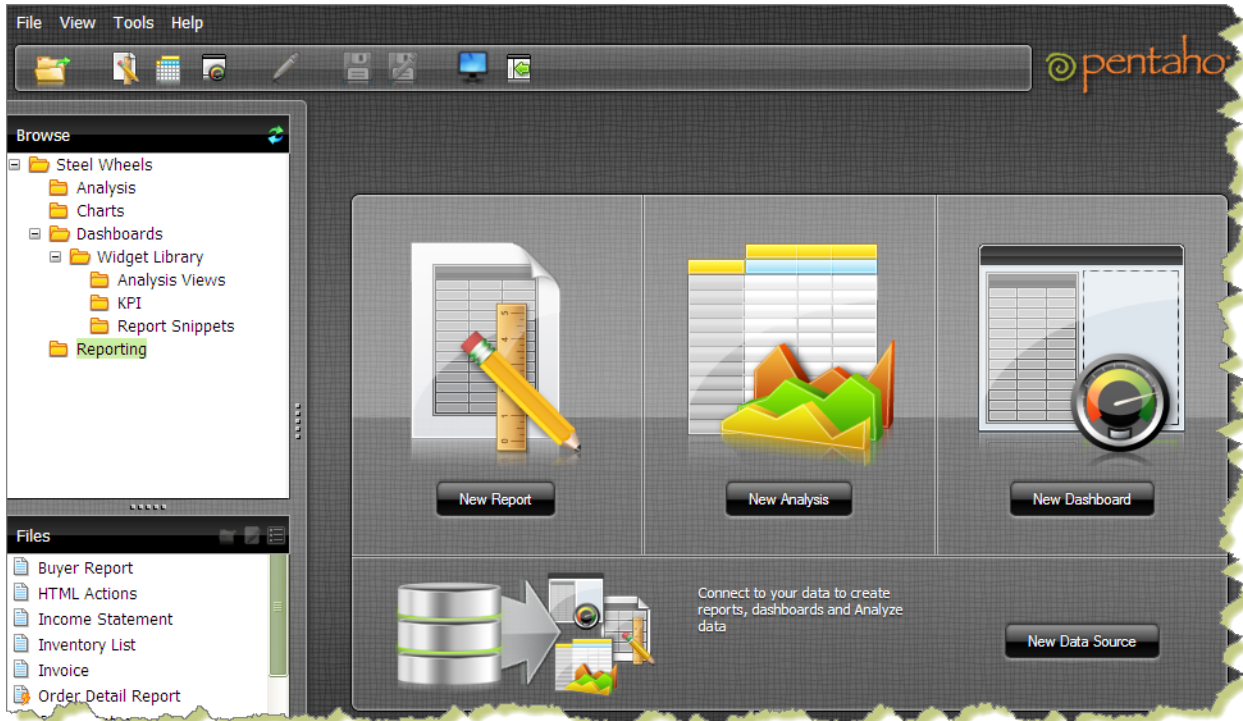
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Welcome

This guide provides you with a brief overview of the client tools and server applications that make up the Pentaho BI Suite. Also included, are step-by-step instructions for installing the Pentaho BI Suite on Windows devices. Post installation walk-throughs include a quick introduction to Sample reports and exercises for creating a simple Interactive Report and a Pentaho Analyzer report. You will also learn how to add the reports you created to a dashboard and how to define a data source.


Once you complete the installation and exercises, you will be able to start taking advantage of many of the features that are included in this release of the Pentaho BI Suite.



 **Important:** The scope of this document is limited to the topics described in the paragraph above. If you need further information deploying the Pentaho BI Suite or have custom configuration requirements, contact your Pentaho Sales Representative or send an email to [Support](#).

Finding More Resources

Business intelligence implementations can be complex. For this reason, we provide you with tools that support you through your evaluation period and beyond. Your trial evaluation entitles you with access to the Pentaho Knowledge Base where you can find articles, manuals, and tech tips that cover basic and advanced topics associated with implementing the Pentaho BI Suite. In addition, the Pre-Sales portal provides you with access to recorded Webcasts that give you basic understanding of the features and functionality offered by the Pentaho BI Suite.

 **Note:** Refer to your Welcome email for details about how to access the Knowledge Base and Pre-Sales portal.

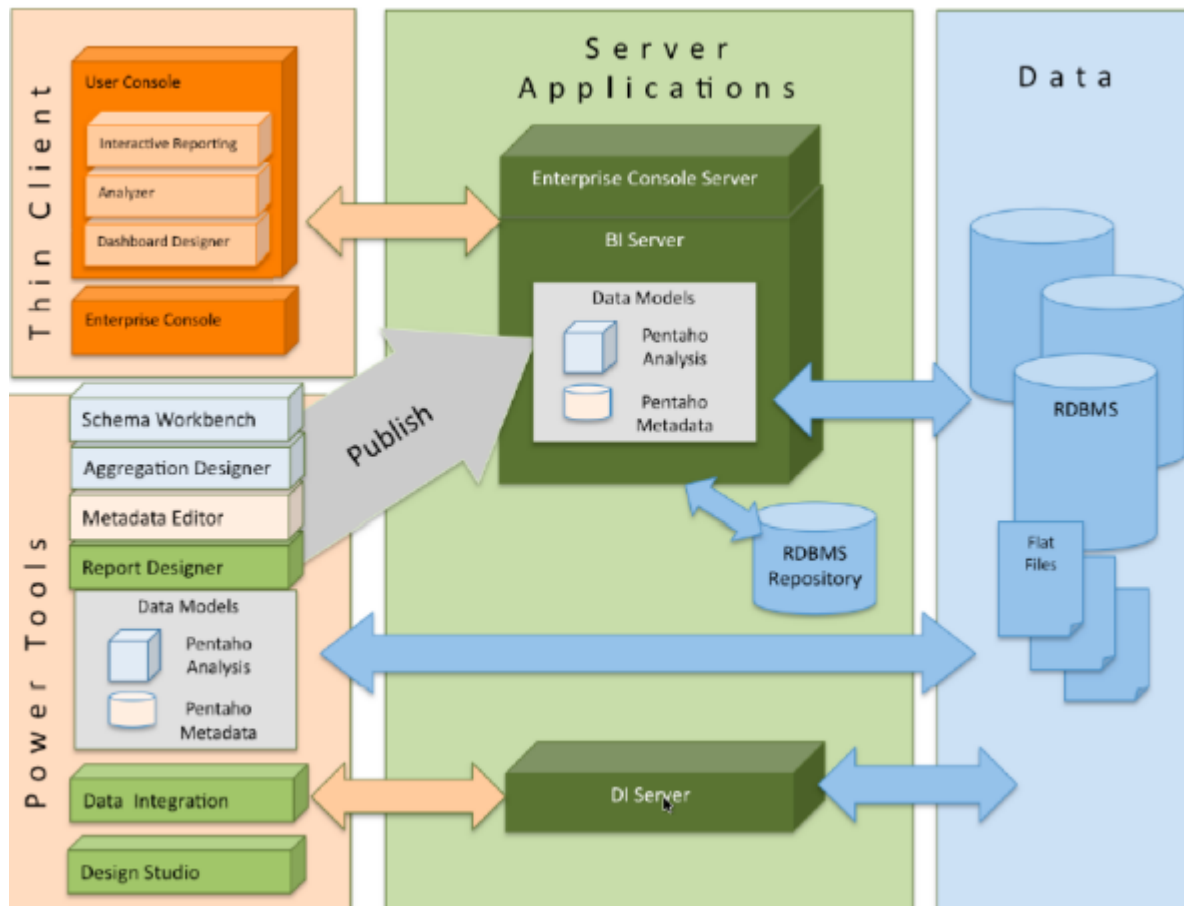
Successful implementations start with training and support. Pentaho trainers are experts in the industry and offer a wide range of affordable classroom, online, and on-site training services to meet your knowledge requirements. Our support team will help you become productive quickly.

Before You Begin

The sections that follow provide you with information about the Pentaho components included in this release and system requirements for installation.

Components Included in this Release

The diagram below provides you with a simple architectural view of the components that make up the Pentaho BI Suite. A brief description of each component is included in the section that follow.



Thin Client Tools

The Pentaho User Console is the primary web-based end user interface to view, create, and schedule reports, Interactive reports, Analyzer reports and dashboards as well as applying access permissions to them.

Design tool	Description
Pentaho Interactive Reporting	<p>Pentaho Interactive Reporting provides a highly interactive and easy to use web-based design interface for the casual business user to create simple and ad hoc operational reports, without depending on IT or report developers.</p> <p>Feature highlights:</p> <ul style="list-style-type: none"> • Accesses Pentaho Metadata data sources. • Easy and live interaction with reports, designed specifically for the most casual type of user • Drag and drop designer to add, move, and delete fields directly within the report canvas • Inline formatting, filtering, sorting, grouping, aggregations and summary calculations

Design tool	Description
	<ul style="list-style-type: none"> • WYSIWYG (What You See Is What You Get) report design and editing • Template-based report creation for immediate productivity
Pentaho Analyzer	<p>Pentaho Analyzer provides intuitive, interactive analytical reporting letting non-technical business users quickly understand business information against Pentaho Analysis data sources.</p> <p>Feature highlights:</p> <ul style="list-style-type: none"> • Accesses Pentaho Analysis data sources • Web-based, drag-and-drop report creation • Advanced sorting and filtering • Customized totals and user-defined calculations • Chart visualizations
Pentaho Dashboard Designer	<p>Dashboard Designer empowers business users to create rich, interactive dashboards with little or no training.</p> <p>Feature highlights:</p> <ul style="list-style-type: none"> • Creating a dashboard is as simple as selecting your layout, theme, and the content you want to display. • Include any type of Pentaho reports, external web pages, or dashboard internal elements (charts and data grid) that access Pentaho Metadata data sources. • Add dynamic filter controls making it easy for end users to filter the entire contents of their dashboard using a simple pick list • Drive content within a dashboard using other dashboard content

Design Tools

The **design tools** are desktop applications that allow you to create a rich reporting environment:

Design tool	Description
Report Designer	<p>Report Designer is a visual design environment that makes it easy for report authors to quickly create sophisticated pixel perfect reports against a wide range of data sources addressing the demands of operational, financial and production reporting. These reports can be executed as a standalone report within the User Console or used within a Pentaho Dashboard. In addition, it creates detailed charts and Pentaho Interactive Reporting and Report Wizard templates. It is geared towards experienced and power users, who are familiar with the report design concepts and the data sources used.</p>
Pentaho Data Integration	<p>Data Integration is an intuitive, graphical, drag and drop design environment that provides powerful Extraction, Transformation and Loading (ETL) features. In addition, Pentaho Data Integration provides you with Agile BI capabilities that collapse the multi-step and lengthy BI project cycles into a single integrated design, modeling, and visualization process. Agile BI drives close collaboration between BI application developers and end-users.</p>
Pentaho Metadata Editor	<p>Metadata Editor builds Pentaho metadata data sources, a data model representation of a relational database where business users can create queries without having to know SQL. Pentaho Dashboards and Pentaho Interactive</p>

Design tool	Description
	Reporting are primary tools to access this data source. Additionally, a data model designer can tag useful attributes to secure or format columns in a data model which can be inherited in a report (prpt) and interactive report (prpti).
Pentaho Schema Workbench	Schema Workbench builds Pentaho Analysis data sources, (ROLAP cubes) facilitating data exploration and analysis for business users without having to know MDX.
Pentaho Aggregation Designer	Pentaho Aggregation Designer is a graphical environment used to increase query performance of a Pentaho Analysis (Mondrian OLAP) schema through the creation of aggregate tables.
Pentaho Design Studio	Design Studio is used to create Action Sequences (.xaction). Action Sequences define lightweight, success oriented process flows within the Pentaho BI Server. It enables full customization and integration between all components within the Pentaho BI Suite.

Server Applications

The **BI Server** functions as a Web-based report management system, application integration server, and lightweight workflow engine. The BI Server supports the Pentaho User Console, primarily; it serves users with reporting, analysis, and dashboard content and includes the services for security, scheduling, Pentaho Metadata and Pentaho Analysis.


The **Enterprise Console Server** supports the Enterprise Console and includes services for security, scheduling and repository management and the configuration of the BI Server.

The **Data Intergration Server** (DI Server) is a dedicated, enterprise class server for ETL and Data Integration. It is used to execute Data Integration jobs and transformation and provides services such as scheduling and content management (including revision history and security integration).

