



Getting Started with Pentaho 3.8.0



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Welcome

Thank you for considering Pentaho as your Business Intelligence solutions provider. If you are reading this guide, you have chosen to download, install, and evaluate Pentaho BI Suite Enterprise Edition, version 3.8.0 GA. The purpose of this document is to provide you with instructions for using the graphical installer, a wizard that walks you, step-by-step, through a typical installation of Pentaho BI Suite Enterprise Edition, 3.8.0 GA on Windows devices.

This guide also provides you with basic instructions for verifying your installation of Pentaho BI Suite Enterprise Edition (from now on referred to as the Pentaho BI Suite). Post installation exercises walk you through designing a simple report, Pentaho Analyzer report, and dashboard. Once you complete the installation and related tasks, you will be able to start taking advantage of many of the features that are included in this release of the Pentaho BI Suite.



 **Note:** 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](#).

Below is a brief description of each section in this document:

Section	Description
Before You Begin on page 8	Provides a quick description of each component included in this release of Pentaho BI Suite Enterprise Edition; also included are hardware and software requirements
Installing the Pentaho BI Suite on page 11	Walks you through installation of the product

Section	Description
Creating an Ad Hoc Report on page 16	Provides you with instructions for creating a simple ad hoc report in the Pentaho User Console
Creating a New Analyzer Report on page 19	Provides you with instructions for working with interactive and dynamic reports
Working with Dashboards on page 22	Provides instructions for creating a simple dashboard using sample data
Creating a Report Using Report Designer on page 45	Provides instructions for creating a report using basic Report Designer features
Defining a Database Connection on page 60	Provides instructions for adding your own data source connection
From Evaluation to Implementation on page 76	Provides you with instructions for contacting Pentaho Sales

Pentaho BI Suite Enterprise Edition Features

Pentaho BI Suite Enterprise Edition allows you to deploy the BI suite components with confidence, security, and far lower total cost of ownership than proprietary alternatives. Pentaho BI Suite Enterprise Edition provides additional capabilities including a comprehensive professional technical support program, access to an extensive product-related knowledge base, software maintenance, enhanced software functionality, certified software, product expertise, and the best software assurance program in the industry that provides intellectual property indemnification and warranty for services.

Software and Services	Community Edition	Enterprise Edition
Reporting	Open Source	Certified
Analysis	Open Source	Certified
Dashboards	Open Source	Certified
Data Integration / ETL	Open Source	Certified
Business Intelligence Platform	Open Source	Certified
Data Mining	Open Source	Certified (Add On)
Community Forums Interaction	Yes	Yes
Community Web Documentation (Wiki)	Yes	Yes
Professional Support	No	Yes
Software Maintenance	By In-House Staff	By Pentaho Engineers
Enhanced Functionality	No	Yes
Certified Software	No	Yes
Product Expertise	No	Yes
Software Assurance	No	Yes

Finding More Resources

We, at Pentaho, understand that 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 knowledge requirements, Pentaho components included in this release, and system requirements.

Knowledge Requirements

To install the Pentaho BI Suite, you must be familiar with system administration and operations associated with network services, such as modifying your firewall to open specific ports and adding services to the system startup and shutdown scripts. In most installation scenarios, this means you must be comfortable using your operating system's command line interface. You must have the ability to install software, open firewall ports, and start and stop system services on the device on which you are performing the installation. If you need to access a remote database, make sure you have the level of permission necessary to do so from your test machine. If you don't have the required access or permissions, contact your system or database administrator.

Components Included in this Release

This release includes the complete Pentaho BI Suite, the BI server, and all client tools as described in the list below:

Component Name	Description
Pentaho BI Server	The BI Server is an enterprise-class Business Intelligence (BI) platform that supports Pentaho's end-user reporting, analysis, and dashboard capabilities with back-end security, integration, scheduling, and workflow capabilities.
Pentaho Enterprise Console	The Pentaho Enterprise Console is a standalone utility distributed with the BI Platform that provides administrators with a thin-client interface for administering users, roles, data sources, scheduling and more.
Pentaho Design Studio (client tool)	The Pentaho Design Studio is a collection of editors and viewers integrated into a single application that provides a graphical environment for building and testing action sequence documents.
Pentaho Metadata Editor (client tool)	The Metadata Editor (PME) is a tool that builds Pentaho metadata domains and models. A Pentaho metadata model maps the physical structure of your database into a logical business model.
Report Designer (client tool)	The Report Designer is the primary tool for creating and publishing Pentaho Reports. It provides a graphical interface allowing users to connect to their data, design and preview reports, and publish the reports to the Pentaho BI Platform.

Component Name	Description
Pentaho Schema Workbench (client tool)	The Schema Workbench is the primary tool for designing, editing, and publishing Pentaho Analysis(Mondrian) OLAP schemas.
Pentaho Aggregation Designer (client tool)	Pentaho Aggregation Designer is a graphical environment used to increase query performance of a Mondrian OLAP schema through the creation of aggregate tables.
Pentaho Data Integration (client tool)	Pentaho Data Integration is a graphical, drag-and-drop design environment for delivering Extraction, Transformation and Loading (ETL) capabilities using a metadata-driven approach. The extensible standards based architecture avoids the adoption of proprietary methodologies into your ETL solution.
Pentaho Analyzer (client tool)	Pentaho Analyzer is an interactive analysis tool, (an OLAP viewer), that allows non-technical business users to create meaningful, attractive, and interactive Web-based reports and charts quickly and easily. Pentaho Analyzer puts intuitive, analytical capabilities in to the hands of knowledge workers without the usual complexities of traditional Business Intelligence applications and with little to no training.

System Requirements

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

Hardware Requirements


The Pentaho BI Suite software 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 system specifications:

RAM	At least 2GB
Hard drive space	At least 1GB
Processor	Dual-core AMD64 or EM64T

It's possible to use a less capable system, 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 typically 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 archive-based or manual deployment methods.

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 with Service Pack 2, 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 10.4 are all officially supported.


No matter which operating system you use, you must have the Sun Java Runtime Environment (JRE) version 1.6 (sometimes referenced as version 6.0) installed.


 **Note:** The GNU Compiler for Java, or GCJ for short, interferes with the way many native Java programs work on Linux, including some of the components of the Pentaho BI Suite. If you are using a Linux distribution that installs GCJ by default (which includes all of the most popular distros), then before you begin installation you must remove, disable, or circumvent GCJ. If you cannot remove it, you can simply ensure that your JAVA_HOME variable is properly set, and add the Java Runtime Environment's /bin/ directory to the beginning of your PATH variable in ~/.bashrc or /etc/environment, then relog before continuing.

Workstations will need to have reasonably modern Web browsers to access Pentaho's Web interface. Internet Explorer 6 or higher; Firefox 3.0 or higher (or the Mozilla or Netscape equivalent); and Safari 2.0.3 or higher will all work.

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 Windows Vista, 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 may 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 Platform 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 Platform 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.

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](#) on page 75 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.

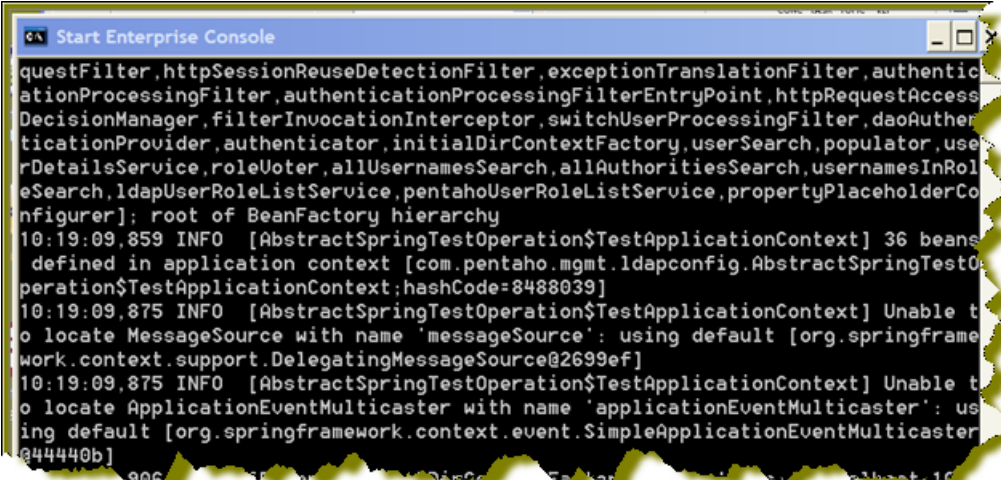
1. Read and accept the **License Agreement**.
2. Click **Default** to accept the default installation.
3. Specify the location in which to install the Pentaho BI Suite or accept the default.
4. Type and retype **password** to set the master password for required users, the repository "root" user, the BI server publish password, and the admin user for the Pentaho Enterprise console.
5. Click **Next** to start installing the Pentaho components.
6. 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](#) on page 11. Keep your consoles open and available as you step through the exercises in this document.

Verifying Your Installation

Now that 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



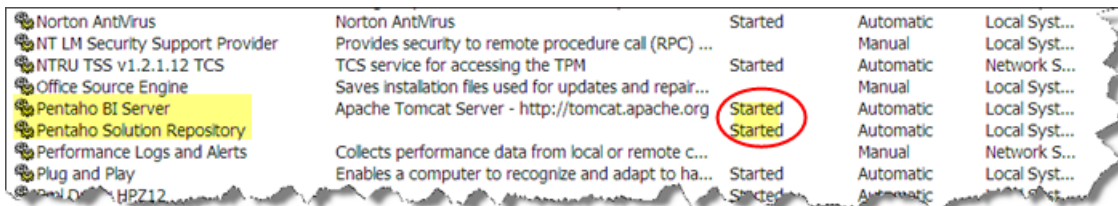
```
questFilter, httpSessionReuseDetectionFilter, exceptionTranslationFilter, authenticationProcessingFilter, authenticationProcessingFilterEntryPoint, httpRequestAccessDecisionManager, filterInvocationInterceptor, switchUserProcessingFilter, daoAuthenticationProvider, authenticator, initialDirContextFactory, userSearch, populator, userDetailsService, roleVoter, allUsernamesSearch, allAuthoritiesSearch, usernamesInRoleSearch, ldapUserRoleListService, pentahoUserRoleListService, propertyPlaceholderConfigurer]; root of BeanFactory hierarchy
10:19:09.859 INFO [AbstractSpringTestOperation$TestApplicationContext] 36 beans defined in application context [com.pentaho.mgmt.ldapconfig.AbstractSpringTestOperation$TestApplicationContext; hashCode=8488039]
10:19:09.875 INFO [AbstractSpringTestOperation$TestApplicationContext] Unable to locate MessageSource with name 'messageSource': using default [org.springframework.context.support.DelegatingMessageSource@2699ef]
10:19:09.875 INFO [AbstractSpringTestOperation$TestApplicationContext] Unable to locate ApplicationEventMulticaster with name 'applicationEventMulticaster': using default [org.springframework.context.event.SimpleApplicationEventMulticaster@94440b]
```

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.

Logging into the Pentaho User Console

To log into the Pentaho User Console...

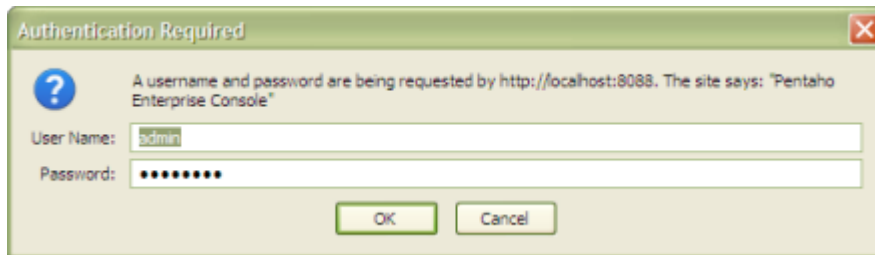


1. Go to **Start -> Programs -> Pentaho Enterprise Edition -> Server Management -> Start BI Server**.
2. If required, open a browser and navigate to **http://localhost:8080/** or **http://yourhostname:8080**.
3. Enter the credentials (**joe/password**) to open the Pentaho User Console home page. Joe is a sample user with administrative privileges to the Pentaho User Console.

 **Note:** Alternatively, (after you started the BI Server), go to **Start -> Programs -> Pentaho Enterprise Edition -> User Console Login**.

Logging into the Pentaho Enterprise Console

To log into the Pentaho Enterprise Console...




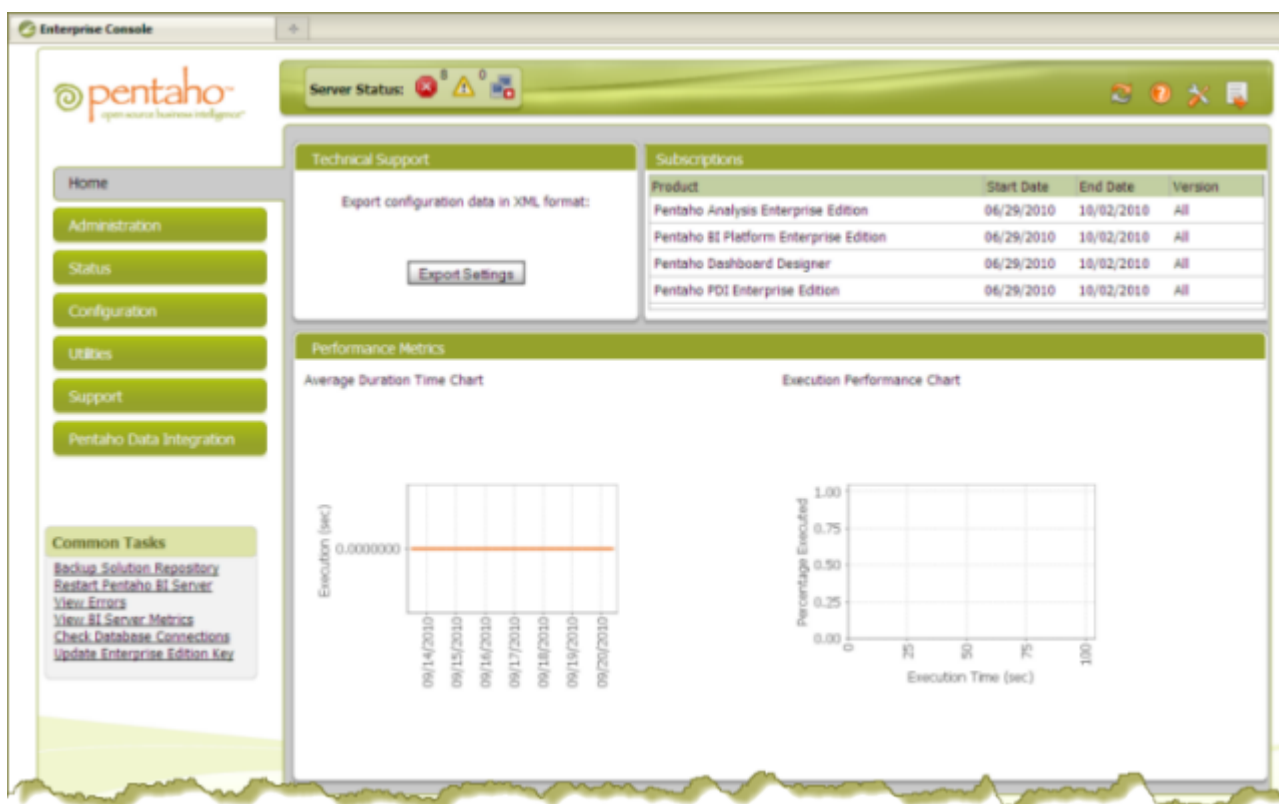
1. Go to **Start -> Programs (or All Programs) -> Pentaho Enterprise Edition -> Enterprise Console Login**.
2. If required, open a browser and navigate to **http://localhost:8088/** or **http://yourhostname:8088**.
3. Enter your credentials (**admin/password**) to open the **Pentaho Enterprise Console** home page.

Introduction to the Pentaho User and Enterprise Consoles

The Pentaho User Console (shown below) provides centralized access to reports, analysis, and dashboards. You and your users can interact with, share, or create new BI content with the Pentaho User Console. To look at sample reports, dashboards, Analyzer reports, and more, open the **Steel Wheels** folder. To learn more about the Pentaho User Console, go to **Help -> Documentation**. Click the **Toggle Browser** button (shown below) to display the samples directory.



The Pentaho Enterprise Console (shown below) provides you with a central location from which to administer your Pentaho deployments. The console simplifies many common administrative tasks such as setting up user authentication, monitoring performance, managing connections, testing configuration, configuring LDAP, and much more. Click  (Help) -> **Documentation** to learn more about the Pentaho Enterprise Console.



The Data Integration Server


The Pentaho BI Suite installation provides you with a complete set of Business Intelligence tools, including the Data Integration server, a dedicated ETL server.

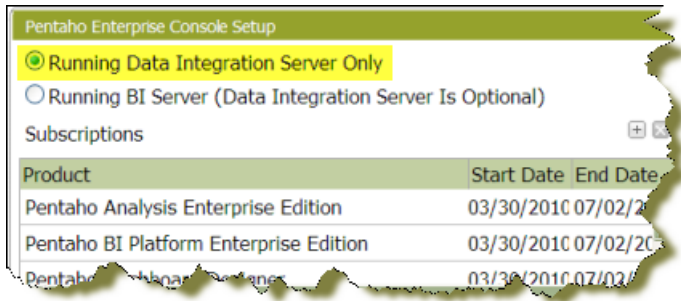
Among other things, the Data Integration server...

- Executes ETL jobs and transformations using the Pentaho Data Integration engine
- Allows you to manage users and roles (default security) or integrate security to your existing security provider such as LDAP or Active Directory
- Includes content management providing the ability to centrally store and manage your ETL jobs and transformations which encompasses full revision history on content and features such as sharing and locking for collaborative development environments
- Allows you to schedule activities and monitor scheduled activities on the Data Integration server from within designer environment

Configuring the Enterprise Console

The Data Integration Server is an independent, separate server from the Pentaho BI Server. The Pentaho Enterprise Console can be used to manage the BI Server, the Data Integration server, or both. If you are setting up a dedicated server for ETL, follow the instructions below to configure the Pentaho Enterprise Console to display administrative functions associated with Pentaho Data Integration exclusively.

1. Click  (Setup) in the upper-right corner of the Pentaho Enterprise Console home page. The Pentaho Enterprise Setup page appears.
2. Enable **Running Data Integration Server Only**.




3. Click **OK** to exit the setup page.

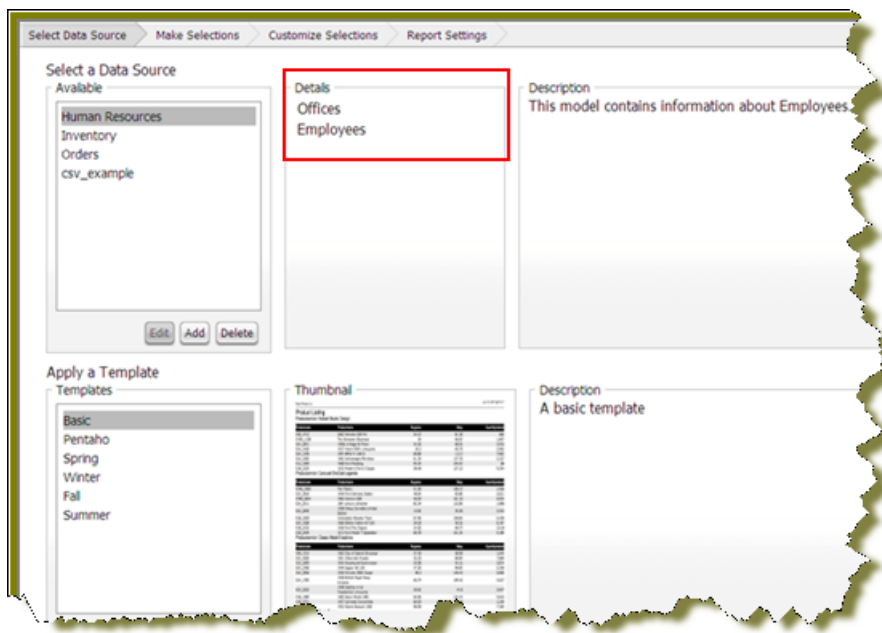
The Pentaho Enterprise Console displays a page that contains information associated with Pentaho Data Integration. For more information, see *Getting Started with Pentaho Data Integration* available in the Pentaho Knowledge Base.

Creating an Ad Hoc Report

Ad Hoc Reporting allows you and your users to create a basic data-driven report quickly and efficiently. With Ad Hoc Reporting, users do not need to know the structure of the database, nor do they need to know any SQL. A metadata model created with the Pentaho Metadata Editor, (a graphical user interface for creating user friendly metadata models), acts as a buffer between users and the complexities of relational data sources. The Pentaho BI Suite comes with three pre-built business models (datasets).

 **Note:** What is metadata? Quite simply, metadata is "data about data." For example, a library catalog is considered "metadata" because it contains information about books and other publications. A metadata model, is a collection of related categories of data.

You can quickly access data in your own relational database or CSV flat file for evaluation or testing purposes. To find out more, see [Using the Data Sources Feature in the Pentaho User Console](#) on page 64 .



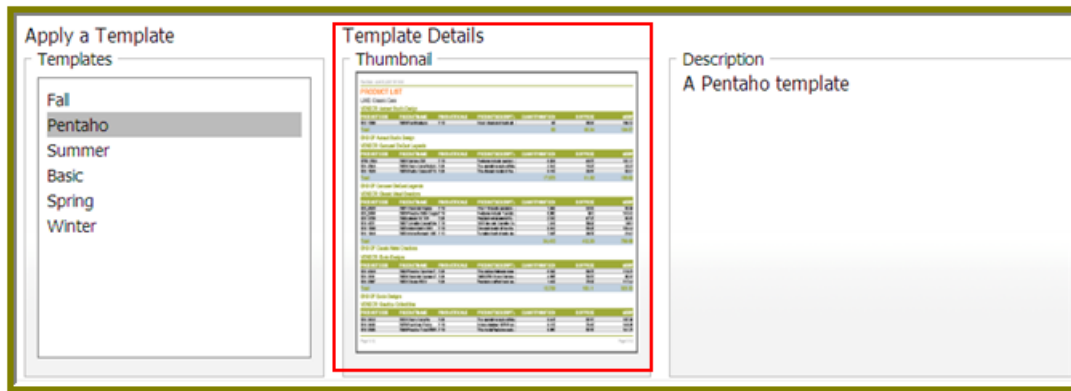
Ad Hoc Reporting Interface provides...

- Easy-to-create connections to your relational or CSV (flat file) data sources for evaluation and testing purposes
- Interactive "drag and drop" Web interface for business user self-service report creation
- Wizard-driven authoring supporting report templates, metadata-based query creation, sorting, and filtering
- Interoperability with Pentaho Report Designer allowing ad hoc reports to be "promoted" for fine-tuning by IT professionals
- Single reporting engine for ad hoc and pixel-perfect reports for lowest possible total cost of ownership

To create an ad hoc report, you must logged onto the Pentaho User Console.

1. In the Pentaho User Console click **Create New Report**.
The ad hoc query wizard starts.
2. In the first step of the wizard, select **Orders** from the list under **Select a Data Source**.
As you become more familiar with Ad Hoc Reports features, you can add your own relational or flat file (CSV) data sources to ad hoc reports. See [Using the Data Sources Feature in the Pentaho User Console](#) on page 64 for more information.
The tables associated with the **Orders** data source are listed in the **Details** pane.
3. In the **Apply a Template** field, select a predefined report template.

A thumbnail preview of the template appears in the **Template Details** field. A template specifies a variety of properties in the report that affect its appearance, like font size and background colors for various report elements.



4. Click **Next**.
5. In the **Available Items** list, click the **Territory** business column and drag it to the upper right into the **Level 1 box**.
This determines how the data is grouped.
6. Drag and drop the **Amount** and **Buy Price** into the **Details** box on the right.
This determines which fields to display for the given groups.
7. Click **Go** to preview how these new items have affected the report, then close the preview tab when you're done.
8. Click **Next**.
9. Click the **Territory** item in the **Groups** list.
A list of general options appear on the right.
10. Click **Center**.
This centers the territory name above each table, making it easier to read.
11. Click **Amount**, then click **Add** in the **Sort Detail Columns** area on the right.
This sorts the sales amounts from lowest to highest.
12. Click **Go** to test the new change, or **Next** to continue to the next part of the wizard.
13. To set the header, footer, description, paper type, and page orientation, change the on-screen values for these elements accordingly.
PDF is the only output type that has a concept of a page, so the **Page** portion of the **Header** and **Footer** sections only applies to PDFs.
14. Click the blue **Save** button in the top toolbar to save your report. In the ensuing file dialog, navigate to the location you want to save the report to, and type in a filename for the report.
You can continue to modify your report after it's been saved; just click **Save** to update the report file after you've made changes.

