



Getting Started with Pentaho 3.6.0



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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 3.6.0 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, 3.6.0 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 |
| 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 36 | Provides instructions for creating a report using basic Report Designer features |
| Defining a Database Connection on page 51 | Provides instructions for adding your own data source connection |
| From Evaluation to Implementation on page 67 | 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 |

| Software and Services | Community Edition | Enterprise Edition |
|-------------------------------|-------------------|----------------------|
| 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 1.5 (sometimes referenced as version 5.0) installed. 1.4.2 will not work, and while 1.6 (6.0) will probably work in most cases, Pentaho does not yet officially support it.

 **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 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 66 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. Accept the default selections in the **Pentaho Applications** page.

 **Note:** To get a brief description about the components that are being installed, click each selection to display details.

3. Accept the default in the **Sample Content** page.

 **Note:** The quickest and easiest way to familiarize yourself with the power of the Pentaho BI Suite is to begin by reviewing the sample content.

4. Specify the location on which to install the Pentaho BI Suite or accept the default.
5. Set the MySQL root user password. For the purposes of this evaluation, type "password" in both fields.

 **Note:** MySQL is the database that contains the *solution repository* (reports, users, Pentaho Analyzer reports, and more); it includes a default user account called, "root." You must provide a password for the default user account so that you can administer the solution repository using the MySQL tools.

6. Set the publish password used to publish content from client tools such as Report Designer, Metadata Editor, and Schema Workbench. For the purposes of this evaluation, type "password" in both fields.

 **Note:** The publish password is a security measure that helps prevent malicious content from being published to the BI Server. If you do not set a publish password, you will not be able to publish from client tools to the BI Server.

7. Set the user name and password for the Administrator account. For the purposes of this evaluation, accept the default user name, "admin," and type "password" in **Password** and **Confirm Password** fields.

 **Note:** The BI Server provides you with an administrator account that is used to manage users, roles, data sources, and more. You must have this password available when you log on to the Pentaho Enterprise Console.

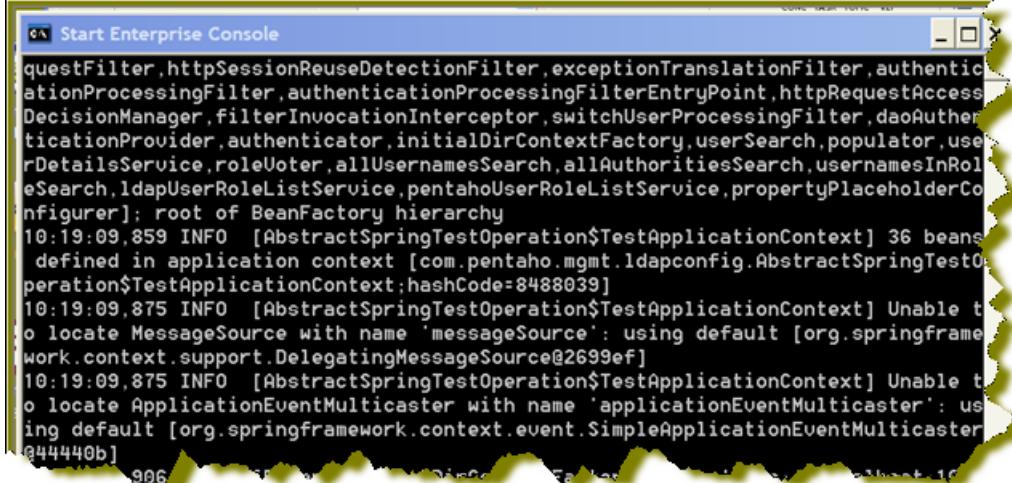
8. Verify your installation options and click **Next** to start installing the Pentaho components you selected.
9. Once the installation is complete, you can choose to launch the Pentaho User Console and the Pentaho Enterprise Console. Accept the default to launch both consoles.

The Pentaho User Console and Pentaho Enterprise Console home pages appear. Some installations may prevent the browser from opening. In these instances, you must open the consoles manually. See instructions for starting the 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



```

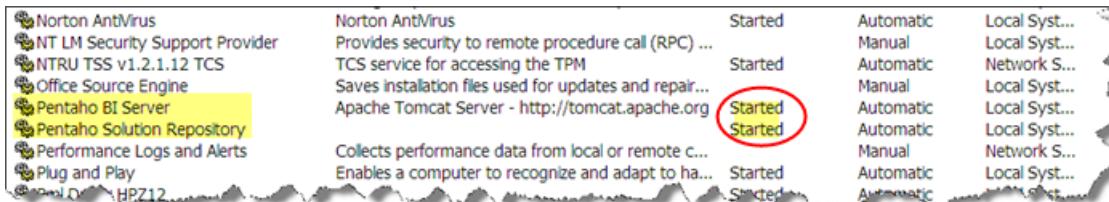
Start Enterprise Console
questFilter,httpSessionReuseDetectionFilter,exceptionTranslationFilter,authenticationProcessingFilter,authenticationProcessingFilterEntryPoint,httpRequestAccessDecisionManager,filterInvocationInterceptor,switchUserProcessingFilter,daoAuthenticationProvider,authenticator,initialDirContextFactory,userSearch,populator,userDetailsService,roleVoter,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@444440b]

```

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.

Starting the Pentaho Enterprise Console

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

Starting the Pentaho User Console

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

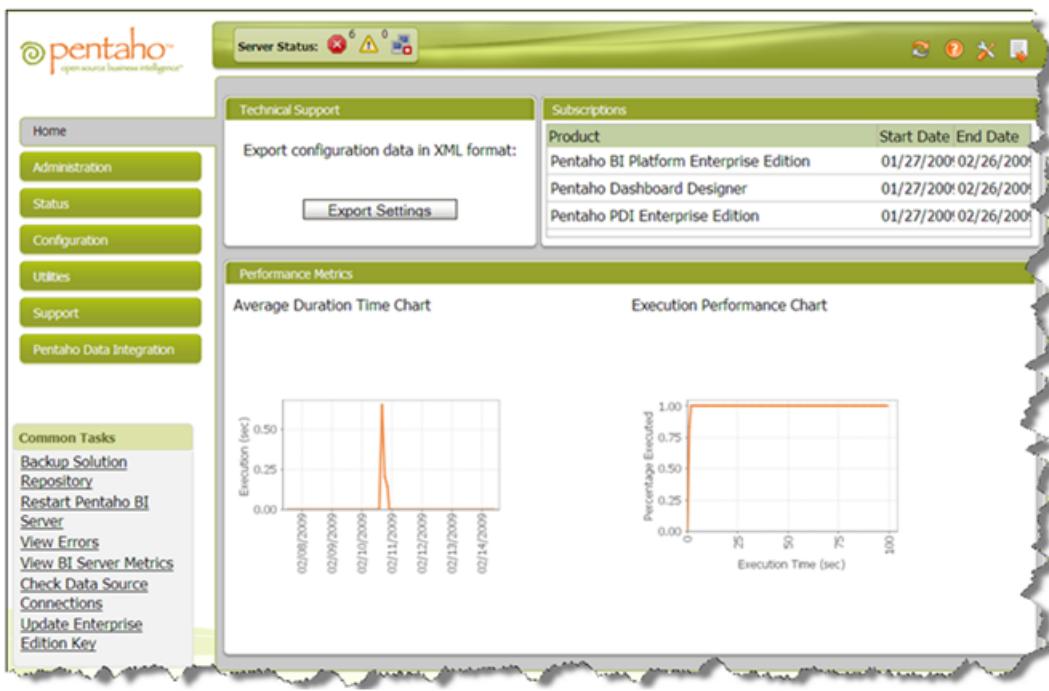
Alternatively, (after you started the BI Server), go to **Start -> Programs -> Pentaho Enterprise Edition -> User Console Login**.

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.

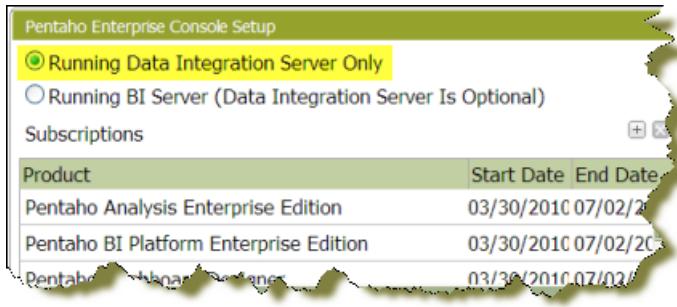
Among other things, the Data Integration server...

- 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 to Display Pentaho Data Integration

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.

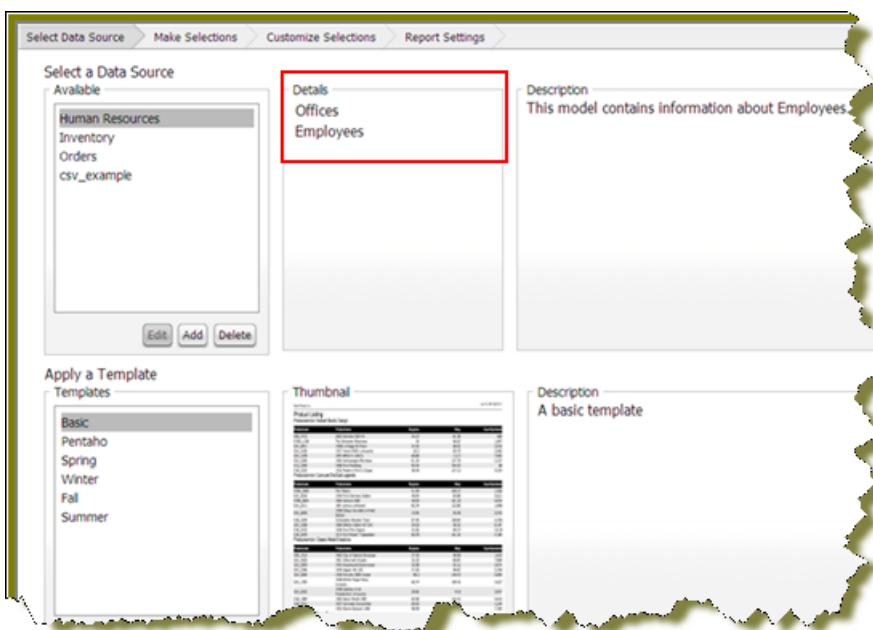
The Pentaho Enterprise Console displays a page that contains information about Carte, a Web server that executes and monitors Pentaho Data Integration jobs and transformations. Carte also provides execution metrics and runtime logs for jobs and transformation that have run. For more information about Pentaho Data Integration, see the guide, *Getting Started with Pentaho Data Integration*.

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 54 .



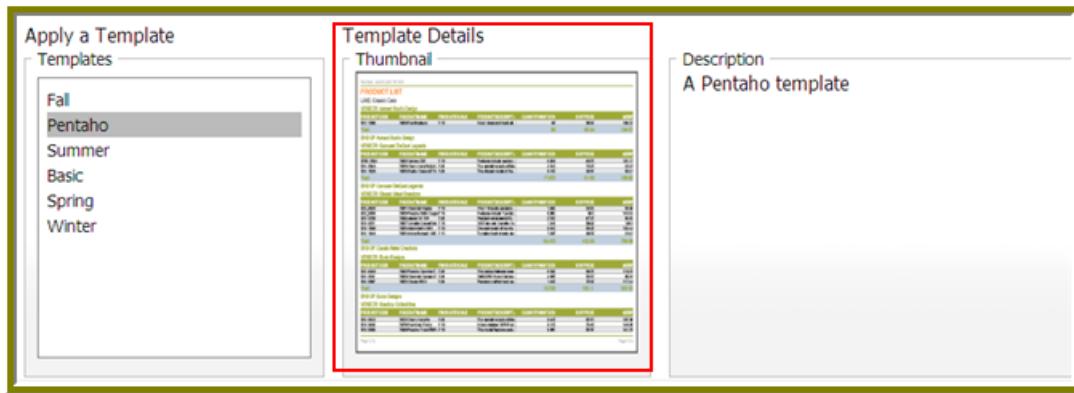
Ad Hoc Reporting Interface provides...

- 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 54 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.

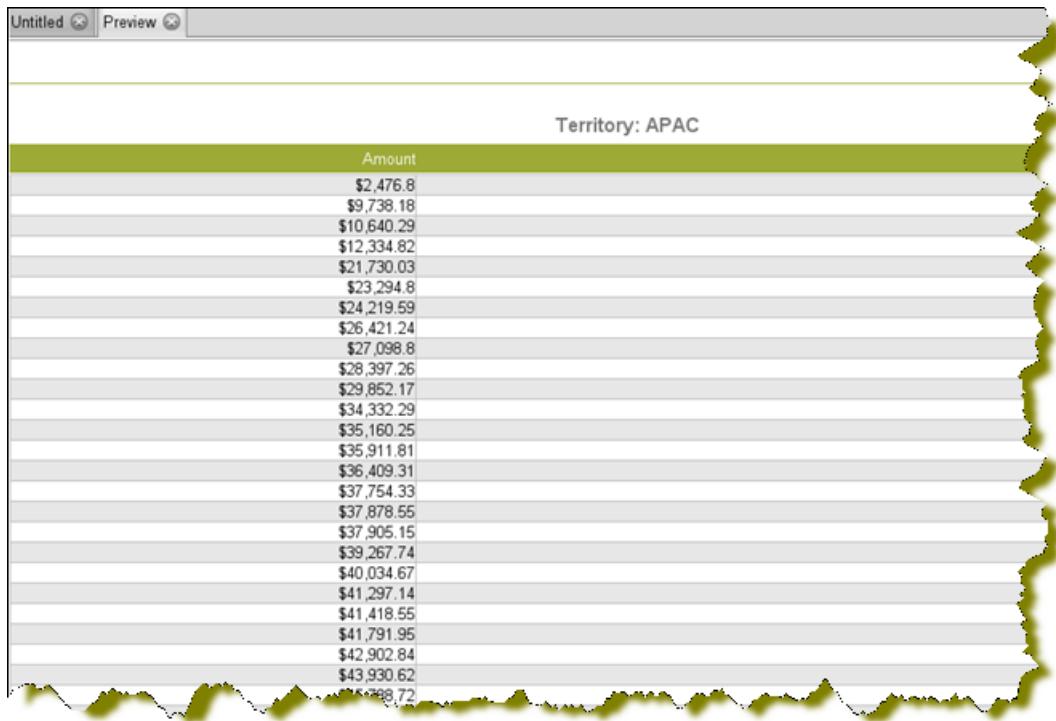
13. To set the header, footer, description, paper type, and page orientation, change the on-screen values for these elements accordingly.