System Requirements

Below are the system requirements for each Pentaho component included in this release:


Software Requirements

 **Note:** The system requirements listed below apply to the BI Suite. The BI Suite graphical installation utility, however, will only work on Windows or Linux.

In terms of operating systems, Windows (XP SP2, 2008, 7) modern Linux distributions (SUSE Linux Enterprise Desktop and Server 10 and Red Hat Enterprise Linux 5 are officially supported, but most others should work), Solaris 10, and Mac OS X 10.5 (and newer) are all officially supported.

The BI Suite installer will provide you with a Sun Java Runtime Environment (JRE) version 1.6 (sometimes referenced as version 6.0) installed. If you have other versions installed, they will be ignored.

Workstations will need to have reasonably modern Web browsers to access Pentaho's Web interface. Internet Explorer 8 or higher; Firefox 4.1 or higher; and Safari 5 or higher will all work.

 **Note:** The Pentaho User Console may have rendering issues in Firefox 3.5 and Safari 4.x.

Your environment can be either 32-bit or 64-bit as long as it meets the above requirements.

The aforementioned configurations are officially supported by Pentaho. Other operating systems such as FreeBSD and OpenBSD; other Java virtual machines like Blackdown; other application servers such as Liferay and Websphere; and other Web browsers like Opera may work without any problems. However, the Pentaho support team will probably not be able to help you if you have trouble installing or using the BI Suite under these conditions.

 **Note:** Some Pentaho client tools, such as Metadata Editor, Aggregation Designer, Pentaho Data Integration, and Design Studio, require that the Eclipse SWT JAR be in your Java classpath. This can be an issue in

scenarios where standalone client tools are installed onto a machine that does not also have the BI Server installed, particularly on platforms other than Windows and Linux.



Note: The Pentaho Reporting engine requires a graphical environment in order to create charts. If you are installing the BI Server onto a headless Linux, BSD, or Solaris server and do not have X11R6 on it, you should install the **Xvfb** package on your server to satisfy the charting dependency.

Hardware Requirements

The Pentaho BI Suite does not have strict limits on computer or network hardware. As long as you meet the minimum software requirements (note that your operating system will have its own minimum hardware requirements), Pentaho is hardware agnostic. There is, however, a recommended set of minimum system specifications:

Server:

- **RAM:** at least 2GB
- **Hard drive space:** at least 2GB for the software, and more for solution and content files
- **Processor:** dual-core AMD64 or Intel EM64T

Workstation:

- **RAM:** at least 1GB
- **Hard drive space:** at least 1GB for the software, and more for solution and content files
- **Processor:** dual-core AMD64 or Intel EM64T

It's possible to use less capable machines, but in most realistic scenarios, the too-limited system resources will result in an undesirable level of performance.

Your environment does not have to be 64-bit, even if your processor architecture supports it; while all modern desktop, workstation, and server machines have 64-bit processors, they often ship by default with 32-bit operating systems. If you want to run the Pentaho BI Suite in a pure 64-bit environment, you will have to install a 64-bit operating system, ensure that your solution database and Java Runtime Environment are 64-bit, and install the BI Suite via the 64-bit graphical installer, or through the archive-based or manual deployment methods.




Note: A 32-bit JRE has a hard memory limit of 2GB (1.5GB on Windows), so if you have 2GB or more of RAM, you must use a 64-bit JRE on a 64-bit operating system to take full advantage of it. This means that, through architectural limitations, a 32-bit environment will likely be under-powered for a production BI Server deployment.

Installing the Pentaho BI Suite

It is assumed that you will follow the default installation instructions and that you are installing to a *local* device (localhost). If you have custom configuration requirements, such as installing the Pentaho BI Suite on a remote server, contact your Pentaho Sales Representative or send an email to [Support](#).

Follow the instructions below as you go through each step in the installation wizard. See [Troubleshooting Your Installation](#) in the unlikely event you run into port conflict issues.

 **Note:** You must disable any anti-spyware software before installing the Pentaho BI Suite. Some types of software firewalls and anti-virus scanners may also block the BI Server or prevent it from operating normally.

1. Click **Next** in the **Welcome** page.
2. Read and accept the **License Agreement**.
3. Click **Default** to accept the default installation.
4. Specify the location in which to install the Pentaho BI Suite or accept the default.
5. Type and retype **password** to set the master password for required users, the repository "root" user, the BI server publish password, and the admin user for the Pentaho Enterprise console.
6. Click **Next** to start installing the Pentaho components.
7. Once the installation is complete, you can choose to view the installation summary and launch the Pentaho User Console. Accept the default choices.

This document and Pentaho User Console home page appears. Some installations may prevent the browser from opening. In these instances, you must open the console manually. See instructions for starting the Pentaho User and Pentaho Enterprise consoles under [Verifying Your Installation](#). Keep your console open and available as you step through the exercises in this document.

Logging into the Pentaho User Console

The Pentaho User Console opens automatically after installation. Below are instructions for logging into the Pentaho User Console if you inadvertently close the browser window.



1. Go to **Start -> Programs -> Pentaho Enterprise Edition -> User Console Login**, or open a browser and go to <http://localhost:8080/> or the hostname, IP address, or domain name of the machine you installed the BI Server to.
2. Enter the credentials, **joe/password** (all lowercase letters), to open the Pentaho User Console launch page. Joe is a sample user with administrative privileges to the Pentaho User Console.

The Pentaho User Console launch page appears.

Starting and Stopping the Servers

To **start** or **stop** any of the servers in the Pentaho BI Suite, go to **Start -> All Programs -> Pentaho Enterprise Edition -> Server Management**; then, select the server you want to start or stop.

Accessing the Client Tools

To access the **Design** (client) tools in the Pentaho BI Suite, go to **Start -> Programs -> Pentaho Enterprise Edition -> Design Tools**; then, select the client tool.

Examining Sample Reports

The Steel Wheels sample reports included in your installation of the Pentaho BI Suite provide you with real world examples of reports you can create using the both the Web-based and client-based reporting tools. Here we will highlight a few reports and explain them.

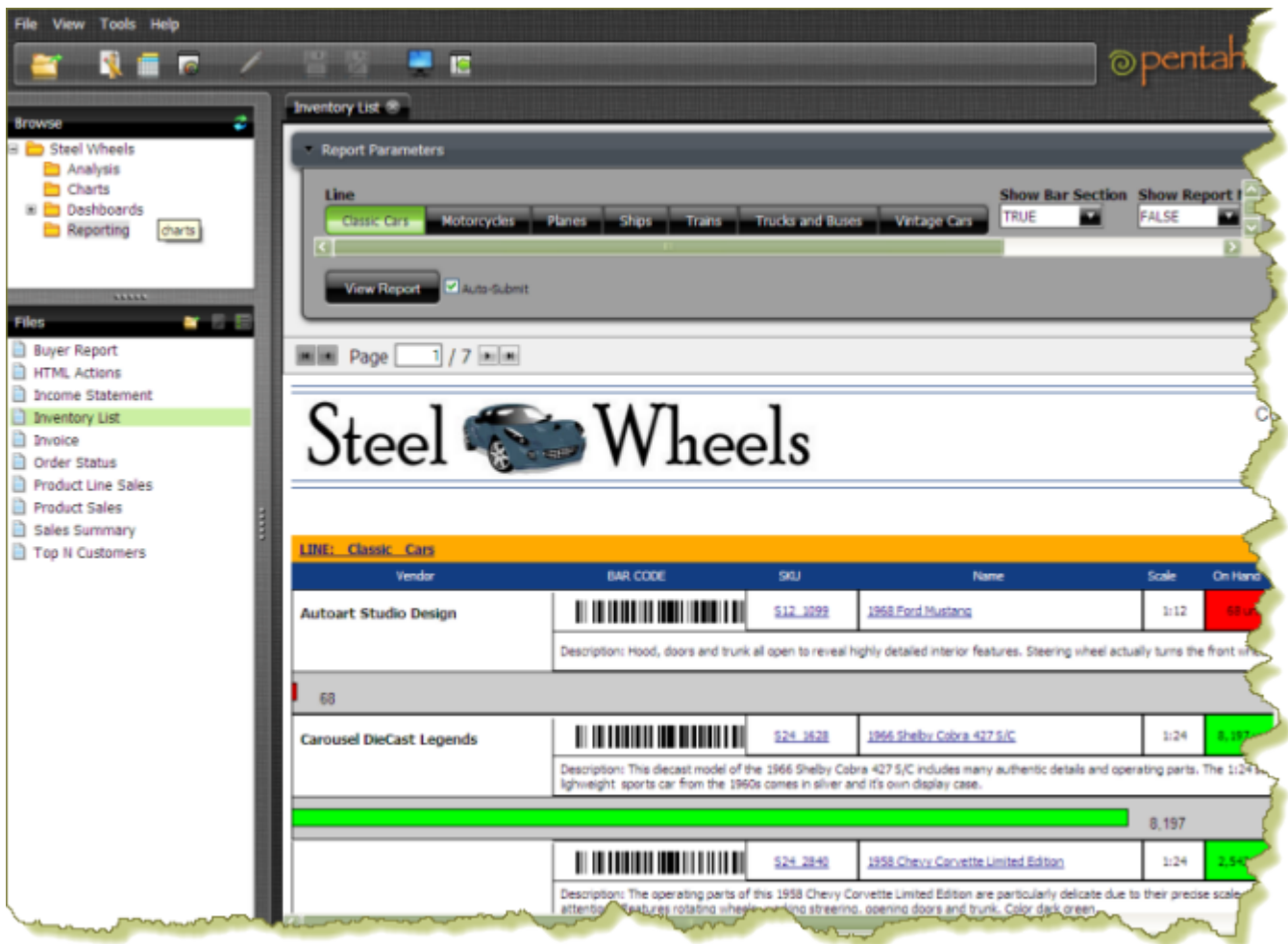
Inventory List Report

This report was created using Report Designer; you can find it in the Pentaho User Console solution repository under **Steel Wheels -> Reporting -> Inventory List**.

You can examine the source report in Report Designer. Go to **Start -> Programs -> Pentaho Enterprise Edition -> Design Tools -> Report Designer**. When Report Designer **Welcome** page opens, go to **Samples -> Operational Reports** and select **Inventory List**.

Inventory list features:

- Versatile layout capabilities allows the mixing of columnar and form type layouts.
- Flexible design capabilities where subsequent repeating rows field element can be hidden, formatted or styled and elements can have dynamically set width and position.
- Conditionally color elements by setting the background color based on a formula expression.
- Generate sophisticated bar codes for all major symbologies; EAN, UPC, ISBN, EAN13, Code39, Code128, UPCE to name a few.
- Produce data driven hyperlinks to access external content.
- Produce data driven hyperlinks to launch other Pentaho reports.
- Pick from an assortment of selection controls (buttons, drop down list boxes, list boxes, checkboxes, options) to pass values to report parameters to drive report data.
- Control when elements display on a report based on report parameters.
- Fine tune the presentation of report sections (Table of Contents) or elements based on the output type.



Top Five Product Lines by Territory

The **Top 5 Product Lines by Territory** report was created with **Pentaho Analyzer**. This report is located under **Steel Wheels -> Analysis -> Top 5 Product Lines by Territory**.

The Top 5 Product Lines by Territory Analyzer report features:

- One click subtotal items for a dimension.
- Leverage Pentaho Analysis for fast Top/Bottom queries.
- Quickly visualize and compare values using the Data Bar.
- Add color scale range to easily determine outliers and median values.
- Drill on a data cell to view supporting data.