You now have a report that shows how much revenue is coming from each sales territory, and the itemized price of each purchased product. As you can see, ad hoc reporting provides business users with a quick and simple solution for building basic reports. For report designers who need access to more advanced features like pixel perfect layout, conditional formatting, or parameterization, Pentaho provides the full-client Report Designer.

Territory: APAC	
Amount	
\$2,476.8	
\$9,738.18	
\$10,640.29	
\$12,334.82	
\$21,730.03	
\$23,294.8	
\$24,219.59	
\$26,421.24	
\$27,098.8	
\$28,397.26	
\$29,852.17	
\$34,332.29	
\$35,160.25	
\$35,911.81	
\$36,409.31	
\$37,754.33	
\$37,878.55	
\$37,905.15	
\$39,267.74	
\$40,034.67	
\$41,297.14	
\$41,418.55	
\$41,791.95	
\$42,902.84	
\$43,930.62	
\$45,788.72	

Analyzing Data with Pentaho Analyzer

Pentaho Analyzer is the front-end interface of the Pentaho Analysis product line. Using Pentaho Analyzer, you can query the data in a database without having to understand how the database is structured. Pentaho Analyzer allows you to explore your data dynamically. You can drill down into the data to discover hidden details that may help you make important business decisions. Pentaho Analyzer also presents data multi-dimensionally and lets you select what dimensions and measures you want to explore.

Pentaho Analyzer is an interactive analysis tool; it provides you with a rich drag-and-drop user interface that allows you to create reports quickly based on your exploration of your data. You can also display Pentaho Analyzer reports in a dashboard.


Region	Department	Budget	Actual	Difference
Central	Executive Management	\$2,043,642	\$1,776,282	\$-267,360.00
	Finance	\$3,067,361	\$3,106,680	\$39,319.00
	Human Resource	\$3,414,295	\$3,438,863	\$24,568.00
	Marketing & Communication	\$3,582,552	\$3,590,423	\$7,871.00
	Product Development	\$3,159,180	\$2,997,702	\$-161,478.00
	Professional Services	\$20,400,000	\$20,068,039	\$-331,961.00
	Sales	\$2,730,570	\$2,915,173	\$184,603.00
Central Total		\$38,397,600	\$37,893,162	\$-504,438.00
Eastern	Executive Management	\$1,483,508	\$1,507,580	\$24,072.00
	Finance	\$3,010,015	\$3,039,180	\$29,165.00
	Human Resource	\$3,195,682	\$3,212,200	\$16,518.00
	Marketing & Communication	\$3,383,905	\$3,440,110	\$56,205.00
	Product Development	\$2,530,477	\$2,548,800	\$18,323.00
	Professional Services	\$19,100,000	\$18,749,870	\$-350,130.00
	Sales	\$2,784,274	\$2,751,200	\$-33,074.00
Eastern Total		\$35,487,861	\$35,248,940	\$-238,921.00
Southern	Executive Management	\$1,523,508	\$1,507,580	\$-15,928.00
	Finance	\$3,010,015	\$3,039,180	\$29,165.00
	Human Resource	\$3,195,682	\$3,212,200	\$16,518.00
	Marketing & Communication	\$3,401,905	\$3,440,110	\$38,205.00
	Product Development	\$2,548,477	\$2,548,800	\$323.00
	Professional Services	\$18,390,000	\$18,749,870	\$359,870.00
	Sales	\$2,734,274	\$2,751,200	\$16,926.00
Southern Total		\$34,803,861	\$35,248,940	\$445,079.00
Grand Total	Executive Management	\$1,443,508	\$1,507,580	\$64,072.00
	Finance	\$3,000,015	\$3,039,180	\$39,165.00
	Human Resource	\$3,183,682	\$3,212,200	\$28,518.00

Creating a New Analyzer Report


In this exercise of the Pentaho Analyzer you will be creating a report that displays the actual versus budgeted expenses by region for each department in the fictitious Steel Wheels company (SampleData).

Follow the instructions below to start creating an Analyzer report.


1. In the Pentaho User Console menubar, go to **File -> New** and select **Analyzer Report**. Pentaho Analyzer opens.
2. Select your **Schema** and **Cube** from the corresponding lists. For the purposes of this exercise, select **SampleData** and **Quadrant Analysis**, respectively.

 **Note:** The list of available schemas and cubes are provided by your administrator. A **schema** is the structure of the relational database and includes tables, fields, views, and more. A **cube** is a data structure that allows information in a database to be analyzed quickly and from multiple perspectives.

3. Click **OK**.
A blank report appears.
4. In the list of fields (on the right), click and drag **Department** to the **Analyzer** workspace in the left pane. The **Department** column appears in the workspace.
5. Click and drag the **Budget** and **Actual** fields to the workspace.
The columns appear in the workspace in the order in which they were placed.
6. Right-click the **Budget** column to display the **Edit Column** dialog box. Select **Column Name and Format -> Currency (\$)** from the **Format** list so that your values display as dollar amounts. Repeat this step for the **Actual** column.

 **Note:** If you need help to understand the options in any Pentaho Analyzer dialog box, click **Help**.

7. Click and drag the **Region** column to the report. (Read the note below.)




 **Note:** Notice that the **Region** column appears in the workspace; however, you want this column to be the first column in the report.

Department	Region	Budget	Actual
Executive Management	Central	\$2,043,642	\$1,776,395
	Eastern	\$1,483,508	\$1,507,395
	Southern	\$1,523,508	\$1,507,395
	Western	\$1,443,508	\$1,507,395
Finance	Central	\$3,067,361	\$3,115,000
	Eastern	\$3,010,015	\$3,039,000
	Southern	\$3,010,015	\$3,039,000
	Western	\$3,000,015	\$3,039,000
Human Resource	Central	\$3,414,295	\$3,438,000
	Eastern	\$3,195,682	\$3,212,000
	Southern	\$3,195,682	\$3,212,000
	Western	\$3,183,682	\$3,212,000
Marketing & Communication	Central	\$3,582,552	\$3,590,000
	Eastern	\$3,383,905	\$3,400,000
	Southern	\$3,383,905	\$3,400,000
	Western	\$3,383,905	\$3,400,000

- In the workspace, click and drag the **Region** column to the left of the **Department** column.

Pentaho Analyzer is designed to provide you with great flexibility when designing the visual structure of your report.


Region	Department	Budget	Actual
Executive Management	Executive Management	\$2,043,642	\$1,776,395
	Finance	\$3,067,361	\$3,115,000
	Human Resource	\$3,414,295	\$3,438,000
	Marketing & Communication	\$3,582,552	\$3,590,000
Central	Product Development	\$3,159,180	\$2,997,000
	Professional Services	\$20,400,000	\$20,066,000
	Sales	\$2,730,570	\$2,915,175
	Executive Management	\$1,483,508	\$1,507,395
Eastern	Finance	\$3,010,015	\$3,039,000
	Human Resource	\$3,195,682	\$3,212,000
	Marketing & Communication	\$3,383,905	\$3,400,000
	Product Development	\$2,530,477	\$2,500,000
Southern	Executive Management	\$1,523,508	\$1,507,395
	Finance	\$3,067,361	\$3,115,000
	Human Resource	\$3,414,295	\$3,438,000
	Marketing & Communication	\$3,582,552	\$3,590,000
Western	Product Development	\$3,159,180	\$2,997,000
	Professional Services	\$20,400,000	\$20,066,000
	Sales	\$2,730,570	\$2,915,175
	Executive Management	\$1,483,508	\$1,507,395

- 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.
- 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 **Regional Expense Report** under /Steel Wheels/Analysis and click **OK**.



Enhancing the Pentaho Analyzer Report

You have created a working Analyzer report; however you can make the data in the report more useful if you can show the difference, in dollar amounts, between the actual and budgeted expenses.

Follow the instructions below to enhance your report.

- In the Pentaho User Console menubar, go to **File -> Open**.
- Browse to /Steel Wheels/Analysis and select **Regional Expense Report**.
- Click  (Switch to Table Format) if you are in chart mode when the report appears.
- Right-click the **Actual** column and select **User Defined Number -> Calculated Number**. The **New Calculated Number** dialog box appears.
- In the **Name** field, type **Difference**.

This step creates a new column in the report.



- Select **Currency (\$)** from the **Format** list so that the data in your report displays as dollar amounts.
- In the right pane of the dialog box, click  so that a minus sign appears next to **[Actual]-**.
- Click **Budget** in the left pane and click  to move it to the right pane so that you create a formula that subtracts the budgeted expenses from the actual expenses, **[Actual]-[Budget]**. Click **OK**. The **Difference** column appears in the report.
- Right-click the **Region** column and select **Show Subtotals**. The subtotals for each region is displayed in the report.
- Save the report.

Adding Filters to an Analyzer Report

Filters are used to restrict or limit the data that is presented in a report. For example, a report shows sales by product line. A filter on **Quarter** restricts the data so that sales for the fourth quarter in 2006 only are

shown. If you were to add a regional filter of Europe, the report displays data pertaining to European sales in the fourth quarter of 2006, exclusively. If you were to add a filter on the **Product Line** field to exclude **Surfing**, the report displays data pertaining to European sales in the fourth quarter of 2006 that are not in the surfing product line, exclusively.

Follow the steps below to add a filter to your sample report:

1. Open the **Regional Expense Report**.
2. Under the report name click **Show/Hide Filters** next to **No Filter in Use**.
A workspace for filters appears at the top of the report.
3. Click and drag the **Region** field/column into the filter workspace.
The **Filter on Region** dialog box appears. Notice that the values, (Central, Eastern, Southern, and Western), associated with the **Region** 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 **Eastern** from the list of values and click  (Add Selected) to move it into the right pane.
Eastern appears with a green checkmark next to it in the right pane.
5. Select **Western** from the list of values and click  (Add Selected) to move it into the right pane.
Western appears with a green checkmark next to it in the right pane.
6. Click **OK** to exit the dialog box.
Your sample report displays data for the **Eastern** and **Western** regions only.



Note: You can click **Undo** or **Reset** to return to the previous version of the report.

7. Click **OK** and save your report.

Exporting the Analyzer Report

Pentaho Analyzer allows you to export your report as a PDF, a Microsoft Excel spreadsheet, or a CSV file.

Follow the instructions below to export your report:

1. In the Pentaho Analyzer toolbar, click **More** and select **Export Report**.
The export options list appears.
2. Select **Export to PDF**.
A PDF of the report appears.
3. Examine your report.

Notice that Pentaho Analyzer appends metadata about the report itself in the PDF. Information about the report author, the location of the source file, fields used, filter summary, are included.

Working with Dashboards

A dashboard is a management tool that helps you measure your company's "vital signs" quickly and efficiently. Instead of relying on outdated paper reports to make important business decisions, a dashboard delivers current and relevant information to employees through the use of a combination of graphs, scorecards, and report components. Because dashboards tend to be highly visual, they are easy to read and interpret providing employees quick access to information that helps them answer critical questions about the performance of their specific departments. With just a few mouse clicks, employees will know if a plan they are implementing is effective, how it compares to the competition, and any other metrics you define. Best of all, they can access this type of information easily — from any location around the world over the Web.

Dashboard Designer empowers business users to create rich, interactive dashboards with little or no training. Creating a dashboard is as simple as selecting your layout, theme, and the content you want to display. This content can include reports, charts, or even interactive Pentaho Analyzer reports. Dashboard Designer also provides you with the ability to add dynamic filter controls making it easy for dashboard consumers to filter the entire contents of their dashboard using a simple pick list.

You can quickly access data in your own relational database or CSV flat file for evaluation or testing dashboard capabilities. To find out more, see [Using the Data Sources Feature in the Pentaho User Console](#) on page 64 .


The Dashboard Designer allows you to display the following content types in your dashboard:

- **Chart** — When selected, opens the Chart Designer that allows you to create bar, line, area, pie, and dial charts for display in your dashboard.
- **Data Table** — When selected, allows you to display database-related content in tabular format.
- **File** — When selected, opens a browser window that allows you to locate a file (.xaction or .prpt) that contains the content, usually a report or chart, you want to display in your dashboard.
- **URL** — When selected, opens a dialog box that allows you to enter the URL of the Web site you want to display in your dashboard.

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:

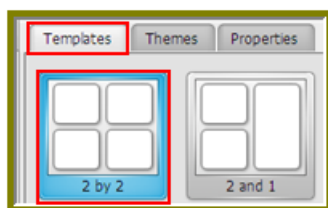
1. In the Pentaho User Console quick launch bar, click **New Dashboard**. Alternatively, you can click **File** >

New > Dashboard or click  (New Dashboard) in the tool bar. The New Dashboard page appears.

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.

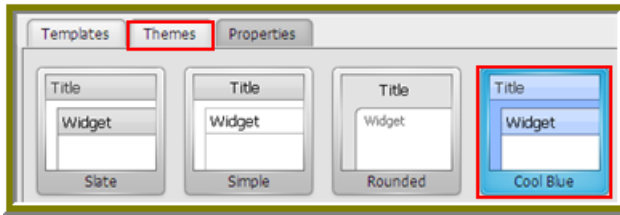
The name you entered appears on the top left corner of the dashboard. This name helps you identify the page if you want to edit, copy, or delete it later.

3. Click **Templates** to select a dashboard layout. Select the **2 by 2** template.



A blank dashboard with the layout you selected appears.

4. Click **Theme** to select a theme for your dashboard. Select the **Cool Blue** theme.



The theme you selected is applied to your dashboard.

Working 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:

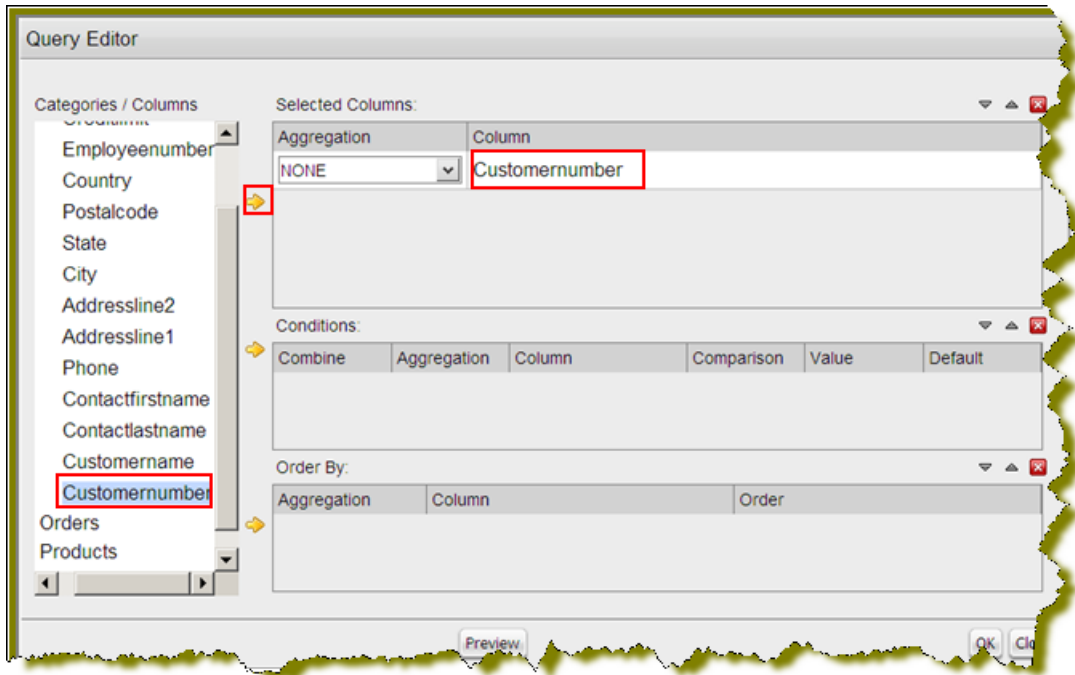
1. Selecting a data source and building a query
2. Setting the data definitions: values, series, category
3. Selecting a chart type and theme
4. Entering labels for the chart title, and x,y axes
5. Adjusting scaling and label rotation (if applicable)
6. Placing your chart in the dashboard.
7. Saving your dashboard

Adding Data to Your Chart

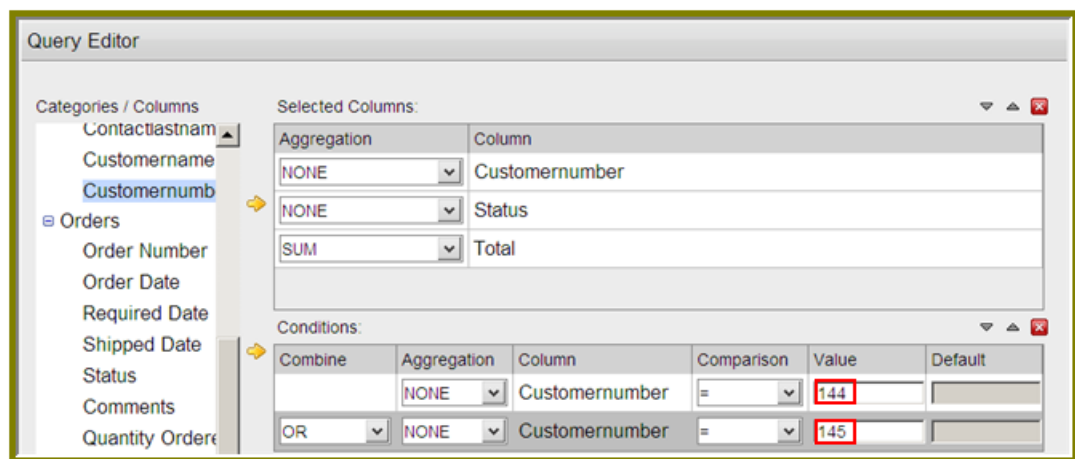
Before you create a chart you must select a data source that contains the data you want to use. You must then define the data that will be displayed in the chart.

Follow the instructions below to add data to your chart:


1. In the Dashboard, choose a dashboard panel and click  (Insert) and select **Chart**. The **Select a Data Source** dialog box appears.
2. Select the **Orders** data source. This 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 yellow arrow to place the column name, **Customernumber**, under **Selected Columns**. In the example below, the **Customernumber** column has been selected and moved under Selected Columns. Expand the **Orders** category, select and place the **Status** and **Total** columns under Selected Columns.




- Now add the **Conditions**; these are your constraints that filter what you are selecting. Although you can designate multiple conditions, for this exercise, the search is limited to customer numbers **144** and **145**.



Under **Combine**, select the **OR** constraint from the drop-down list. Under **Comparisons**, 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). In this exercise, you are not selecting an aggregate type. See the *Pentaho User Console Guide* for information about aggregation.

 **Note:** For information about adding parameters in the Query Editor, see [Assigning Parameters in the Query Editor](#).

 **Note:** Click **Preview** at any time to view the data associated with your query.

- Click **OK**.
The Chart Designer appears.
- Under **Data**, click the drop-down arrow to display and select the table columns as shown in the example below:

Data Definition

Series


Category

Values

Description

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.

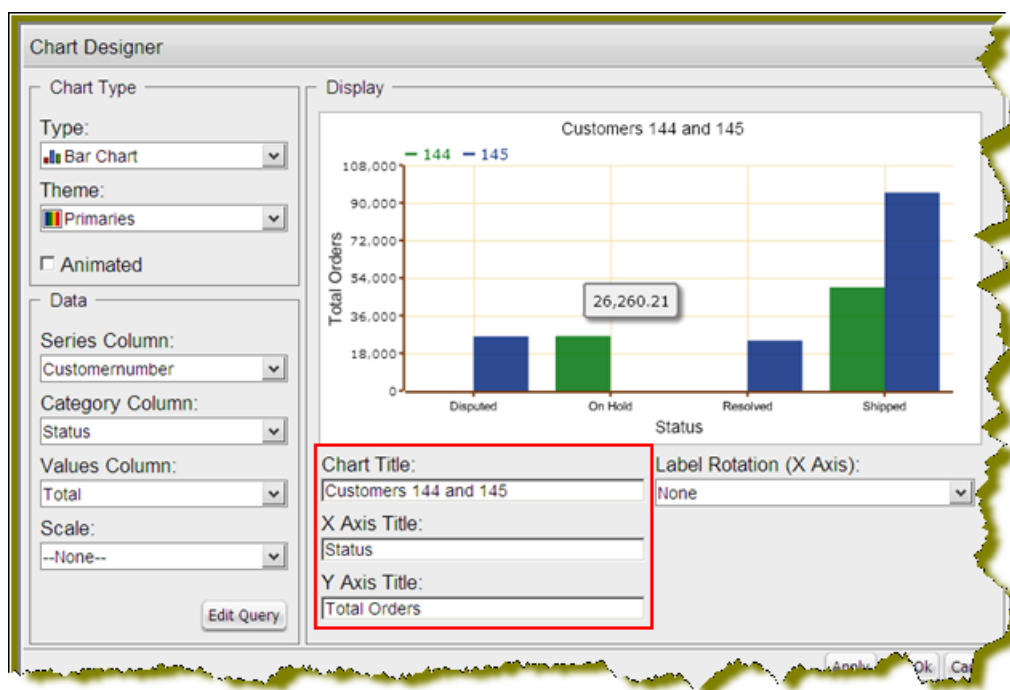
Categories are displayed as bars or groups of bars on the y-axis (vertical axis). In line charts, categories are usually associated with time periods. In area charts, the x-axis displays the category labels.


 **Note:** If you don't want to display categories, select **None**.

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.

A preview of the chart appears in a box in the upper-right corner of the Chart Designer as you select your options. The bar chart is the default chart type for displaying your data.

8. Under **Chart Type**, click on a chart type to select to examine your data displayed in an area, dial, or pie chart. Refer to the *Pentaho User Console Guide* for more information about chart types.
9. Under **Theme**, select the **Primaries** theme from the list.
The theme is applied to your chart.
10. Enter the labels for the **Chart Title**, **X Axis Title** (horizontal axis), and **Y Axis Title** (vertical axis). Type **Customers 144 and 145** for your Chart Title, **Status** for your X Axis Title, and **Total Orders** for your Y Axis Title.
11. Click **Apply** to see the chart preview.
Your entries are displayed in the chart preview as shown in the example below.



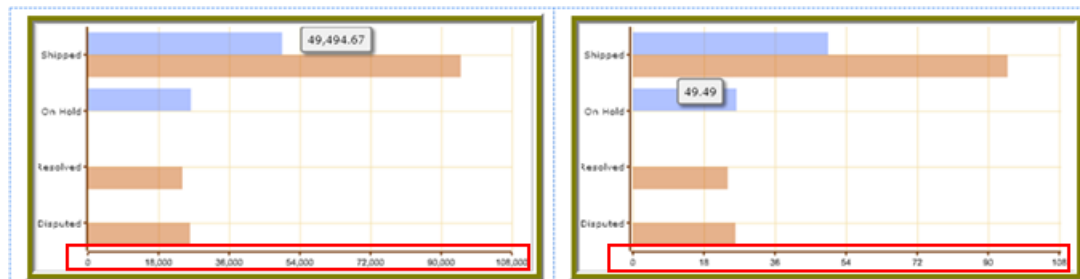
 **Note:** To edit your chart, see [Editing a Chart](#).

12. Click **OK** to display your chart in the dashboard panel.


Correcting 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.



3. Click **Apply** to display the chart in the dashboard.

 **Note:** The scaling feature is available for all chart types except pie.

Rotating 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**, select **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.

Editing a Chart


Follow the instructions below to edit a chart.


1. In the Dashboard Designer, select 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.

 **Note:** See also, [Editing Your Dashboard](#) on page 44

Adding 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 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 Panel 2 in the Dashboard Designer.
2. Click  (Insert) and select **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**.

 **Note:** The data sources in the list are defined by an administrator.

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 select 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 selecting. You can add multiple conditions.

Under **Combine**, you can select 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 select 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



Note: Click **Preview** at any time to view the data associated with your query.