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.



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 |
| Eastern | Sales | \$2,730,570 | \$2,915,173 | \$184,603.00 |
| | Central Total | \$38,397,600 | \$37,893,162 | \$-504,438.00 |
| | 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 |
| Southern | 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 |
| | Executive Management | \$1,523,508 | \$1,507,580 | \$-15,928.00 |
| | Finance | \$3,010,015 | \$3,039,180 | \$29,165.00 |
| Southern | 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 |
| 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 | \$1,776,285 |
| | Eastern | \$1,483,508 | \$1,507,597 |
| | Southern | \$1,523,508 | \$1,507,597 |
| | Western | \$1,443,508 | \$1,507,597 |
| Finance | Central | \$3,067,361 | \$3,109,104 |
| | Eastern | \$3,010,015 | \$3,039,104 |
| | Southern | \$3,010,015 | \$3,039,104 |
| | Western | \$3,000,015 | \$3,039,104 |
| Human Resource | Central | \$3,414,295 | \$3,438,710 |
| | Eastern | \$3,195,682 | \$3,212,207 |
| | Southern | \$3,195,682 | \$3,212,207 |
| | Western | \$3,183,682 | \$3,212,207 |
| Marketing & Communication | Central | \$3,582,552 | \$3,590,177 |
| | Eastern | \$3,383,905 | \$3,401,804 |
| | Southern | \$3,383,905 | \$3,401,804 |
| | Western | \$3,383,905 | \$3,401,804 |

8. 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 |
|----------|---------------------------|--------------|--------------|
| Central | Executive Management | \$2,043,642 | \$1,776,285 |
| | Finance | \$3,067,361 | \$3,109,104 |
| | Human Resource | \$3,414,295 | \$3,438,710 |
| | Marketing & Communication | \$3,582,552 | \$3,590,177 |
| Eastern | Product Development | \$3,159,180 | \$2,997,177 |
| | Professional Services | \$20,400,000 | \$20,068,177 |
| | Sales | \$2,730,570 | \$2,915,177 |
| | Executive Management | \$1,483,508 | \$1,507,597 |
| Southern | Finance | \$3,010,015 | \$3,039,104 |
| | Human Resource | \$3,195,682 | \$3,212,207 |
| | Marketing & Communication | \$3,383,905 | \$3,401,804 |
| | Product Development | \$2,530,477 | \$2,550,000 |
| Western | Professional Services | \$20,400,000 | \$20,068,177 |
| | Sales | \$2,730,570 | \$2,915,177 |
| | Executive Management | \$1,443,508 | \$1,507,597 |
| | Finance | \$3,000,015 | \$3,039,104 |

9. 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.

10. 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.
7. Click **(Undo)** or **Reset** to go back to the previous version of the 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 54 .

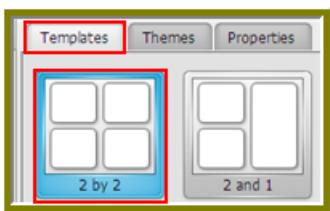
The Dashboard Designer allows you to display the following content types in your dashboard:

- **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. foo

Defining Your Dashboard Look-and-Feel

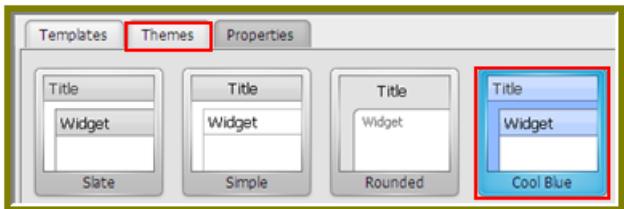
You must be logged on to the Pentaho User Console. Follow the instructions below to create a new dashboard:

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:

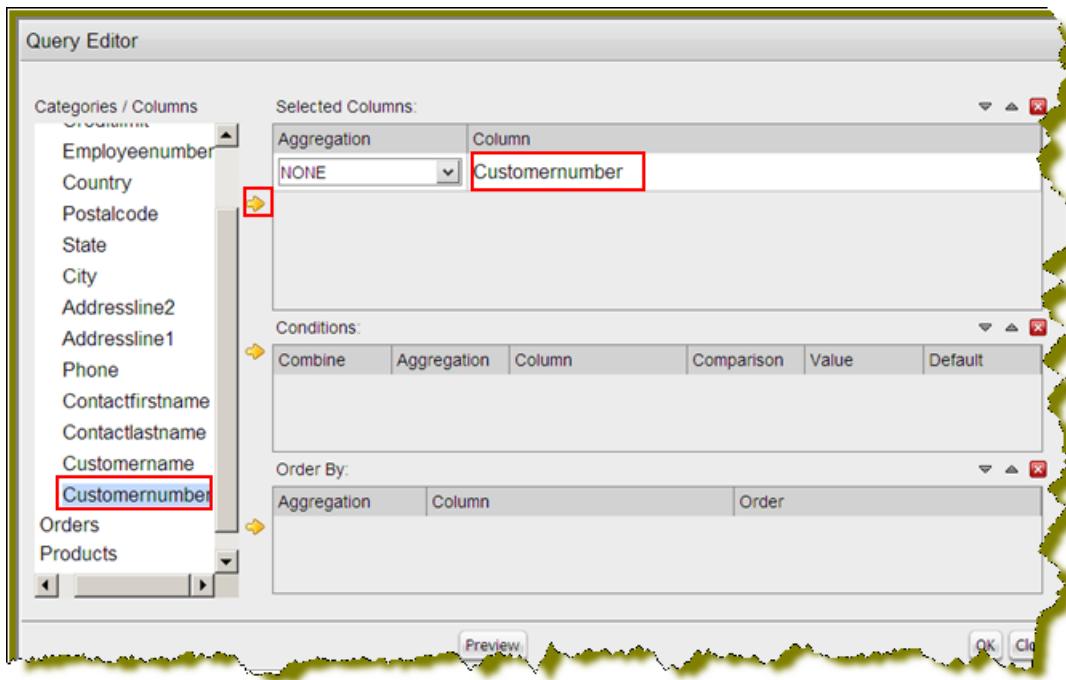
1. Selecting a data source and building a query
2. Setting the data definitions: values, series, category
3. Selecting a chart type and theme
4. Entering labels for the chart title, and x,y axes
5. Adjusting scaling and label rotation (if applicable)
6. Placing your chart in the dashboard.
7. Saving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

Adding Data to Your Chart

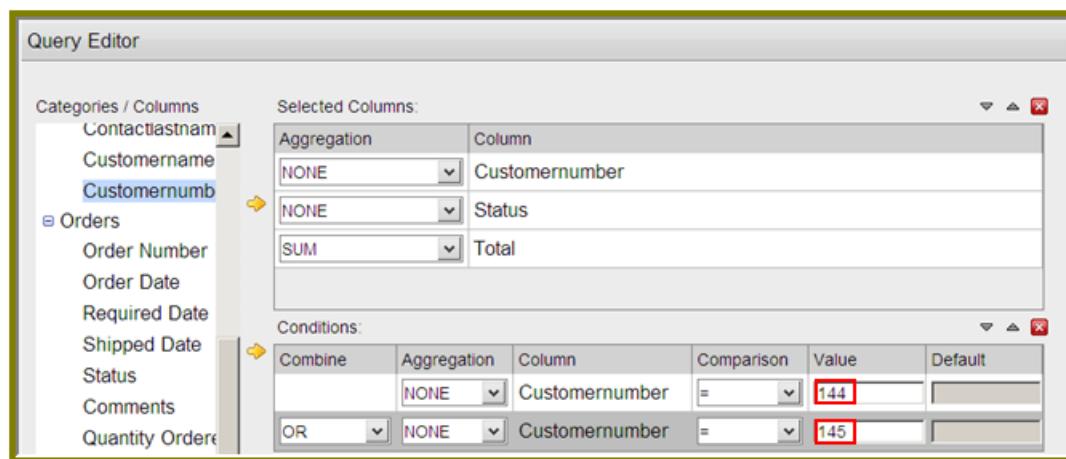
Before you create a chart you must select a data source that contains the data you want to use. You must then define the data that will be displayed in the chart.

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.



5. 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**.

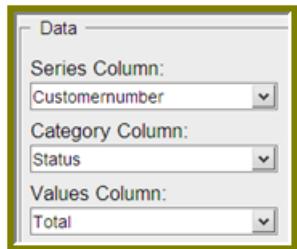


Under **Combine**, select the **OR** constraint from the drop-down list. Under **Comparisons**, click the drop-down list to display options for comparisons, **=**, **<**, **>**, and so on; (for example, where the customer number is *equal* to 144 or 145). In this exercise, you are not selecting an aggregate 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](#) on page 34

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

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



Data Definition

Values

Series

Category

Description

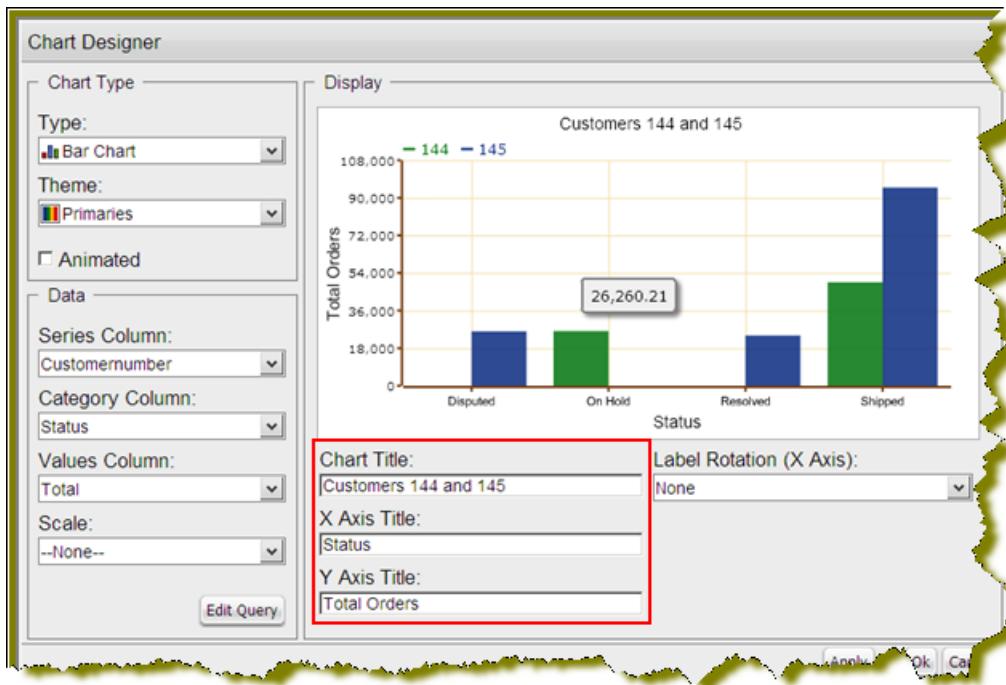
The value is always numeric. The value determines the height of columns in a bar chart and the height of lines in a line chart. In area charts, the y-axis values determine the heights of the points.

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.

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.

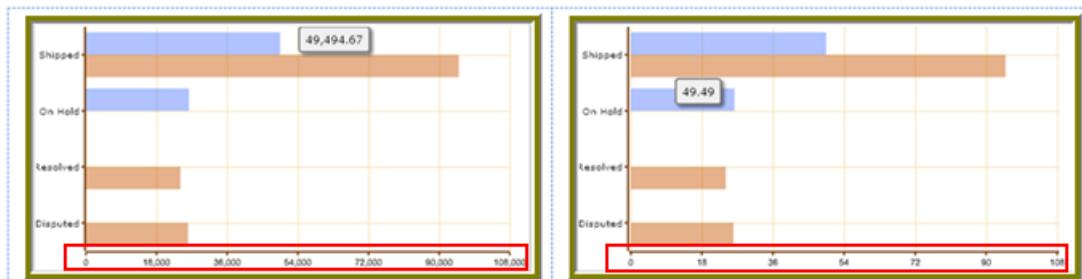


12. Click **OK** to display your chart in the dashboard panel.

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.

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.

Untitled 1

| First Name | Last Name | Employee ID |
|------------|-----------|-------------|
| Gerard | | 1102 |
| Lou | | 1337 |
| Larry | | 1501 |
| Anthony | | 1106 |
| Pamela | Castillo | |
| Jeff | Firrelli | 1611 |
| Julie | Firrelli | 1702 |
| Andy | Fixter | 1370 |
| Martin | Gerard | 1165 |
| Gerard | Hernandez | 1504 |
| Leslie | Jennings | 1612 |
| Barry | Jones | |
| Peter | Marsh | |

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:

Untitled 1

| First Name | Last Name | Employee ID |
|------------|-----------|-------------|
| George | Last Name | 1323 |
| Foon Yue | | 1286 |
| Leslie | Thompson | 1166 |
| Mary | Patterson | 1056 |
| Steve | Patterson | 1216 |
| Mami | Nishi | 1621 |
| Diane | Murphy | 1002 |
| Peter | Marsh | 1612 |
| Barry | Jones | 1504 |
| Leslie | Jennings | 1165 |
| Gerard | Hernandez | 1370 |
| Martin | Gerard | 1702 |
| Andy | Fixter | 1611 |

Paginating

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

A screenshot of a report titled "Untitled 1" showing a list of employee names and IDs. A context menu is open over the data, showing options like "Sort Ascending" and "Sort Descending". At the bottom of the report, there is a navigation bar with arrows and a page indicator showing "Page 1 of 2". To the right of the page indicator, it says "Displaying 1 - 20 of 23".

| First Name | Last Name | Employee ID |
|------------|-----------|-------------|
| Gerard | | 1102 |
| Lou | | 1337 |
| Larry | | 1501 |
| Anthony | | |
| Pamela | Castillo | |
| Jeff | Firrelli | |
| Julie | Firrelli | |
| Andy | Fixter | 1611 |
| Martin | Gerard | 1702 |
| Gerard | Hernandez | 1370 |
| Leslie | Jennings | 1165 |
| Barry | Jones | 1504 |
| Peter | Marsh | 1612 |

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.