Top 5 Product Lines by Territory

+ 1 Filter in use

		Years			
		2003			
Territory	Line	Sales	Quantity	Unit Sales	Sales
APAC	Classic Cars	<u>\$115,011</u>	<u>1,052</u>	<u>\$109</u>	<u>\$199,331</u>
	Vintage Cars	<u>\$111,639</u>	<u>1,243</u>	<u>\$90</u>	<u>\$147,210</u>
	Motorcycles	<u>\$60,789</u>	<u>654</u>	<u>\$93</u>	<u>\$63,156</u>
	Trucks and Buses	<u>\$11,298</u>	<u>91</u>	<u>\$124</u>	<u>\$80,611</u>
	Planes	<u>\$42,663</u>	<u>456</u>	<u>\$94</u>	<u>\$67,608</u>
APAC Total		\$341,400	3,496	\$98	\$558,016
EMEA	Classic Cars	<u>\$691,273</u>	<u>5,853</u>	<u>\$118</u>	<u>\$1,015,795</u>
	Vintage Cars	<u>\$263,695</u>	<u>3,094</u>	<u>\$85</u>	<u>\$504,000</u>
	Motorcycles	<u>\$141,836</u>	<u>1,428</u>	<u>\$99</u>	<u>\$204,000</u>
	Trucks and Buses	<u>\$228,699</u>	<u>2,261</u>	<u>\$101</u>	<u>\$185,400</u>
	Planes	<u>\$154,519</u>	<u>1,723</u>	<u>\$90</u>	<u>\$209,100</u>
EMEA Total		\$1,480,021	14,359	\$103	\$2,118,440
Japan	Classic Cars	<u>\$120,696</u>	<u>898</u>	<u>\$134</u>	<u>\$42,000</u>
	Planes	<u>\$60,556</u>	<u>677</u>	<u>\$89</u>	<u>\$49,100</u>
	Trucks and Buses	<u>\$44,498</u>	<u>415</u>	<u>\$107</u>	<u>\$13,300</u>
	Motorcycles	<u>\$16,485</u>	<u>205</u>	<u>\$80</u>	<u>\$31,900</u>
	Vintage Cars	<u>\$22,888</u>	<u>308</u>	<u>\$74</u>	<u>\$21,400</u>
Japan Total		\$265,123	2,503	\$106	\$158,000
NA	Classic Cars	<u>\$587,428</u>	<u>4,959</u>	<u>\$118</u>	<u>\$581,000</u>
	Vintage Cars	<u>\$281,727</u>	<u>3,268</u>	<u>\$86</u>	<u>\$324,800</u>
	Motorcycles	<u>\$178,109</u>	<u>1,744</u>	<u>\$102</u>	<u>\$291,400</u>
	Trucks and Buses	<u>\$135,936</u>	<u>1,289</u>	<u>\$105</u>	<u>\$252,500</u>
	Planes	<u>\$90,016</u>	<u>977</u>	<u>\$92</u>	<u>\$202,900</u>
NA Total		\$1,273,216	12,237	\$104	\$1,652,700
Grand Total		\$3,359,761	32,595	\$103	\$4,487,316

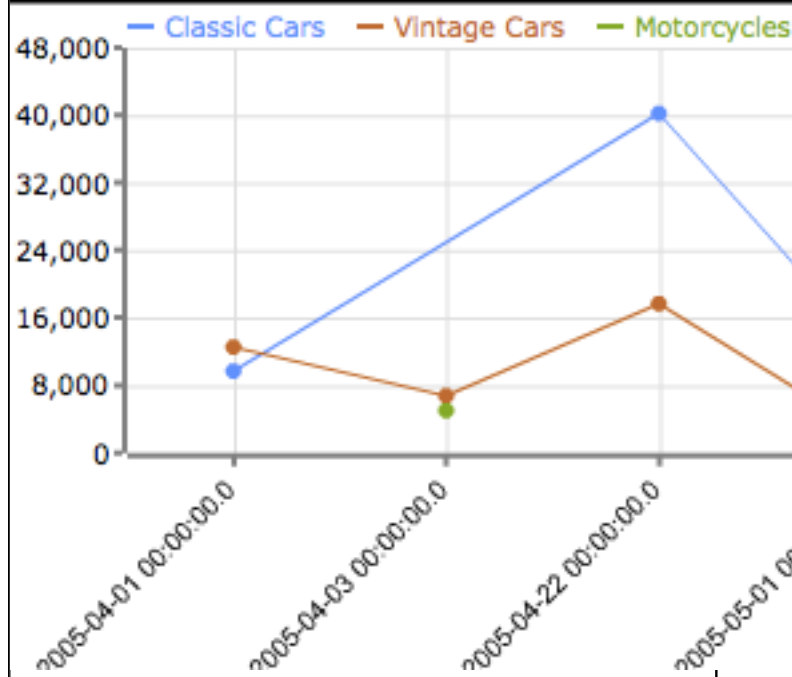
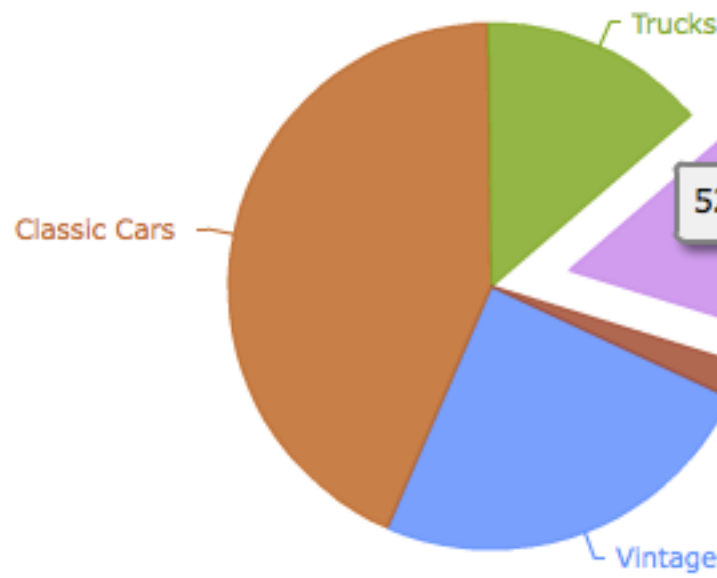
Regional Sales Performance Dashboard

Regional Sales Performance, shown below, is a dashboard which contains three filters, two charts, (created using Chart Designer — Sales Mix and Recent Sales), and an Analyzer report (Product Performance). This dashboard is located under **Steel Wheels -> Dashboards -> Regional Sales Performance**. Dashboards feature an interactive drag-and-drop interface that allows business users to quickly assemble content into a dashboard and the ability to link content within the dashboard or outside of the dashboard.

Regional Sales Performance dashboard features:

Pick from an assortment of selection controls (buttons, drop down list boxes, list boxes, checkboxes, options) to pass parameters to any dashboard panel.	<table><tr><td data-bbox="854 466 1117 793">Territory <input checked="" type="radio"/> NA <input type="radio"/> Japan <input type="radio"/> EMEA <input type="radio"/> APAC</td><td data-bbox="1123 466 1409 793">Country Canada USA</td><td data-bbox="1416 466 1622 793">Product Line Classic C</td></tr></table>	Territory <input checked="" type="radio"/> NA <input type="radio"/> Japan <input type="radio"/> EMEA <input type="radio"/> APAC	Country Canada USA	Product Line Classic C
Territory <input checked="" type="radio"/> NA <input type="radio"/> Japan <input type="radio"/> EMEA <input type="radio"/> APAC	Country Canada USA	Product Line Classic C		

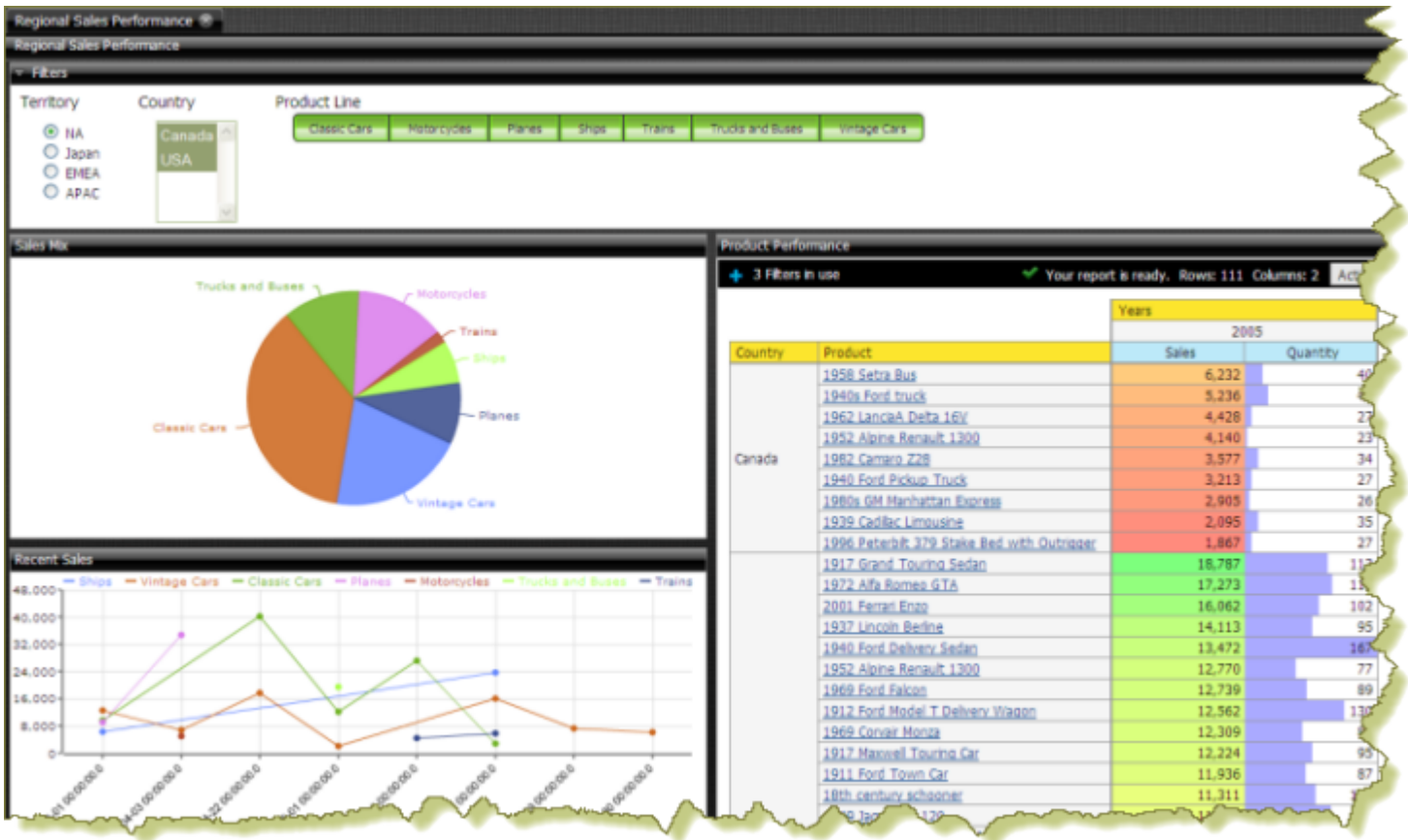
Build dashboard interactive flash-based charts (bar, line, pie, area, dial).



Display any Pentaho generated content.

+ 3 Filters in use


Country	Product
Canada	1958 Setra Bus
	1940s Ford truck
	1962 LanciaA Delta 16V
	1952 Alpine Renault 1300
	1982 Camaro Z28
	1940 Ford Pickup Truck
	1980s GM Manhattan Express
	1939 Cadillac Limousine
	1996 Peterbilt 379 Stake Bed with O
	1917 Grand Touring Sedan
	1972 Alfa Romeo GTA
	2001 Ferrari Enzo
	1937 Lincoln Berline
	1940 Ford Delivery Sedan
	1952 Alpine Renault 1300
	1969 Ford Falcon
	1912 Ford Model T Delivery Wagon
	1969 Corvair Monza
	1917 Maxwell Touring Car
	1911 Ford Town Car
	1949 Jaguar XK 120
	1928 Mercedes-Benz SSK
	1903 Ford Model A
1952 Citroen-15CV	



Creating an Interactive Report

Follow the instructions below to begin creating a simple Interactive Report.