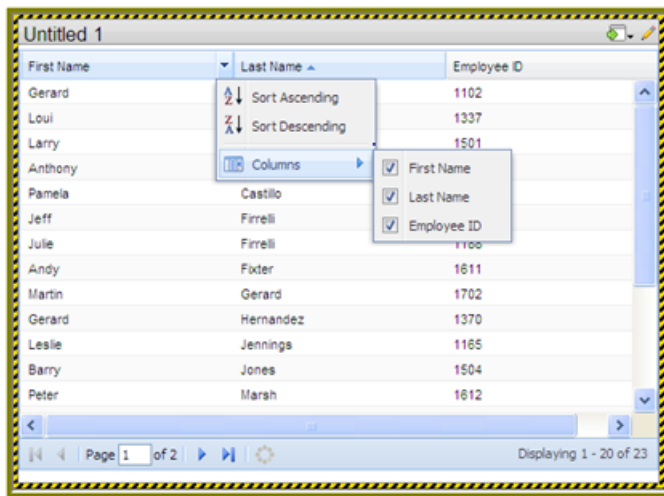
7. Add the columns that you want to **Order By**. The ordering of the selected data is accomplished by one or more columns in a table. For example, you can sort the data by customer name and address.
8. Click **OK** in the Query Editor when you are done.
The Data Table appears in the dashboard panel.

Updating 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.

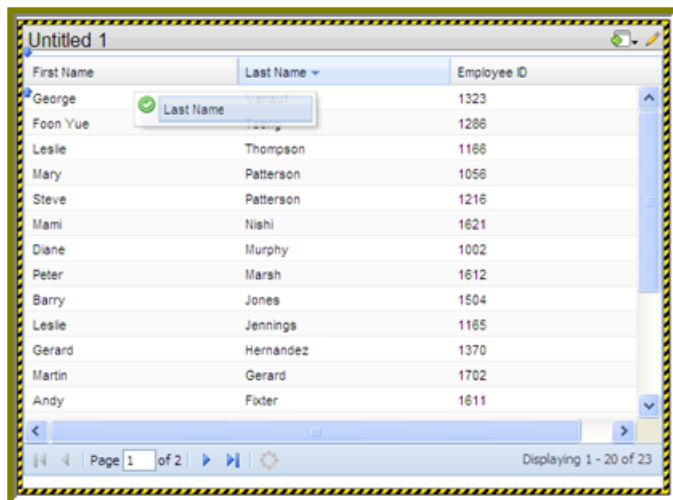


Adjusting Column Width

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.

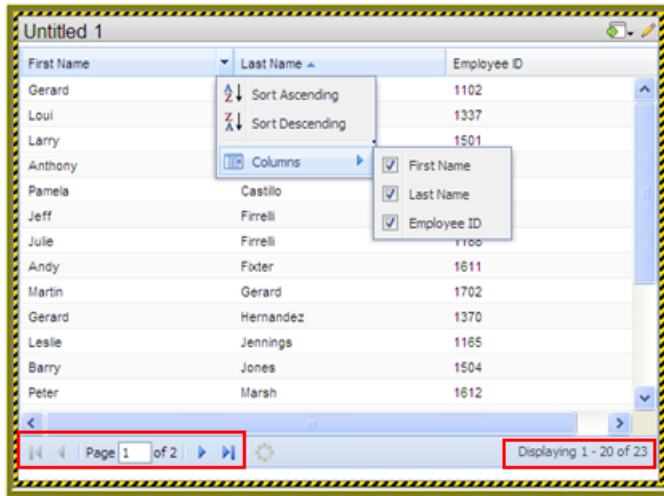
Moving Columns

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.

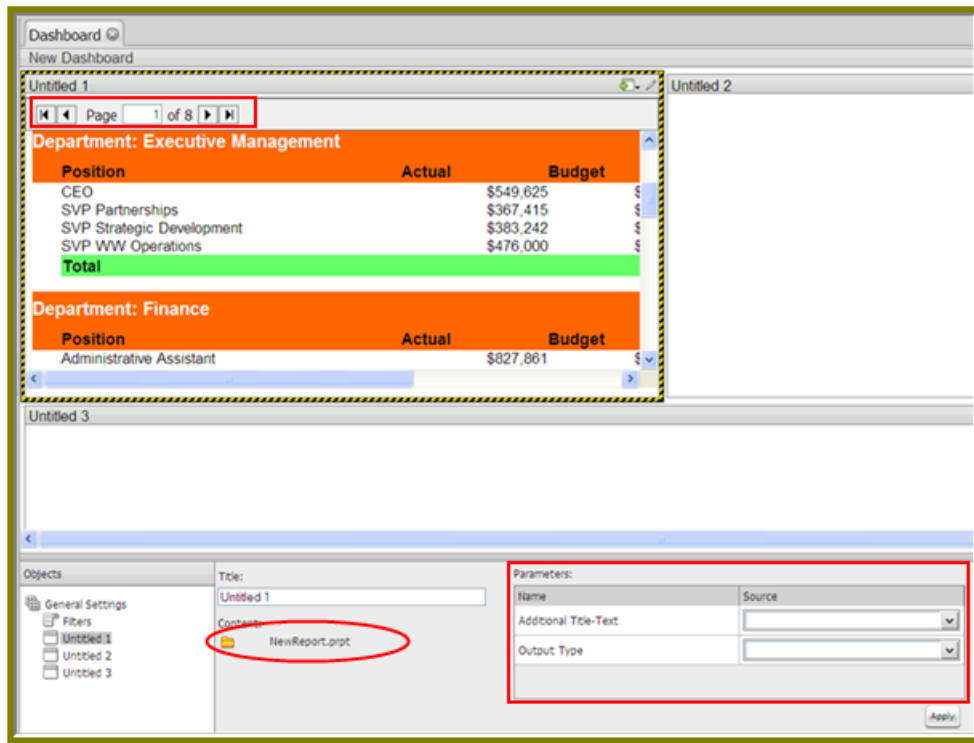



Displaying a Report Designer (.prpt) File in the Dashboard

Follow the instructions below to display a report created in Report Designer and in a dashboard.

1. Select a panel in the Dashboard Designer.
2. Click  (Insert) and select **File**.
A browser window opens.
3. Locate the appropriate report file. Report Designer files have a .prpt extension.
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, *NewReport.prpt*, appears under **Content**: in the dashboard edit pane in the sample below. This sample report contains parameters, (*Additional Title-Text*, *Output Type*), that do not have default values. 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.



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


Displaying an Analyzer Report in a Dashboard


Follow the instructions below to display an Analyzer report in a dashboard.

1. Select a panel in the Dashboard Designer.
2. Click  (Insert) and select **File**.
A browser window opens.
3. Locate the appropriate Analyzer report and click **Select**.
The Analyzer Report appears inside the dashboard panel.
4. Save your dashboard. See [Saving Your Dashboard](#).

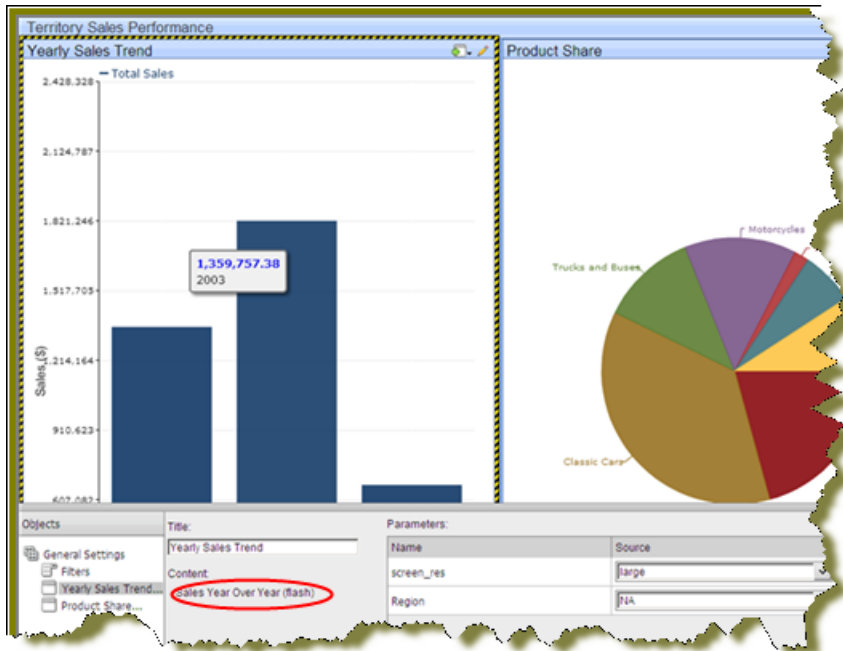
Displaying an .xaction File in the Dashboard

Follow the instructions below to display the contents of an .xaction file in a dashboard.

 **Note:** Generally, .xaction files are provided to you by an administrator. A file may contain a report, a chart, or other type of content.


1. Select a panel in the Dashboard Designer.
2. Click  (Insert) and select **File**.
A browser window opens.
3. Locate the appropriate .xaction file.
4. Click **Select** to place the contents of the file inside the dashboard panel.

Notice that the file name, *Sales Year Over Year*, appears under **Content:** in the dashboard edit pane of the sample below. This sample chart contains parameters, (*screen_res*, *Region*), and default values (*large*, *NA*).

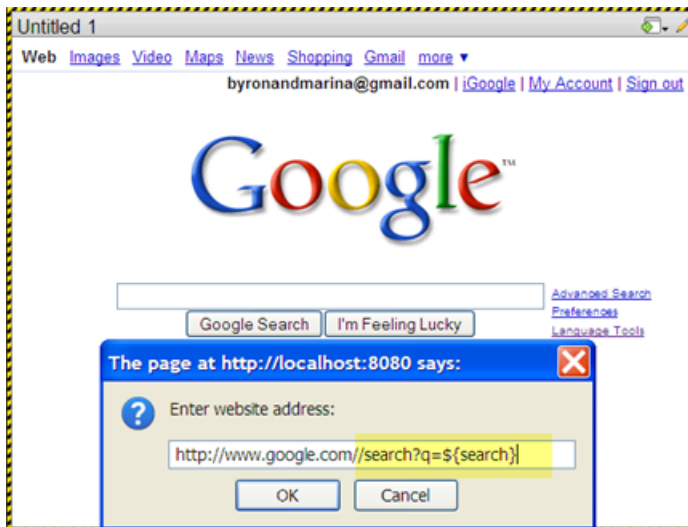


Displaying a Web site in a Dashboard

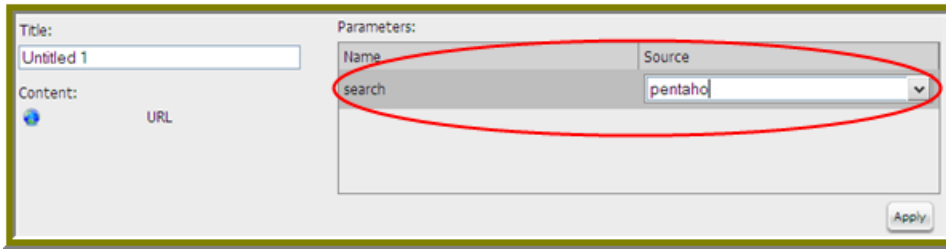
Follow the instructions below to display contents of a Web site in a dashboard panel.


1. Select a panel in the Dashboard Designer.
2. Click  (Insert) and select **URL**.
The **Enter Web site** dialog box appears.
3. Enter the Web site URL in the text box and click **OK**.

In the example below, a search parameter has been added to the URL.



When the parameter displays in the edit pane of the dashboard, you can enter a value for the parameter in the text box next to the parameter name.

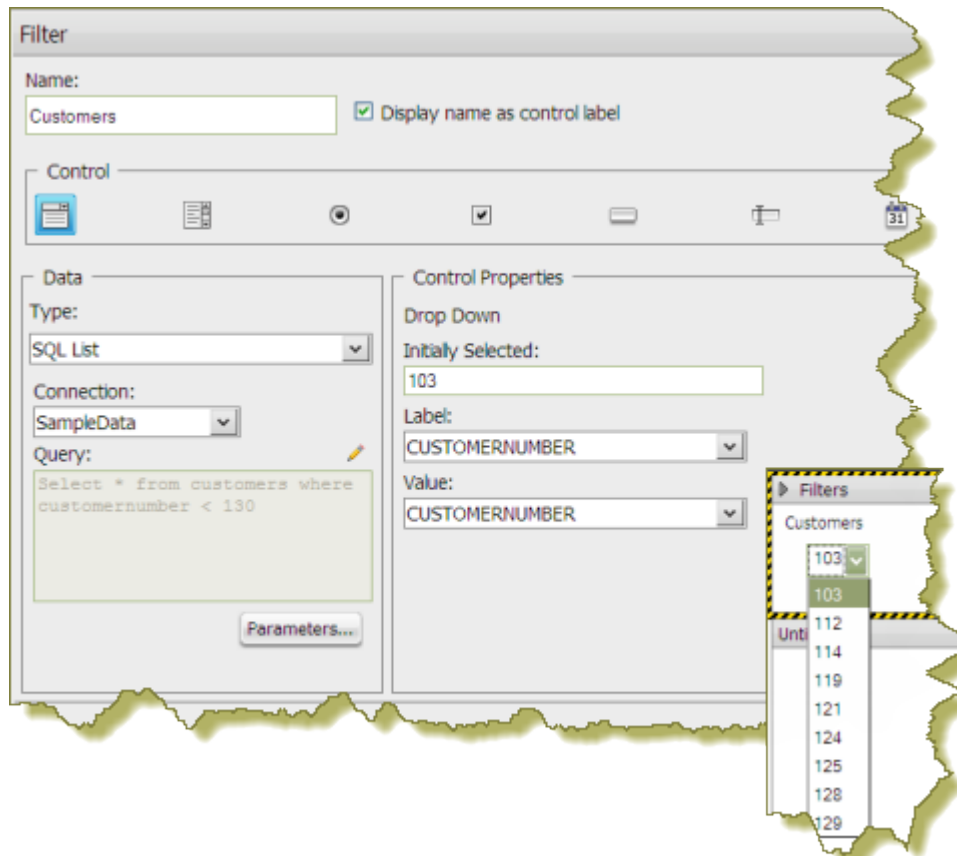


4. If applicable, click  (Edit) to make changes.
5. Save your dashboard when you are done.

Working with Filters

Filters allow you to display a subset of data based on the dashboard user's point of view. For example, the dashboard user's point of view of *Region* may be "East;" his or her point of view of *Time* may be, "Fourth Quarter." Pentaho Dashboards allows you to designate a point of view based on the filters in your source data.




Dynamic filters make it easy for dashboard users to customize the information that they want to see; *static* filters display specific information by default. The Dashboard Designer also allows an administrator or design engineer to use a SQL-based query that dynamically retrieves a list of display names and corresponding values directly from a relational database as shown in the example below. In this example, users of the dashboard are able to view data associated with customer ID numbers below 130:



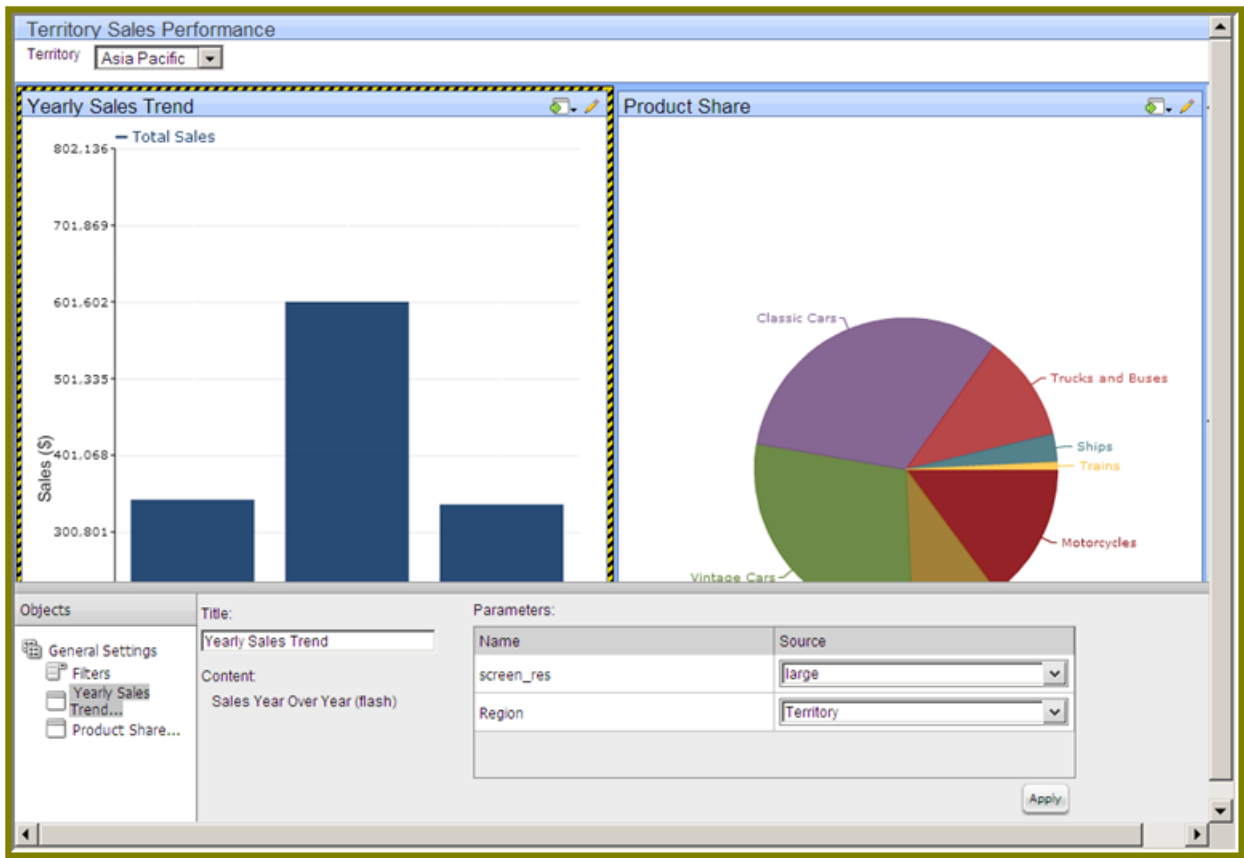
Follow the steps below to create a simple static filter:

1. Go to the **File** menu, then select **Dashboard** from the **New** sub-menu.

A **New Dashboard** page appears with the default **2 by 2** template selected.

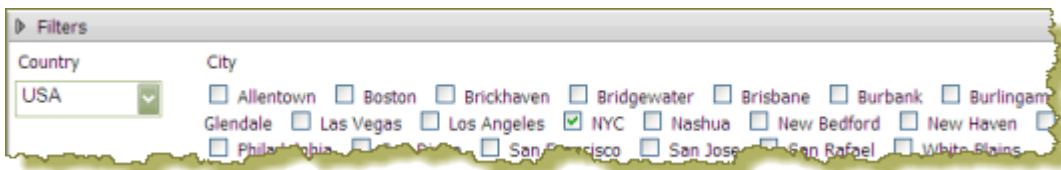
2. Click the **Properties** tab near the bottom of the page to change to the Properties pane.
The only property you can set is the page title.
3. Type in **Territory Sales Performance** in the **Page Title** field and click **General Settings**.
The new title appears in the upper left corner of the dashboard as soon as you click outside of the Properties pane.
4. Click back to the **Templates** tab and then select the two-column dashboard template from the horizontal list.
The dashboard template changes from four panes to two.
5. Click the **Theme** tab to switch to the Theme pane.
6. Select the **Cool Blue** theme.
7. In **Objects** list on the left, click the **Untitled 1** item.
8. In the upper right corner of the **Untitled 1** panel click the **Insert Content** down arrow and choose **File**.
In the browser, navigate to **/steel-wheels/Dashboards/Widget Library/KPIs/Sales Year/Year** and click **Select**.
9. In the **Title** field on the right, type **Yearly Sales Trend**.
10. Click **Apply** to show the content in the left pane.
11. Click **Untitled 2** in the **Objects** list to switch to the right panel.
12. In the upper right corner of the **Untitled 2** panel click the **Insert Content** down arrow and choose **File**.
In the browser, navigate to **/steel-wheels/Dashboards/Widget Library/KPIs/Productline Mix - Total Sales (flash)** and click **Select**.
13. In the **Title** field on the right, type **Product Share**.
14. Click **Apply** to show the content in the left pane.
15. Click **Filters** in the **Objects** list.
The **Filter Editor** appears on the right.
16. Click the **Show Filter Toolbar** checkbox.
This toolbar enables user-interactive controls at the top of the dashboard.
17. Click  in the upper right corner of the Filter Editor.
The **Filter Properties** dialog box appears.
18. In the **Name** field, type **Territory**.
This is display name for the filter control label.
19. Enable **Display Name as Control Label** if you want users to see the display name in the filter toolbar.
 **Note:** Notice that there are several filter controls from which to choose; however, you will be using the default selection, **Drop Down**. Also, keep the default **Data Type, Static List**.
20. In the Filter Properties dialog box, click .
The **List Value** dialog box appears.
21. Type **North America** into the **Label** field, and **NA** in the **Value** field, then click **Add**.
22. Add two more list values for **Europe/EMEA** and **Asia Pacific/APAC**, then click **Close**.
23. Click **OK** in the **Filter Properties** dialog box to finish creating the filter list.
A drop-down box will appear in the filter toolbar at the top.
24. In the **Objects** list, click **Yearly Sales Trend**.
25. Under the **Parameters** tab, next to **Region**, click the down-arrow and select **Territory**.
26. Repeat the previous step for **Product Share**.

You now have a functional dashboard that shows bar and pie chart data filtered by sales region. To switch to a different region, select it from the Territory drop-down box in the upper left corner of the dashboard. You can now save your dashboard and share it normally through the Pentaho User Console. Go on to the next exercise to create a cascading filter.



Creating a Cascading Filter


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





The example above was created using a Metadata List for the drop down filter control and a SQL List for the checkbox filter control.

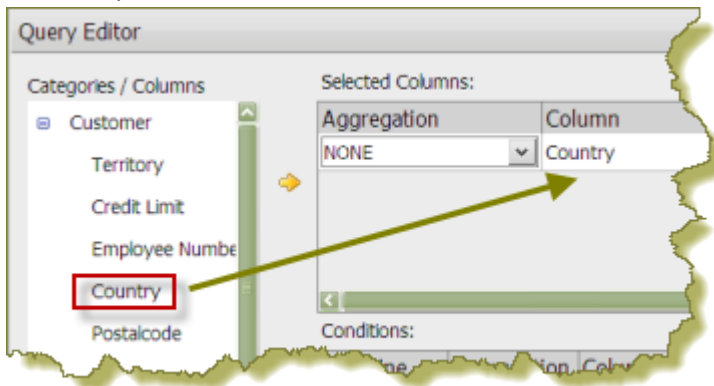
Follow the instructions below to link the drop-down filter to the checkbox filter.

1. In the dashboard page, under **General Settings**, select **Filters**.
The Filter Editor appears on the right.
2. To display a filter toolbar to users of the dashboard, enable **Show Filter Toolbar**.
A placeholder for the filter toolbar appears at the top of the dashboard.
3. Click **+** (Add) to add a filter.
The **Filter Properties** dialog box appears.
4. In the **Filter Properties** dialog box, type **Country** as the **Name** for your filter.
- 5.

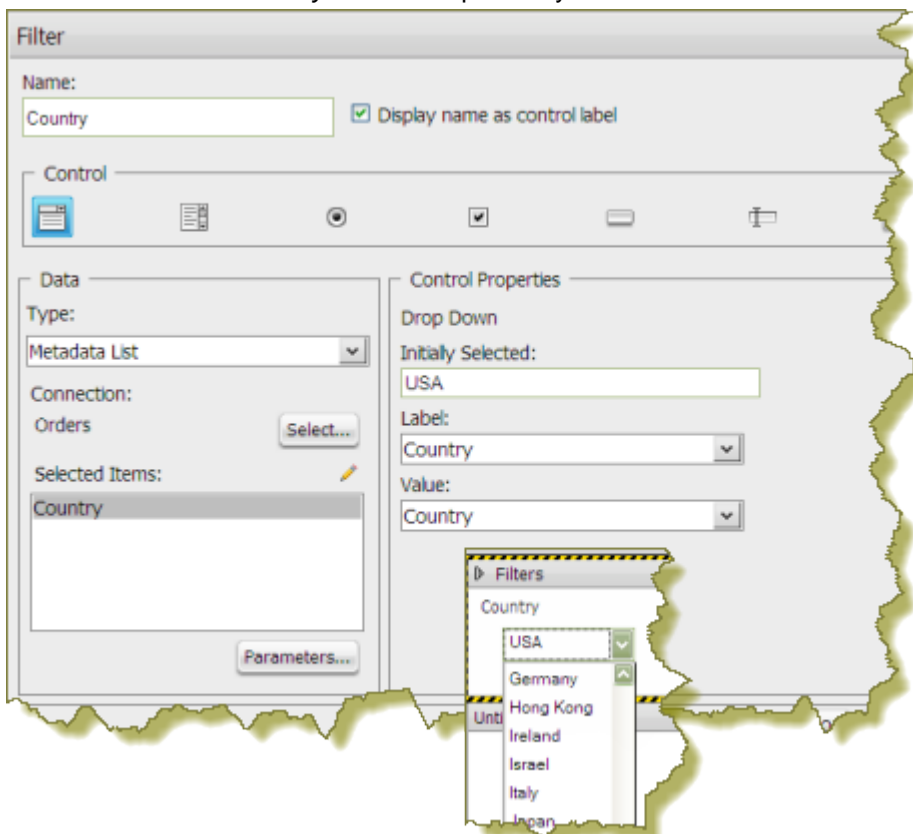
Click on the **Drop Down** filter control icon () to display your list of countries.