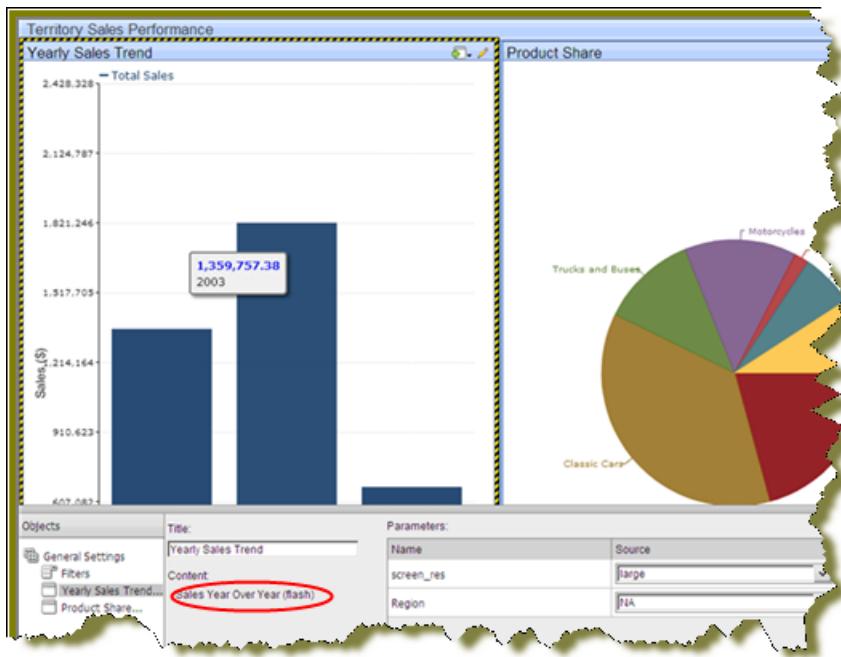
Displaying an .xaction File in the Dashboard

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*).

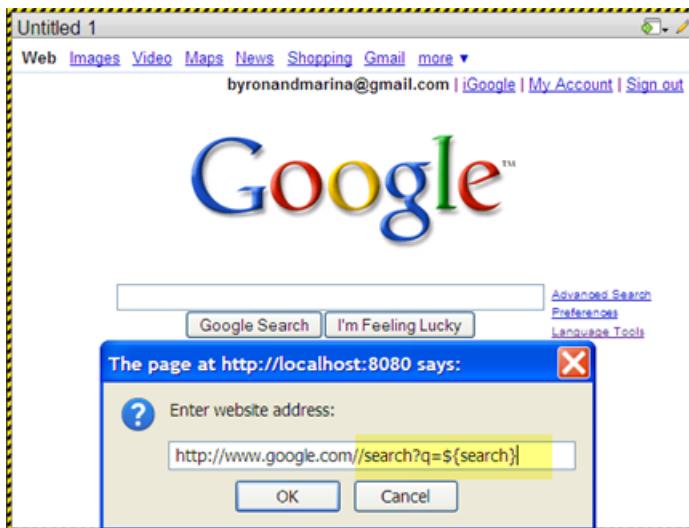


Displaying a Web site in a Dashboard

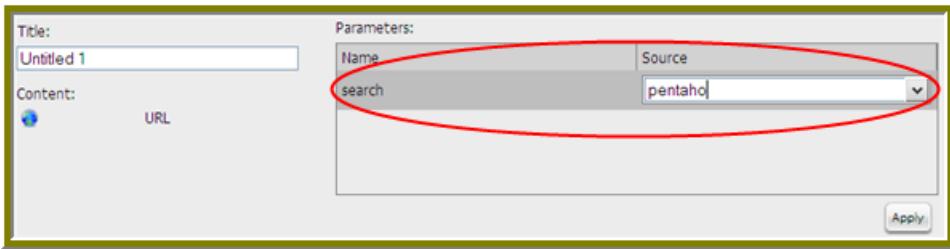
Follow the instructions below to display contents of a Web site in a dashboard panel.

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.



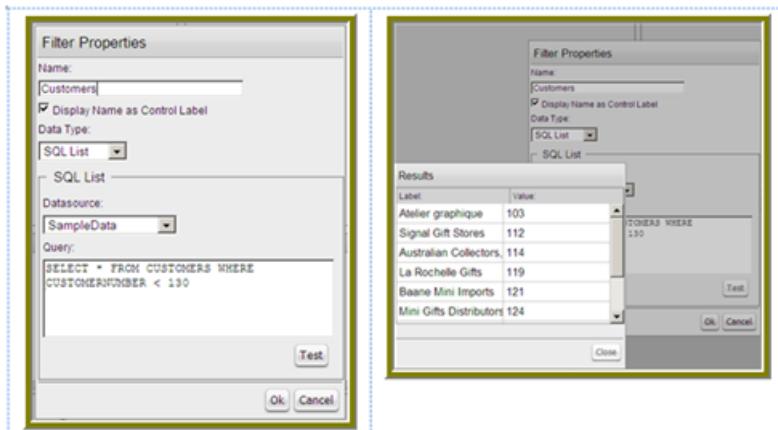
When the parameter displays in the edit pane of the dashboard, you can enter a value for the parameter in the text box next to the parameter name.



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:

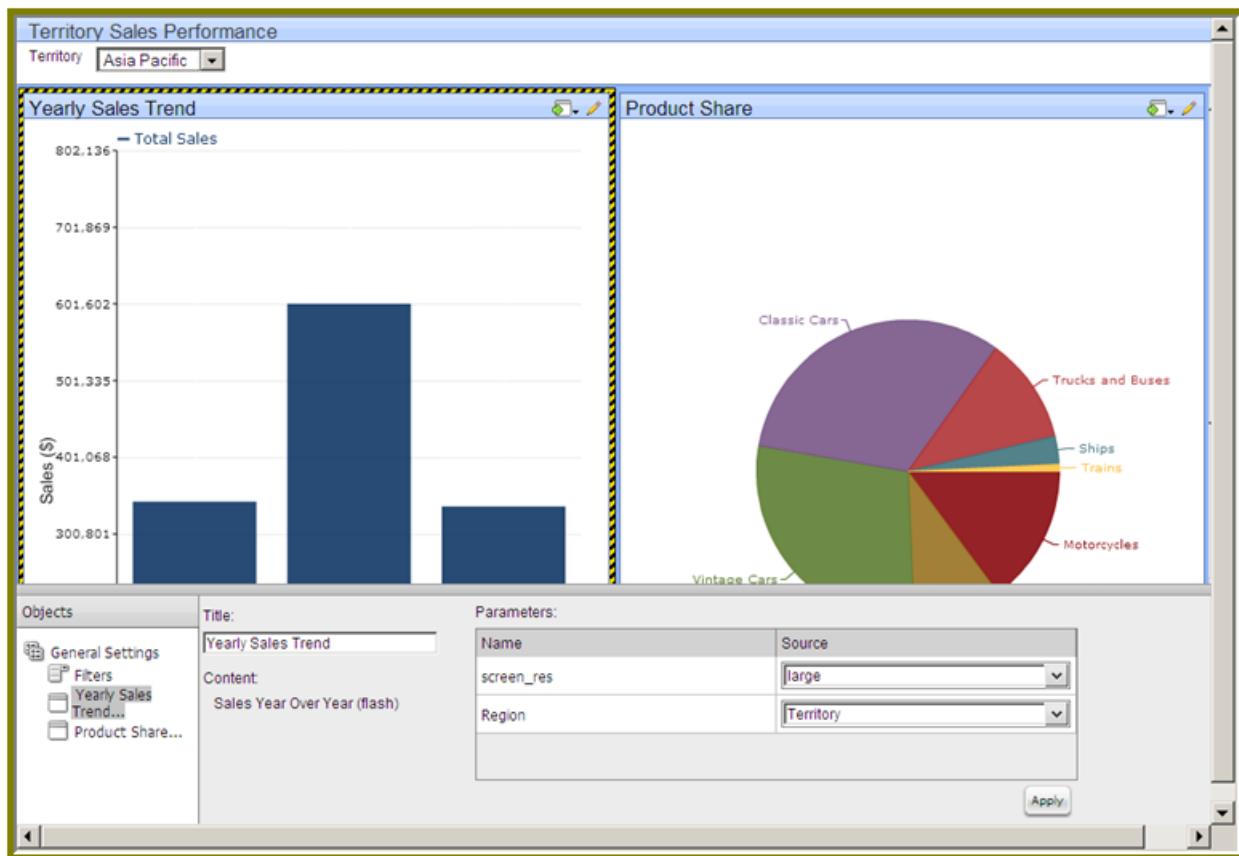


Follow the steps below to create a filter:

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**.
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.

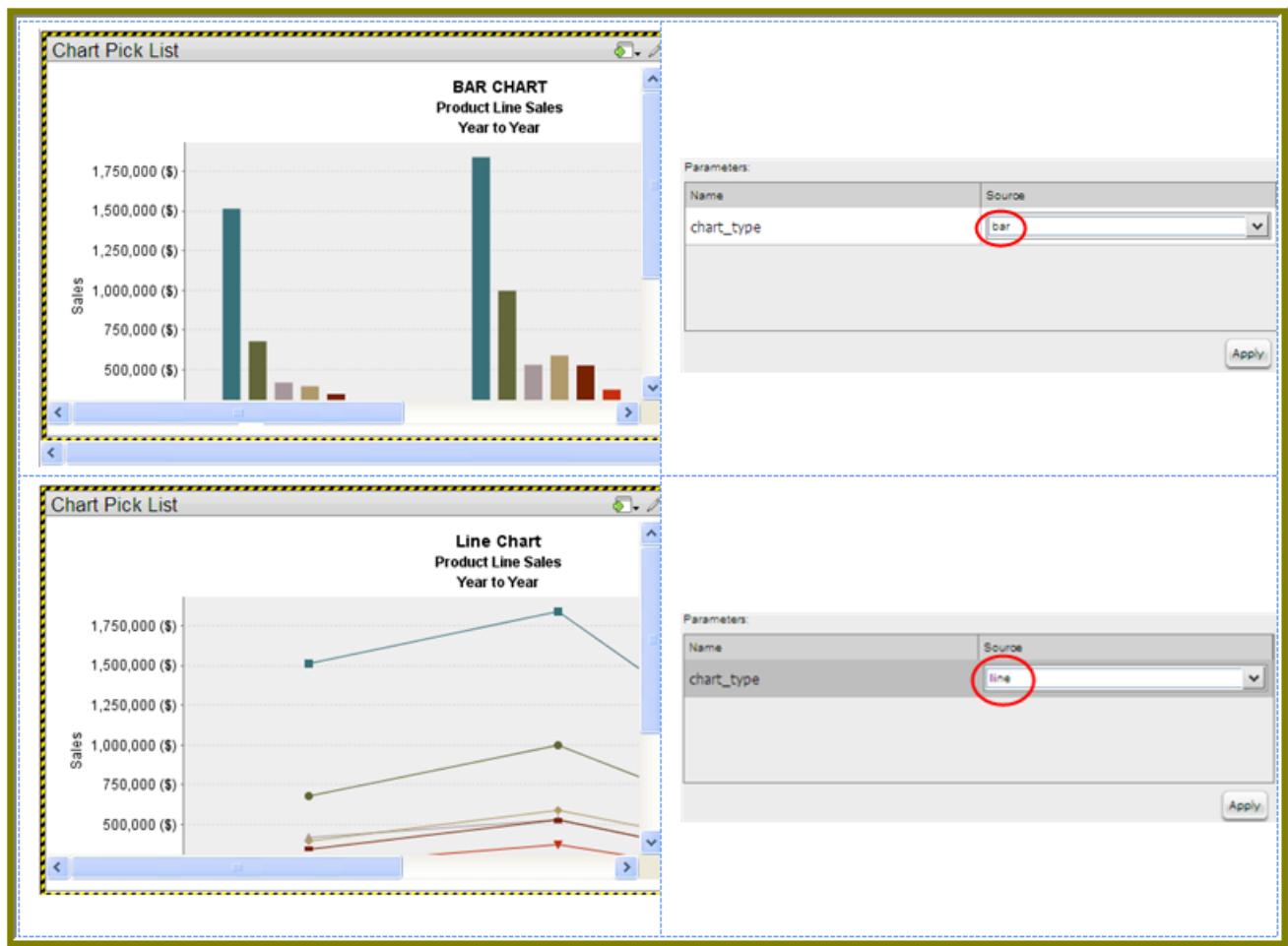
8. In the upper right corner of the **Untitled 1** panel click the **Insert Content** down arrow and choose **File**.
In the browser, navigate to **/steel-wheels/Dashboards/Widget Library/KPIs/Sales Year Over Year (flash)** and click **Select**.
9. In the **Title** field on the right, type **Yearly Sales 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.
20. In the Filter Properties dialog, 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 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. In the **Region** line, 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. Feel free to experiment further with Dashboard Designer.



Working with Parameters

If you are placing an .xaction or .prpt inside a dashboard panel, it is possible that the author of the .xaction or report, 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," which means they cannot be changed. Neither can you change the number of parameters associated with an .xaction or .prpt 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.

Assigning Parameters in the Query Editor

If you have set filter controls/parameters in your dashboard, you can edit them in the Query Editor. The Query Editor recognizes when you have set filter controls and displays them in a drop-down list. For example, suppose you have a filter control called "REGION," you can set the default value for your constraint to "North." When the chart renders, it displays data for the North region specifically.