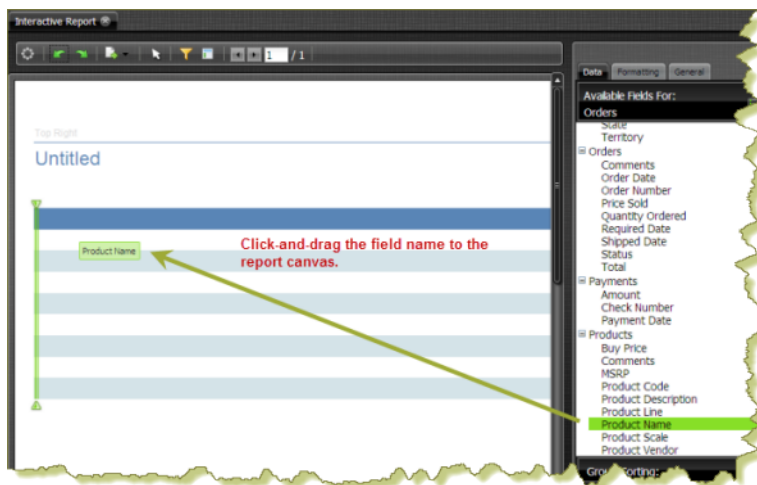
1. In the Pentaho User Console Launch page, click **New Report**. (Alternatively, go to File > New > Interactive Report in the Pentaho User Console Launch page or click **New Interactive Report** in the toolbar.)
2. Select **Orders** from the list under **Select a Data Source**. As you become more familiar with Interactive Reporting features, you can add your own relational or flat file (CSV) data sources.

 **Note:** Click **Get Started** in the Interactive Report overview box to close it. Click **Hide Tips** in the lower right corner of the report canvas for easier viewing.

The categories and fields associated with the **Orders** data source are listed under **Data** right pane.

3. Click-and-drag **Product Name**, (under **Products**), from the right pane, onto the report canvas.

When dragging, notice the green horizontal line that appears as you are about to drop the field into the report.



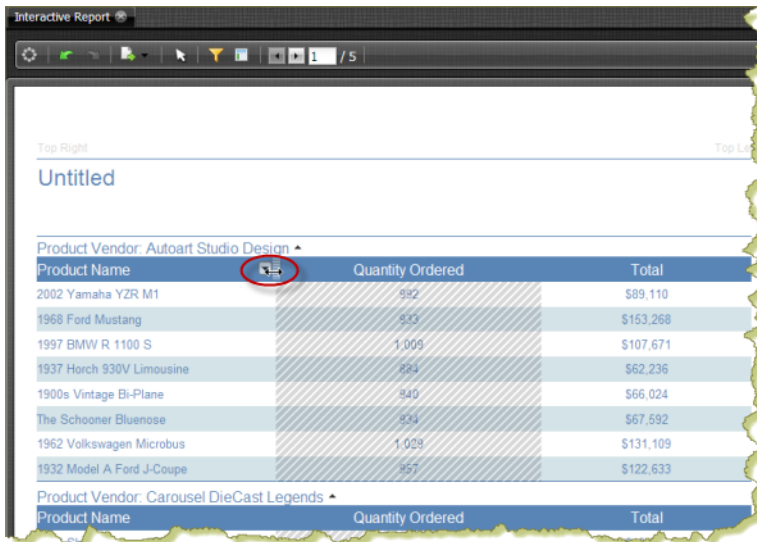
4. Double-click on **Product Scale**, (under **Products**).
5. Double-click on **Quantity Ordered**, (under **Orders**).
6. Double-click **Total**, (under **Orders**). Your report should now have four columns: Product Name, Product Scale, Quantity Ordered, and Total.
7. Click and drag **Territory**, (under **Customers**), above the column headers in the report. This will group the Products by Territory.
8. Click and drag **Product Vendor**, (under **Products**), above the column headers in the report. This will group the Products by Territory and then by Product Vendor.

Your new interactive report shows sales by territory, and the volume of sales and quantities sold for each product by vendor.

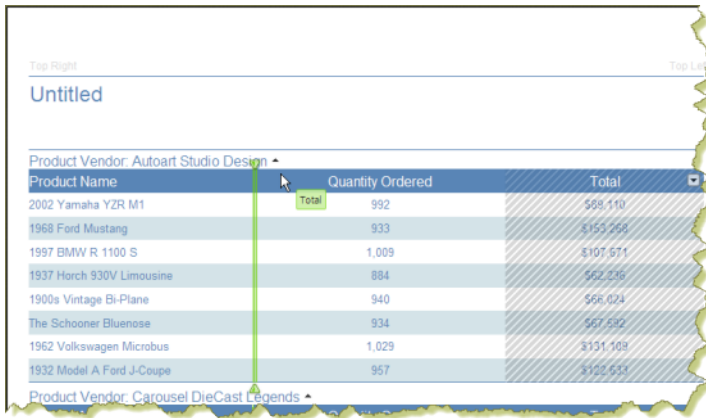
Refining Your Interactive Report

Follow the instructions below to refine some of the elements in your Interactive Report.

1. Click to select the data cells of the **Total** column in your report. Diagonal lines appear when you have selected an element in your report.
2. In the right pane, click the **Formatting** tab. The formatting options appear.
3. Under **Numeric Format**, select **\$\$,###** from the list. The numeric format is applied to the **Total** column.
4. Adjust your column widths. Select the column and move your cursor up to the left of the column header until you see a short vertical line and a small arrow. Move the arrow left or right to resize the column.



- Click the **Total** column header and drag the entire column next to the **Product Name** column.



You can also move a column by clicking on the small arrow next to the column name and selecting **Move -> Right** (or **Left**) from the menu.

- Double-click the **Total** column header to display an input text box.
- Type **Sales** in the text box and press **<Enter>**.
- Double-click the report name, (**Untitled**), and type **Vendor Sales Report** in the text box, then press **<Enter>**.
- Click the small arrow next to the **Sales** column header to display the context menu.
- Select **Summary -> Sum** so that the report displays the total sales for each vendor.
- Click the small arrow next to the **Sales** column header to display the context menu. Select **Sort -> Descending** to display sales figures from the highest to the lowest.
- Double-click the group footer, and rename it **Total**.


You now have a more complex interactive report.

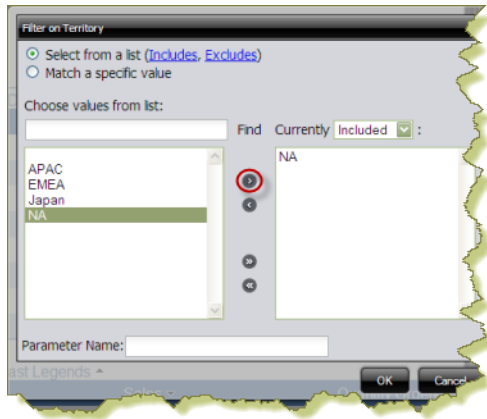
Adding a Filter to Your Report

Filters are used to restrict or limit the data that is presented in a report. For example, you can limit the data in a report to a certain region, such as West or South. In this example, you'll modify your report to limit the data to the North America region.

Follow the instructions below to add a filter to your report:

- Under the **Data** tab, right-click **Territory** (from the **Customer** category) and select **Filter**. The **Filter** (on Territory) dialog box appears.
- In the **Filter** dialog box, click **Select from a list (Includes, Excludes)**. The list of filter values, (APAC, EMEA, Japan, NA) appears.

3. Select **NA** (North America) from the list in the left pane, then click  (Add Selected) to the right pane.



A small number one (1) appears on the Filter icon in the toolbar indicating that the report contains a single filter. A filter icon also appears next to the **Territory** field name under **Data** in the right pane.

4. Save your report.

You have successfully added a filter to a report.

Saving Your Interactive Report

Follow the instructions below to save your interactive report:

1. Click (Save) in the Pentaho User Console toolbar.
The **Save** dialog box appears.
2. In the **File Name** text box, type **Vendor Sales Report Exercise**.
3. Double-click the **Steel Wheels** folder, then open the **Reporting** folder.
The path to the folder which will contain your report appears in the **Location** text box.
4. Click **Save**.
5. Close the report.



Note: You can compare your completed report with the sample report, **Vendor Sales Report**, available under **Reporting** in the solution browser. To learn more about Interactive Reporting features, see the *Pentaho User Console Guide*. Click **Help** -> **Documentation** in the Pentaho User Console.

Creating a New Analyzer Report

Follow the instructions below to create an Analyzer report with the Steel Wheels sample data.

1. In the Pentaho User Console menubar, go to **File -> New** and select **Analyzer Report**. The Pentaho Analyzer design tool will start.
2. Select the **Steel Wheels** schema and the **SteelWheelsSales** cube from the proceeding lists, then click **OK**. A blank Analyzer report appears.
3. Click and drag the **Territory** and **Sales** fields to the workspace.
4. Click and drag the **Years** field, dropping it above the Territory and Sales columns in the report. A line marker appears as shown below:

The screenshot shows the 'Analyzer Report...' window with an 'Unsaved Report' title. Below the title bar, there are options for 'No Filter in use', 'XML', 'Log', and 'Clear Cache'. The main workspace contains a pivot table with 'Territory' as the row field and 'Sales' as the column field. A 'Years' field is positioned above the columns. A green arrow points to the 'Years' field in the workspace.

Territory	Sales
APAC	1,281,706
EMEA	5,008,224
Japan	503,958
NA	3,852,061


Territory	Years		
	2003	2004	2005
APAC	343,082	601,606	337,018
EMEA	1,681,987	2,396,408	929,829
Japan	292,558	168,479	42,921
NA	1,359,757	1,821,247	671,057

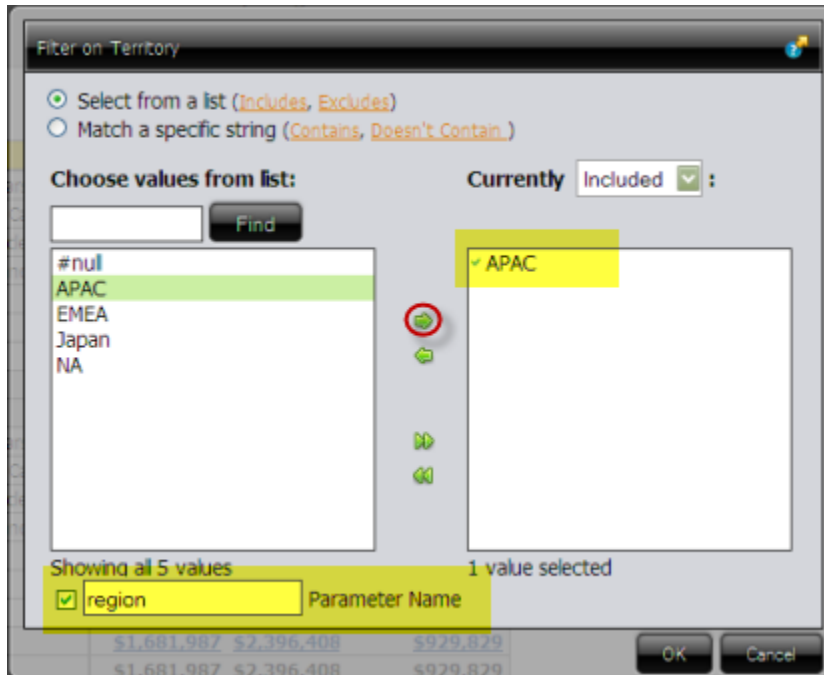
5. Click and drag the **Line** field and drop it next to **Territory**.
6. Right-click the **Territory** column and select **Show Subtotals**.
7. Right-click the **Sales** column and select **Conditional Formatting -> Data Bar - Green**.

The screenshot shows the 'Analyzer Report...' window with an 'Unsaved Report' title. Below the title bar, there are options for 'No Filter in use', 'XML', 'Log', 'Clear Cache', and 'Your report is ready. Rows: 28 Columns: 3'. The main workspace contains a pivot table with 'Territory' as the row field, 'Line' as the column field, and 'Sales' as the column field. A 'Years' field is positioned above the columns. A context menu is open over the 'Sales' column, with 'Data Bar - Green' selected. A green arrow points to the 'Data Bar - Green' option in the context menu.

Territory	Line	Years		
		2003	2004	2005
APAC	Classic Cars			07,574
	Motorcycles			
	Planes			
	Ships			
	Trains			
	Trucks and Buses			
APAC Total		3		
EMEA	Classic Cars			
	Motorcycles			
	Planes			
	Ships			
	Trains			
	Trucks and Buses			
EMEA Total		263,695	504,062	93

8. Right-click the **Sales** column and select **User Defined Number -> % of Rank, Running Sum...**, then in the dialog box select **% of Sales**. Click **Next**.
9. Enable **Each Territory Column/Row Subtotal (Subtotal is 100%)**. Click **Done**.

10. Click  (Filter) in the toolbar to create a filter for your report. When the filter area appears at the top of the report, click and drag the **Territory** field (under **Available Fields** on the right) into the filter area.
11. In the **Filter on Territory** dialog box, select APAC from the list and click the small green arrow to move it to the box on the right.
12. Enable **Parameter Name** and type **region** (lowercase) as your parameter name in the text box. Click **OK**.