 **Note:** The drop down control is the default selection.

- Under **Type**, select **Metadata List**.
- Click **Select** to choose **Orders** as the data source that contains the content you need for setting options from the drop-down list. Click **OK**.
The **Query Editor** opens.
- In the **Query Editor**, build a query. Expand the **Customer** node under **Categories/Columns** and select **Country**. Click  (arrow) to place the column name, **Country**, under **Selected Columns** as shown in the example below.




- Click **Preview** to ensure that the query produces the correct results, then click **OK** to exit the Query Editor.
Your options appear under **Selected Items** in the Filter Properties dialog box.
- Under Control Properties, type **USA** in the **Initially Selected** field. Select **Country** as your default **Label/Value** for the *initially selected* option in your filter control.



- Click **OK** to exit the **Filtered Properties** dialog box.

The **Country** filter appears at the top of the dashboard.


12. To create your **City** filter, select **Filters** under **General Settings**.

13. Click  (Add) to add a filter.

14. In the **Filter Properties** dialog box, type **City** as the **Name** for your filter.

15.




Click  to select the checkbox filter control.

16. Under **Type**, select **SQL List**.

17. Under **Connection**, keep the default, **SampleData**.

18.

Click  (Edit) to open the **Query** dialog box. Type the following query and click **OK**.

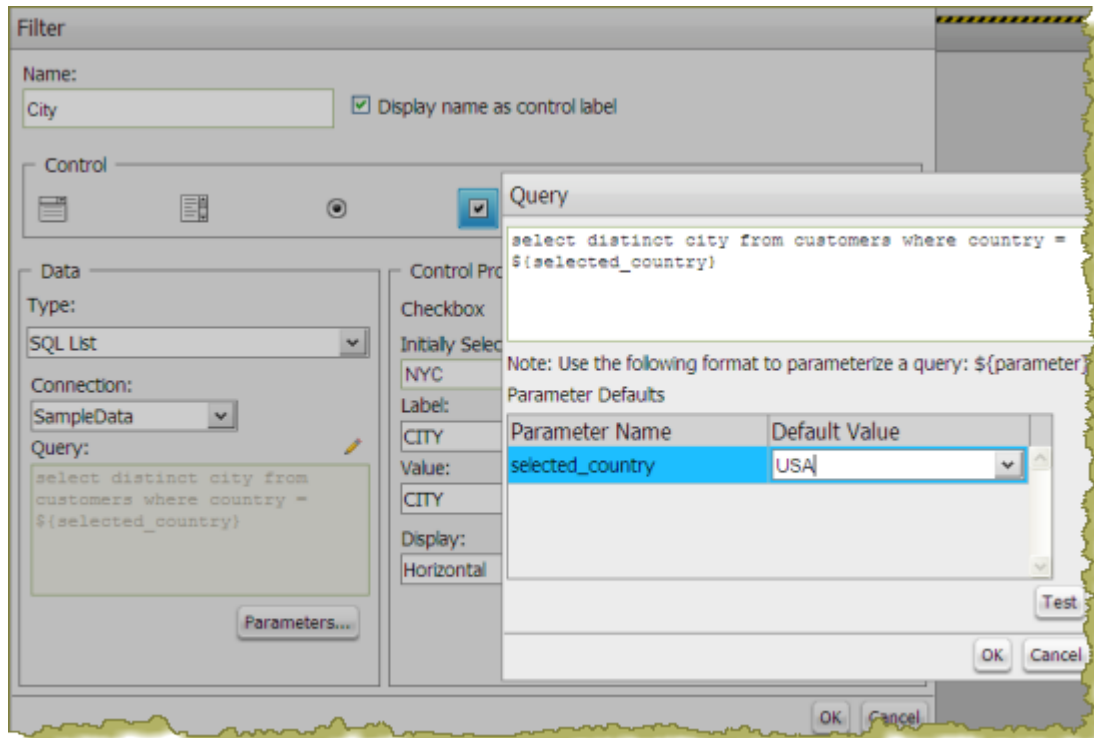
```
select distinct city from customers where country = ${selected_country}
```

The dollar sign and brackets around the country value, **\${selected_country}**, parameterizes the query allowing the City filter to be driven by Country filter you created previously.

Click **Test** to validate query results.

The parameter, `selected_country` appears in the lower portion of the Query dialog box.

19. Under **Default Value**, type **USA**. Click **Test** to see results.

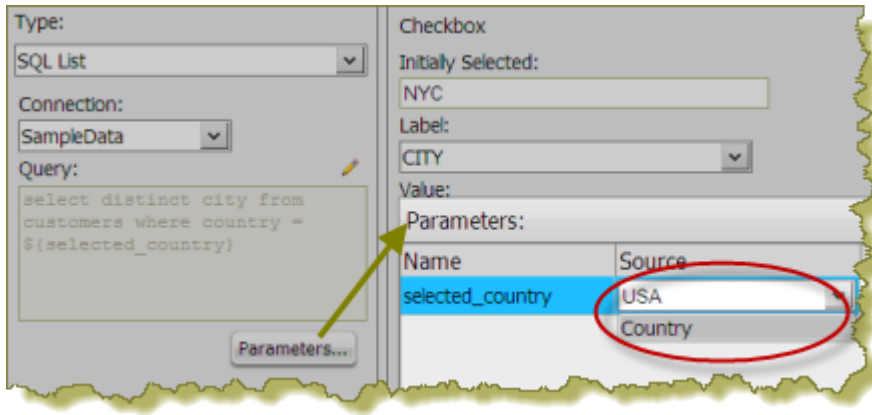


20. Click **OK** to exit the Query dialog box.

21. Under **Control Properties**, type **NYC** in the **Initially Selected** textbox.

22. Click the **Parameters** button in the **Filter Properties** dialog box.

23. Under **Source**, click the down arrow and select **Country** as the new value for the `selected_country` parameter; click **OK**.



24. Under **Display**, choose **Horizontal**, so that the City checkbox filter control displays the cities horizontally.

25. Click **OK** to exit the **Filter Properties** dialog box.

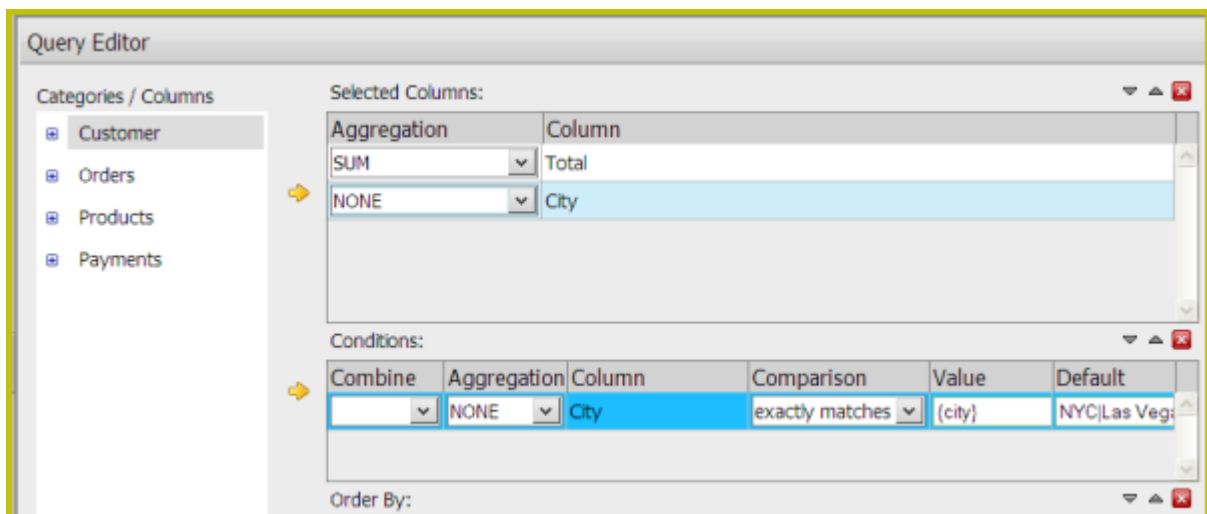
The City filter control appears at the top of the dashboard. Now, you can add a chart, data table, or report to the dashboard and use the cascading filter to drive the content in your dashboard.

Linking Your Filter Control to Dashboard Content

In the previous exercise, you created a cascading filter. Now, you must add some content to your dashboard that can be driven by your filter.

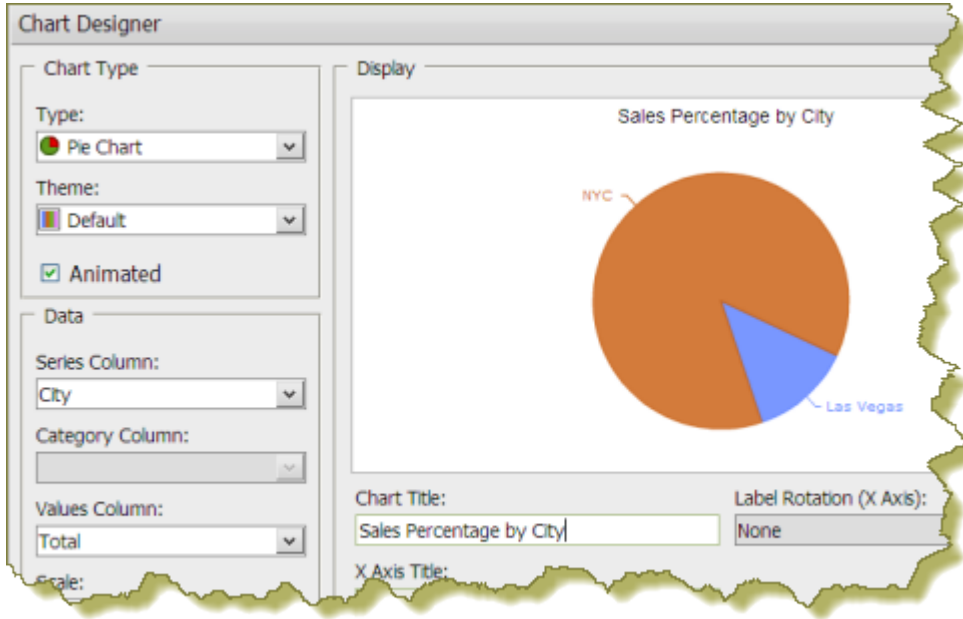
1. In the Dashboard, choose a dashboard panel and click (Insert) and select **Chart**. The **Select a Data Source** dialog box appears.
2. Select the **Orders** data source. This data source contains the content you want to display in your chart. The **Query Editor** appears. You will be creating a query that will give you total sales per city.
3. Under **Categories/Columns**, expand the **Orders** node and select **Total**.
4. Click (arrow) to move the **Total** column under **Selected Columns** on the right.
5. Under **Categories/Columns**, expand the **Customers** node and select **City**.
6. Click (arrow) to move the **City** column under **Selected Columns** on the right.
7. Click (arrow) to move the **City** column under **Conditions** on the right.
8. Under **Value**, type **{city}**; for the Default, type **NYC|Las Vegas**.

This parameterized condition ties the content in your dashboard panel to the cascading filter you created. Your completed query should look like the example below.

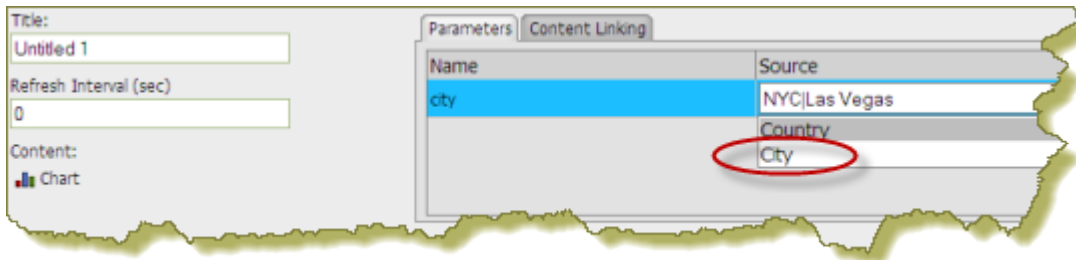


9. Click **OK** to exit the Query Editor. The **Chart Designer** opens.

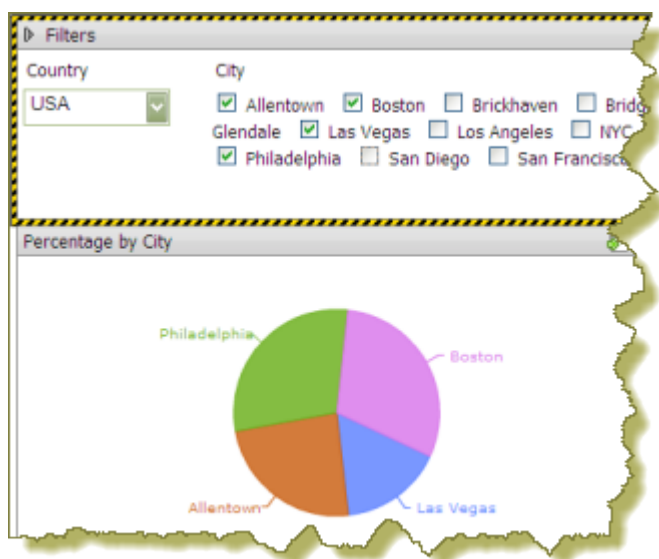
10. Under Type, select Pie Chart. Set the **Series Column** to **City**. and the **Values Column** to **Total**. Type, **Sales Percentage by City**, as your **Chart Title**.



11. Click **OK** to exit the **Chart Designer** and return to the dashboard.
The dashboard displays the pie chart. Notice that the default values to entered in the Query Editor are reflected in the chart, which displays sales percentages for NYC and Las Vegas.
12. If not already selected, click the dashboard panel that contains the chart. It should be labeled, **Untitled 1**. Now, you are going to change the source value for the **{city}** parameter from **NYC/Las Vegas** to **City**.



13. Click **Apply**.
In the dashboard, you can now click the checkboxes next to multiple cities and watch the chart update.



14. Save your dashboard. See [Saving Your Dashboard](#) on page 43 for instructions.

Working with Parameters

If you are placing a file, such as an .action 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.

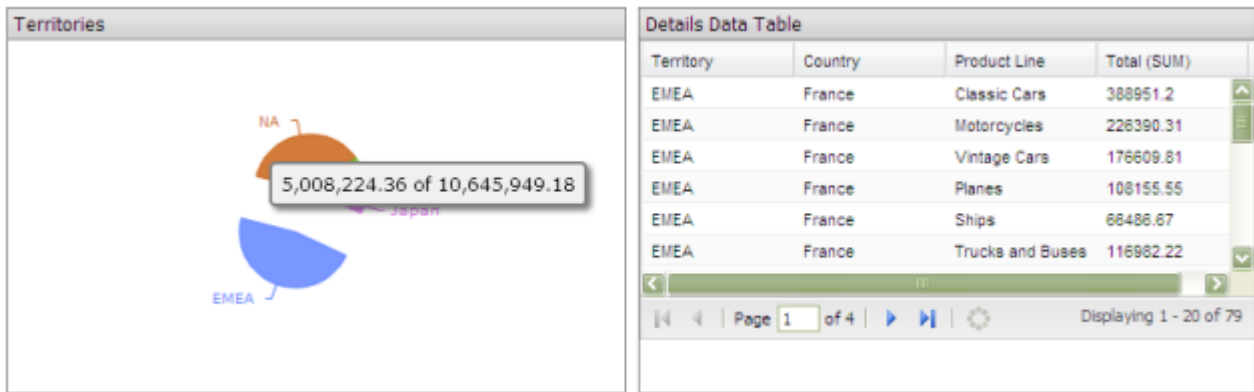


Parameter names are "hard-coded," in the file; that means they cannot be changed. Neither can you change the number of parameters associated with a file. When you create a chart using the Chart Designer, embed a URL into a dashboard, or create a data table, you can change both the name and value of a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

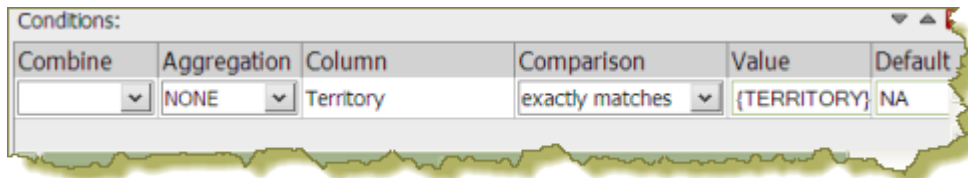
Adding Parameters to a Chart or Data Table Using the Query Editor

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 filters 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 filter value.

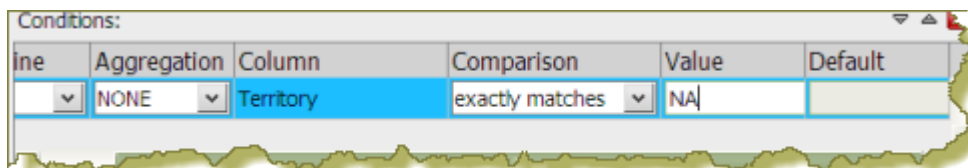


To create a parameter, in the **Value** field, type the name of the parameter inside curly braces, as in **{Parameter Name}**. In the example below, the designer created a parameter called, **{TERRITORY}**; the default value, or source, for the parameter is, "NA" (North America). When a chart or data table renders, it displays data associated with North America. Remember that this is 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.



You can define two defaults by adding a pipe (|) between the values, as in NA|EMEA.

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.



Using 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, .action, .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:

Linking a Chart to a Data Table

In previous exercises, you created a cascading filter and you added a pie chart to a dashboard panel that could be driven by your filter. Now, you will add a data table to your dashboard. When you click on a pie slice, the data table will update with associated information.

1. Use the Pentaho User Console browser on the left to find your dashboard. It should be under **Steel Wheels -> Dashboards -> Product Sales**.

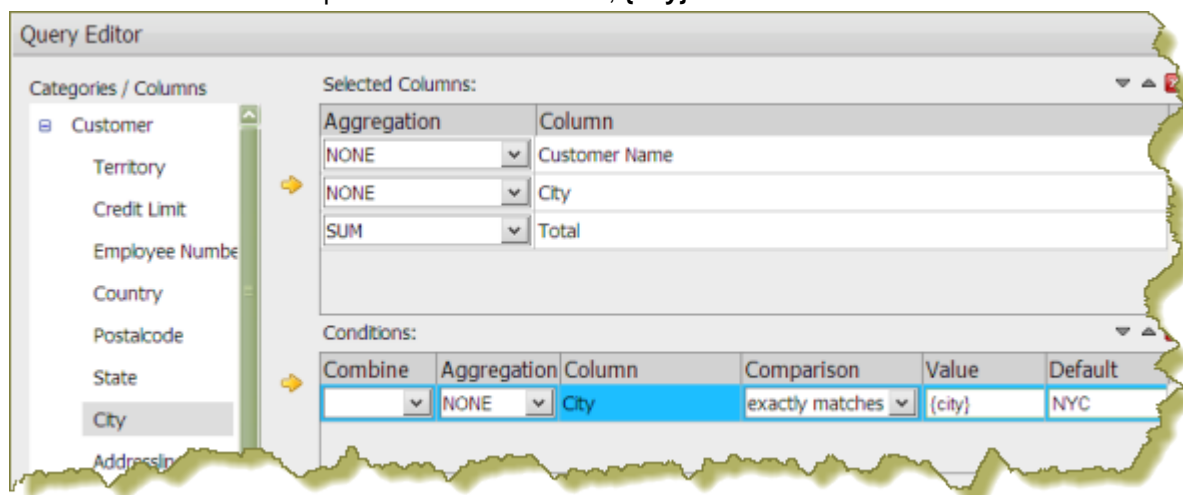
 **Note:** If you don't see the browser, click  (Toggle) in the console toolbar.

The dashboard opens. Click  (Edit) from the console toolbar to go into Edit mode.

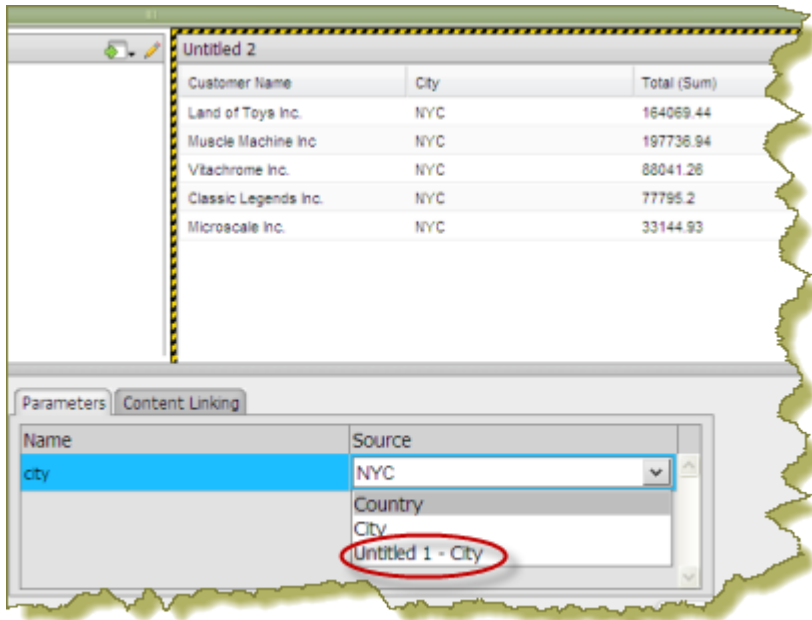
2. Select the dashboard panel that contains the pie chart and click the **Content Linking** tab.
3. Click the check box next to the field name, **City** and click **Apply**.

This step enables content linking on the chart series; in this example, the chart series is **City**. When you enable content linking on a chart series, you make the series value available as a source of parameters for content in other dashboard panels.

4. Select a dashboard panel and insert a **Data Table**.
5. Select the **Orders** data source and click **OK**.
6. In the **Query Editor**, create a query as shown in the sample below. Select the **Customer Name**, **City**, and **Total** columns. Add a parameterized condition, **{city}** with a default of **NYC**.

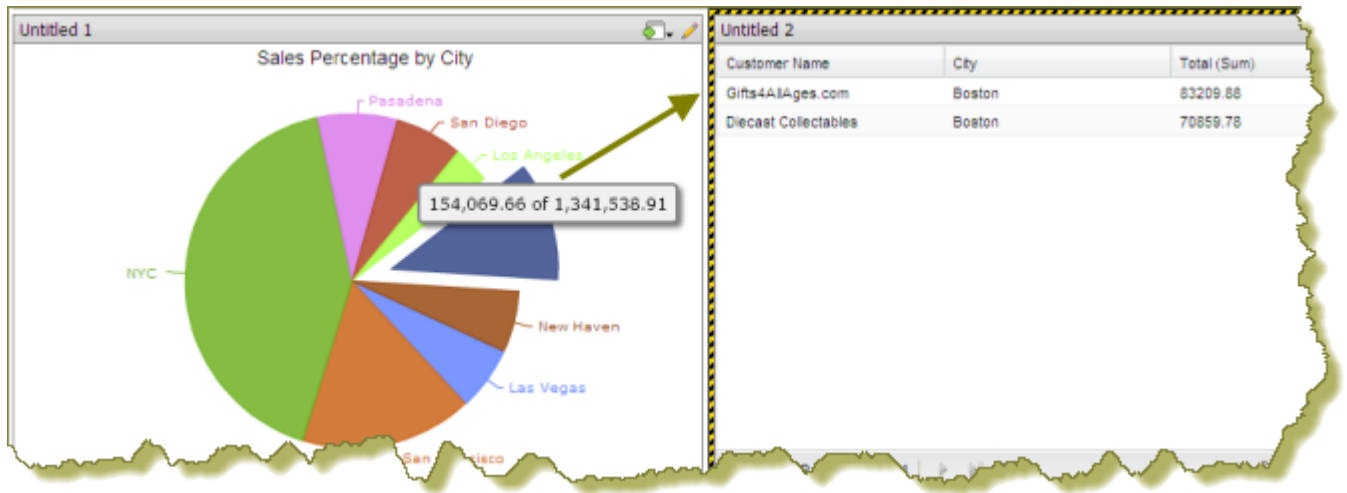


7. Click **OK** to exit the Query Editor and return to the dashboard. The data table displays in the dashboard.
8. Click the Parameters tab and select **Untitled 1 - City** as the new **Source** for the **city** parameter.