If you haven't set filter controls in the dashboard, you can add them manually in the Query Editor. In the **Value** field type the name of the filter control inside curly braces, as in **{Name_your_filter}**. In the example below, the designer created a filter control called, **{letter}**; the default value for the filter control is, "S." When the chart is rendered it displays data associated with customers whose last names start with the letter "S."

| Column | Comparison | Value | Default |
|-----------------|-------------|----------|---------|
| Contactlastname | begins with | {letter} | S |

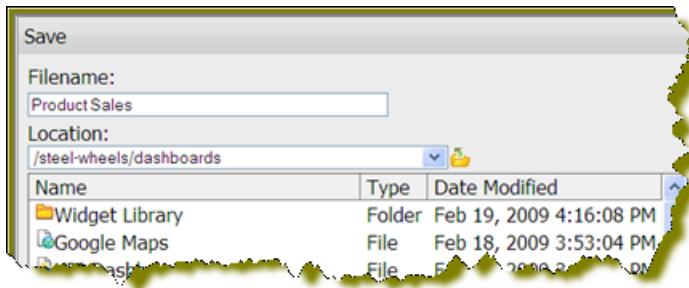
Suppose the designer chooses not to display parameters and wants to limit the data to names ending with "S," exclusively? In this instance, he or she would not include the curly braces around the letter "S," and the **Default** value is disabled.



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**.

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:

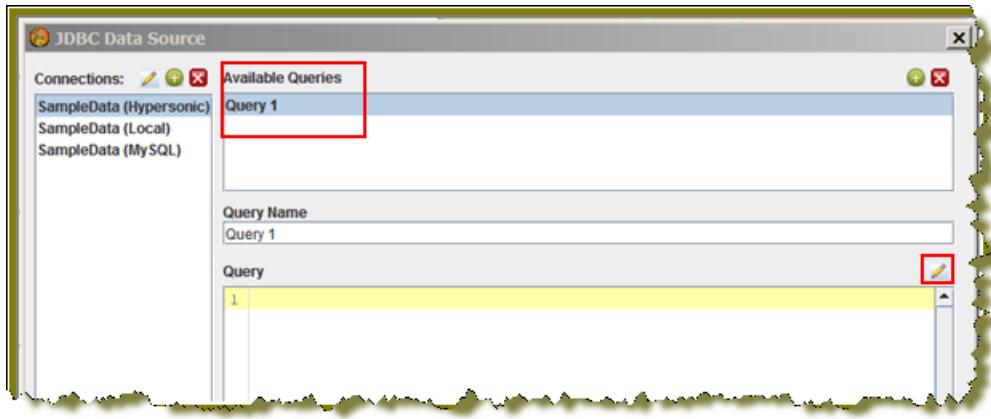
- Drag-and-drop graphical designer that gives users full control of data access, layout, grouping, calculations, charting and formatting for pixel-perfect reports
- Integrated, step-by-step wizard that guides report designers through the design process
- Report templates that accelerate report creation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



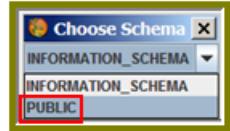
The Report Designer allows you to create a report by following a four step wizard; however, to show you a larger range of features, the exercises that follow walk you through the manual procedures for creating a simple report. Keep in mind that is basic tutorial and will not provide details about advanced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

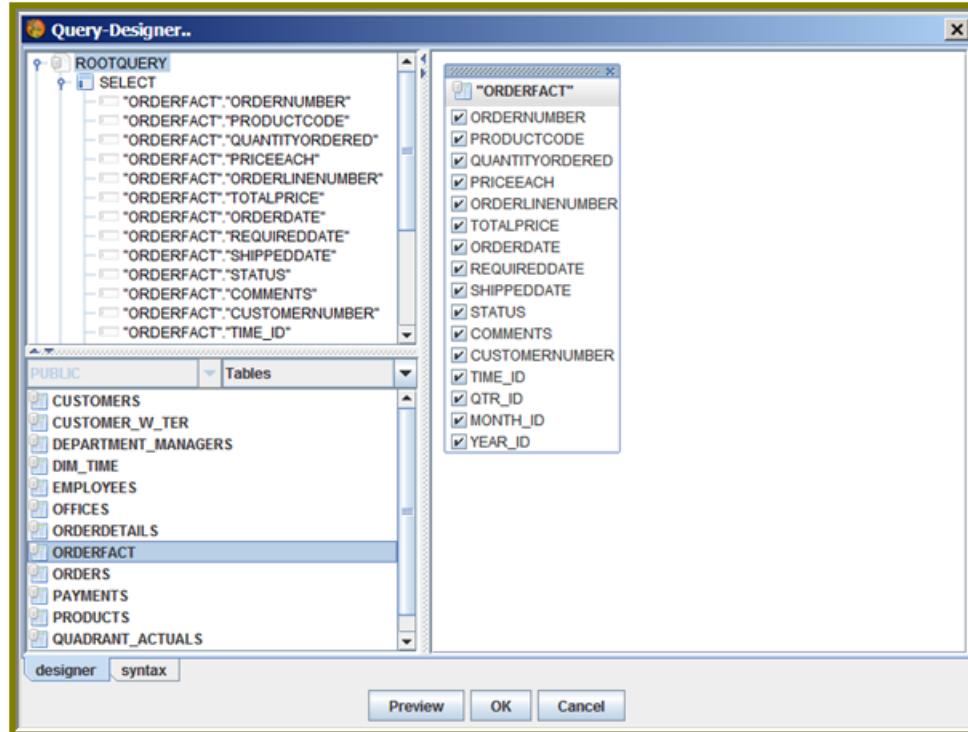
Query 1 appears under **Available Queries**. Notice that the edit icon is enabled.



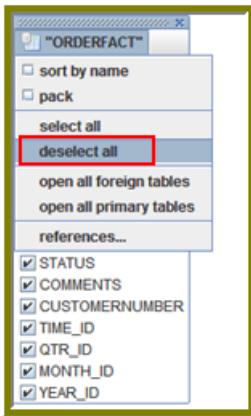
7. Click (Edit).
The Choose Schema dialog box appears.
8. In the **Choose Schema** dialog box select **Public** from the drop-down list.



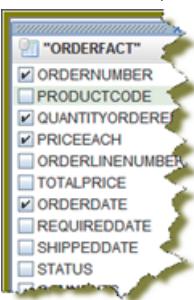
The Query Designer window appears. The Query Designer provides you with a graphical environment that allows you to work with the data even if you don't understand SQL, the standard programming language for retrieving content from databases.



9. Double-click **ORDERFACT** so that the table appears in the workspace as shown in the image above.
10. In the Query Designer workspace, right-click "ORDERFACT" and choose **deselect all**.



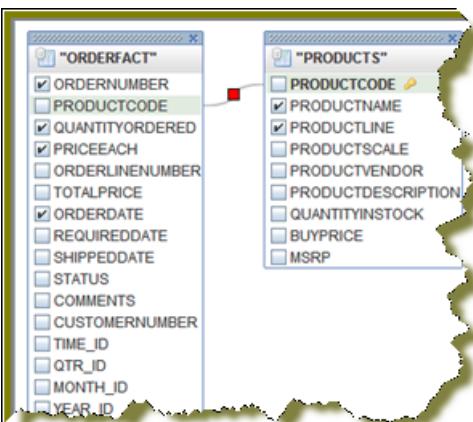
11. Now, select the following fields in the **ORDERFACT** table: **ORDERNUMBER**, **QUANTITYORDERED**, **PRICEEACH**, and **ORDERDATE**.



12. 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.

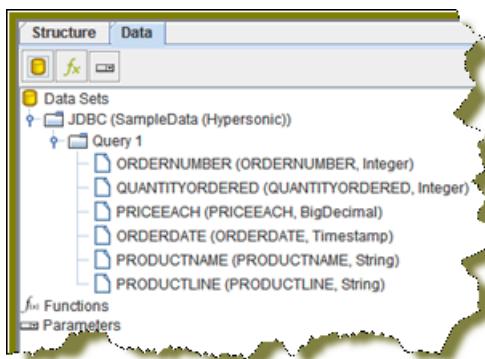
13. Deselect all **PRODUCTS** table fields, except for **PRODUCTNAME** and **PRODUCTLINE**.



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

```
Query-Designer..  
SELECT  
    "ORDERFACT"."ORDERNUMBER",  
    "ORDERFACT"."QUANTITYORDERED",  
    "ORDERFACT"."PRICEEACH",  
    "ORDERFACT"."ORDERDATE",  
    "PRODUCTS"."PRODUCTNAME",  
    "PRODUCTS"."PRODUCTLINE"  
FROM  
    "PRODUCTS" INNER JOIN "ORDERFACT" ON "PRODUCTS"."PRODUCTCODE" = "ORDERFACT"."PRODUCTCODE"
```

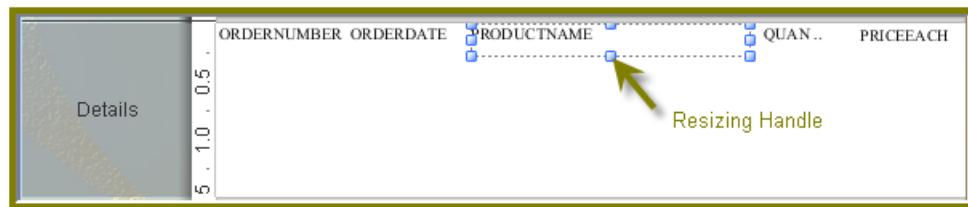
15. Click **OK** in the Syntax window to return to the **Configure** page. Notice that the SQL statement appears on the right under **Query Details**.
16. In the JDBC Data Source dialog box, click **OK** to return to the **Design** page.
- Notice that the fields associated with your tables are listed under **Query 1**. You are now ready to start *Designing Your Report* on page 39.



Designing Your Report

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

- 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.
- 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.
- 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.
- Use the resizing handles to make the **PRODUCTNAME** field larger and the **QUANTITYORDERED** field smaller as shown in the example below:



- 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.

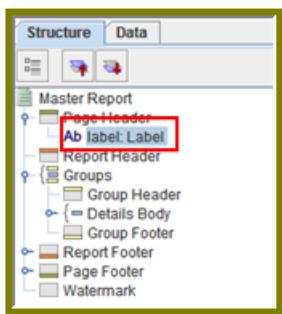
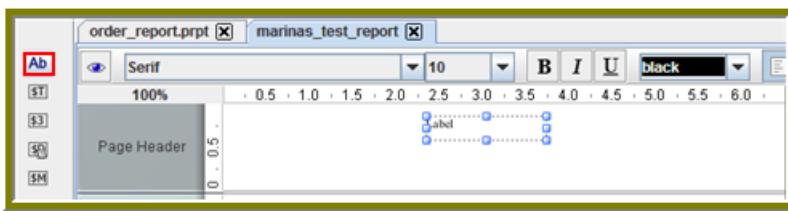
| | | | |
|--------|--------------|--------------------------------------|----|
| 10,107 | Feb 24, 2003 | 1969 Harley Davidson Ultimate Cho... | 30 |
| 10,121 | May 7, 2003 | 1969 Harley Davidson Ultimate Cho... | 34 |
| 10,134 | Jul 1, 2003 | 1969 Harley Davidson Ultimate Cho... | 41 |
| 10,145 | Aug 25, 2003 | 1969 Harley Davidson Ultimate Cho... | 45 |
| 10,159 | Oct 10, 2003 | 1969 Harley Davidson Ultimate Cho... | 49 |
| 10,168 | Oct 28, 2003 | 1969 Harley Davidson Ultimate Cho... | 36 |
| 10,180 | Nov 11, 2003 | 1969 Harley Davidson Ultimate Cho... | 29 |
| 10,188 | Nov 18, 2003 | 1969 Harley Davidson Ultimate Cho... | 48 |
| 10,201 | Dec 1, 2003 | 1969 Harley Davidson Ultimate Cho... | 22 |
| 10,211 | Jan 15, 2004 | 1969 Harley Davidson Ultimate Cho... | 41 |
| 10,223 | Feb 20, 2004 | 1969 Harley Davidson Ultimate Cho... | 37 |
| 10,237 | Apr 5, 2004 | 1969 Harley Davidson Ultimate Cho... | 23 |
| 10,251 | May 18, 2004 | 1969 Harley Davidson Ultimate Cho... | 28 |
| 10,263 | Jun 28, 2004 | 1969 Harley Davidson Ultimate Cho... | 34 |
| 10,275 | Jul 23, 2004 | 1969 Harley Davidson Ultimate Cho... | 45 |
| 10,285 | Aug 27, 2004 | 1969 Harley Davidson Ultimate Cho... | 36 |
| 10,299 | Sep 30, 2004 | 1969 Harley Davidson Ultimate Cho... | 23 |
| 10,309 | Oct 15, 2004 | 1969 Harley Davidson Ultimate Cho... | 41 |
| 10,318 | Nov 2, 2004 | 1969 Harley Davidson Ultimate Cho... | 46 |
| 10,329 | Nov 15, 2004 | 1969 Harley Davidson Ultimate Cho... | 42 |
| 10,341 | Nov 24, 2004 | 1969 Harley Davidson Ultimate Cho... | 41 |
| 10,354 | Dec 4, 2004 | 1969 Harley Davidson Ultimate Cho... | 42 |
| 10,361 | Dec 17, 2004 | 1969 Harley Davidson Ultimate Cho... | 20 |
| 10,375 | Feb 3, 2005 | 1969 Harley Davidson Ultimate Cho... | 21 |
| 10,388 | Mar 3, 2005 | 1969 Harley Davidson Ultimate Cho... | 42 |
| 10,399 | Apr 1, 2005 | 1969 Harley Davidson Ultimate Cho... | 40 |
| 10,403 | Apr 8, 2005 | 1969 Harley Davidson Ultimate Cho... | 24 |
| 10,417 | May 13, 2005 | 1969 Harley Davidson Ultimate Cho... | 66 |
| 10,103 | Jan 29, 2003 | 1952 Alpine Renault 1300 | 26 |
| 10,412 | Mar 4, 2003 | 1955 Alpine Renault 1300 | 29 |

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 40.