The report updates and displays sales data for APAC exclusively.

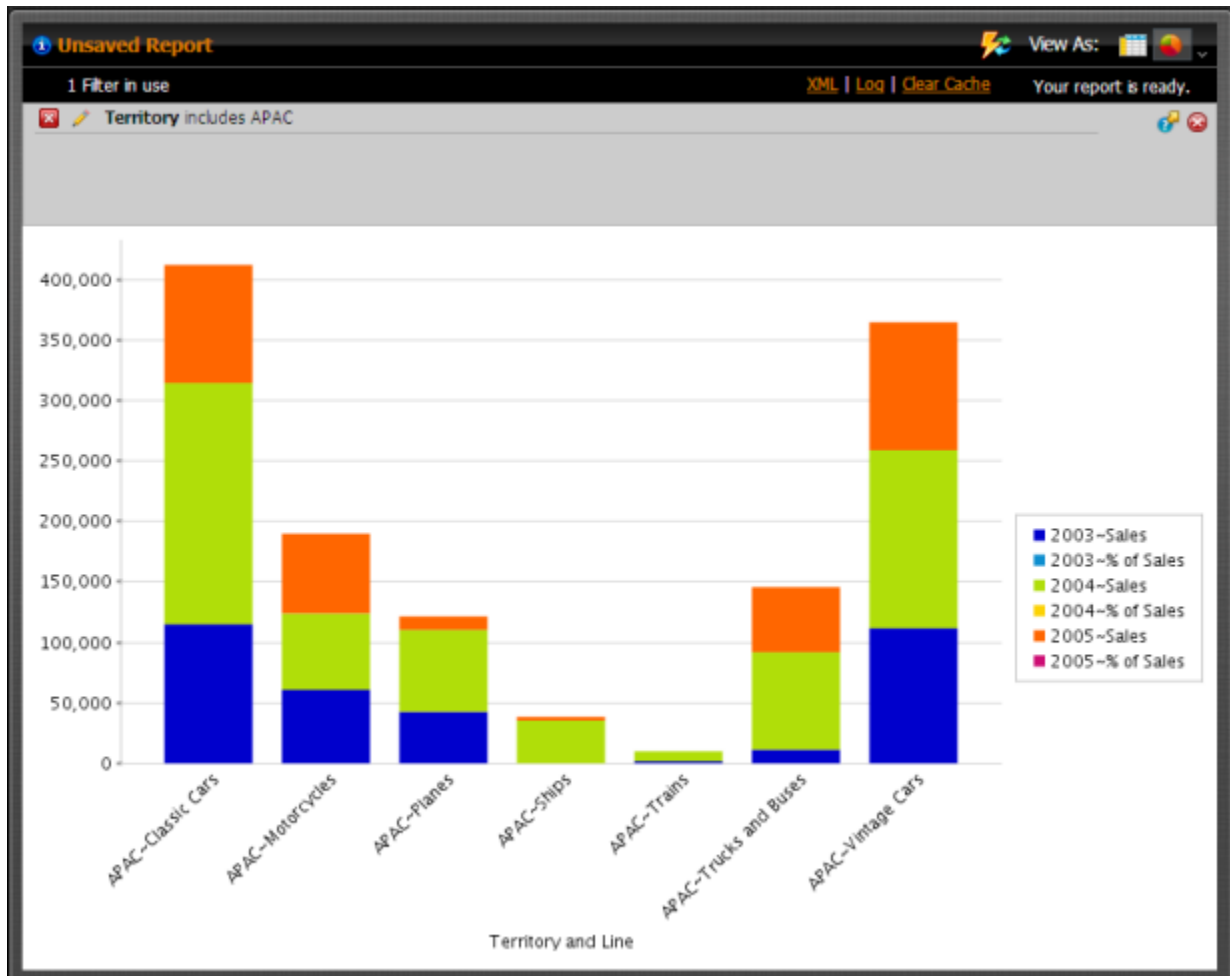
Click the line that separates each column to adjust it for better viewing. Move the line right or left as needed.

		Years					
		2003		2004		2005	
Territory	Line	Sales	% of Sales	Sales	% of Sales	Sales	% of Sales
APAC	Classic Cars	115,011	33.52%	199,372	33.14%	97,574	28.95%
	Motorcycles	60,789	17.72%	63,159	10.50%	65,870	19.54%
	Planes	42,663	12.44%	67,681	11.25%	11,082	3.29%
	Ships	-	-	35,323	5.87%	3,070	0.91%
	Trains	1,681	0.49%	8,226	1.37%	-	-
	Trucks and Buses	11,298	3.29%	80,634	13.40%	53,735	15.94%
	Vintage Cars	111,639	32.54%	147,212	24.47%	105,688	31.3%
APAC Total		343,003	32.9%	592,212	11.2%	337,957	10.0%


13.



At this point you have a functioning report and you can view your data in chart form. Click  (Switch to Chart Format) to examine your report data in a chart format. The default display is a bar chart but if you click  (Choose Another Chart Type) you can select a different chart type to display your data.



Click  **Switch to Table Format** to return to your table.

- Save your report before continuing the exercise. In the Pentaho User Console, click  (Save As). When the **Save As** dialog box appears, save your report as **Territory Line - Sales** under /Steel Wheels/Analysis and click **Save**.

You've successfully created an Analyzer report from scratch.

Working with Dashboards

Dashboards provide at-a-glance access to key performance indicators for your business. Pentaho Dashboard Designer makes it easy to create dashboards based on existing BI content, and simple charts and data tables that you can generate within Dashboard Designer.

Defining Your Dashboard Look-and-Feel

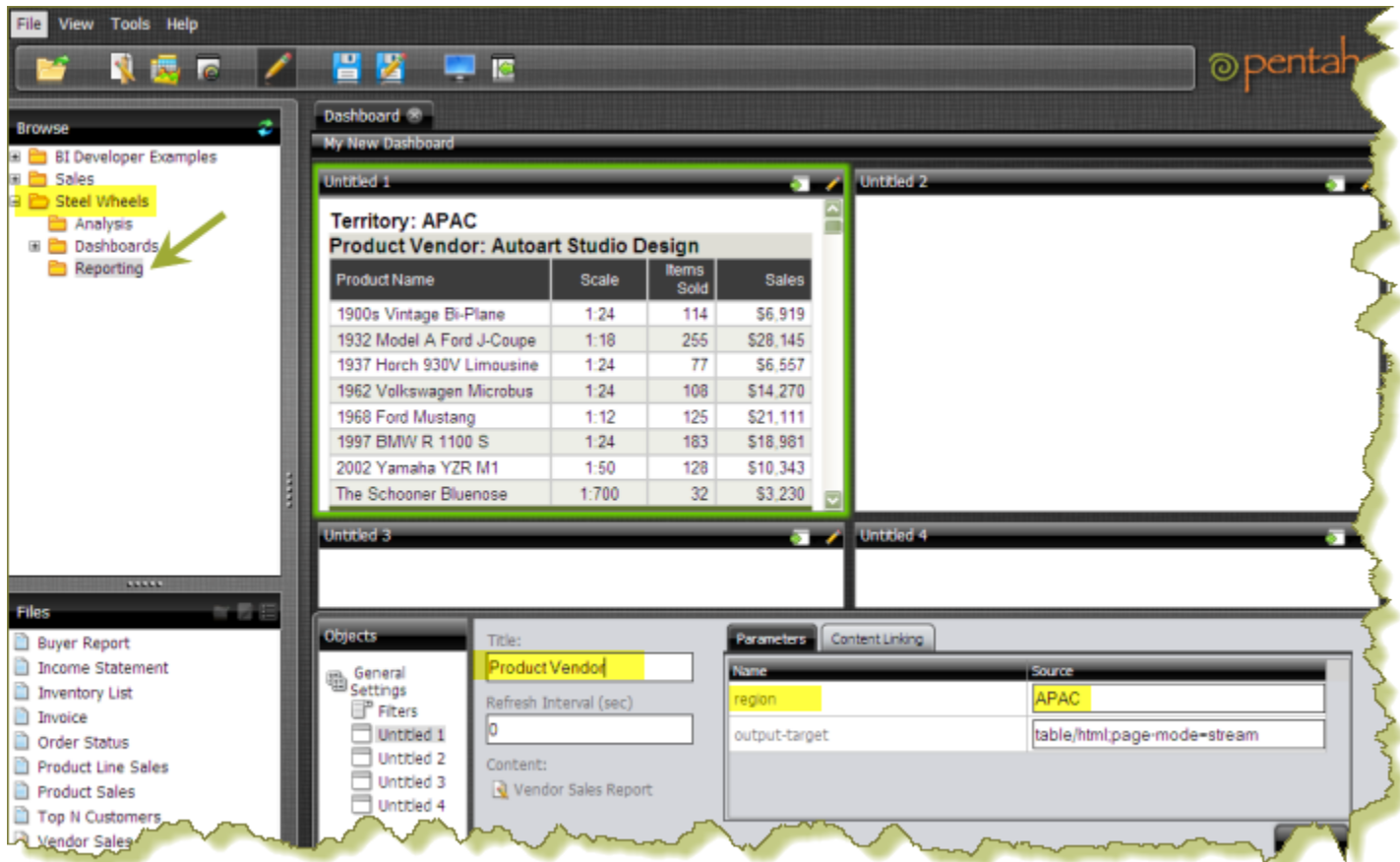
You must be logged on to the Pentaho User Console. Follow the instructions below to create a new dashboard:

1. In the Pentaho User Console Launch page, click **New Dashboard**. Alternatively, go to **File > New > Dashboard** in the Pentaho User Console Launch page or click **New Dashboard** in the toolbar.
2. In the edit pane (lower portion of the page), click **Properties**, and type **My Dashboard** in the **Page Title** text box. This is the title for your dashboard page.
The name you entered appears on the top left corner of the dashboard.
3. Click **Templates** and use the scrollbar to examine the different dashboard layouts. The **2 by 2** template is selected by default and is the layout you will use for this exercise.
4. Click **Theme**, then select the theme of your choice.
The new theme will be applied to your dashboard immediately.

Adding Data to Your Dashboard

Follow the instructions below to add data to your dashboard.

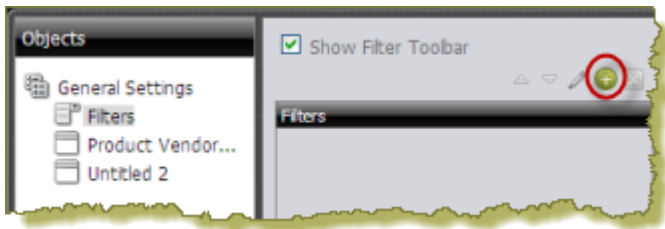
1. Select the upper left panel in the Dashboard Designer.
2. Click **Reporting** in your samples repository (**Steel Wheels**) to display the list of available reports.
3. Click-and-drag the **Vendor Sales Report** into the dashboard panel.



- a) Type **Product Vendor**, under **Title**, in the lower portion of your dashboard and click **Apply**.

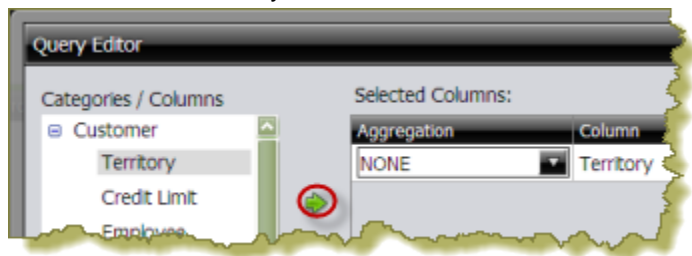
4. Click **Analysis** in your samples repository (**Steel Wheels**) to display the list of available reports.
5. Click-and-drag the **Territory Line - Sales** Analyzer report into the upper right dashboard panel.
 - a) Type **Territory Line Sales**, under **Title**, in the lower portion of your dashboard and click **Apply**.
6. Click **General Settings** in the lower portion of the page and select the **2 Column** template. The content of your dashboard displays in the new template.
7. Click **Filters** near the bottom of the page.
 - a) Enable **Show Filter Toolbar**.
A Filter area appears at the top of the dashboard.

- b) Click  to add a filter.