9. Save your dashboard.

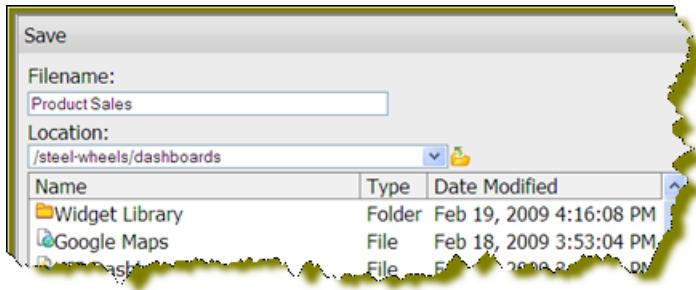
When you click a pie slice , the data table displays content associated with that specific pie slice.



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 **Product Sales**.
3. Save your file in the `.../steel-wheels/dashboards` directory. You can do this by double clicking the Steel Wheels folder the Dashboards folder.




4. Click **Save**.



Editing Your Dashboard

Follow the instructions below to edit an existing dashboard:


1. In the lower left corner of the Pentaho User Console, (under Files), select an existing dashboard file. The dashboard panels and their related content appear.

2. Click  (Edit) from the console toolbar to go into Edit mode.

3. Click  (Edit) in the upper-right corner of the dashboard panel you want to edit.

 **Note:** Some content such as action sequence files (.xaction) and Report Designer files (.prpt) cannot be edited directly in the dashboard. In such instances,  (Edit) is disabled.

4. Make your changes as needed.

5. In the toolbar, click  (Save As) to open the **Save As** dialog box.

6. In the **File Name** text box, type a file name for your dashboard. Alternatively, use the up/down arrows or click **Browse** to locate the solution (content files) directory in which you will save your dashboard.

7. Click **Save**.

The name of your dashboard file appears in the list under **Files** in the lower left portion of the Pentaho User Console.

Displaying Your Dashboard

After you save your dashboard go to the **Tools** menu and click **Refresh Repository Cache**. Your dashboard appears in the User Console under Dashboards.

Creating a Report Using Report Designer

Pentaho Reporting provides unmatched deployment flexibility. Whether you're looking for a standalone desktop reporting tool, Web-based reporting, or comprehensive business intelligence (BI) including reporting, analysis, and dashboards, Pentaho Reporting allows you to "start small" and scale up if your reporting needs grow in the future.

The Pentaho Report Designer provides you with the following features:

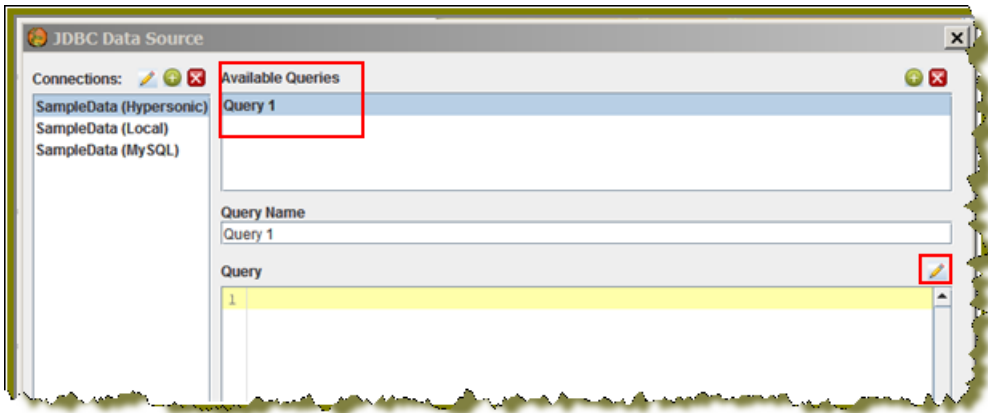
- Drag-and-drop graphical designer that gives users full control of data access, layout, grouping, calculations, charting and formatting for pixel-perfect reports
- Integrated, step-by-step wizard that guides report designers through the design process
- Report templates that accelerate report creation and provide consistent look-and-feel



The Report Designer allows you to create a report by following a four step wizard; however, to show you a larger range of features, the exercises that follow walk you through the manual procedures for creating a simple report. Keep in mind that is basic tutorial and will not provide details about advanced Report Designer features.

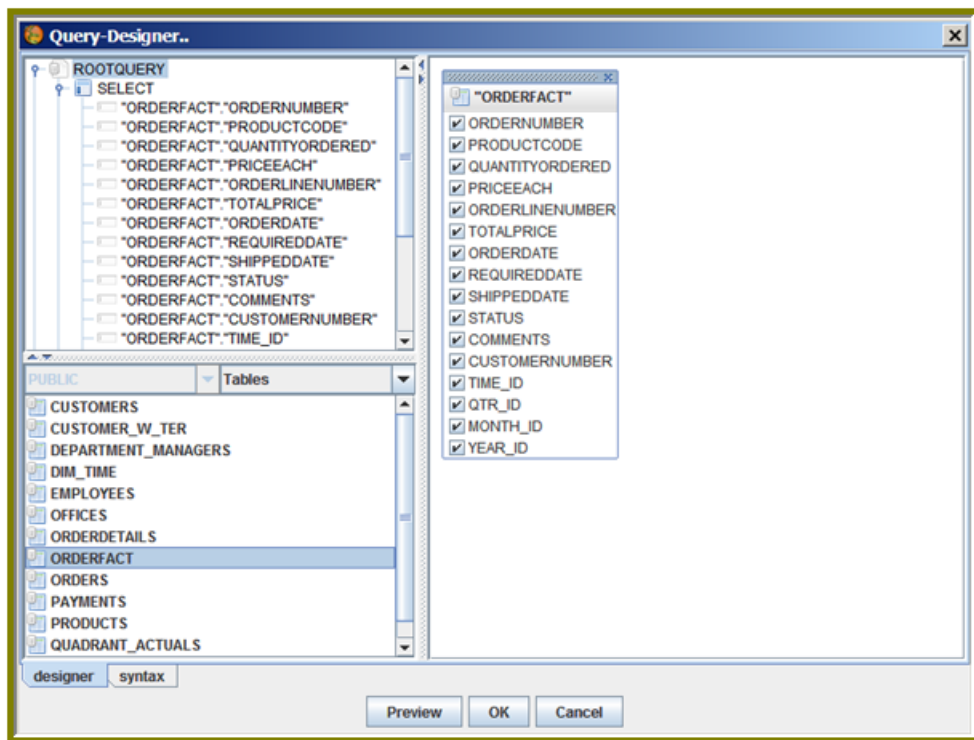
1. Start the Report Designer. Go to **Start -> Programs -> Pentaho Enterprise Edition -> Design Tools -> Report Designer**.
The Report Designer home page appears.
2. Click **New Report** in the **Welcome** dialog box.
The design workspace appears.
3. In the right pane, click the **Data** tab.
4. For the purpose of this exercise, right-click **Data Sets** and choose **JDBC**. Alternatively, you can click the yellow database icon to display the JDBC dialog box.
The **JDBC Data Source** dialog box appears.
5. Under **Connections**, select **SampleData (Memory)**.
6. Next to **Available Queries** click **+** (Add).

Query 1 appears under **Available Queries**. Notice that the edit icon  is enabled.



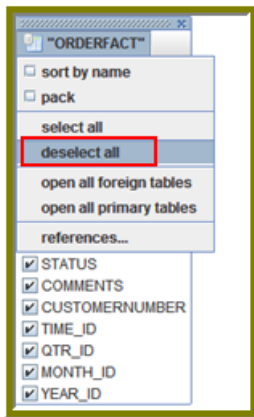
7. Click  (Edit).

The Query Designer window appears. The Query Designer provides you with a graphical environment that allows you to work with the data even if you don't understand SQL, the standard programming language for retrieving content from databases.

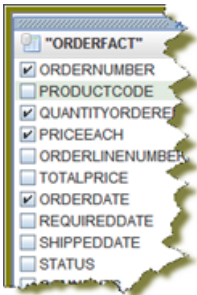


8. Double-click **ORDERFACT** so that the table appears in the workspace as shown in the image above.

9. In the Query Designer workspace, right-click "**ORDERFACT**" and choose **deselect all**.



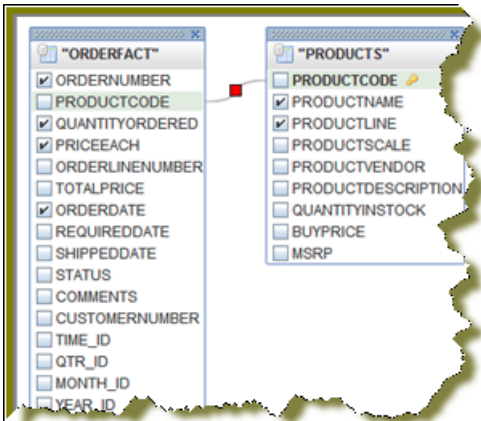
10. Now, select the following fields in the **ORDERFACT** table: **ORDERNUMBER**, **QUANTITYORDERED**, **PRICEEACH**, and **ORDERDATE**.



11. Double-click **PRODUCTS** so that the table appears in the workspace.

Notice that there is a line that joins the **ORDERFACT** and **PRODUCTS** tables together.

12. Deselect all **PRODUCTS** table fields, except for **PRODUCTNAME** and **PRODUCTLINE**.



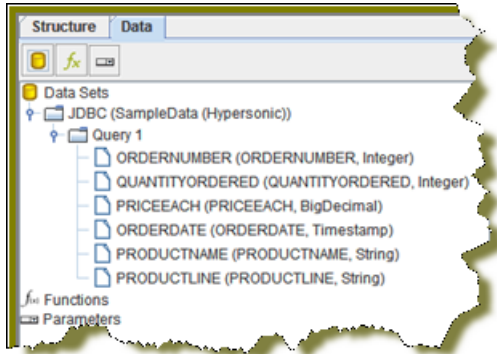
13. For the purpose of this exercise, click the **Syntax** tab in the lower left portion of the Query Designer workspace to display a simple SQL statement associated with the tables. Notice that **PRODUCTCODE** is the common field between the **ORDERFACT** and **PRODUCTS** tables.



14. Click **OK** in the syntax window to return to the JDBC Data Source dialog box. Notice that the SQL statement appears on the right under **Query**.

15. In the JDBC Data Source dialog box, click **OK** to go to the **Design** page.

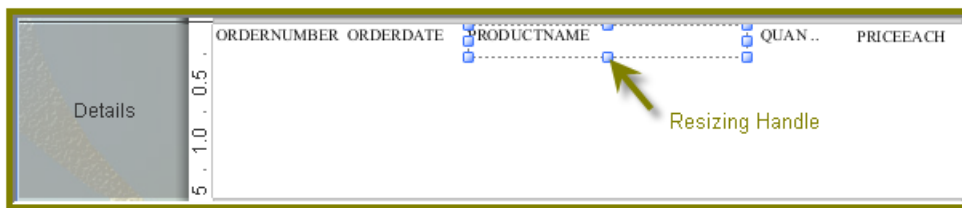
Notice that the fields associated with your tables are listed under **Query 1**. You are now ready to start *Designing Your Report* on page 48.








Designing Your Report

This exercise walks you through the process of designing the look-and-feel of your report.

1. Under the **View** item in the Report Designer menubar, click **Element Alignment Hints** and **Snap to Elements** to enable them. These options help you to align the elements of your report.
2. In the **Design** page, under **Query 1**, double-click and drag the **ORDERNUMBER** field into the **Details** band. Make sure that the top line of the field name and the top line of the Details band match up.
3. Place the **ORDERDATE**, **PRODUCTNAME**, **QUANTITYORDERED**, and **PRICEEACH** fields into the Details Band. Take care not to overlap the fields or your report will not display correctly.
4. Use the resizing handles to make the **PRODUCTNAME** field larger and the **QUANTITYORDERED** field smaller as shown in the example below:



5. You have created your first report. Click  (Preview) to examine your report. Click  (Edit) to return to the workspace view.


 **Tip:** You can also click  (Preview) on the left side of your workspace or select it from the **View** menu option to preview a report. Click  (Edit) to return to the workspace view.

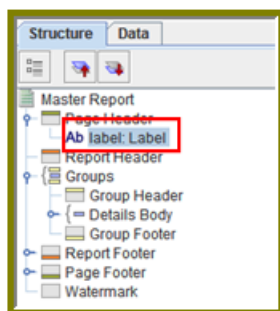
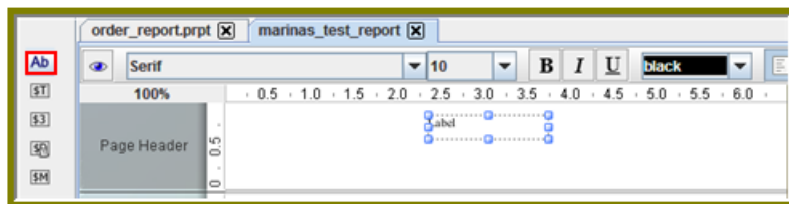
10,107	Feb 24, 2003	1969 Harley Davidson Ultimate Cho..	30	95.7
10,121	May 7, 2003	1969 Harley Davidson Ultimate Cho..	34	81.35
10,134	Jul 1, 2003	1969 Harley Davidson Ultimate Cho..	41	94.74
10,145	Aug 25, 2003	1969 Harley Davidson Ultimate Cho..	45	83.26
10,159	Oct 10, 2003	1969 Harley Davidson Ultimate Cho..	49	100
10,168	Oct 28, 2003	1969 Harley Davidson Ultimate Cho..	36	96.66
10,180	Nov 11, 2003	1969 Harley Davidson Ultimate Cho..	29	86.13
10,188	Nov 18, 2003	1969 Harley Davidson Ultimate Cho..	48	100
10,201	Dec 1, 2003	1969 Harley Davidson Ultimate Cho..	22	98.57
10,211	Jan 15, 2004	1969 Harley Davidson Ultimate Cho..	41	100
10,223	Feb 20, 2004	1969 Harley Davidson Ultimate Cho..	37	100
10,237	Apr 5, 2004	1969 Harley Davidson Ultimate Cho..	23	100
10,251	May 18, 2004	1969 Harley Davidson Ultimate Cho..	28	100
10,263	Jun 28, 2004	1969 Harley Davidson Ultimate Cho..	34	100
10,275	Jul 23, 2004	1969 Harley Davidson Ultimate Cho..	45	92.83
10,285	Aug 27, 2004	1969 Harley Davidson Ultimate Cho..	36	100
10,299	Sep 30, 2004	1969 Harley Davidson Ultimate Cho..	23	100
10,309	Oct 15, 2004	1969 Harley Davidson Ultimate Cho..	41	100
10,318	Nov 2, 2004	1969 Harley Davidson Ultimate Cho..	46	94.74
10,329	Nov 15, 2004	1969 Harley Davidson Ultimate Cho..	42	100
10,341	Nov 24, 2004	1969 Harley Davidson Ultimate Cho..	41	100
10,354	Dec 4, 2004	1969 Harley Davidson Ultimate Cho..	42	86.13
10,361	Dec 17, 2004	1969 Harley Davidson Ultimate Cho..	20	72.55
10,375	Feb 3, 2005	1969 Harley Davidson Ultimate Cho..	21	34.91
10,388	Mar 3, 2005	1969 Harley Davidson Ultimate Cho..	42	76.36
10,399	Apr 1, 2005	1969 Harley Davidson Ultimate Cho..	40	100
10,403	Apr 8, 2005	1969 Harley Davidson Ultimate Cho..	24	100
10,417	May 13, 2005	1969 Harley Davidson Ultimate Cho..	66	100
10,103	Jan 29, 2003	1952 Alpine Renault 1300	26	100
10,112	Mar 14, 2003	1952 Alpine Renault 1300	29	100

But, wait... There's a problem. Without headers, report users will have a hard time understanding its content. You need to continue [Refining Your Report](#) on page 49.

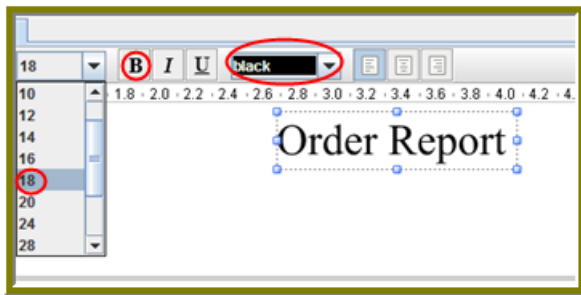
Refining Your Report

You've created a report in the previous exercise but now you need to make the report more descriptive so that users can understand the content in the report. Follow the instructions below to refine your report.


1. Click  (Edit) to return to the Design page.
2. Click and drag a **Ab** (Label) from the tools palette into the middle of the **Page Header** band. Notice how Report Designer keeps track of the report structure (shown below).

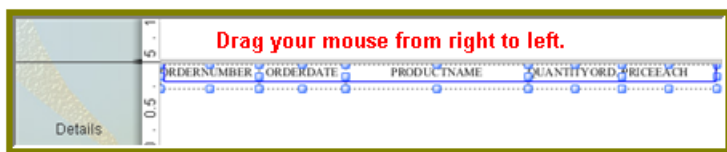


3. Click inside the **Label** item and type **Order Report**
4. Double-click inside the Order Report label to select the text, then in the toolbar, select a larger font size (18 point) and apply boldface.





The changes are applied to the text; however, now that the text is bigger you may not see all of it, so use your resizing handles and enlarge the label until you can see all of the text. Alternatively, you can stretch the resizing handles all the way to each edge of the workspace and click the align center icon in the toolbar so that the text is automatically placed in the center of the report page.

5. With the **Order Report** label still selected, click down arrow of the font color icon in the toolbar. Select a color for your label.
The font color changes. This page header will appear on every page of your report.
6. Now, you must create column headers. On the right side of your workspace, click **Structure -> Details Header**.
7. In the lower right section of your workspace, click **Attributes**.
8. Under **common**, change the **Value** of the **hide-on-canvas** option to **False**.
Notice that the **Details Header** pane appears in your workspace.
9. In the toolbar, click  (Select Objects).
Notice that the icon changes to a cross hair as you move into the workspace.
10. Move your mouse to the far right of the **Details** pane. Now, drag your mouse to the far left over all your column objects to select them. You may have to move the mouse under the headings to make them easier to select.



11. Click **<CTRL+C>** to copy your objects and **<CTRL+V>** to paste them into the **Details Header** pane.

 **Note:** Alternatively, you can choose **Copy** from the right-click menu.

12. Under **Format** in the Report Designer menubar, select **Morph**.
The column objects are changed to labels.
13. Type the correct heading names for each of your columns: **Order No.**, **Order Date**, **Product Name**, **Quan.**, and **Price Each**.
Your headers will align correctly over your columns.
14. Click  (Preview) to display your report.


Order Report

Order No.	Order Date	Product Name	Quan.	Price Each
10,107	Feb 24, 2003	1969 Harley Davidson Ultimate Chopper	30	95.7
10,121	May 7, 2003	1969 Harley Davidson Ultimate Chopper	34	81.35
10,134	Jul 1, 2003	1969 Harley Davidson Ultimate Chopper	41	94.74
10,145	Aug 25, 2003	1969 Harley Davidson Ultimate Chopper	45	83.26
10,159	Oct 10, 2003	1969 Harley Davidson Ultimate Chopper	49	100
10,168	Oct 28, 2003	1969 Harley Davidson Ultimate Chopper	36	96.66
10,180	Nov 11, 2003	1969 Harley Davidson Ultimate Chopper	29	86.13
10,188	Nov 18, 2003	1969 Harley Davidson Ultimate Chopper	48	100
10,201	Dec 1, 2003	1969 Harley Davidson Ultimate Chopper	22	98.57
10,211	Jan 15, 2004	1969 Harley Davidson Ultimate Chopper	41	100
10,223	Feb 20, 2004	1969 Harley Davidson Ultimate Chopper	37	100
10,237	Apr 5, 2004	1969 Harley Davidson Ultimate Chopper	23	100
10,251	May 18, 2004	1969 Harley Davidson Ultimate Chopper	28	100
10,263	Jun 28, 2004	1969 Harley Davidson Ultimate Chopper	34	100
10,275	Jul 23, 2004	1969 Harley Davidson Ultimate Chopper	45	92.83
10,285	Aug 27, 2004	1969 Harley Davidson Ultimate Chopper	36	100
10,299	Sep 30, 2004	1969 Harley Davidson Ultimate Chopper	23	100
10,309	Oct 15, 2004	1969 Harley Davidson Ultimate Chopper	41	100
10,318	Nov 2, 2004	1969 Harley Davidson Ultimate Chopper	46	94.74
10,329	Nov 15, 2004	1969 Harley Davidson Ultimate Chopper	42	100
10,341	Nov 24, 2004	1969 Harley Davidson Ultimate Chopper	41	100
10,354	Dec 4, 2004	1969 Harley Davidson Ultimate Chopper	42	86.13
10,361	Dec 17, 2004	1969 Harley Davidson Ultimate Chopper	26	72.55

The report looks good but you may want to make it even easier to read by applying some banding.

15. In the toolbar, go to **Format -> Row Banding**.


16. In the **Row Banding** dialog box, choose **Yellow** from the drop-down list next to **Visible Color** and click **OK**.

17. Click  (Preview) to display your report.

Order Report

Order No.	Order Date	Product Name	Quan.	Price Each
10,107	Mon Feb 24 00:00:00 EST	1969 Harley Davidson Ultimate Chopper	30	95.7
10,121	Wed May 07 00:00:00 EDT	1969 Harley Davidson Ultimate Chopper	34	81.35
10,134	Tue Jul 01 00:00:00 EDT	1969 Harley Davidson Ultimate Chopper	41	94.74
10,145	Mon Aug 25 00:00:00 EDT	1969 Harley Davidson Ultimate Chopper	45	83.26
10,159	Fri Oct 10 00:00:00 EDT	1969 Harley Davidson Ultimate Chopper	49	100
10,168	Tue Oct 28 00:00:00 EST	1969 Harley Davidson Ultimate Chopper	36	96.66
10,180	Tue Nov 11 00:00:00 EST	1969 Harley Davidson Ultimate Chopper	29	86.13
10,188	Tue Nov 18 00:00:00 EST	1969 Harley Davidson Ultimate Chopper	48	100
10,201	Mon Dec 1 00:00:00 EST	1969 Harley Davidson Ultimate Chopper	22	98.57

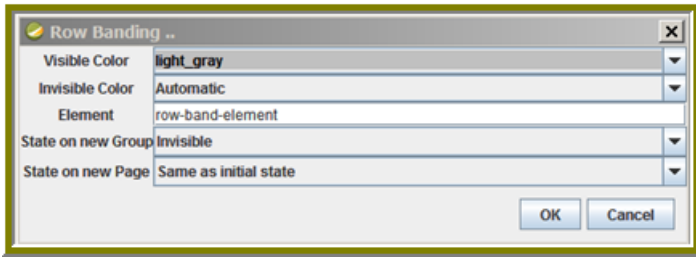
18. In the menubar, go to **File -> Save** to save your report in the **...report-designer\samples** folder. Type **Orders** in the **File Name** text box.

 **Note:** See [More about Row Banding, Data Formatting, and Alignment](#) on page 51 for additional information about refining your report.