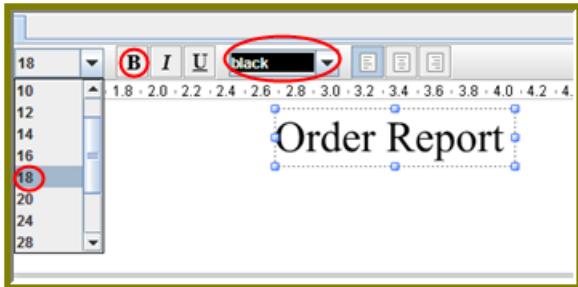
Refining Your Report

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.

- In the Design page, 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).

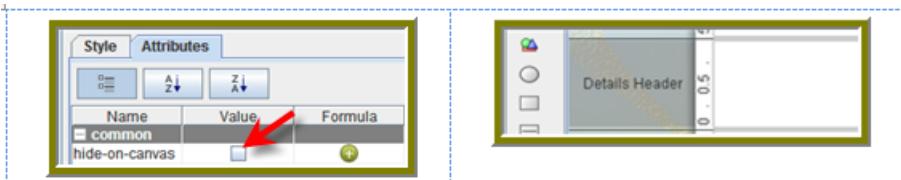


- Click inside the **Label** item and type **Order Report**
- Double-click inside the Order Report label to select the text, then in the toolbar, select a larger font size (18 point) and apply boldface.



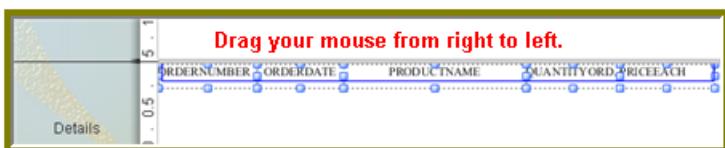
The changes are applied to the text; however, now that the text is bigger you may not see all of it, so use your resizing handles and enlarge the label until you can see all of the text. Alternatively, you can stretch the resizing handles all the way to each edge of the workspace and click the align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

4. 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.
5. Now, you must create column headers. On the right side of your workspace, click **Structure -> Details Header**.
6. In the lower right section of your workspace, click **Attributes**.
7. Under **common**, disable the **hide-on-canvas** option.



Notice that the **Details Header** pane appears in your workspace.

8. Click (Select Objects).
Notice that the icon changes to a cross hair as you move into the workspace.
9. 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.



10. 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.

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

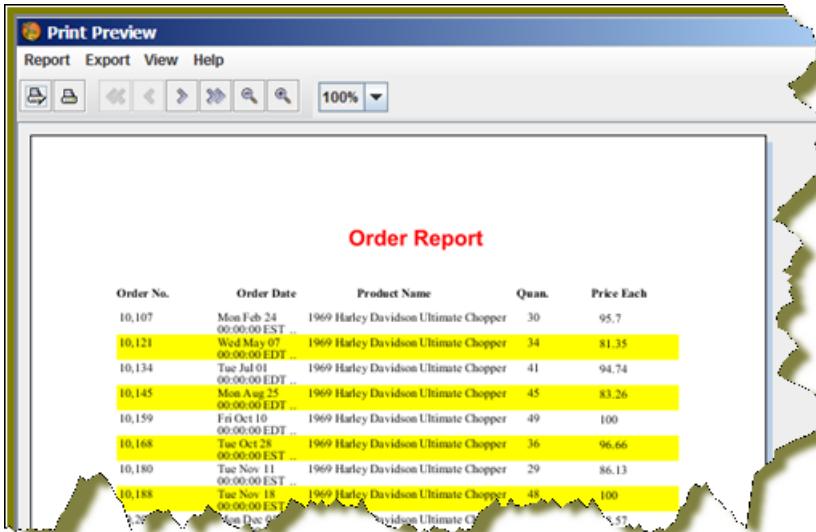
| Order Report | | | | | |
|--------------|--------------|---------------------------------------|-------|------------|--|
| Order No. | Order Date | Product Name | Quan. | Price Each | |
| 10,107 | Feb 24, 2003 | 1969 Harley Davidson Ultimate Chopper | 30 | 95.7 | |
| 10,121 | May 7, 2003 | 1969 Harley 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 | 28 | 72.55 | |

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

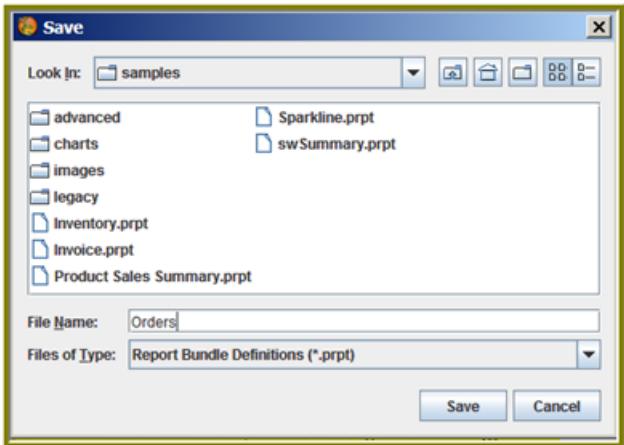
14. In the toolbar, go to **Format -> Row Banding**.

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

16. Click  (Preview) to display your report.



17. Go to **File -> Save** to save your report in the ...\\report-designer\\configuration-template\\report-designer\\samples folder. Type **Orders** in the **File Name** text box.

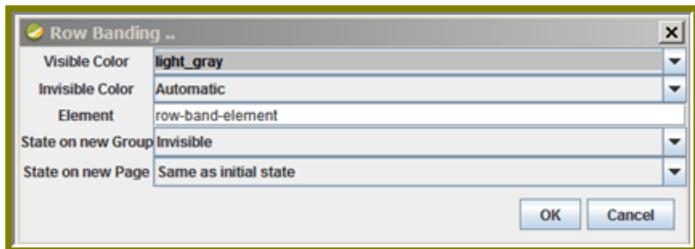


 **Note:** See [More about Row Banding, Data Formatting, and Alignment](#) on page 43 for additional information about refining your report.

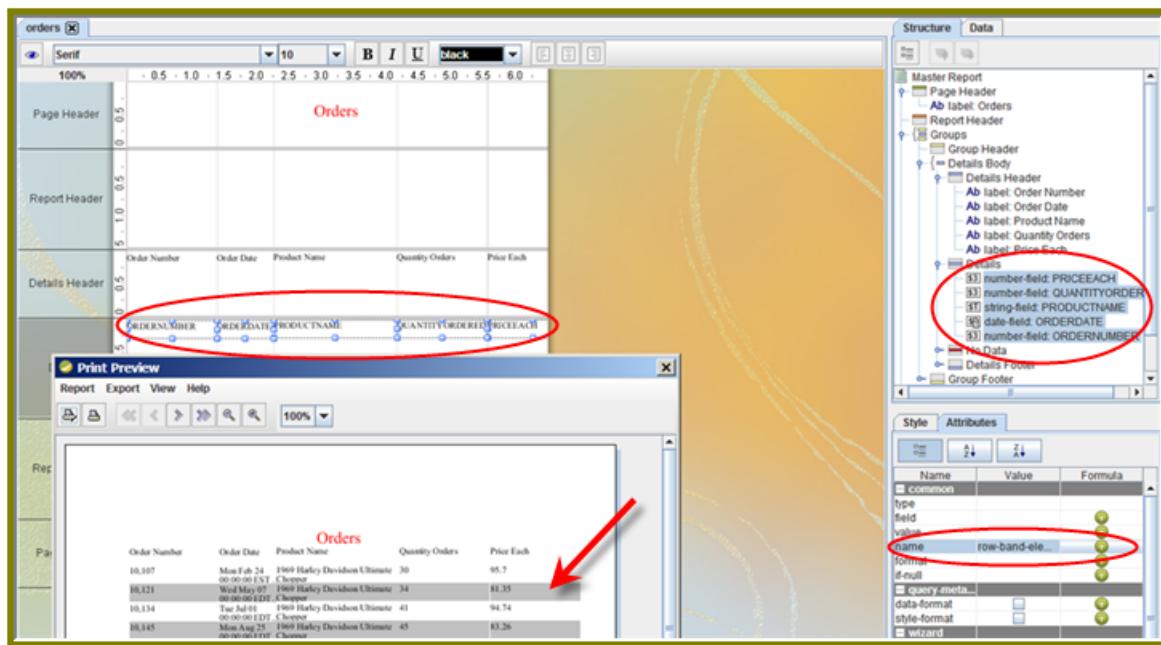
More about Row Banding, Data Formatting, and Alignment

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**.

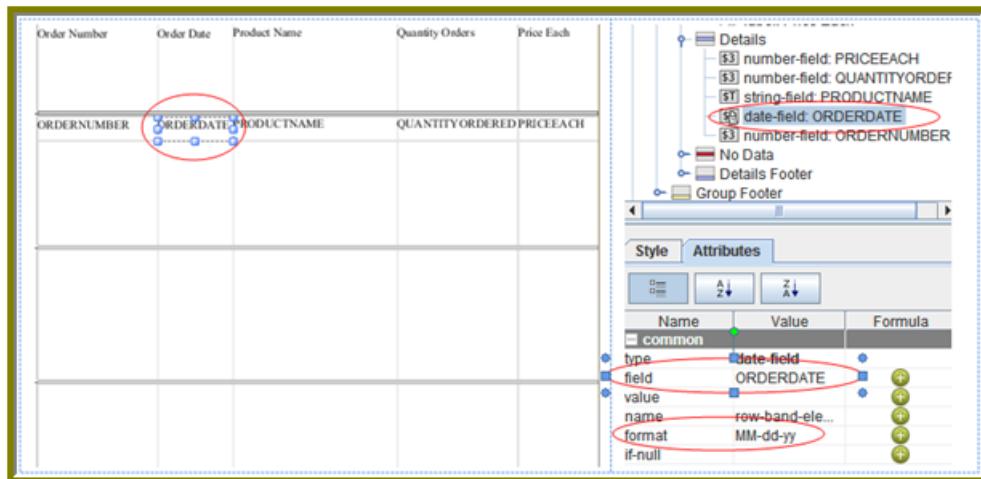


After you create your element, go back to the report and select the columns (fields) whose data will always be displayed with a row band. You must also type **row-band-element** in the **name** field under **Attributes**. In the example below, the data associated with each of the columns in the report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

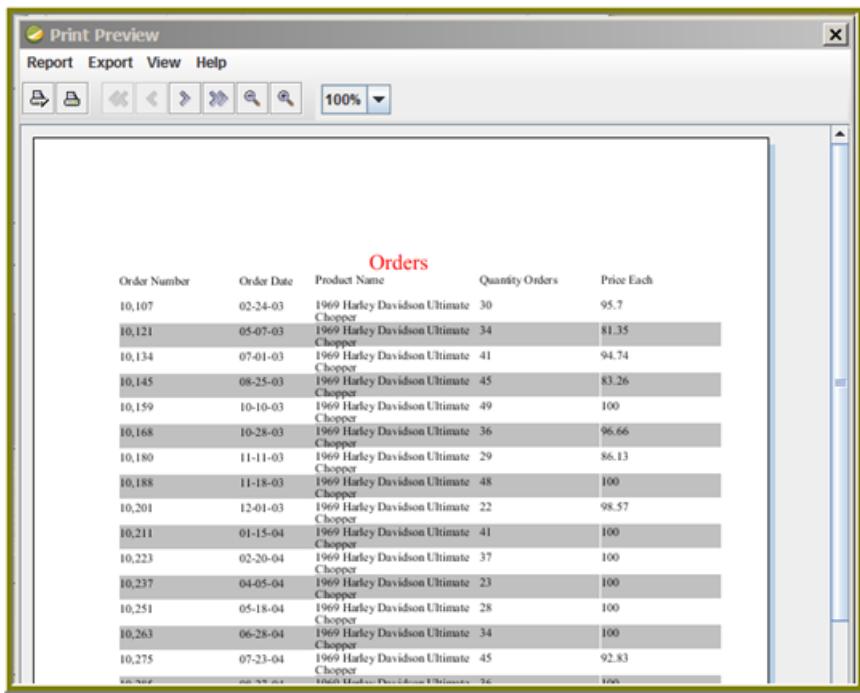


Data Formatting

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:

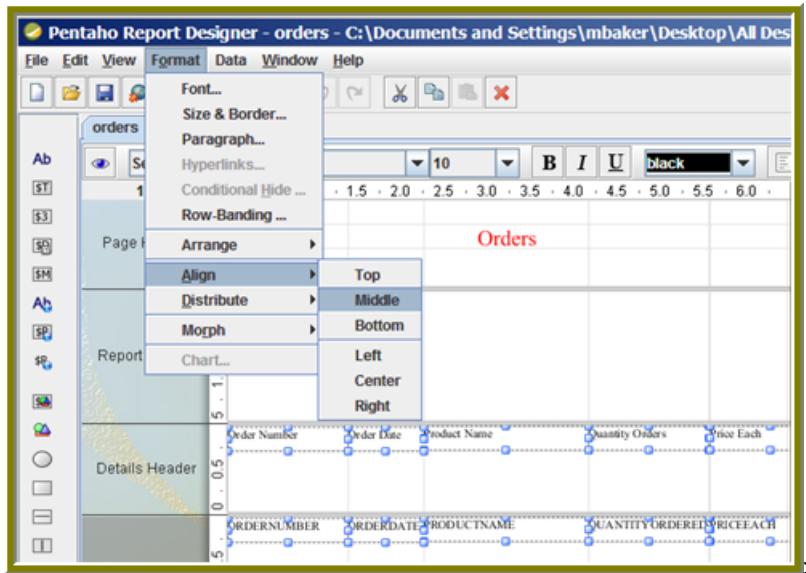


 **Note:** You can type a value for your own format if you know the correct JavaScript string nomenclature.

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.