The **Filter** dialog box appears.

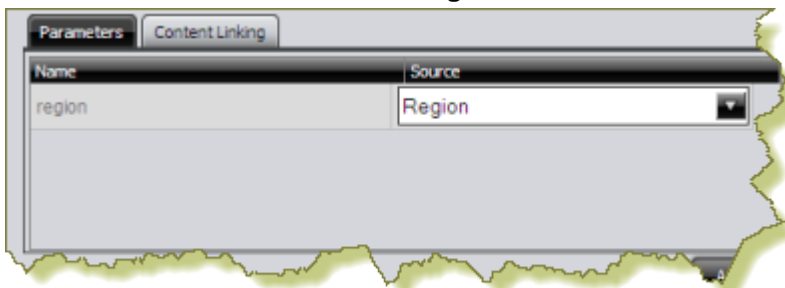
- c) In the **Name** text box, type **Region**.
 - d) Under **Data Type**, select **Metadata List**.
 - e) Under **Connections**, click **Select**, then choose the **Orders** data source and click **OK**.
The **Query Editor** opens.
8. In the Query Editor, expand the **Customer** category on the left and select **Territory** from the list. Click the small arrow to move **Territory** under **Selected Columns**.



- a) Click the small arrow in the center of the Query Editor to add **Territory** to **Conditions**.
- b) Under **Comparison** select **is not null**.



- c) Click **OK** to exit the Query Editor.
9. Click **OK** to exit the Filter dialog box and return to the dashboard.
 10. Select the dashboard panel that contains your **Territory Line Sales** Analyzer report.
 - a) Under the **Parameters** tab, select **Region** as the **Source** value for your **region** parameter and click **Apply**.



11. Select the dashboard panel that contains the **Product Vendor** report and change its parameter APAC to **Region**.

- a) Test the filter to make sure that the content in each dashboard is being filtered on **Region**.

The screenshot shows a dashboard with the following components:

- Filters:** Region is set to EMEA.
- Product Vendor:** Autoart Studio Design.
- Territory Line Sales Report:**

		Years		
		2003		
Territory	Line	Sales	% of Sales	Sale
EMEA	Classic Cars	691,273	41.10%	1
	Motorcycles	141,836	8.43%	
	Planes	154,519	9.19%	
	Ships	172,428	10.25%	
	Trains	29,538	1.76%	
	Trucks and Buses	228,699	13.60%	
	Vintage Cars	263,695	15.68%	
- Product Vendor: Autoart Studio Design Table:**

Product Name	Scale	Items Sold	Sales
1900s Vintage Bi-Plane	1.24	477	\$32,171
1932 Model A Ford J-Coupe	1.18	357	\$44,702
1937 Horch 930V Limousine	1.24	501	\$33,529
1962 Volkswagen Microbus	1.24	543	\$67,468
1968 Ford Mustang	1.12	553	\$88,780
1997 BMW R 1100 S	1.24	348	\$37,115
2002 Yamaha YZR M1	1.50	459	\$40,662
The Schooner Bluenose	1.700	509	\$35,952

Saving Your Dashboard

Follow the instructions below to save your dashboard:

1. In the toolbar, click (Save) to open the **Save** dialog box.
2. In the **File Name** text box, type **My Dashboard**.
3. Save your file in the `.../steel-wheels/dashboards` directory. You can do this by double clicking the **Steel Wheels** folder and the **Dashboards** folder.
4. Click **Save**.



Note: To learn more about Dashboard features, see the *Pentaho User Console Guide*. Click **Help -> Documentation** in the Pentaho User Console.

Editing Your Dashboard

You just created a dashboard chart that contained an Interactive Report and an Analyzer Report. In this exercise, you will edit your dashboard by adding a chart. Before you can add a chart you must select a data source that contains the data you want to use. You must then define the data that will be displayed in the chart.

1. Browse the repository to locate **My Dashboard** under **Dashboards**.
The dashboard opens.
2. Click the edit button in the Pentaho User Console toolbar.
3. Change your dashboard template to **1 and 2**.
4. In the Dashboard, choose a dashboard panel and click (Insert) and select **Chart**.
The **Select a Data Source** dialog box appears.
5. Select the **Orders** data source from the list of available choices. The Orders data source contains the content you want to display in your chart.
The **Query Editor** opens. 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
6. Expand the **Products** category and click the small arrow to place the **Product Line** column under **Selected Columns**.
 - a) Expand the **Orders** category and click the small arrow to place the **Total** column under **Selected Columns**.
 - b) Expand the **Customers** category and click the small arrow to place **Territory** column under **Conditions**.
These are the constraints that filter what you are selecting.
 - c) Under **Comparison**, select **in**.

d) In the **Value** text box, type **{Region}**.

When you enclose a parameter name with curly braces, you are creating a parameter query.

e) In the **Default** text box, type **APAC**.

When the chart renders, it displays data associated with APAC. APAC is the default value of the parameter. That means users can change the query dynamically by replacing the default, "APAC," with a different territory acronym, (for example, EMEA), when the query runs. You can click **Preview** in the Query Editor to ensure that the query you created is correct.

f) Click **OK** to exit the Query Editor.

The **Chart Designer** opens.

7. In the Chart Designer, under **Type**, select **Pie Chart**.

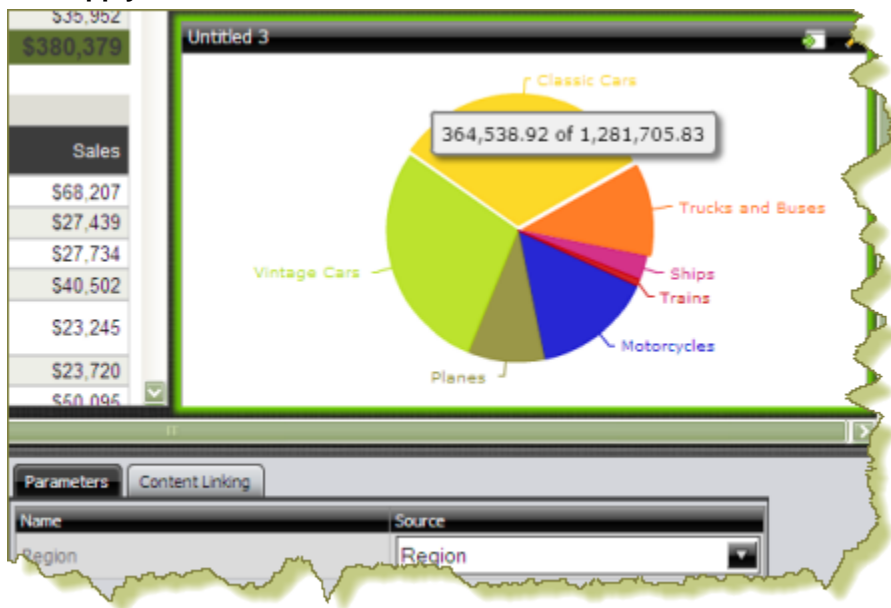
8. Under **Data/Series Column**, select **Product Line**.


9. Under **Values/Column**, select **Total**. The pie chart appears.

a) Click **OK** to exit the Chart Designer.

The pie chart appears in the dashboard panel.

10. Under **Parameters** in the dashboard, change the Source value of the **Region** parameter from **APAC** to **Region** and click **Apply**.



11. Click  in the Pentaho User Console toolbar to exit edit mode, then save your dashboard.

As you select a different territory, the slices in the pie chart update.

Creating a Data Source

The Data Sources feature allows you to connect to your data so that the data can be used to create reports, (such as Interactive Reports, Analyzer Reports, and Dashboards), in the Pentaho User Console.

Using the Data Source Wizard, you can quickly add, edit, and delete **CSV File**, **SQL Query**, and **Database Table(s)** data sources in the Pentaho User Console.


Below is a quick description of each data source type:

Data Source Type	Description
CSV File	Data originating in a CSV file is extracted and staged in a database table on the Pentaho BI Server. A default Pentaho Metadata (Reporting) Model and a Mondrian (OLAP) Schema are generated for use in Interactive Report, Dashboard, and Analyzer.
SQL Query	A SQL query written against a relational database is used to establish the context of the data source. Data available for report creation is confined to the scope of the data source's query. A default Pentaho Metadata (Reporting) Model and a Mondrian (OLAP) Schema are generated for use in Interactive Report, Dashboard, and Analyzer.
Database Table(s) Reporting Only	Data originates in a one or more relational database tables that is often operational or transactional in nature. Using the Data Source Wizard, database tables can be selected and joined. A default Pentaho Metadata (Reporting) Model is generated for use in Interactive Report and Dashboards only.
Database Table(s) Reporting and Analysis	Data originates in one or more relational database tables arranged in a star schema with a single fact table. Using the Data Source Wizard, multiple dimension tables can be selected and joined to the single fact table. A single table containing both fact and dimensional information can also be used for this data source type. A default Pentaho Metadata (Reporting) Model and a Mondrian (OLAP) Schema are generated for use in Interactive Report, Dashboard, and Analyzer.

The exercises in this section will walk you through creating a **Database Table(s) Reporting and Analysis** data source.

Adding a JDBC Driver

Before you can connect to a data source in any Pentaho server or client tool, you must first install the appropriate database driver. Your database administrator, CIO, or IT manager should be able to provide you with the proper driver JAR. If not, you can download a JDBC driver JAR file from your database vendor or driver developer's Web site. Once you have the JAR, follow the instructions below to copy it to the driver directories for all of the BI Suite components that need to connect to this data source.


 **Note:** Microsoft SQL Server users frequently use an alternative, non-vendor-supported driver called JTDS. If you are adding an MSSQL data source, ensure that you are installing the correct driver.

Backing up old drivers


You must also ensure that there are no other versions of the same vendor's JDBC driver installed in these directories. If there are, you may have to back them up and remove them to avoid confusion and potential class loading problems. This is of particular concern when you are installing a driver JAR for a data source that is the same database type as your Pentaho solution repository. If you have any doubts as to how to proceed, contact your Pentaho support representative for guidance.

Installing JDBC drivers

Copy the driver JAR file to the following directories, depending on which servers and client tools you are using (Dashboard Designer, ad hoc reporting, and Analyzer are all part of the BI Server):

 **Note: For the BI Server:** before copying a new JDBC driver, ensure that there is not a different version of the same JAR in the destination directory. If there is, you must remove the old JAR to avoid version conflicts.

- **BI Server:** /pentaho/server/biserver-ee/tomcat/lib/
- **Enterprise Console:** /pentaho/server/enterprise-console/jdbc/
- **Data Integration Server:** /pentaho/server/data-integration-server/tomcat/webapps/pentaho-di/WEB-INF/lib/
- **Data Integration client:** /pentaho/design-tools/data-integration/libext/JDBC/
- **Report Designer:** /pentaho/design-tools/report-designer/lib/jdbc/
- **Schema Workbench:** /pentaho/design-tools/schema-workbench/drivers/
- **Aggregation Designer:** /pentaho/design-tools/agg-designer/drivers/
- **Metadata Editor:** /pentaho/design-tools/metadata-editor/libext/JDBC/

 **Note:** To establish a data source in the Pentaho Enterprise Console, you must install the driver in both the Enterprise Console and the BI Server or Data Integration Server. If you are just adding a data source through the Pentaho User Console, you do not need to install the driver to Enterprise Console.

Restarting


Once the driver JAR is in place, you must restart the server or client tool that you added it to.

Connecting to a Microsoft SQL Server using Integrated or Windows Authentication

The JDBC driver supports Type 2 integrated authentication on Windows operating systems through the **integratedSecurity** connection string property. To use integrated authentication, copy the **sqljdbc_auth.dll** file to all the directories to which you copied the JDBC files.

The **sqljdbc_auth.dll** files are installed in the following location:

```
<installation directory>\sqljdbc_<version>\<language>\auth\
```

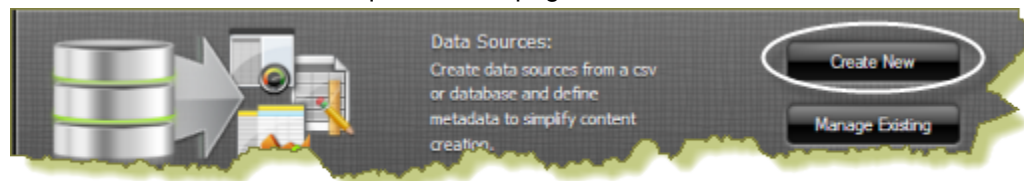
 **Note:** Use the **sqljdbc_auth.dll** file, in the x86 folder, if you are running a 32-bit Java Virtual Machine (JVM) even if the operating system is version x64. Use the **sqljdbc_auth.dll** file in the x64 folder, if you are running a 64-bit JVM on a x64 processor. Use the **sqljdbc_auth.dll** file in the IA64 folder, you are running a 64-bit JVM on an Itanium processor.