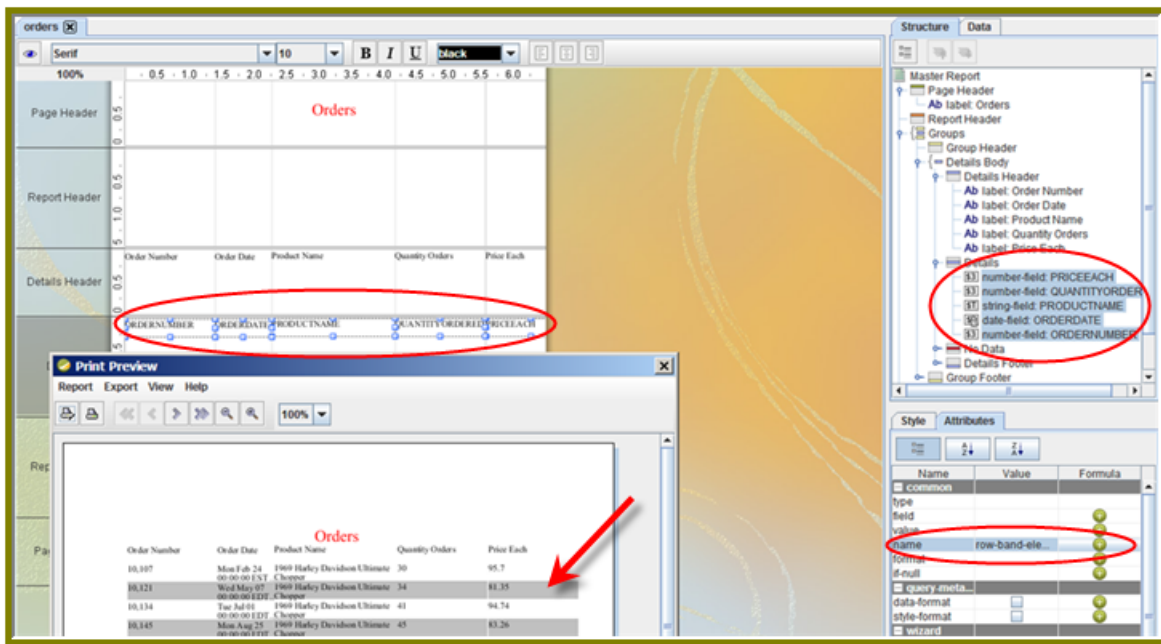
More about Row Banding, Data Formatting, and Alignment

Row Banding

By creating a row band element, you can select the *specific* fields in your report that will display a row band. For example, you may want to emphasize specific fields and not others on a line. You can give your row band element any name you choose. In the example below, the row band element is called **row-band-element**.

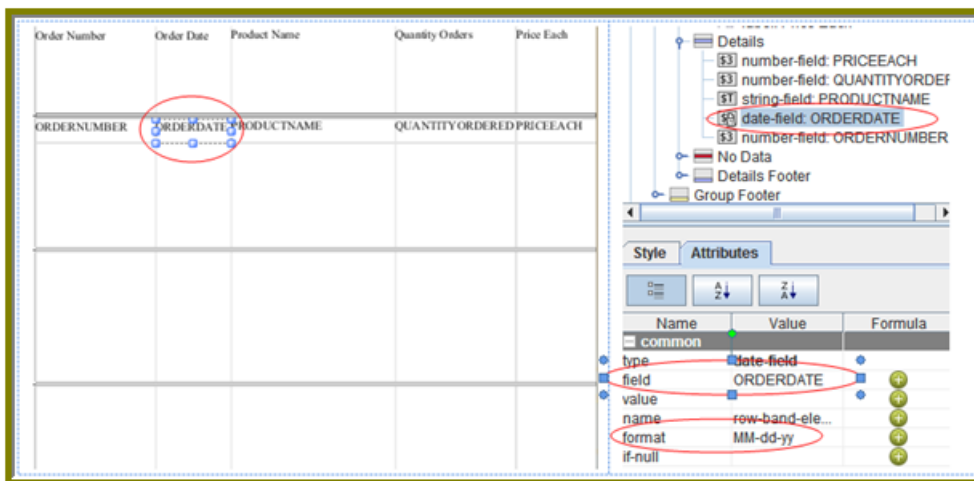


After you create your element, go back to the report and select the columns (fields) whose data will always be displayed with a row band. You must also type row-band-element in the **name** field under **Attributes**. In the example below, the data associated with each of the columns in the report will display a row band. Notice the banding in the report preview.




Data Formatting

Report Designer uses default formats for dates and numbers. You can change how dates and numbers display by selecting the object (field) and selecting the appropriate value for the format from the drop-down list next to **format** (under **Attributes**). In the example below, the dates associated with the **Order Date** field will display as **MM-dd-yy**.




When you preview the report, notice that it displays in a cleaner format:

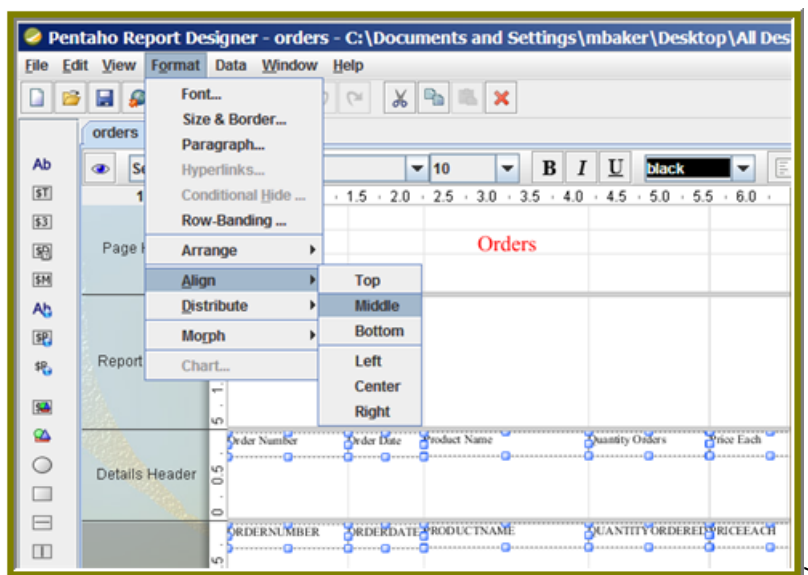
Order Number	Order Date	Product Name	Quantity Orders	Price Each
10,107	02-24-03	1969 Harley Davidson Ultimate Chopper	30	95.7
10,121	05-07-03	1969 Harley Davidson Ultimate Chopper	34	81.35
10,134	07-01-03	1969 Harley Davidson Ultimate Chopper	41	94.74
10,145	08-25-03	1969 Harley Davidson Ultimate Chopper	45	83.26
10,159	10-10-03	1969 Harley Davidson Ultimate Chopper	49	100
10,168	10-28-03	1969 Harley Davidson Ultimate Chopper	36	96.66
10,180	11-11-03	1969 Harley Davidson Ultimate Chopper	29	86.13
10,188	11-18-03	1969 Harley Davidson Ultimate Chopper	48	100
10,201	12-01-03	1969 Harley Davidson Ultimate Chopper	22	98.57
10,211	01-15-04	1969 Harley Davidson Ultimate Chopper	41	100
10,223	02-20-04	1969 Harley Davidson Ultimate Chopper	37	100
10,237	04-05-04	1969 Harley Davidson Ultimate Chopper	23	100
10,251	05-18-04	1969 Harley Davidson Ultimate Chopper	28	100
10,263	06-28-04	1969 Harley Davidson Ultimate Chopper	34	100
10,275	07-23-04	1969 Harley Davidson Ultimate Chopper	45	92.83

 **Note:** You can type a value for your own format if you know the correct JavaScript string nomenclature.

Alignment


To align multiple objects press **<SHIFT+ CLICK>** to select each object. Then, choose an alignment option from the **Format** menu. Alternatively, you can click  (Select Objects) and drag your mouse over the objects you want to select and then choose an alignment option.

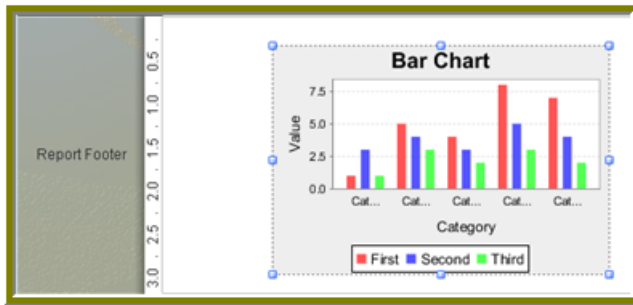
In the example below, the selected objects will be aligned in the middle of the band.




Adding a Chart to Your Report

So far you've seen a small subset of features associated with Report Designer. In this exercise, you will add a chart to your report.

1. Click **File** -> **Open** and find the report you just saved. Click **OK**.
2. In the **palette**, click and drag a  **Chart** into the **Report Footer** band.
3. Use the resizing handles to center and stretch the chart. You can also adjust the width of the band.

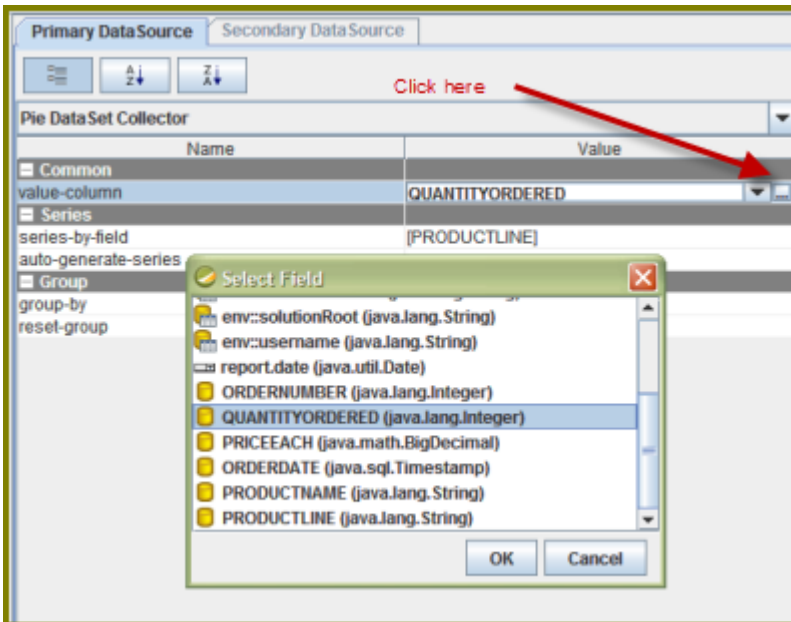


4. Double-click the sample chart.
5. The type of chart most appropriate for your report is a pie chart. In the top portion of the Edit Chart dialog box, select the **pie chart** icon.

 **Note:** Notice that the pie chart properties that define its look-and-feel are listed in the left pane of the Edit Chart dialog box. Properties associated with the data in the chart are listed in the right pane.


6. Go to the **Title** properties; net to the **chart-title** property, type **Product Pie Chart**.
7. Under **Common**, click the down arrow next to **value-column** click the ellipsis [...] to open the **Edit Array** dialog box.


The value-column specifies the actual values (measures) you want to chart. In this instance, you want to chart the quantity ordered.

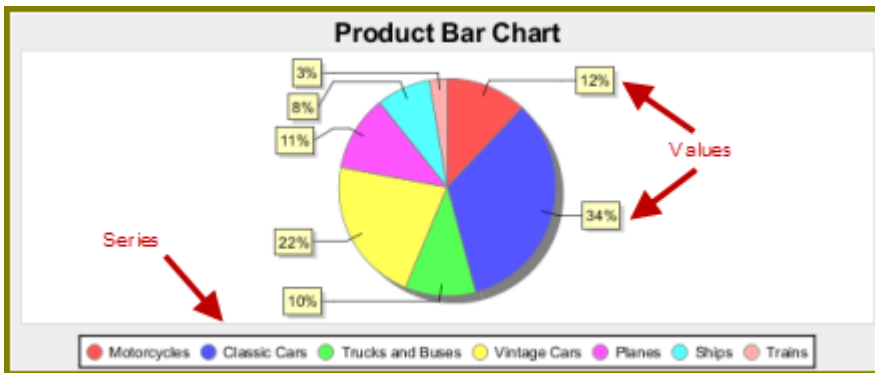


8. Click in the blank field to expose the drop-down arrow.
9. Select **QUANTITYORDERED** from the list and click **OK**.
10. Click **OK** to exit the Edit Chart dialog box.
11. Under **Series** click the ellipsis [...] next to **series-by-field** to open the **Edit Array** dialog box.



The series-by-field specifies the field you are charting. In this instance you are charting by product line. Series are usually placed in the chart legend.

12. Click  (Add).
13. Click in the blank field to expose the drop-down arrow.

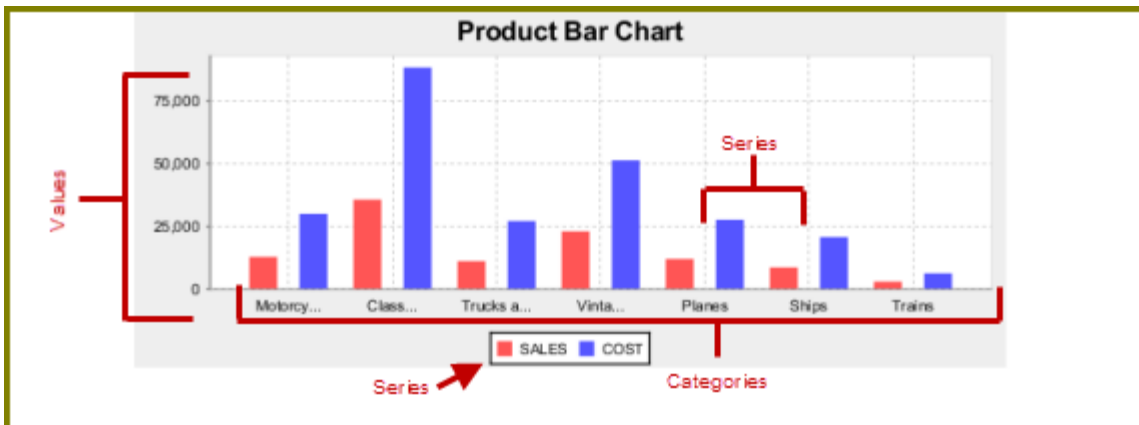
14. Select **PRODUCTLINE** from the list and click **OK**.
15. Click **OK** to exit the Edit Chart dialog box.
16. Click  (Preview) to display your report.
17. When the report displays, click the double arrows to go to the last page.



The chart you created appears on the last page of the report. If you want to display a bar or line chart instead, use the chart settings below. You have to add the **series-by-value** setting manually in the **Edit**

Array dialog box. Click  (Add) and type **SALES**; click  (Add) and type **COST**. Run the report to display the bar chart.


CategorySet Data Collector	
Name	Value
Common	
category-column	PRODUCTLINE
value-columns	[QUANTITYORDERED, PRICEEACH]
Series	
series-by-value	[SALES, COST]
series-by-field	[]
auto-generate-series	





18. Save your report. You are now ready to [Adding Parameters to Your Report](#) on page 55.

Adding Parameters to Your Report


When you set parameters, users are prompted for a value or values when they run the report. The ability to provide parameters is an important part of creating a report.

1. In the Report Designer, click **File** -> **Open** to select the report you created.
2. In the menubar go to **Data** -> **Add Parameter**. Alternatively, you can click  (Master Report Parameter) under the **Data Tab** in the Report Designer workspace. The **Add Parameter** dialog box appears.
3. In the Add Parameter dialog box, type **enter_prodlne** in the **Name** text field.


4. Type **Select Line** in the **Label** text field.
5. Next to **Display Type**, select **Drop Down** so users can select a product line.
6. Click  (Edit) to add a query that supplies the values, (motorcycles, cars, ships, and so on), from which users of the report must choose.

 **Note:** Click on **JDBC (SampleData - Memory)** under **Data Sources** if the Edit icon is disabled.

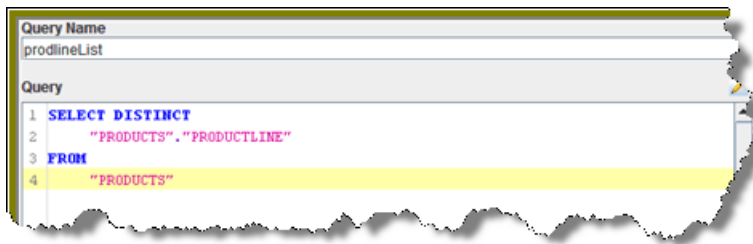
The JDBC Data Sources dialog box appears.

7. Under **Connections**, select **SampleData (Memory)**.
8. Next to **Available Queries** click  (Add).
A new query placeholder is added to the list (Query 2).
9. In the Query Name text field, type **prodlineList**.
10. Enter your SQL query in the **Query** box.

You can copy and paste the required lines, (shown below) directly into the SQL statement or you can use the alternate steps in the table below.


 **Important:** Make sure to use curly brackets, (not parentheses), before and after `{enter_prodline}` or the report will not display correctly.

```
SELECT DISTINCT "PRODUCTS" ."PRODUCTLINE"
                FROM "PRODUCTS"
```



By entering these lines, report users see a prompt when they open the report in the Pentaho User Console that allows them to enter a product line. That way, they can examine orders by product line. If you do not add the lines, the report displays orders for all product lines.

Alternatively, you can use the **Query Designer** to build your query:

Step	Description
1	In the JDBC Data Source dialog box, click  (the Edit icon on the right).
2	Under Choose Schema , select Public , and click OK to open the Query Designer .
3	In the Query Designer, select the PRODUCTS table on the left.
4	On the right, click PRODUCTS and choose Deselect All .
5	Right-click SELECT on the left and choose Distinct .
6	On the right, select PRODUCTLINE and click Preview . The product line list appears. Click Close .

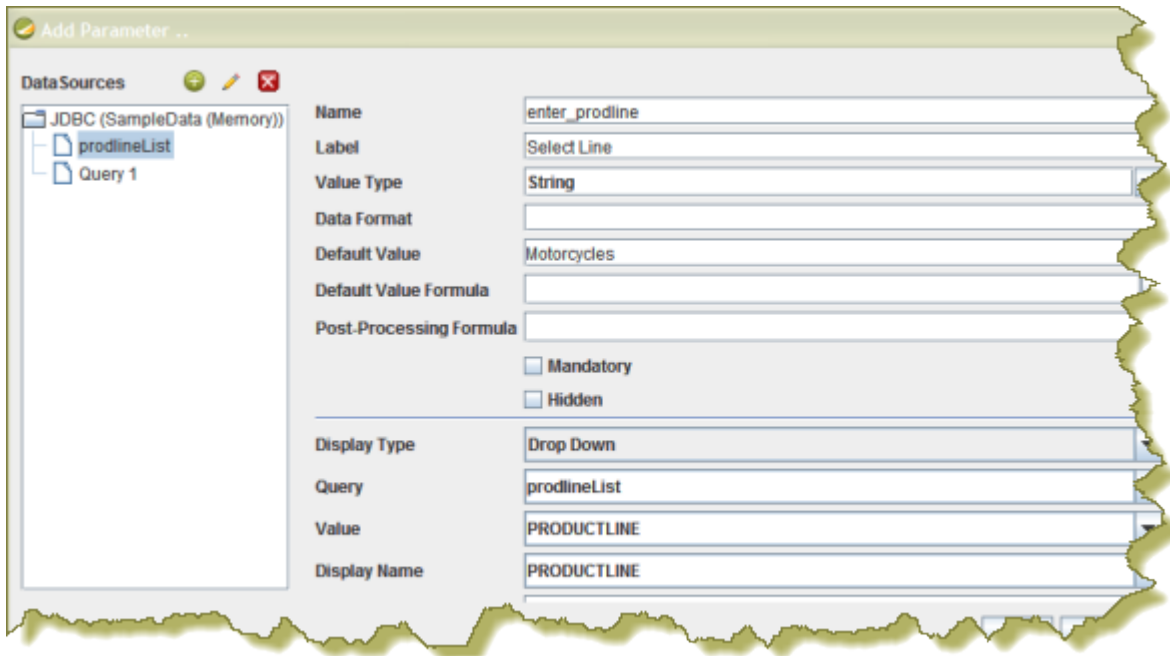
Step	Description
7	Click OK to exit the Query Designer and go to Step 11.

11. Click **OK** to exit **Data Source** dialog box.

12. In the **Add Parameter** dialog box, under Data Sources, double-click **JDBC SampleData (Memory)** and select **proclineList**.

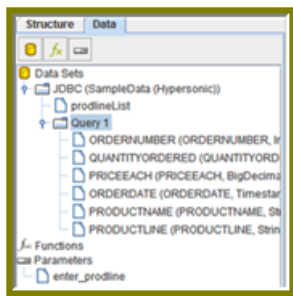
13. Next to **Value Type**, select **String**.

14. Type a default value, for example, "Motorcycles," in the **Default Value** text box. (Optional)



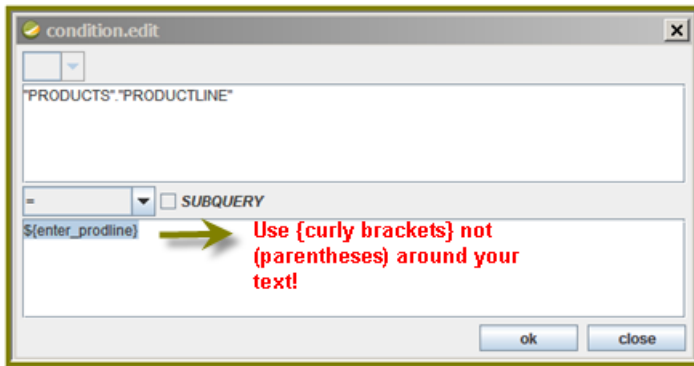
15. Click **OK** to exit the **Add Parameter** dialog box.


16. Now that you've created a product line parameter, you must map it back to your query (Query 1). Under **Data**, double-click **Query 1**.

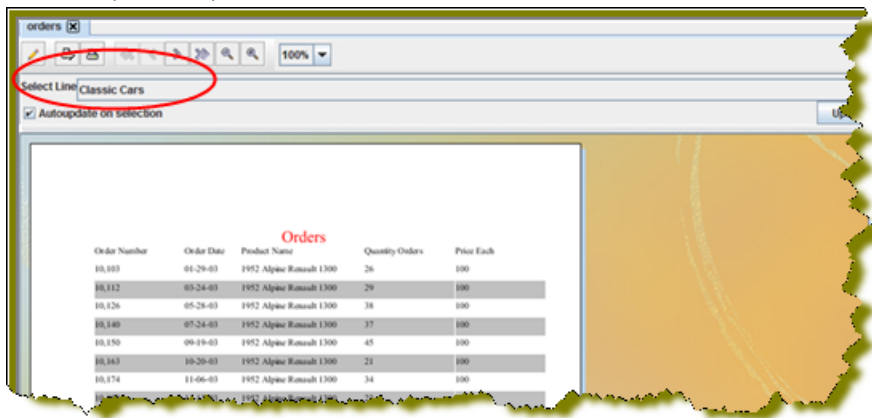


17. Right-click **PRODUCTLINE** and select **add where condition**. The **condition.edit** dialog box appears.

18. Type `${enter_procline}` in the edit area and click **OK**.



19. Click **OK** to exit the Query Designer.
20. Click **OK** to exit the Data Source dialog box.
21. Click  (Preview).



You should see your product line drop-down list.

22. You are now ready to [Publishing Your Report](#) on page 58.

Publishing Your Report

You have created and formatted a simple report, added a chart, and now you are ready to share the report with your users.

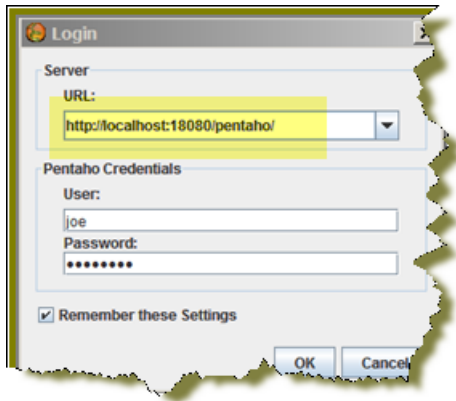
1. In the Report Designer, click **File -> Open** to open the report you just created.

2. Click **File -> Publish**. Alternatively, click .

If you haven't saved the report, a warning message reminds you to save it. The Login dialog box appears, pre-populated with credentials valid for the evaluation.



Important: Make sure that the Server URL is set to `http://localhost:8080/pentaho/`.