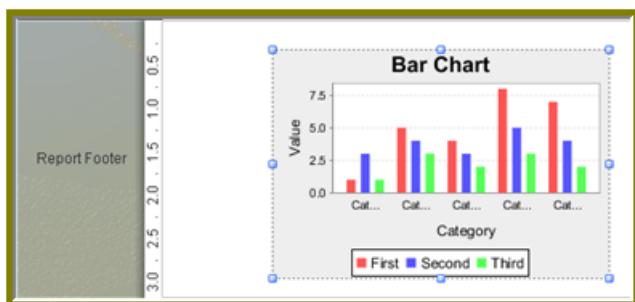


Adding a Chart to Your Report

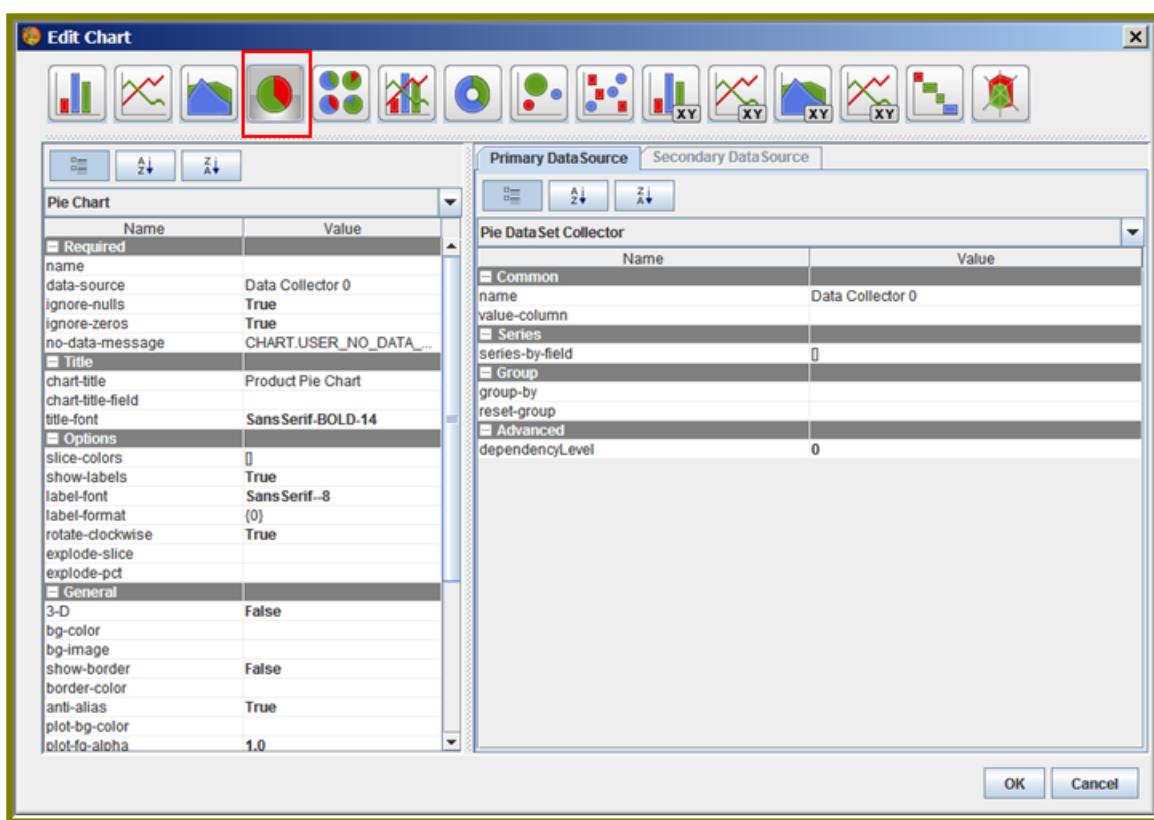
So far you've seen a small subset of features associated with Report Designer. In this exercise, you will add a chart to your report.

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.



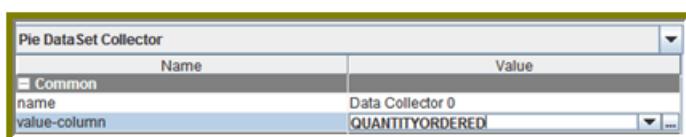
4. Double-click the sample chart.
- The **Edit Chart** dialog box opens.



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.

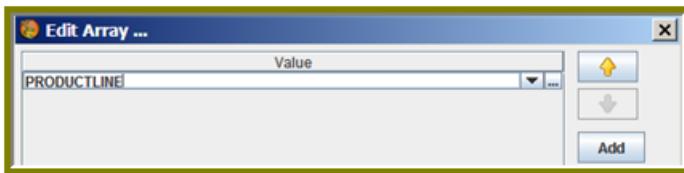
6. Go to the **Title** properties; next to the **chart-title** property, type **Product Pie Chart**.
7. Under **Common**, click the down arrow next to **value-column** and select **QUANTITYORDERED**.



8. Under **Series** click the ellipsis (...) next to **series-by-field**.
9. The **Edit Array** dialog box appears.
10. Click **Add**.

11.Click in the blank field to expose the drop-down arrow.

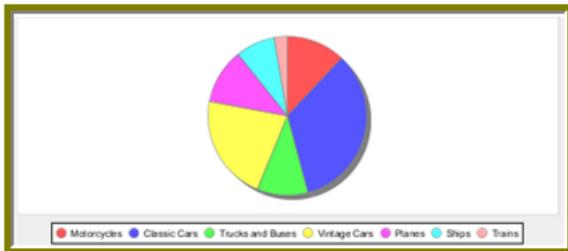
12.Select **PRODUCTLINE** from the list and click **OK**.



13.Click **OK** in the Edit Chart dialog box.

14.Click (Preview) to display your report.

15.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.

16.Save your report. You are now ready to [Adding Parameters to Your Report](#) on page 47.

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_proline** in the **Name** text field.
4. Type **Select Line** in the **Label** text field.
5. Next to **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 - Hypersonic)** under **Data Sources** if the Edit icon is disabled.

The JDBC Data Sources dialog box appears.

7. Under **Connections**, select **SampleData (Hypersonic)**.

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 **prolineList**.

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_proline}** or the report will not display correctly.

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

```

Query Name
prolineList

Query
1 SELECT DISTINCT
2 "PRODUCTS"."PRODUCTLINE"
3 FROM
4 "PRODUCTS"

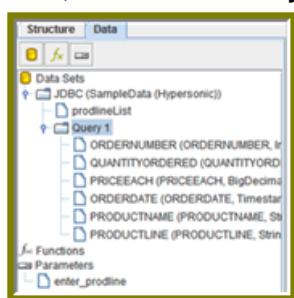
```

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:

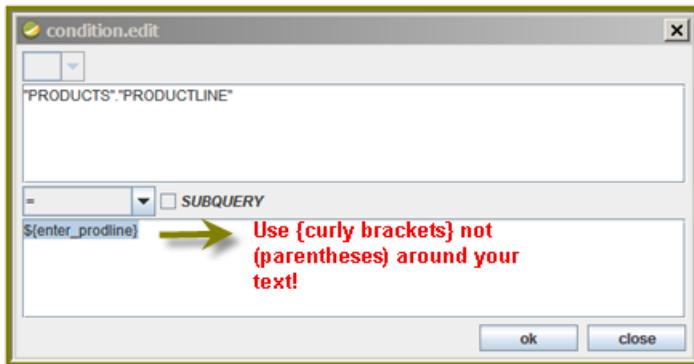
| Step | Description |
|------|--|
| 1 | In the JDBC Data Source dialog box, click (the Edit icon on the right). |
| 2 | Under Choose Schema , select Public , and click OK to open the Query Designer . |
| 3 | In the Query Designer, select the PRODUCTS table on the left. |
| 4 | On the right, click PRODUCTS 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 . |
| 7 | Click OK to exit the Query Designer and go to Step 11. |

- 11.In the Data Source dialog box, next to query, select **prolineList**.
- 12.Next to **Value Type**, select **String**.
- 13.Type a default value, for example, "Motorcycles," in the **Default Value** text box. (Optional)
- 14.Click **OK** to exit the **Add Parameter** dialog box.
- 15.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**.



- 16.Choose the **PUBLIC** schema and click **OK**.
The **Query Designer** dialog box appears.
- 17.Right-click **PRODUCTLINE** and select **add where condition**.
The **condition.edit** dialog box appears.

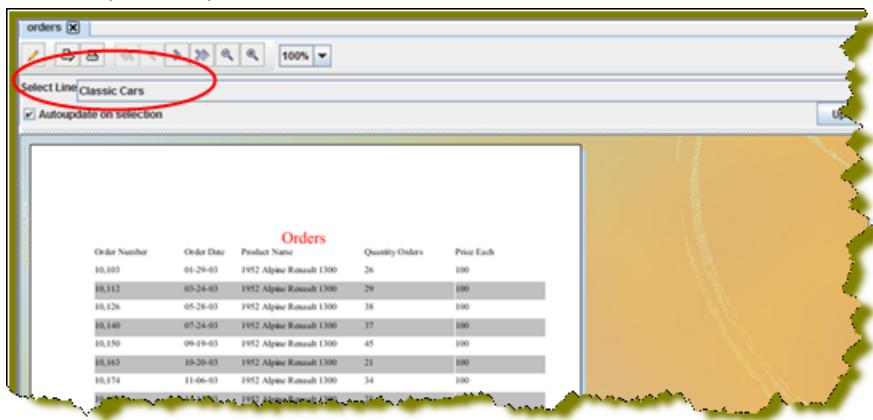
18.Type \${enter_prodlne} in the edit area and click **OK**.



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 49.

Publishing Your Report

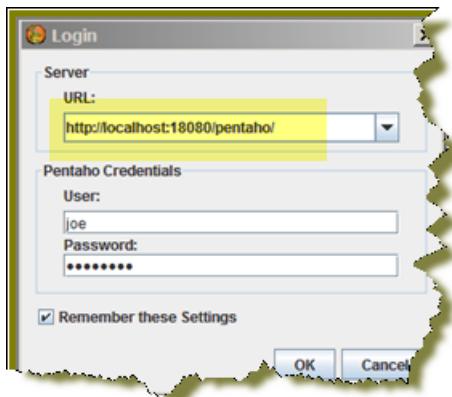
You have created and formatted a simple report, added a chart, and now you are ready to share the report with your users.

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.

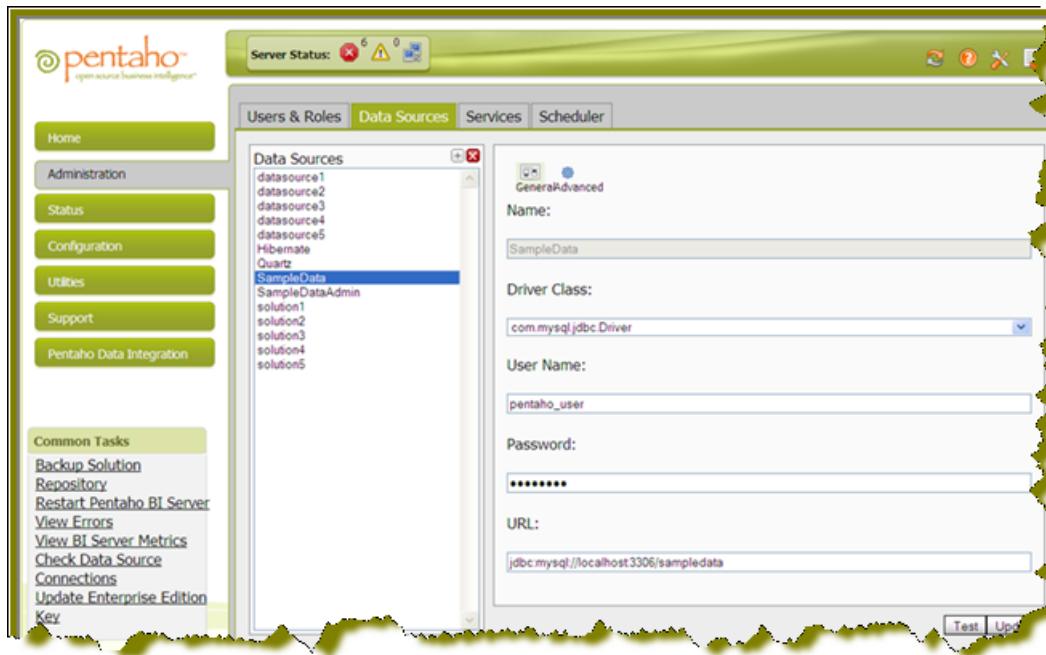
| Order No. | Order Date | Product Name | Quan. | Price Each |
|-----------|-------------|-------------------------|-------|------------|
| 10,253 | Jun-01-2004 | 1970 Plymouth Hemi Cuda | 25 | 90.17 |
| 10,266 | Jul-06-2004 | 1970 Plymouth Hemi Cuda | 35 | 76.61 |
| 10,276 | Aug-02-2004 | 1970 Plymouth 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 | 90.17 |

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:hsq1://localhost/sampledatal**. 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

In instances in which Pentaho does not supply the correct JDBC driver for your data source, you must provide your own. If necessary, contact your database vendor for more information if you have questions about which driver to use. Once you have found the appropriate driver, drop the associated .jar file in the locations shown below:

```
...\\pentaho\\server\\enterprise-console-server\\jdbc  
...\\pentaho\\server\\bi-server\\tomcat\\common\\lib
```

Placing the file in these locations makes the driver available to the Pentaho Enterprise Console and to the BI Server. Restart both the BI Server and the Pentaho Enterprise to make sure your changes are updated.