Connecting to Your Database

To create a Database Tables data source, you must first connect to the database that contains data you want to access, (if a database connection does not already exist). Existing database connections appear in a list under **Connection** in the Data Source Wizard.

Follow the instructions below to connect to a database:

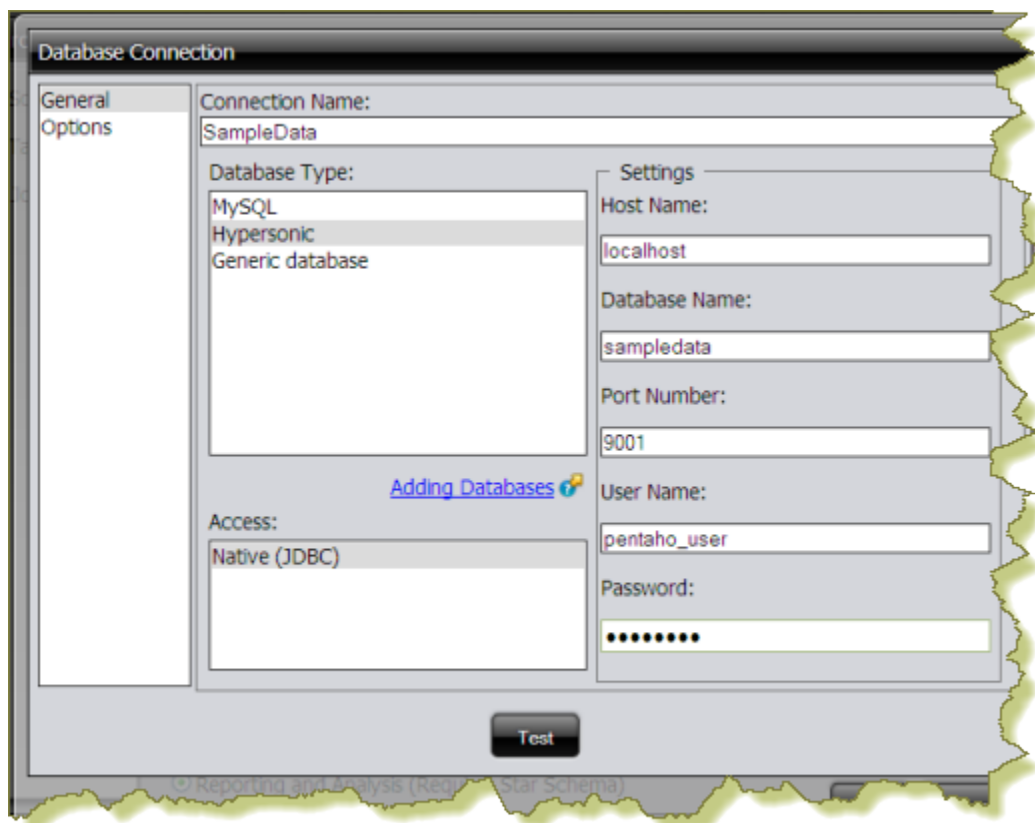
1. In the Pentaho User Console quick launch page click **Create New** .



The Data Source Wizard opens.

2. Under **Data Source Name** type, **Orders Report and Analysis KT**.
3. Under **Source Type**, select **Database Table(s)** as your data source type.
4. In the lower portion of the wizard page, under **Create data source for** enable **Reporting and Analysis (Requires Star Schema)**.

- In the center of the page, under **Connection:**, click  (Add) to define a connection to the database that contains the content you want to access. The **Database Connection** dialog box appears.



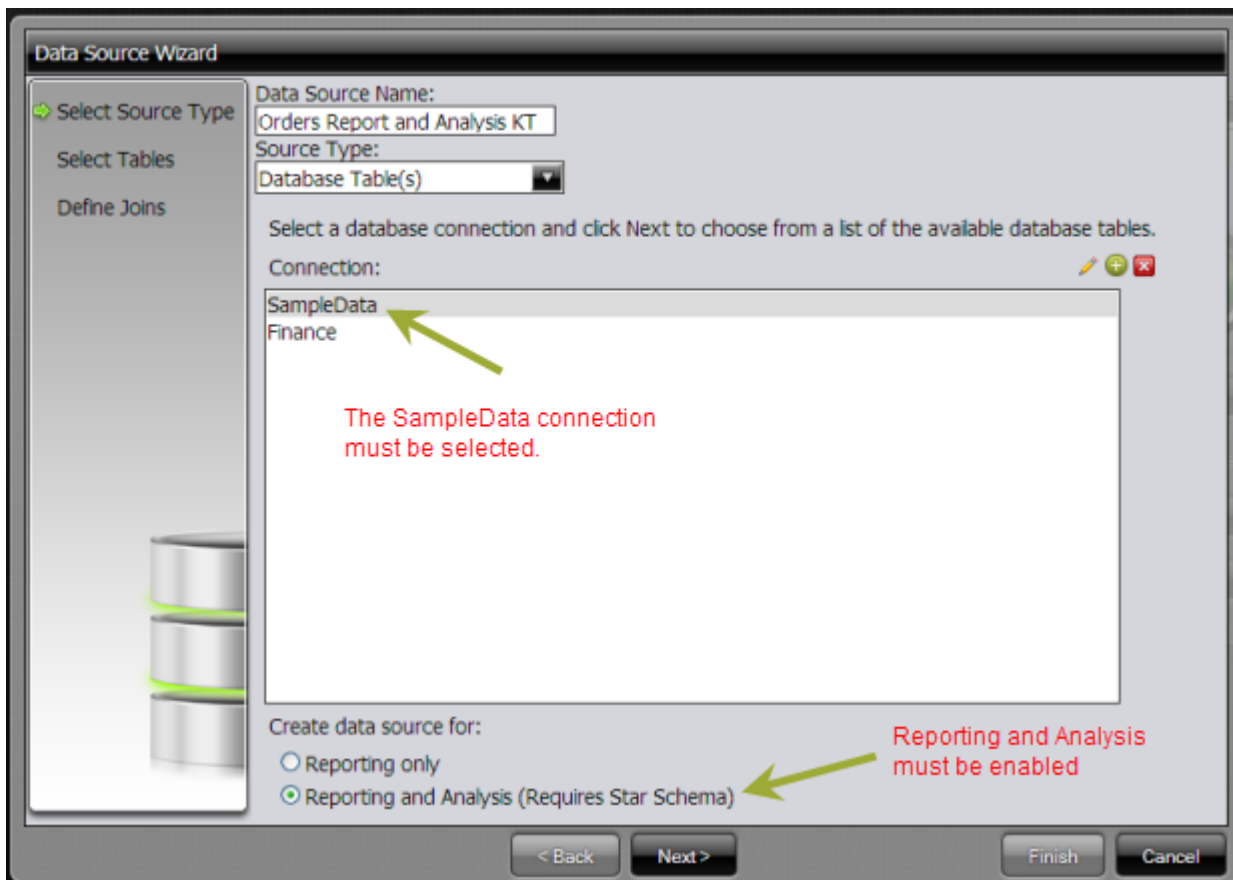
- In the **Connection Name** text box, type **SampleData**. A Connection Name must be easy to remember and must identify the data you are accessing.
- Under **Database Type**, select **Hypersonic**.
Text fields for required settings associated with your connection type appear under **Settings** on the right.
- Enter the appropriate connection information for your database type:

Option	Description
Host Name	localhost
Database Name	sampledata
Port Number	9001 (automatically available, by default)
User Name	pentaho_user
Password	password

- In the **Database Connection** dialog box, click **Test** to test your connection and click **OK**.
A success message appears. The connection name appears in the list under **Connections** in the Data Source Wizard.

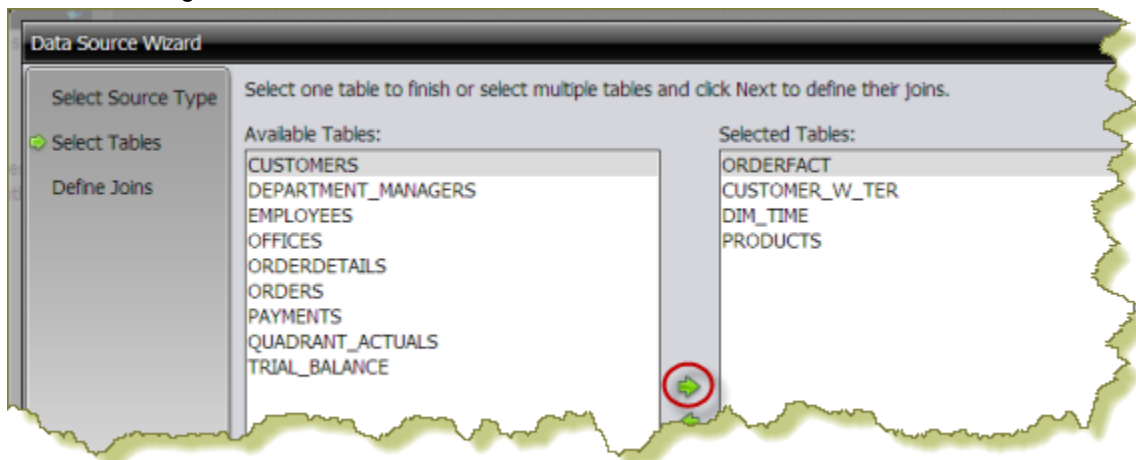
Creating a Database Table(s) Data Source (Reporting and Analysis)

Before proceeding make sure that you have selected the **SampleData** connection and that **Reporting and Analysis (Requires Star Schema)** option is enabled.

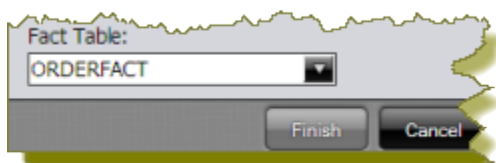



Follow the instructions below to create the data source.

1. In the **Data Source Wizard**, click **Next**.
A list of available database tables appears.
2. Press **<CTRL+CLICK>** to select the **ORDERFACT CUSTOMER_W_TER**, **DIM_TIME**, and **PRODUCTS** tables, then click the small green arrow to move the tables under **Selected Tables**.

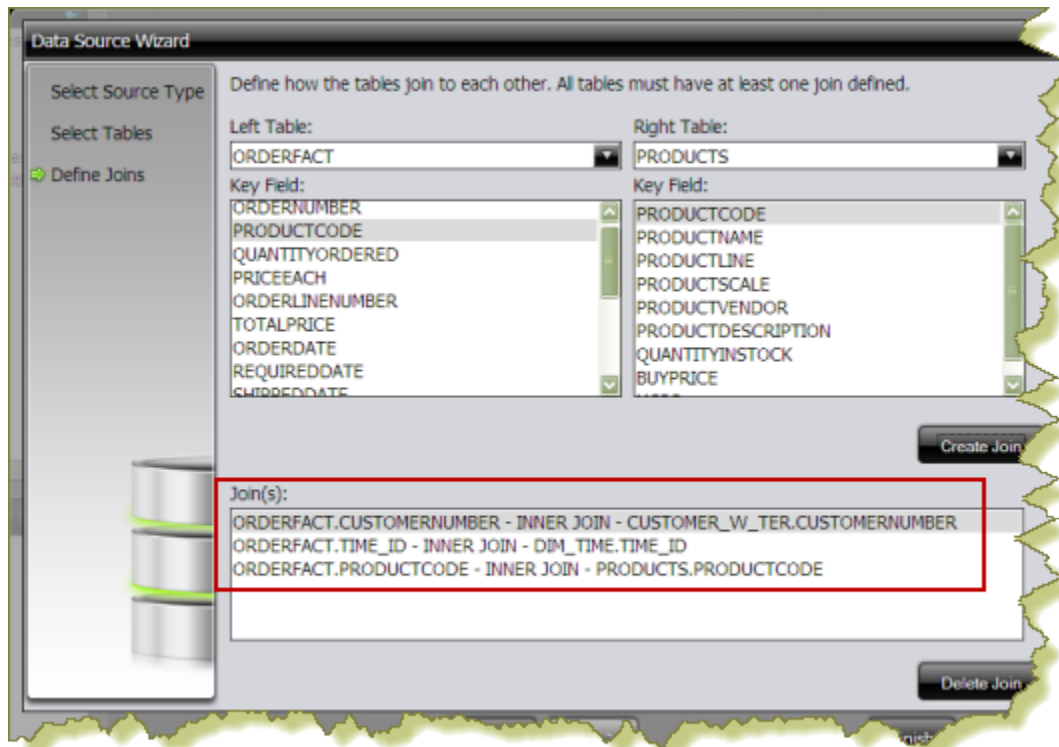


3. Under **Fact Table**, select **ORDERFACT** and click **Next**.



 **Note:** The Fact Table must be selected before you can proceed. In a production environment, a database administrator knows how to identify Fact tables.