3. Click **OK**.
The **Publish to Server** dialog box appears.
4. In the Publish to Server dialog box, type in a report name and description into the appropriate fields.
5. Under **Location**, save the report in the `.../steel-wheels/reports` folder.
6. Select **html** as the **Output Type**.
7. In the Publish Password text field, type the publish password, **password**, and click **OK**.
A success message appears.
8. Click **Yes** to go directly to the Pentaho User Console to view the report you just published.
If you want to access the report later, log into the BI Server by going to **http:// localhost:8080** in your Web browser, then navigate to the **Reporting Examples** directory in the **Solution Browser**. You should see your published report in the list. If not, click **Tools -> Refresh Repository**.
9. Log in as **Joe**. Joe's password is **password**.
10. Your report displays in the Pentaho User Console.
You now have a report that users can view at any time.

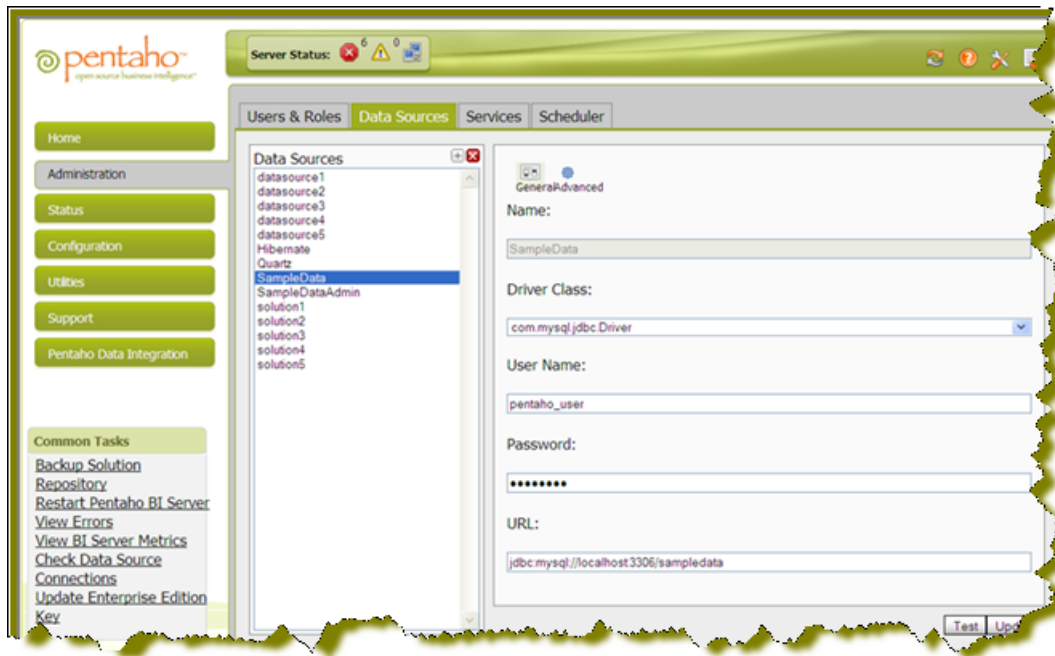
Order No.	Order Date	Product Name	Quan.	Price Each
10,253	Jun-01-2004	1970 Plymouth Hemi Cuda	25	90.17
10,266	Jul-06-2004	1970 Plymouth Hemi Cuda	35	76.61
10,276	Aug-02-2004	1970 Plymouth Hemi Cuda	38	83.79
10,287	Aug-30-2004	1970 Plymouth Hemi Cuda	41	69.43
10,300	Oct-04-2003	1970 Plymouth Hemi Cuda	22	76.61
10,310	Oct-16-2004	1970 Plymouth Hemi Cuda	49	81.4
10,320	Nov-03-2004	1970 Plymouth Hemi Cuda	38	73.42
10,329	Nov-15-2004	1970 Plymouth Hemi Cuda	33	100
10,341	Nov-24-2004	1970 Plymouth Hemi Cuda	36	99.44

11. In the Pentaho User Console select your product line parameter from the drop-down list. Accept the default under **Output Type**.

Defining a Database Connection

The BI Server includes sample data and reports; however, if you are evaluating Pentaho client tools, like Report Designer, you may want to use your own data. You manage database connections in the Pentaho Enterprise Console.

To define database connection you must have a JDBC class name for the database driver, a URL (server name, port number, database name), and the user ID and password. Contact your database administrator to get the specific details about your database. To find driver information, see [A List of JDBC Drivers](#).




You must be logged on to the Pentaho Enterprise Console to follow the instructions below. Go to **Start -> Programs -> Pentaho Enterprise Edition -> Enterprise Console Login**.

1. In the Pentaho Enterprise Console go to **Administration > Database Connections**.
2. Click the **General** icon to display basic configuration options.
3. Click the plus sign (+) (add) if you cannot find your data source in the default list.
4. The **Add Database Connection** dialog box appears.
5. Type an easy to remember connection name This is the name you give the connection (sometimes referred to as a *Pentaho Database Connection* or *named connection*). It is also the name you use when creating a connection on a client tool, like Report Designer.
6. Type or select the **Driver Class** from the list. The database driver name you select depends on the type of database you are accessing. For example, **org.hsqldb.jdbcDriver** is a sample driver name for a HSQLDB (previously Hypersonic SQL or hsql) database.
If your JDBC driver is not available, see Adding a JDBC Driver.
7. Type the **User Name** and **Password** required to access your database.
8. Type or select the URL from the list. This is the URL of your database; for example, `jdbc:hsqldb:hsqldb://localhost/sampledata`. JDBC establishes a connection to a SQL-based database and sends and processes SQL statements.
9. Click **Test**.
A success message appears if the connection is established.
10. Click **OK** to save your entries

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):

- **BI Server:** /pentaho/server/biserver-ee/tomcat/lib/
- **Enterprise Console:** /pentaho/server/enterprise-console/jdbc/
- **Data Integration Server:** /pentaho/server/data-integration-server/tomcat/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:** If you are running a 32-bit Java Virtual Machine (JVM), use the **sqljdbc_auth.dll** file in the x86 folder, even if the operating system is the x64 version. If you are running a 64-bit JVM on a x64 processor, use the **sqljdbc_auth.dll** file in the x64 folder. If you are running a 64-bit JVM on a Itanium processor, use the **sqljdbc_auth.dll** file in the IA64 folder.

1

Defining a Database Connection in Report Designer


¹ MSDN, "Building the Connection URL," (accessed February 22, 2011)

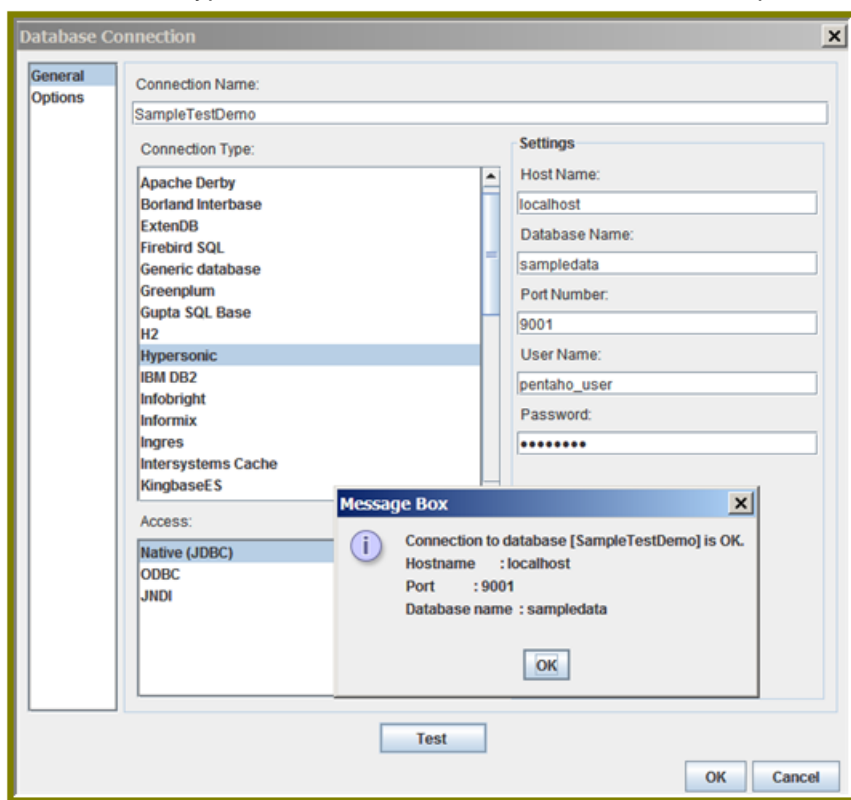
You've created a report, refined, and published it. If you are ready to start creating reports using your own data, you may need to contact your database administrator to get details (JDBC driver, connection string, user name and password) for configuring your database. This is the same information you used to add a database connection in the Pentaho Enterprise Console.

- An OLAP (Mondrian) Data Source is accessed through JDBC and require a valid Mondrian Schema file (.mondrian.xml). MDX is used to query this data source.
- Pentaho metadata data sources are accessed through JDBC and require a valid metadata model (.xmi.) The Pentaho MQL is used to query this data source.
- XML Data Sources are accessed through XQuery and require that your data is in one xml file. XQuery is used to query this data source.

Report Designer comes with a group of common drivers for Hypersonic (HSQLDB), MySQL, Postgres, Derby, DB2, H2, Oracle, and more.

You must follow the instructions below if the database driver you require is not available.

1. Contact your database vendor for more information if you have questions about which driver to use.
2. Drop the associated .jar driver file in the following location: ... \client\report-designer\lib \jdbc.
3. In the Report Designer, go to **Data -> Add a Data Source -> JDBC**. The **JDBC Data Source** dialog box appears.
4. On the left, next to **Connections**, click  (Add). The Database Connection dialog box appears.
5. Select the appropriate connection type from the list.
6. Enter the appropriate information for connecting to your data source. The example below demonstrates entries for the Hypersonic database that holds the Pentaho sample data.



Options

Connection Name

Description

An easy-to-remember name that identifies the data you are accessing; this

Options	Description
Host Name	The name of the device on which the database is hosted.
Database Name	The name of the database that contains the data you want to display; in the example above the database is called, sampledata .
Port Number	The port number associated with the database; the default port number is displayed.
User Name	Database user name to be passed to the JDBC driver
Password	Database password to be passed to the JDBC driver


7. Click **Test** to test your connection.
A success message appears if your configuration is correct.
8. Click **OK** to save your entries.
The new data source (connection) appears in the list on the left under **Connections**.

Using the Data Sources Feature in the Pentaho User Console

The Data Sources feature makes it easy for you to access your own data when you are evaluating the capabilities of the Pentaho User Console. In addition, as part of the Agile BI initiative, the data sources feature allows you to quickly create ad hoc reports and Analyzer reports using data that is critical to your own business environment.



If you are running a test environment, you can quickly add, edit, and delete a relational or CSV (flat file) data source in the Pentaho User Console. An exercise using sample CSV file as a data source is provided in the sections that follow, but it is important that you repeat the exercise using your own data.

You can restrict access to a data source by individual user or user role; by default, authenticated users are limited to view-only permissions. (See [Assigning Data Source View Permissions](#) on page 74 for more information.) This means that they are limited to selecting a data source from a list of available options.

 **Note:** Non-administrative users of the Pentaho User Console do not see icons or buttons associated with adding, editing, or deleting a data source.

When selecting a relational data source, users can query against the data source within the scope of data defined in query you set up. If users choose a CSV-based data source, they can query the flat file data to create a chart or data table.

The **Data Source Wizard**, which allows you to set up access to a relational data source or CSV data source in the Pentaho User Console, is available in the following instances:

- When you click the **New Data Source** button on the Pentaho User Console Quick Launch page
- When you select **File -> New -> Data Sources** in the Pentaho User Console menu bar
- When you select **File -> Manage -> Data Sources** from the Pentaho User Console menu bar and click  (Add)
- When you click **Add** in the **Select a Data Source** step in Ad Hoc Reports
- When you click **Create Data** in charts in the Dashboard
- When you click  (Add) as a first step of the create Data Table process
- When you click **Create New Data Source** when creating a new Analyzer report

Creating a CSV Data Source in the Pentaho User Console

The **New Data Source** dialog box allows you to import a CSV (flat file) and stage the content in the BI Server for use as a data source. Once you create a CSV file as a data source, end-users can create reports, charts, and data tables based on data loaded from the CSV file. When you complete the exercise, repeat it using your own data. See [Using Your Own Data Source](#) on page 72 for more information.


Follow the instructions below to create a CSV-based data source:

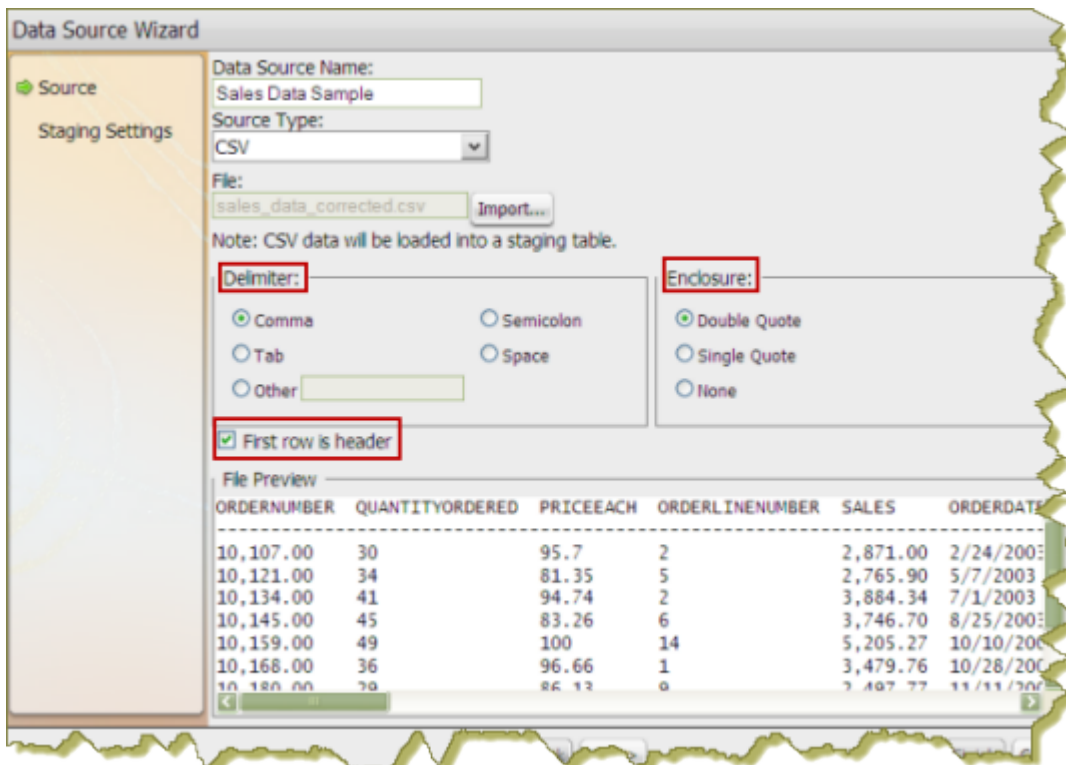
1. In the Quick Launch page, click **New Data Source**.



2. In the **Data Source Wizard**, type **Sales Data Sample** in the Data Source Name text field.
3. Under **Source Type** select **CSV** from the list to define a CSV file as your data source and click **Next**.
4. Click **Import** to open the **Import File** dialog box.


- Click **Browse** to search for, **sales_data_sample.csv** (... \biserver-ee\data\csv \sales_data_sample.csv); click **Import** when you locate the file. The Import File dialog box closes and the CSV file is uploaded to the BI Server.

 **Note:** Notice that a preview of the contents of your file appears in the lower portion of the wizard page. When items do not align, it is because the delimiter and enclosure types were not specified correctly. The file you uploaded does not have delimiter and enclosure-related issues. Also notice that the **First row is header** option is automatically enabled. When enabled, the first row of your CSV file is specified as the heading for the columns in the file.

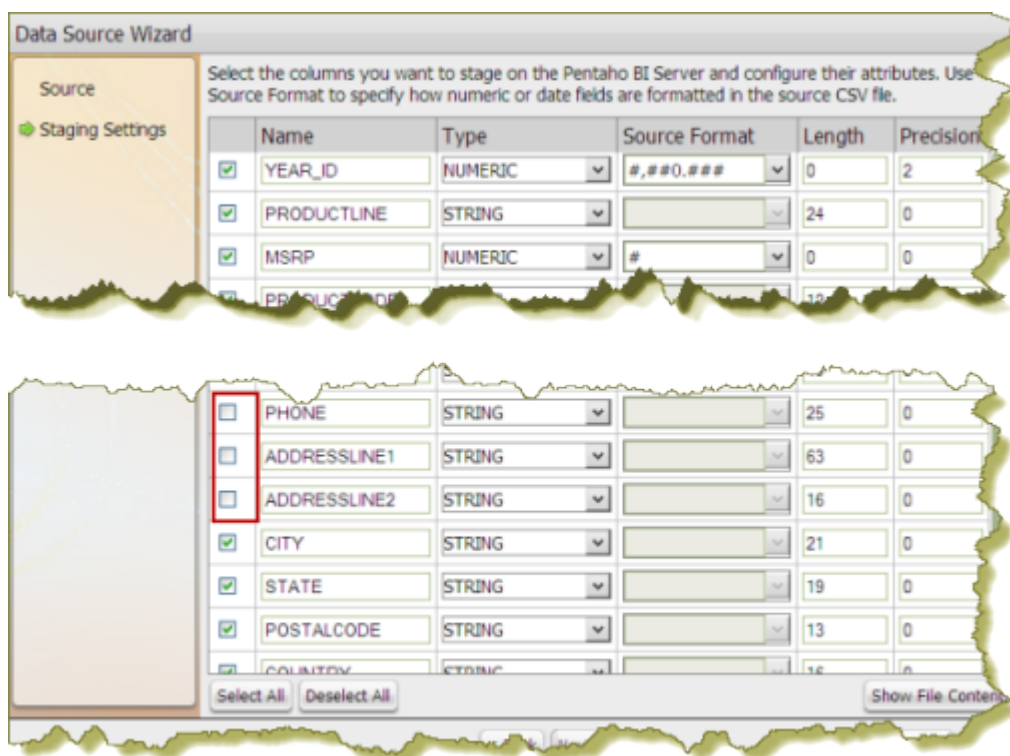


- Click **Next** to configure how the columns will be created in the staging table for this data source.


Default staging settings will be auto-detected based on a sample of the first 500 rows in the CSV file. These defaults can be overridden.

 **Note:** Notice that all columns are enabled in this step. Click **Deselect All** to disable all columns. You can then select the columns that require formatting individually. Click **Select All** to enable all columns again, if necessary.

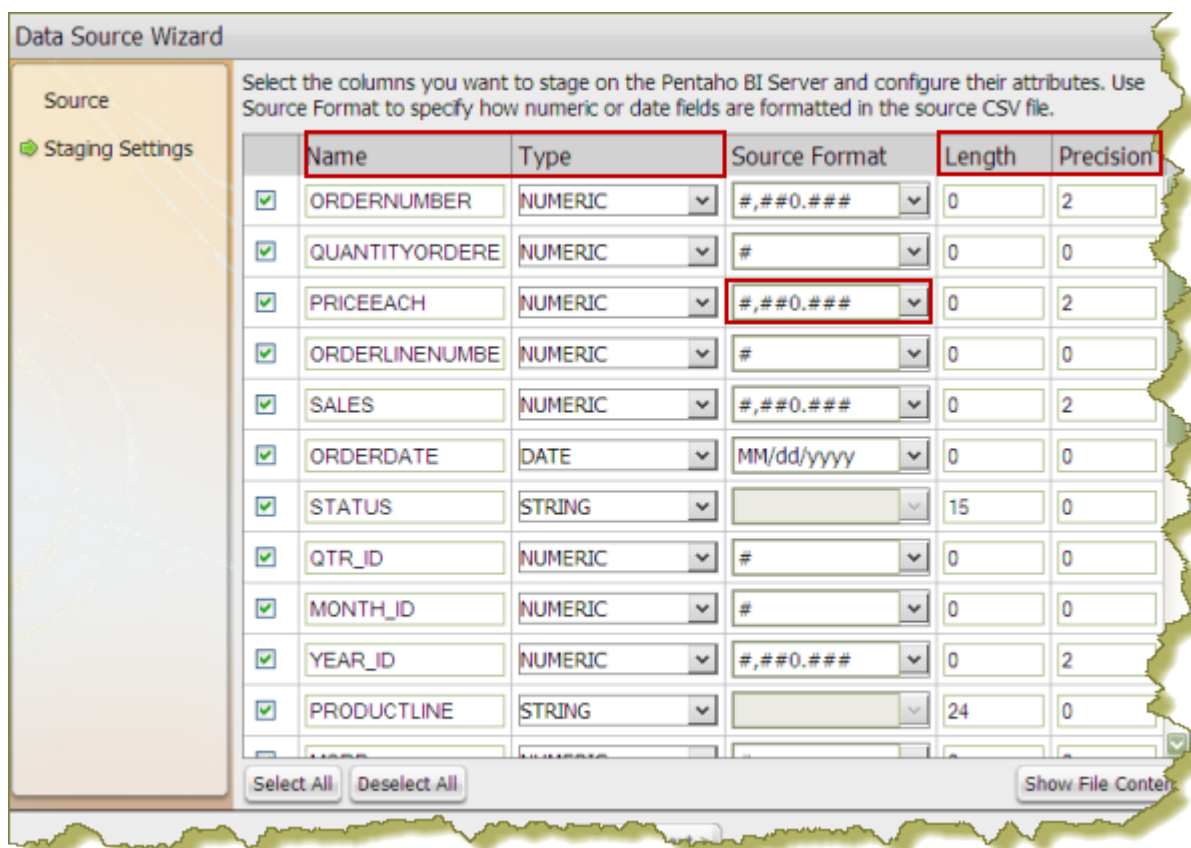
- Use the scrollbar to locate the **PHONE**, **ADDRESSLINE1**, and **ADDRESSLINE2** columns, then disable them as shown in the example below:




8. Notice that you can change the **Name** and **Type** values. Use the drop-down list to display format options for dates and numeric values. Formats are auto-detected based on the contents of your data source; however, if you see a format option that is not correct, you can enter it manually in the appropriate **Source Format** text box.

 **Note:** The format option you select must match the date format in the CSV file.

Length indicates the maximum number of characters allowed in a field. **Precision** is the number of digits after a decimal point. Drop-down lists are not enabled for certain data types such as the String data type.



 **Important:** Boolean values are rendered as "true" or "false."

9. Click **Show File Contents** to see a sample of the data in your source file. Click **OK** to return to staging. This step allows you to make formatting changes, if necessary.

10. Click **Finish**.

A success message appears indicating the number of rows being loaded into the staging database and that a default metadata model was created. You have a choice to accept the default metadata model or to customize the metadata model. If you are not familiar with the concepts behind modeling, the next exercise will help you understand how it works.

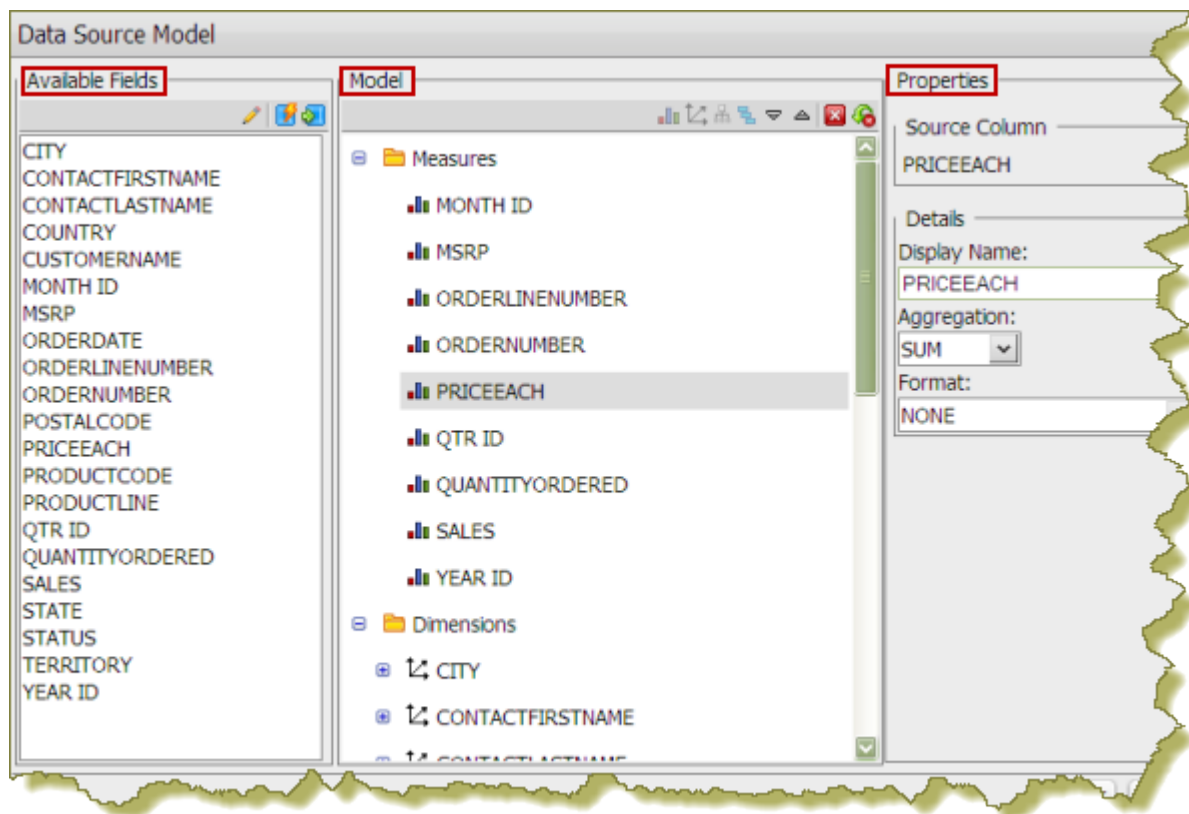
11. Click **Customize model now** to open the Data Source Modeler and customize your metadata model.