Defining a Database Connection in Report Designer

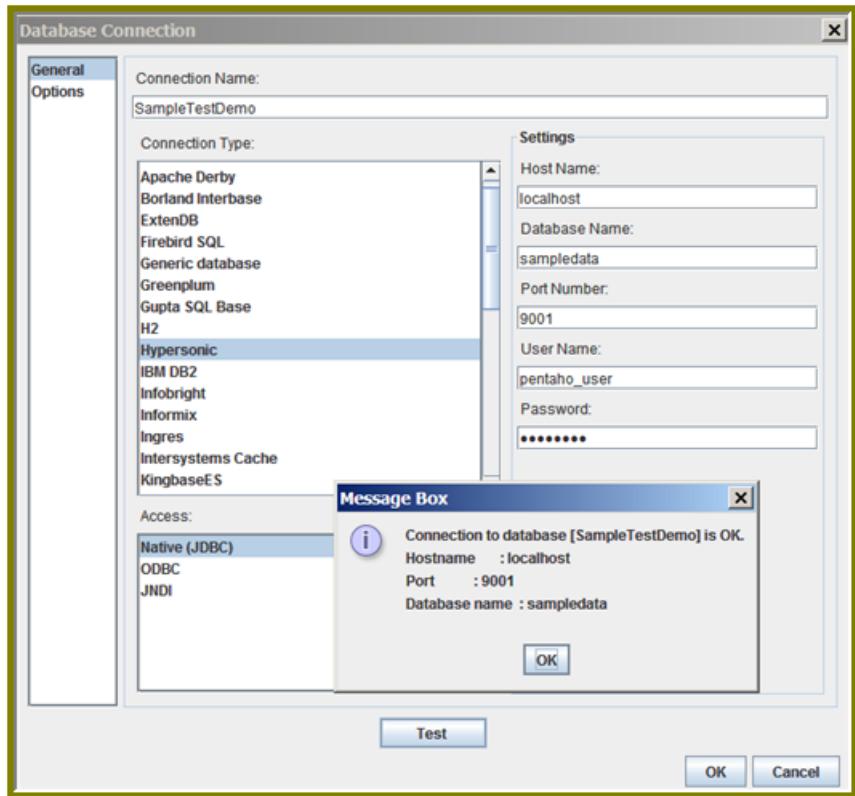
You've created a report, refined, and published it. If you are ready to start creating reports using your own data, you may need to contact your database administrator to get details (JDBC driver, connection string, user name and password) for configuring your database. This is the same information you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

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

- Click **Test** to test your connection.

A success message appears if your configuration is correct.

- Click **OK** to save your entries.

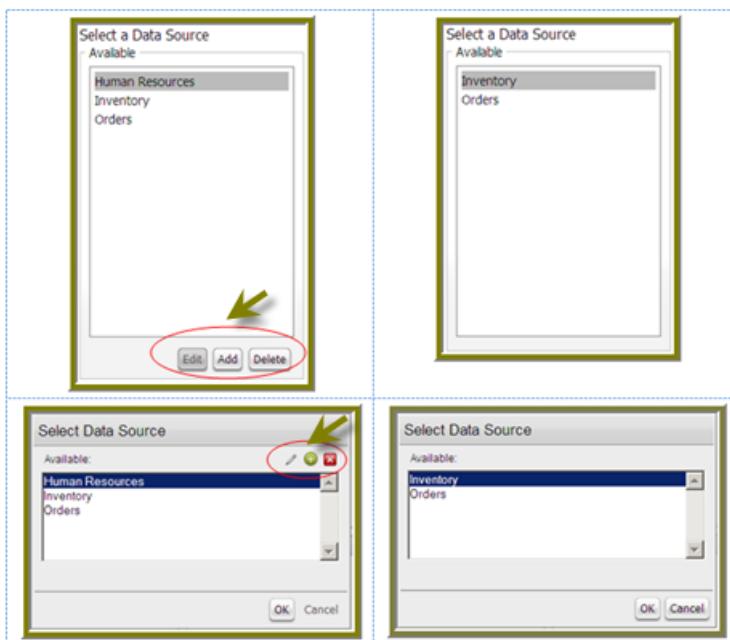
The new data source (connection) appears in the list on the left under **Connections**.

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. Pentaho does not recommend this feature for use in an enterprise or production environment; however, it can be useful for testing and proof-of-concept scenarios.

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. 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 58 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 as shown by the examples in the right column in the image below.



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.

Creating a Relational Data Source in the Pentaho User Console

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

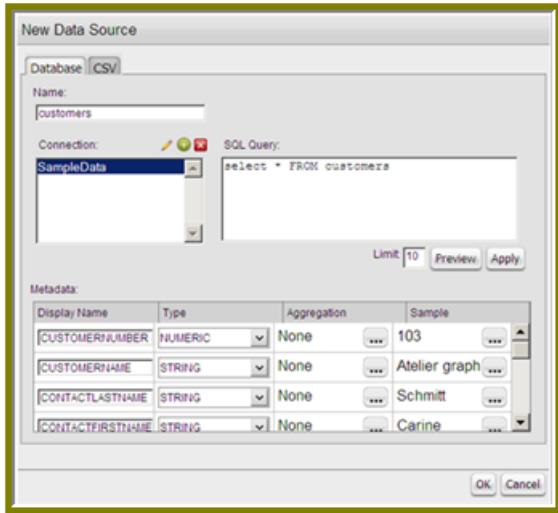
- When you click **Add** in the **Select Data Source** step in Ad Hoc Reports
- When you click **Create Data** in charts in the Dashboard
- When you click  (Add) as a first step of the create Data Table process

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 select options that define how data is aggregated (sum, min., max., etc.), and more.



Users who do not have administrative permissions do not see New Data Source dialog box; however, they do see a list of available data sources that have been previously created by an administrator; they can query against the data sources within the scope of data defined in queries created by an administrator.

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

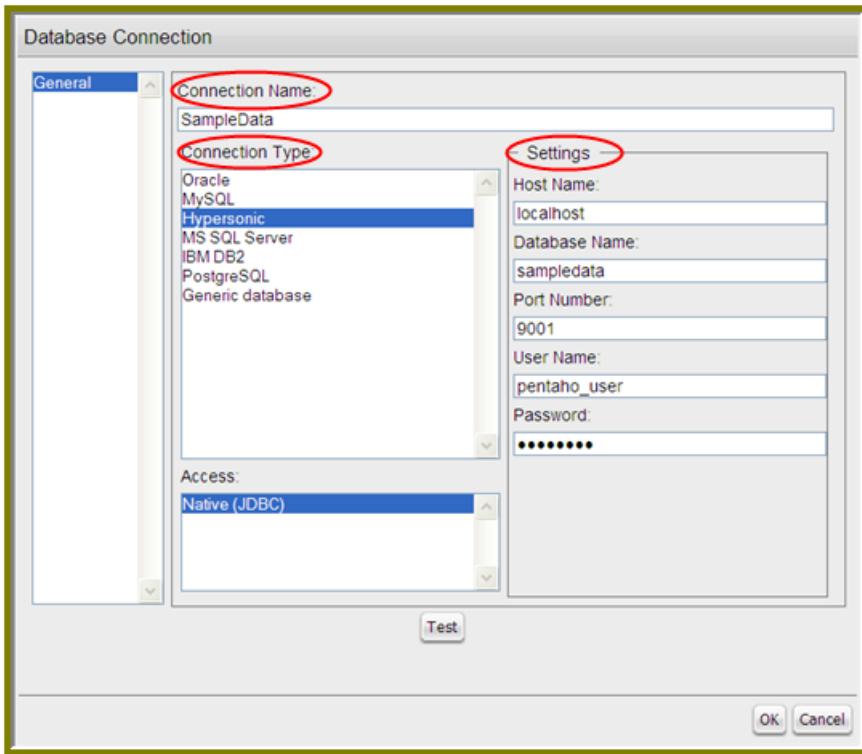
You must be logged on to the Pentaho User Console as an administrator to follow the instructions below:

1. In the **New Data Source** dialog box, click **Database**.
2. Type a name for the new data source in the **Name** field.



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

3. If not already configured, click (Add) to add a connection. The **Database Connection** dialog box appears.



4. In the **Connection Name** text box, enter an easy-to-remember name that identifies the data you are accessing.
5. Select a **Connection Type** from the list. Text fields for required settings associated with your connection type appear under **Settings** on the right. See [Adding a JDBC Driver](#) on page 51 if the driver you need is not listed.
6. Enter the appropriate connection information for your database type. Consult the [A List of JDBC Drivers](#) for more information.
7. In the Connection dialog box, click **Test** to test your connection and click **OK**. A success message appears if your settings are correct.
8. In the **New Data Source** dialog box, enter your SQL Query. Click **Preview** to ensure that your query is correct.
9. Click **Apply**.
10. If applicable, edit the display names of the columns, the Type (string, numeric), and the Aggregation Type (a default aggregation type for a column is displayed). A sample of each data type displays under Sample. Aggregation types are defined below:

| Aggregate Type | Description |
|-----------------------|---|
| None | No aggregation is assigned |
| Sum | Sums a specific columns values determined by grouping |
| Average | Averages a specific columns values determined by grouping |
| Count | Returns the number of distinct values associated with the specified column determined by grouping |
| Distinct Count | Returns the number of distinct values of the specified column determined by grouping |

| Aggregate Type | Description |
|----------------|---|
| Minimum | Selects the minimum column value determined by grouping |
| Maximum | Selects the maximum column value determined by grouping |

11. Click **OK**.

In the background, after you click **OK**, a default metadata data source is generated based on the query. When you convert the query to a metadata data source, the query can be reused in Ad Hoc Reports, Report Designer, and Chart Designer.

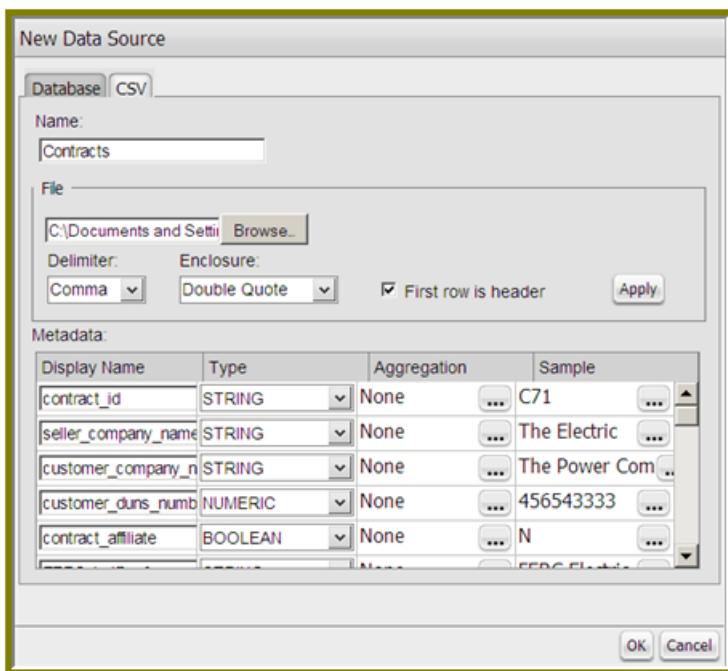
Creating a CSV Data Source in the Pentaho User Console

The **New Data Source** dialog box allows you to set up a CSV (flat file) as a data source. Once you define a CSV file as a data source, end-users can create reports, charts, and data tables based on data in the CSV file. The New Data Source dialog box is available in the following instances:

- When you click **Add** in the **Select 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

 **Important:** Pentaho does not recommend the use of CSV-based data sources in a production environment. See [Using the Data Sources Feature in the Pentaho User Console](#) on page 54

for more information.



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

1. In the New Data Source dialog box, click **CSV** to define a CSV file as your data source.
2. In the **Name** field, type a name that identifies your new data source. (This is a free-form text field.)
3. Under **File**, click **Browse** to locate the CSV file you want to use as your data source.
4. Select your delimiter and enclosure types from the appropriate drop-down lists.

 **Important:** You must make selections under **Delimiter** and **Enclosure** for the Metadata table to build correctly. In the example line, 1, 4, 5, 02/12/77, "String Value" the commas are delimiters and the quotation marks around "String Value" is the enclosure.

5. Click Apply.

The Metadata table updates with CSV data. By default, the first row of your CSV file set as the header.

- 6. If applicable, change the Display Name and Type values.** The samples column displays the values for the first row. Click the ellipsis (...) to see additional details.

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

- 7. If you choose to change a default aggregate click the ellipsis (...) next to the aggregate type to launch a dialog box that allows you to enable and disable aggregate selections. Aggregate types are defined below:**

| Aggregate Type | Description |
|-----------------------|--|
| None | No aggregation is assigned |
| Sum | Sums a specific columns values determined by grouping |
| Average | Averages a specific columns values determined by grouping |
| Count | Returns the number of distinct values associated with the specified column |
| Distinct Count | Returns the number of distinct values of the specified column |
| Minimum | Selects the minimum column value determined by grouping |
| Maximum | Selects the maximum column value determined by grouping |

- 8. Click OK to create the new data source.**

 **Note:** If you select the wrong CSV file, click **Browse** and repeat steps 3 through 7.

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 acl 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.

Advanced Concepts and Tasks

Up till this point, you've been reading specific, easy-to-follow procedures for working with reports. From an end-user's perspective Pentaho's client tools and the Pentaho User Console are all easy to use, but the technologies that Report Designer and the BI Platform depend on are more technically sophisticated. This section contains advanced instructions, information, and tips for more technically savvy evaluators.

Supported Data Source Types

In addition to the JNDI-based Pentaho database connections that are established through the Pentaho Enterprise Console, the BI Suite can connect to the following data source types:

- Spreadsheets
- Flat files with tab- or comma-separated values
- Any JNDI-compliant database
- Mondrian MDX files

You can access these directly through the data source configuration function of Report Designer.

Adding a Pentaho Database Connection

To define a Pentaho database connection:

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 database in the default list. The **Add Database Connection** dialog box appears.
4. Type a connection name that concisely describes the data source.
5. 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 database.



Note: If your JDBC driver is not available, see [Adding a JDBC Driver](#) on page 60.

6. Type the **User Name** and **Password** required to access your database.
7. Type or select the **URL** from the list. This is the URL of your database; for example, `jdbc:hsqldb:hsq://localhost/sampledatal`. JDBC establishes a connection to a SQL-based database and sends and processes SQL statements.
8. Click **Test**.
A success message appears if the connection is established.
9. Click **OK** to save your entries.

Adding a JDBC Driver

If you need to add a JDBC driver for your database, you must copy its .JAR file to the following locations:

`/Pentaho/server/enterprise-console-server/jdbc/` or `/biserver-ee/server/enterprise-console-server/jdbc/`

`/Pentaho/server/bi-server/tomcat/common/lib/` or `/biserver-ee/server/bi-server/tomcat/common/lib/`

Placing the file in these locations makes the driver available to the Pentaho Enterprise Console and to the BI Server.



Note: Restart *both* the BI Server and the Enterprise Console to properly register these changes.