4. Define how the tables you selected join to each other. All of your Dimension tables must link to your Fact table. You will create a join relationship with each Dimension table on the right to your Fact table (ORDERFACT) on the left.
 - a) Select the **CUSTOMERNUMBER** field from and click **Create Join**.
The join relationship between **CUSTOMER_W_TER** (Dimension Table) and **ORDERFACT** (Fact Table) is created. Both tables share the key field, **CUSTOMERNUMBER**.
 - b) Select the **DIM_TIME** table from the list under **Right Table**, then select the **TIME_ID** field from the list of key fields on the left. Click **Create Join**.
The join relationship between **DIM_TIME** (Dimension Table) and **ORDERFACT** (Fact Table) is created. Both tables share the key field, **TIME_ID**.
 - c) Select the **PRODUCTS** table from the list under **Right Table**, then select the **PRODUCTCODE** field from the list of key fields on the left. Click **Create Join**.
The join relationship between the **PRODUCTS** table and **ORDERFACT** table is created. Both tables share the key field, **PRODUCTCODE**.

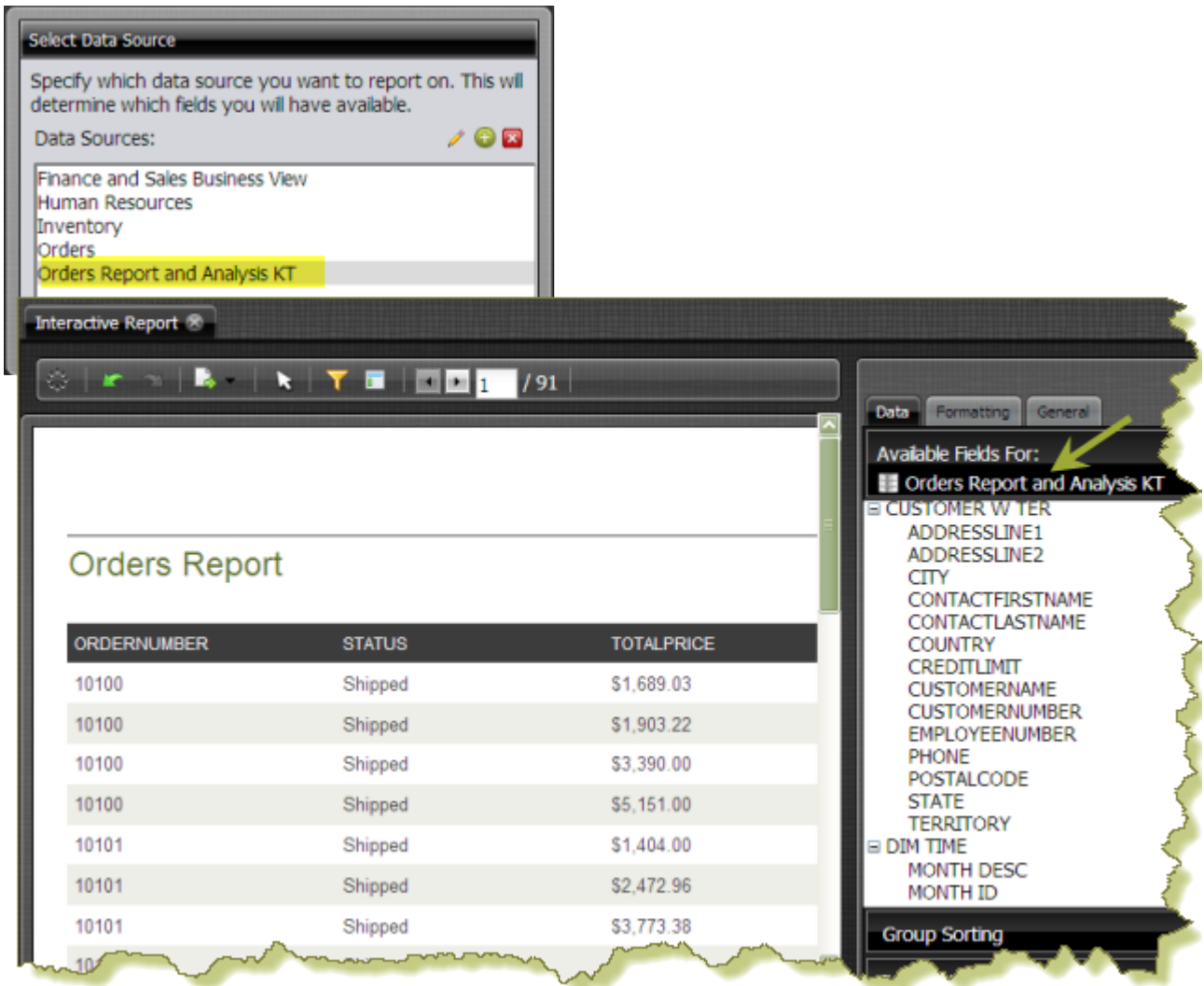



5. Click **Finish** to create your data source.
6. In the **Data Source Created** dialog box, enable **Customize model now**. See [Customizing the Data Source](#) for more information.

Customizing the Data Source

During the data source creation process, a *default* Pentaho Metadata (Reporting) model and a Mondrian (OLAP) Schema (model) are generated. In most cases, you will want to make changes to the default model so that the data is more useful to report consumers; however, the default model can be used as is.

Click **OK** in the Data Source Model dialog box to keep your default model. The new data source is added to the list of available data sources that users select when creating a new Interactive Report, a dashboard, or Analyzer report.




You can edit () your data source by clicking **Manage Existing** in the Pentaho User Console launch page. For more information about customizing your data source, see *Customizing a Reporting Data Source* and *Customizing an Analysis Data Source* in the Pentaho User Console Guide.

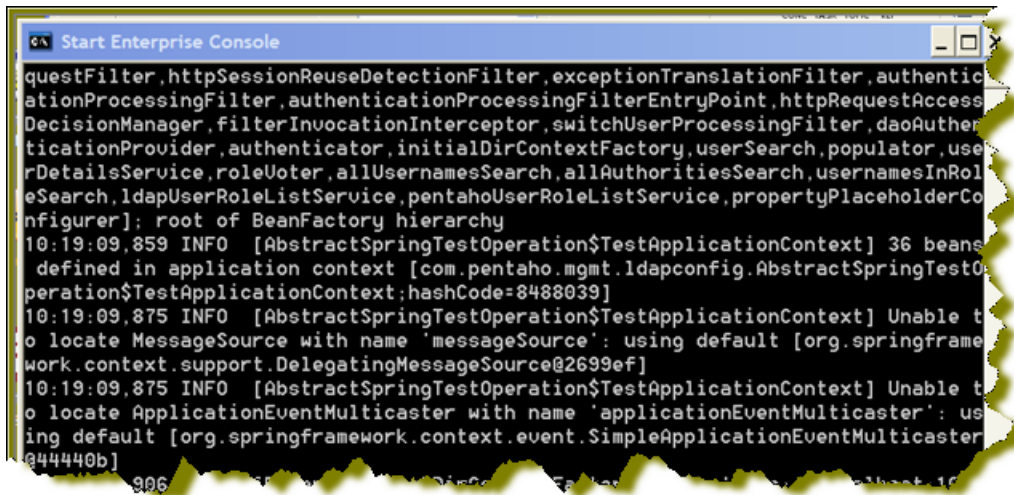
Troubleshooting Your Installation

The following tips may help you troubleshoot installation and other related issues.

Verifying Your Installation

After you have successfully installed the Pentaho BI Suite, this section steps you through verifying your installation.

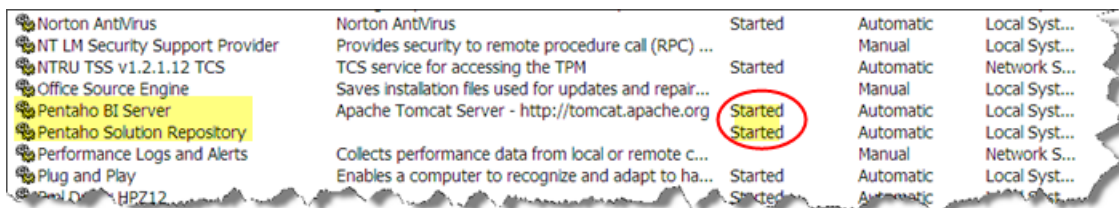
 **Note:** As you start and stop the consoles and other Pentaho components, you may see black command prompt windows open or close. These windows display the scripts that run the BI Suite components. You can minimize the command prompt windows so they do not clutter your desktop




Making sure the BI Server and MySQL have started

If you selected to launch the User Console or Enterprise Console, the installer automatically starts the BI Server, Solution Repository, and Enterprise Console. You can check to see if the Pentaho BI Server and the MySQL database that contains the Pentaho Solution Repository have started by launching “Services” from the Control Panel.

Go to **Start -> Control Panel -> Administrative Tools -> Services**. Alternatively, you can type **services.msc** in the **Run** command on the **Start** menu. Under local Services scroll down to Pentaho BI Server. In the image below, the Pentaho BI Server is started on Tomcat. The Pentaho Solution Repository (MySQL) is also started.



 **Note:** Right-click on the BI Server or Solution Repository in the Services window to start or stop them. Alternatively, you can start the BI Server by navigating to **Start -> Programs -> Pentaho Enterprise Edition -> Server Management -> Start BI Server**. The MySQL database starts automatically when you log on to your device.

Referencing Your Installation Summary

The installation summary automatically appears when you have completed an installation. It looks similar to the example below. The installation summary provides you with information about what is installed on your computer. In this example, all Pentaho BI Suite components have been installed. The information in the summary helps the support team know what has been installed.



Follow the instructions below before you call support to resolve an issue. The support staff must know what components have been installed.

1. Navigate to the folder that contains Pentaho installation; for example, C:\Program Files\pentaho.
2. Locate and open the following file: installation-summary.txt.
3. Copy the contents of the file and send it, via email, to the support technician as instructed.

Resolving an Unable to Connect Error

If you followed the default installation instructions, the BI Server starts automatically at startup and remains available until you shut your computer down, or, you manually stop the server. If the BI Server is not started, an **Unable to Connect** error will occur when you try to log onto the Pentaho User Console. This error may also occur if the URL to the Pentaho User Console has been changed. The default URL is, <http://localhost:8080/>.

To correct the issue start the server. Go to **Start -> Programs -> Pentaho Enterprise Edition -> Server Management -> Start BI Server**. If the problem persists, check the URL to make sure it has not changed.

Stopping the BI Server

To close the BI Server down after you log out of the Pentaho User Console, go to **Start -> Programs -> Pentaho Enterprise Edition -> Server Management -> Stop BI Server**

Resolving a License Not Found Error

Your Pentaho installation provides you with licenses to access all BI Suite components for 45 days. If, however, you attempt to use the software after 45 days or you uninstall and try to reinstall the BI Suite, a "License Not Found" error will occur.

Contact your Pentaho Sales Representative or send an email to [Support](#) to reinstate licensing.

Resolving Port-Related Conflicts

As stated previously, you must be able to assign ports, if necessary, during installation. It is recommended that you contact your system or database administrator for help when you encounter port-related conflicts.

Below is the default port information:

MySQL Server	Startup Port: 3306
Tomcat BI Server	Startup Port: 8080
Tomcat Data Integration Server	Startup Port: 9080
Enterprise Console	Startup Port: 8088