Customizing the Metadata Model



As soon as you complete the Data Source Wizard steps, the content in "sales_data.csv" is uploaded and staged in a relational database on the BI server. In addition, a default metadata model is created. The data source is immediately available and users can use it to build an ad hoc or Analyzer report, a dashboard, or data chart; however, for the data associated with your new data source to be more useful, you may want to edit the metadata model.

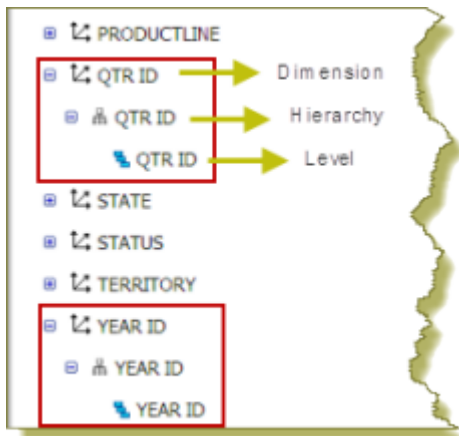
The modeler is a metadata modeling tool that makes it possible for you to edit the model without having to understand the underlying database structure or having to understand SQL and MDX. If you are not familiar with metadata modeling, think of it this way — metadata is simply "data about data." For example, a database contains fields, such as customer name, address, city, and state. Metadata provides the naming conventions for the fields, describes their size, and specifies what is allowed in the field, such as numeric values only. If you were to hand a database file to a user, without providing the associated metadata, the file would appear as a long string of characters. Metadata defines how data is extracted into fields and records.

Below is an example of the default metadata model based on the exercise you just completed. Notice that all the columns (fields) from the original CSV file are listed on the left under **Available Fields**. **Measures** and **Dimensions** are listed in the middle, under **Model**. When you click on a measure or dimension, its associated properties appear on the right, under **Properties**. The toolbar items, contain toot tips that define their function, such as editing the source data, auto populating the model, and more.



Notice that all numeric values are listed under both Measures and Dimensions. Measures are numeric attributes that usually relate to business performance (KPIs) such as sales price, sales results, cost, and profit. In the example, items associated with dates, MONTH ID, QTR ID, and YEAR ID, do not belong on the list. ORDERLINENUMBER and ORDERNUMBER are IDs and also do not belong on the list. In the exercise that follows, you will edit the metadata model.

1. In the modeler, select **MONTH ID** and click  (Delete). Repeat this step to remove, **ORDERLINENUMBER**, **ORDERNUMBER**, **QTR ID**, and **YEAR ID**. The remaining items are true measures. They include, **MSRP**, **PRICEEACH**, **QUANTITYORDERED**, and **SALES**. In the next step, you must remove these measures from the Dimensions list.
2. Under **Dimensions**, select **MSRP** and click  (Delete). Repeat this step to remove **PRICEEACH**, **QUANTITYORDERED**, and **SALES**.
Next, you will group the date-related dimensions under a single hierarchy. Hierarchies contain levels that organize data into a logical structure.
3. Click (+) to expand the **YEAR ID** and **QTR ID** dimensions.



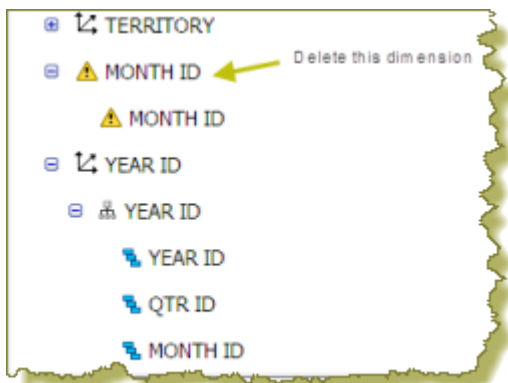
4. Click on the **QTR ID** level (📊) and drag it under the **YEAR ID** level.

👉 **Note:** Notice the yellow caution symbol (⚠️) next to the QTR ID dimension. The dimension no longer contains hierarchies and levels, so you must select and delete it.

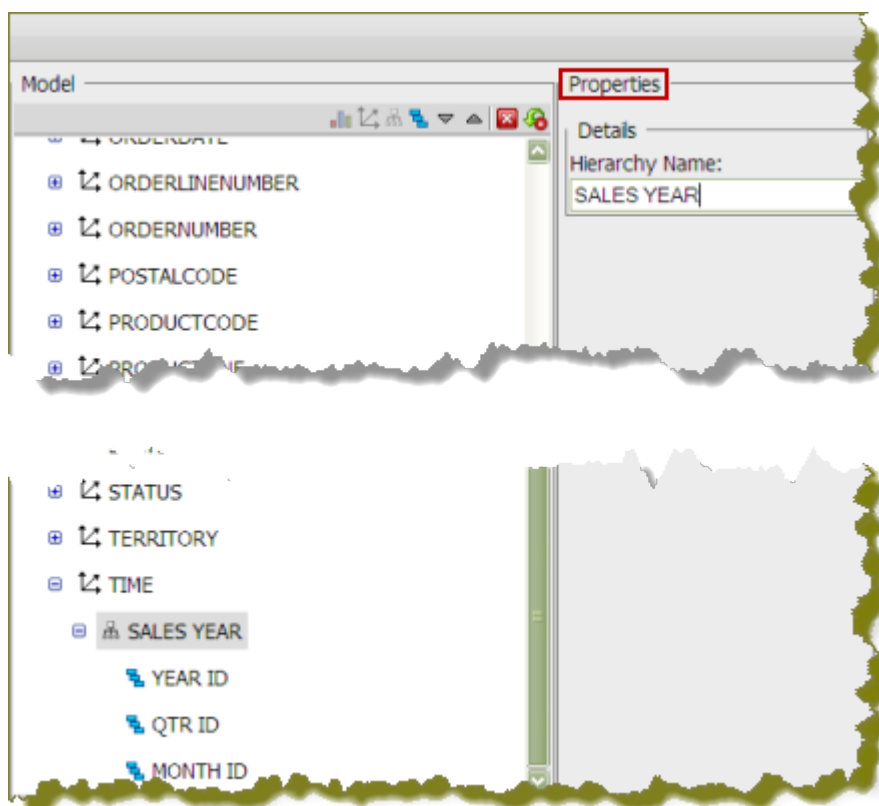
5. Click and drag the **MONTH ID** dimension closer to the **YEAR ID** dimension.

6. Click (+) to expand the **MONTH ID** dimension and move the **MONTH ID** level under the **QTR ID** level.

👉 **Important:** Make sure you delete the MONTH ID dimension when you are done.




7. Click on the **YEAR ID** dimension. Under **Properties**, change the Dimension Name to **TIME**. Change the **YEAR ID** hierarchy name to **SALES YEAR**.




8. Click **OK** to save your updated metadata model. Next, you will create an analyzer report using your new data source.

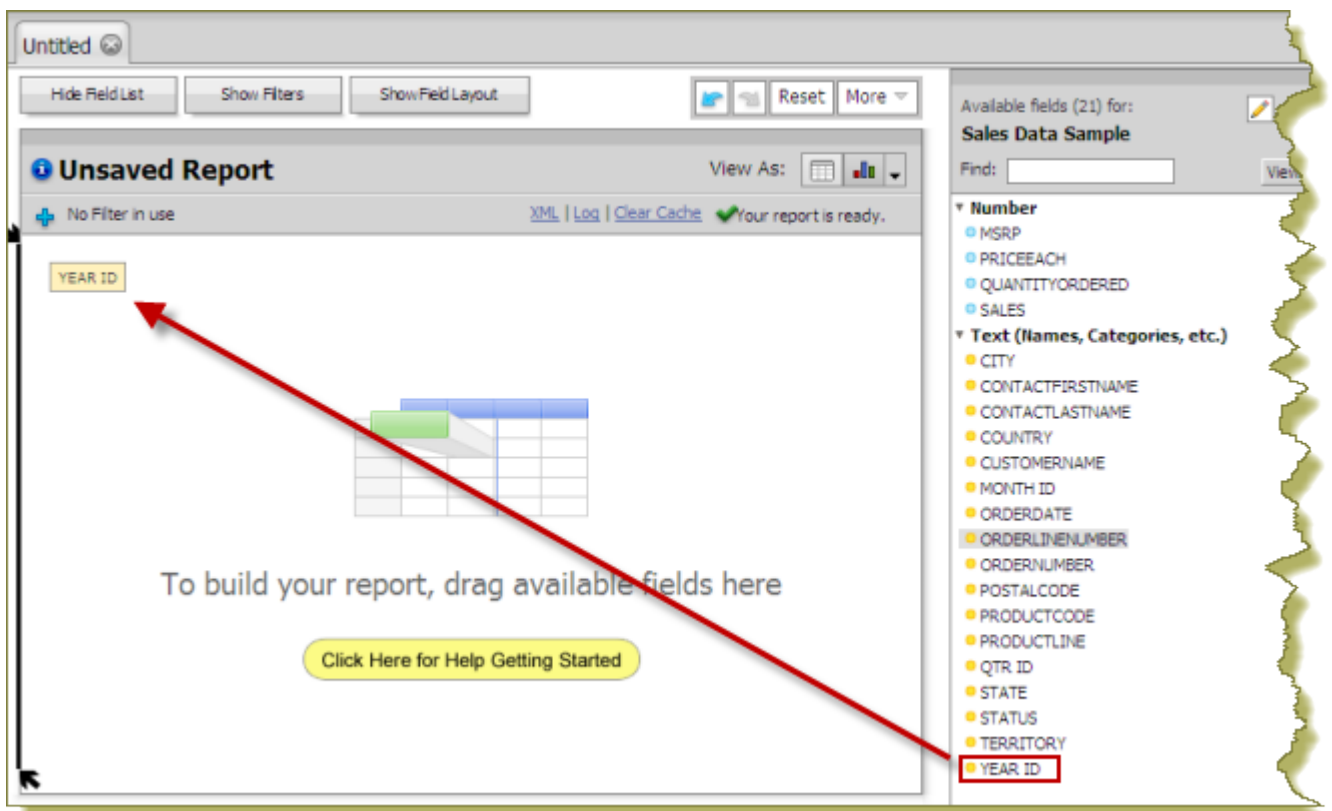
Creating an Analyzer Report based on the Metadata Model

You created a new data source and edited its associated metadata model. You can now use the data source to create analyzer reports.

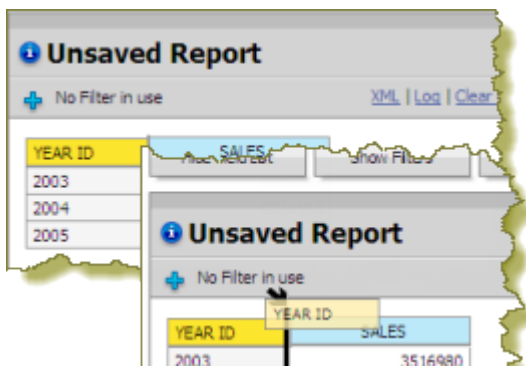
 **Note:** You can use the new data source to create ad hoc reports, dashboards, and data charts as well.

Follow the instructions below to create an analyzer report.

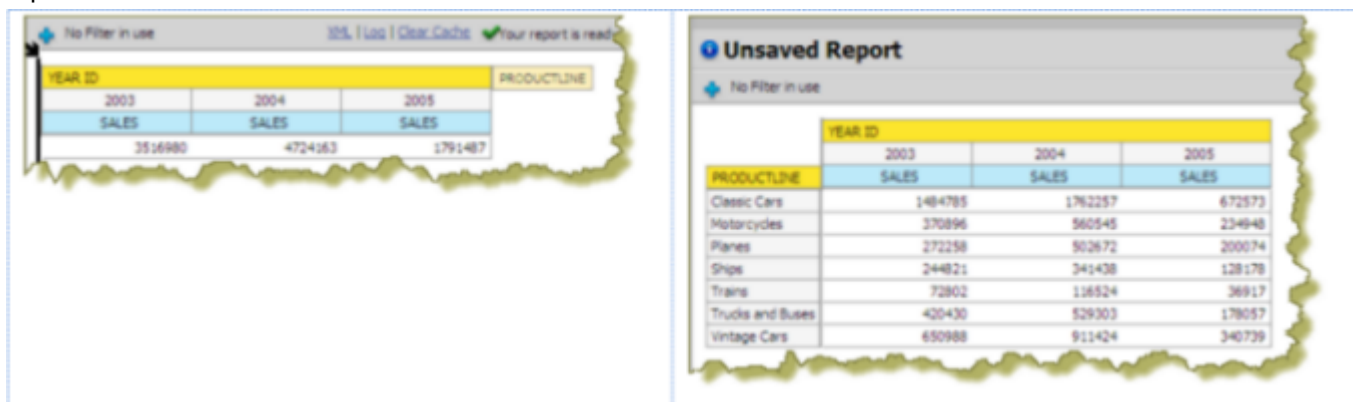
1. In the Pentaho User console, go to **File -> New -> Analyzer Report**. Alternatively, click  (New Analyzer Report) on the console toolbar.
2. In the **Select Data Source** dialog box, choose **Sales Data Sample**.
A blank Analyzer report opens.
3. On the right, under **Available Fields**, click **View** and select **Number - Text - Time**.
This selection allows you to examine the data in a view that is similar to the view in the metadata model. The fields/categories are listed in alphabetical order.
4. You want to see yearly sales by product line so under **Available Fields**, select **YEAR ID** and drag it to the workspace.



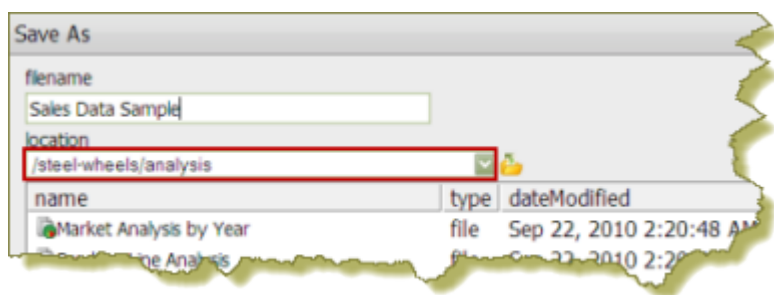
5. Select the **SALES** measure and drag it to the workspace. Place it next to **YEAR ID**. Move **YEAR ID** above **SALES** so that it forms columns.



6. Click and drag **PRODUCTLINE** to the workspace as shown in the example below to complete your report.




7. Go to **File** -> **Save As** and save your report in the `.../steel-wheels/analysis` directory.



Using Your Own Data Source

Before create your own data source, choose an interesting metric, (related to cost, revenue, customer satisfaction, for example), that you or others are interested in exploring, then follow the guidelines below:


- Select a single file with de-normalized transactional data, such as a summarized spreadsheet with orders by store or by product SKU, for example.

 **Note:** Do not worry about summarization; the BI Server handles summarization automatically.

- Select a file that contains fewer than one million rows for quick and productive prototyping.
- Select a file that contains facts which are relevant to Key Performance Indicators (KPIs).
- Select a file that contains time fields, for example, yyyy-MM-dd.
- Select a file that contains “interesting dimensional attributes; for example, “I want to look at sales by state, by sales rep, by customer demographic, over time, etc.” In other words, add your own “by clause,” for slicing and dicing.
- Select a file that contains descriptive row headers.

Creating a Relational Data Source in the Pentaho User Console

Follow the instructions below to create a relational data source. In addition to allowing you to connect to your database (using JDBC), you must also enter a SQL statement that defines the "scope," (similar to a database view), of your data source.

 **Note:** In the context of the Pentaho User console, a relational "data source" is a combination of a connection plus a query. Pentaho recommends that you use the Pentaho Metadata Editor to create relational data sources for a production environment.

You can customize how columns are presented to users who are building queries against the new data source; for example, you can define "friendly" column names and more.


Once you create the data source, it is available to users of the Dashboard Designer, Analyzer, Chart Designer, and Ad Hoc Report.

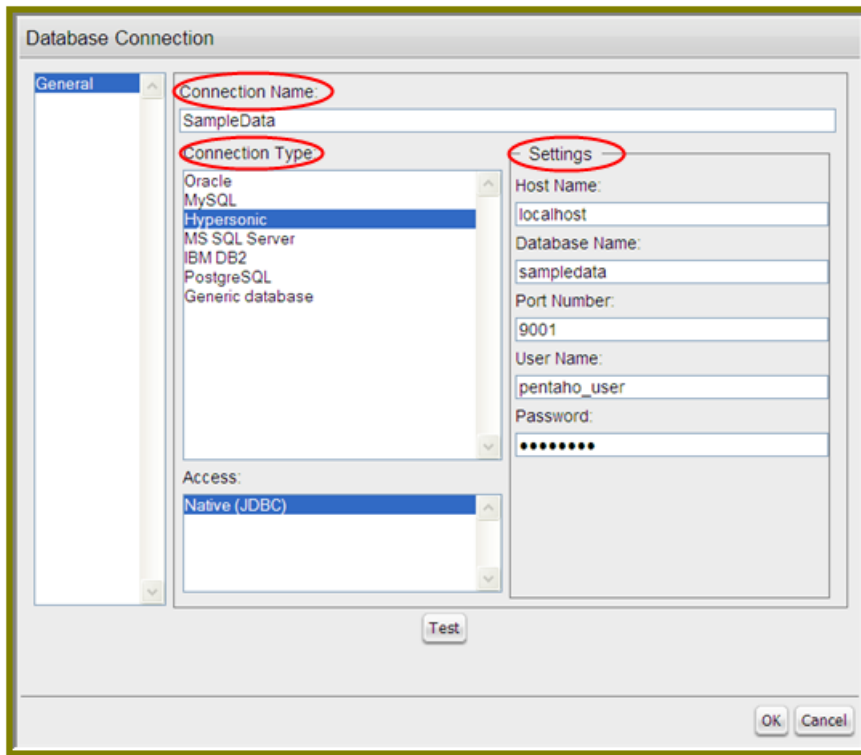
You must be logged on to the Pentaho User Console as an administrator to follow the instructions below. Additionally, your database must be up and running in order for you to complete the steps required in the Data Source Wizard. In this exercise, you will be using sample data. After you complete the exercise, try repeating it using your own data.


1. In the **Data Source Wizard**, type **Customers** in the **Name** field.

 **Note:** The name of the data source is important because it becomes the name of the data source displayed in Analyzer, Ad Hoc Report and Chart Designer.

2. Under Source, select **Database** as your data source type.

3. If not already configured, click  (Add) to add a connection to the database that contains the content you want to access. The **Database Connection** dialog box appears.

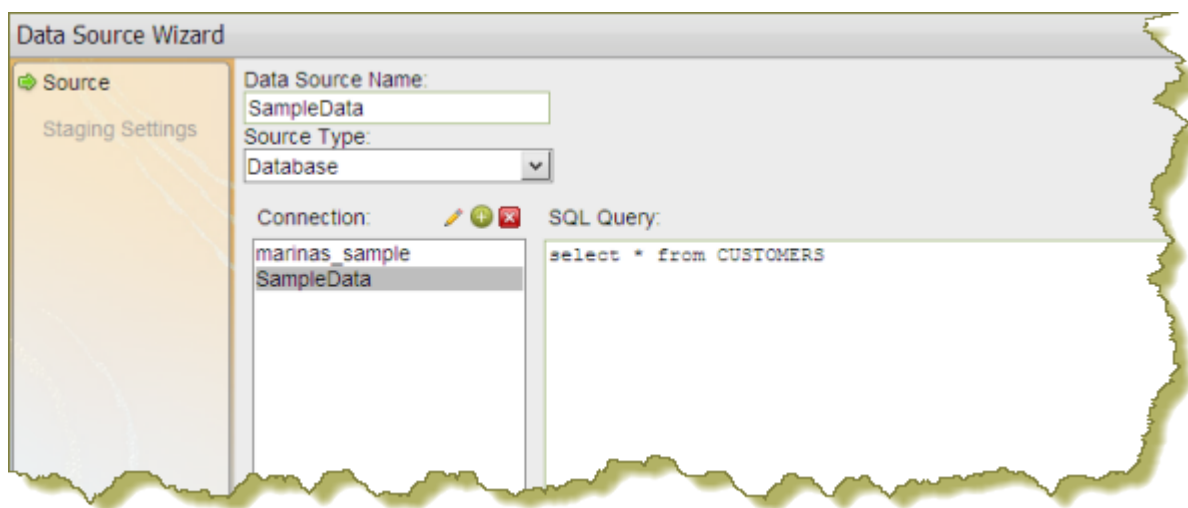


 **Note:** If this is the first time you are using the wizard, you will not see a list of connections under Available Connections. When you have added your connection, the connection name will appear in the list.

4. In the **Connection Name** text box, type **Sample Data**.
5. Under **Connection Type**, select Hypersonic from the list.
6. Enter the appropriate connection information for this database.

Option	Description
Host Name	localhost
Database Name	sampledata
Port Number	9001
User Name	pentaho_user
Password	password

7. In the **Connection** dialog box, click **Test** to test your connection and click **OK**.
A success message appears if your settings are correct. The connection name appears in the list.
8. Under **SQL Query**, type: `select * from CUSTOMERS`. Click **Data Preview** to ensure that your query returns data.



9. Click **Close** to exit the Preview window.

10. Click **Finish**.

A success message appears. In the background, after you click **Finish**, a default metadata model is generated based on the query for use in Analyzer, Ad Hoc Reporting, Report Designer, and Chart Designer. You can keep the default model or edit the model so it can be customized for your specific needs. See [Editing a Data Source Connection](#) for instructions about changing connection details.

Assigning Data Source View Permissions

By default, authenticated users have view-only permissions to data sources in the Pentaho User Console. Users with administrative permissions can create, delete, and view data sources. If you want to fine tune permissions associated with data sources, you must edit the appropriate **settings.xml** file. Follow the instructions below to edit the file.

1. Go to `... \biserver-ee\pentaho-solutions\system\data-access-plugin` and open **settings.xml**.
2. Edit the settings.xml file as needed. The default values are shown in the sample below. You can assign permissions by individual user or by user role. If you are using LDAP, you can define the correct ACLs value for view permissions; the default value is "31."

```

1  <?xml version="1.0" encoding="UTF-8"?>
2  <settings>
3    <!-- roles with data access permissions -->
4    <data-access-roles>Admin</data-access-roles>
5    <!-- users with data access permissions -->
6    <!--
7    <data-access-users></data-access-users>
8    -->
9    <!-- roles with datasource view permissions -->
10   <data-access-view-roles>Authenticated,Admin</data-access-view-roles>
11   <!-- users with datasource view permissions -->
12   <data-access-view-users>suzy</data-access-view-users>
13   <!-- default view acls for user or role -->
14   <data-access-default-view-acls>31</data-access-default-view-acls>
15 </settings>

```

3. Save your changes to the **settings.xml** file.
4. Refresh the Admin Console.

Troubleshooting Your Installation

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

From Evaluation to Implementation

This document was designed to quickly demonstrate basic Pentaho BI Suite Enterprise Edition features and functions. To find out more about the benefits of the Pentaho Enterprise Edition product offerings, contact [Pentaho Sales](#).