Adding a JNDI Data Connection to Tomcat

If you would prefer to use a JNDI connection to your database instead of the standard Pentaho method, follow the instructions below:

1. Consult the [list of JDBC class names](#) *A comprehensive list of JDBC databases and their associated class names and connection strings.* to determine the class name and connection string for your database.
2. Stop the Tomcat server by running the **stop-pentaho** script.
3. Edit the `/tomcat/conf/server.xml` with a text editor.
This directory is in either `/Pentaho/server/bi-server/` or `/biserver-ee/` depending on how you installed the BI Platform.
4. Anywhere inside of the `<host>` element, add the XML snippet shown below:

```
<Context path="/pentaho" docbase="webapps/pentaho/">
    <Resource name="jdbc/myDataSource" auth="Container"
    type="javax.sql.DataSource"
        factory="org.apache.commons.dbcp.BasicDataSourceFactory" maxActive="20"
        maxIdle="5"
        maxWait="10000" username="dbuser" password="password"
        driverClassName="org.postgresql.Driver"
        url="jdbc:postgresql://127.0.0.1:5432/myDataSource" />
</Context>
```

The above example shows a simple PostgreSQL configuration. Replace the **Resource name**, **username**, **password**, **driverClassName**, and **url** parameters (or any relevant connection settings) to match your connection information.

5. Save and close the `server.xml` file.
6. Start the Tomcat server by running the **start-pentaho** script.

Tomcat can now properly connect to your database.

Appendix: List of JDBC Class Names

A comprehensive list of JDBC databases and their associated class names and connection strings.



Note: The table below may have forced line breaks to improve readability in some formats.

| Database name | Connection string | Class name |
|-----------------------------------|---|--|
| IBM DB2 | <code>jdbc:db2://hostname:port/</code> <code>databasename</code> | <code>COM.ibm.db2.jdbc.app.DB2Driver</code> |
| JDBC-ODBC Bridge | <code>jdbc:odbc:databasename</code> | <code>sun.jdbc.odbc.JdbcOdbcDriver</code> |
| Microsoft SQL Server | <code>jdbc:weblogic:mssqlserver4:</code> <code>databasename@hostname:port</code> | <code>weblogic.jdbc.mssqlserver4.Driver</code> |
| Sybase (jConnect 5.2) | <code>jdbc:sybase:Tds:hostname:port</code> | <code>com.sybase.jdbc2.jdbc.SybDriver</code> |
| Sybase (jConnect 4.2 and earlier) | <code>jdbc:sybase:Tds:hostname:port</code> | <code>com.sybase.jdbc.SybDriver</code> |
| PostgreSQL (v7.0 and later) | <code>jdbc:postgresql://</code> <code>hostname:port/</code> <code>databasename</code> | <code>org.postgresql.Driver</code> |
| PostgreSQL (v6.5 and earlier) | <code>jdbc:postgresql://</code> <code>hostname:port/</code> <code>databasename</code> | <code>postgresql.Driver</code> |

| Database name | Connection string | Class name |
|--|---|--|
| Oracle OCI 9i | jdbc:oracle:oci:@SID | oracle.jdbc.driver.OracleDriver |
| Oracle OCI 8i | jdbc:oracle:oci8:@SID | oracle.jdbc.driver.OracleDriver |
| MySQL (MM.MySQL Driver) | jdbc:mysql://hostname:port/databasename | org.gjt.mm.mysql.Driver |
| Microsoft SQL Server 2000 (Microsoft Driver) | jdbc:microsoft:sqlserver://hostname:port[;DatabaseName=databasename] | com.microsoft.sqlserver.jdbc.SQLServerDriver |
| Microsoft SQL Server (Sprinta Driver) | jdbc:inetdae:hostname:port?database=databasename | com.inet.tds.TdsDriver |
| Microsoft SQL Server (JT Turbo Driver) | jdbc:JT Turbo://hostname:port/databasename | com.ashna.jturbo.driver.Driver |
| HSQLDB (v1.3 and later) | jdbc:hsqldb:hsql://hostname:port/databasename | org.hsqldb.jdbcDriver |
| HSQLDB (v1.2 and earlier) | jdbc:hsqldb:hsql://hostname:port/databasename | hSql.hDriver |
| Interbase (InterClient Driver) | jdbc:interbase://hostname/databasename | interbase.interclient.Driver |
| InstantDB (v3.14 and later) | jdbc:idb:databasename | org.enhydra.instantdb.jdbc.idbDriver |
| InstantDB (v3.13 and earlier) | jdbc:idb:databasename | jdbc.idbDriver |
| Informix Dynamic Server | jdbc:informix-sqli://hostname:port/databasename:INFORMIXSERVER=servername | com.informix.jdbc.IfxDriver |
| IDS Server | jdbc:ids://hostname:port/conn?dsn='ODBC_DSN_NAME' | ids.sql.IDSDriver |
| Firebird (JCA/JDBC Driver) | jdbc:firebirdsql://hostname[:port]/databasename | org.firebirdsql.jdbc.FBDriver |
| Cloudscape RMI | jdbc:rmi://hostname:port/jdbc:cloudscape:databasename | RmiJdbc.RJDriver |
| Cloudscape | jdbc:cloudscape:databasename | COM.cloudscape.core.JDBCDriver |
| PointBase Embedded Server | jdbc:pointbase://embedded[:port]/databasename | com.pointbase.jdbc.jdbcUniversalDriver |
| Oracle Thin | jdbc:oracle:thin:@hostname:port:SID | oracle.jdbc.driver.OracleDriver |

Creating a SQL Query in Report Designer

In Report Designer, data sources are defined through SQL or MQL queries, or through a Mondrian MDX file. If you aren't an SQL guru, you can still form a good query through Report Designer's built-in SQL Query Builder. The reporting examples in this guide have thus far involved using a mostly blank report file that contains a predefined query. This was done to enable Pentaho Reporting evaluators to dive into Report Designer quickly without having to worry about forming a query. Follow the below process to establish a connection to the sample HSQLDB database and create the same query that came with the example report. This query will constrain the data so that it only reveals data pertaining to cancelled orders, sorted by sales territory, product line, total price, and product name.

1. Close the Report Designer **Welcome** screen.

The Welcome screen is replaced by the Design view.

2. Go to **File -> New** to display an untitled report.

3. Right-click on **Data Sets** under the **Data** tab on the right, then select **JDBC...** in the context menu.

The **JDBC Data Source** configuration window appears.

4. Click on **SampleData (Hypersonic)** under **Connections** to select it.

5. Under **Available Queries**, click  (Add).

6. You must now enter an SQL query to pull in information to use in the report, but since you aren't familiar

with the sample data structure, you'll need some assistance. Click  (the Edit icon on the far right).

The **Choose Schema** dialog box appears.

7. Select **Public** and click **OK**.

The SQL Query Designer appears.

8. Double-click the **CUSTOMER_W_TER** table in the lower left pane.

All of the columns in that table will appear in a list in the right pane.

9. Double-click the **ORDERFACT** table.

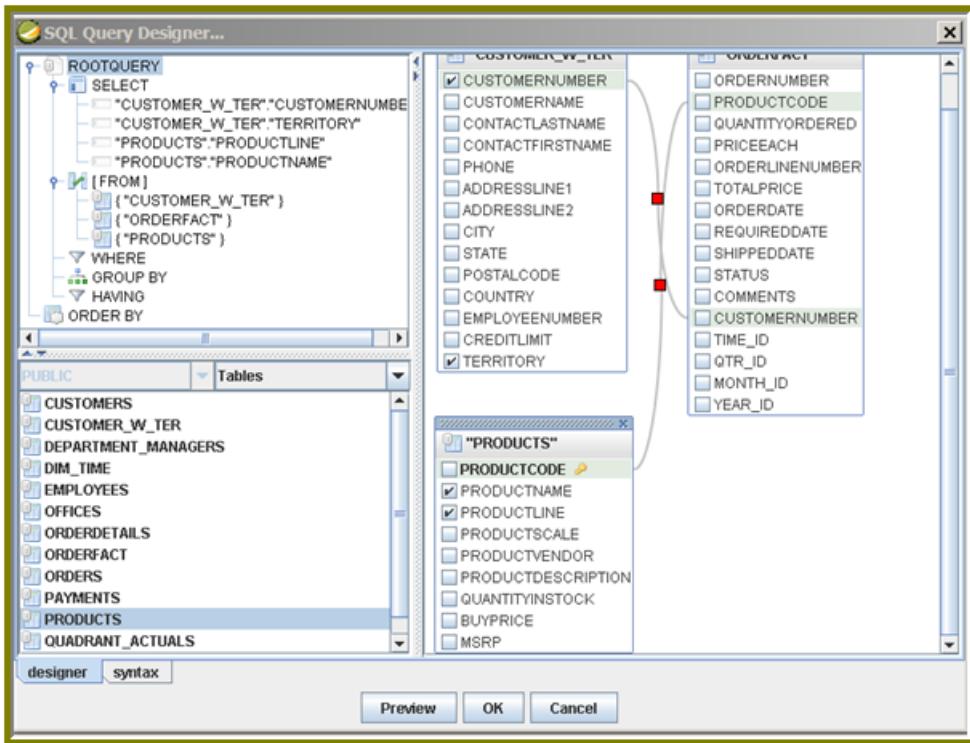
10. Double-click the **PRODUCTS** table.

11. Right-click each table's name, then click **deselect all** from the context menu.

By default, all columns in a table are selected. If you just want to select a few of them, it's easier to deselect all and then select only the relevant columns than it is to deselect unwanted columns by clicking checkboxes.

12. Create a SQL JOIN by clicking on the **CUSTOMERNUMBER** column in the **CUSTOMER_W_TER** field, then clicking and dragging it to the **CUSTOMERNUMBER** column in the **ORDERFACT** sub-window.

A grey line with a red square in the middle will appear between the two sub-windows. If there is not already a JOIN between the ORDERFACT and PRODUCTS tables, create one now.



13. In the **CUSTOMER_W_TER** table, click the checkbox next to the **TERRITORY** column.
14. In the **PRODUCTS** table, click the checkboxes next to the **PRODUCTLINE** and **PRODUCTNAME** columns.
15. In the **ORDERFACT** table, click the checkboxes next to the **STATUS** and **TOTALPRICE** columns.
16. Right-click on the **STATUS** column in the **ORDERFACT** table, then select **add where condition...** in the context menu.
A conditional statement window appears.
17. Type '**Cancelled**' into the lower text field, then click **ok**.
This will constrain the data in the **STATUS** column so that only the cancelled orders are displayed.
18. In the upper left pane, right-click on **CUSTOMER_W_TER"."TERRITORY**, then select **add to order-by** in the context menu.
This will sort the results by territory.
19. Repeat the previous step for **PRODUCTLINE**, then **PRODUCTNAME**.
This will sort the results by territory first (because it is first in the order-by list), and then by the product line, and then by product name within each product line.
20. Click **Preview** to make sure that the lists are sorted and grouped correctly.
21. When you're done looking at the basic query results, close the preview window, then click **OK** to save your query and exit the SQL Query Builder.
22. Click **OK** to exit the Configure window.

You should now be back in the Design view of Report Designer. You are now ready to create a report using the data you just specified in the query.

Your query should look like this:

```

SELECT
    "CUSTOMER_W_TER" . "CUSTOMERNUMBER" ,
    "CUSTOMER_W_TER" . "TERRITORY" ,
    "PRODUCTS" . "PRODUCTLINE" ,
    "PRODUCTS" . "PRODUCTNAME" ,
    "ORDERFACT" . "STATUS" ,

```

```

        "ORDERFACT" . "TOTALPRICE"
FROM
    "PRODUCTS" INNER JOIN "ORDERFACT" ON
"PRODUCTS" . "PRODUCTCODE" = "ORDERFACT" . "PRODUCTCODE"
    INNER JOIN "CUSTOMER_W_TER" ON "ORDERFACT" . "CUSTOMERNUMBER"
= "CUSTOMER_W_TER" . "CUSTOMERNUMBER"
WHERE
    "ORDERFACT" . "STATUS" = 'Cancelled'
ORDER BY
    "CUSTOMER_W_TER" . "TERRITORY" ASC,
    "PRODUCTS" . "PRODUCTLINE" ASC,
    "PRODUCTS" . "PRODUCTNAME" ASC

```



Note: The MQL Query Builder tool works almost identically to SQL Query Designer.

Pentaho Software Technology

Pentaho = options

Commercial open source companies like Pentaho offer unique opportunities to customers who have atypical business intelligence needs. If you want to do something unusual with a proprietary BI product, you can't -- you're limited by a static design. Pentaho, however, provides access to the source code for its core components, including full API documentation. So if there is something unusual that you need to do with the Pentaho BI Suite (like completely rearranging the user interface, or adding new features, or building your own software with Pentaho's Reporting or Analysis engines), you are limited only by your own budget for in-house software development. If your programmers need help or advice, a Pentaho Enterprise Edition subscription includes developer assistance from Pentaho's engineering department.

The Pentaho Reporting engine

Report Designer is one possible implementation of the Pentaho Reporting engine, formerly known as JFreeReport. The engine can be integrated into existing Java applications, or you can build your own Report Designer-like user interface for it, or you can use it as sort of a reporting appliance that you send jobs to from other services.

If you're looking for an embeddable reporting solution, the Pentaho Reporting engine is an excellent option because of its source code availability, its history of successful embedding projects, and Pentaho Reporting Enterprise Edition's developer assistance options. As an Enterprise Edition customer, your application developers can get assistance from the Pentaho engineers who created and maintain the Reporting engine code, and get a fast track for bug fixes.

Preparing data for Report Designer

In order for Report Designer to interface properly with your database, you must prepare the data so that it is easier to work with. The Pentaho Metadata Editor is designed specifically to prepare data for Report Designer and ad hoc reporting in the BI Platform by creating user-friendly names for tables and columns. If you extend your evaluation to include connecting to your own database, you should start with Metadata Editor, which is included in the Pentaho Reporting evaluation package.

Hand-editing reports with Design Studio

Reports published to the Pentaho BI Platform can also be accessed through other methods not covered in this guide. Design Studio enables XML experts to hand-edit an xaction to add complex parameterization and other highly advanced report functions that are not currently available through Report Designer.

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](#).