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This page last changed on Nov 29, 2006 by mdamour.

Introduction

The Pentaho Report Design Wizard was created to facilitate report authoring for JFreeReport. While the Report Design Wizard is flexible in its report generation it is not possible to solve some specific requirements. The Report Design Wizard is meant to bridge the gap between having no report authoring and having a full fledged report designer.

First-time users will enjoy the ease of use and power the Report Design Wizard brings to them. Meanwhile, expert users will appreciate the tedious work the Report Design Wizard will save them. In certain cases it might be necessary for an advanced user to edit the generated reports manually to achieve specific requirements.

The Pentaho Report Design Wizard uses the Pentaho BI Platform to manage report data and to execute the JFreeReport Engine to generate report previews. For a more detailed explanation on the Pentaho BI Platform see http://sourceforge.net/project/showfiles.php?group_id=140317 for additional documentation. It is possible to take reports and action sequences generated by the Report Design Wizard and deploy them in a Pentaho BI solution with a variety of benefits such as scheduling, bursting, workflow and email forwarding of reports.

Anatomy of a JFreeReport

A JFreeReport consists of several major sections which essentially define the layout and content of a report. These sections are usually defined in the following order: Report Header/Footer, Page Header/Footer, Group Headers/Footers, Items or Details and a section of functions or expressions.

The Report Header and Footer are printed at the very beginning and at the very end of a report (respectively). A Report Header usually shows information about the report itself such as a title, the date the report was run and if the report was run with a set of parameters. A corporate logo might also appear in the report header. This is currently beyond the scope of the Report Design Wizard.

Page Headers and Footers are printed at the beginning and end of each and every page of a report. They usually contain page number, although they are free to include report parameters and any other report components. The Report Design Wizard does not currently create or manipulate page headers or footers.

The next section of interest is the Group Headers and Footers. A Group Header typically displays the name of the column and the current value of the column for the group. A report is divided into sections of groups, repeating headers and footers for each iteration of the group. If any column calculations are being performed there will be a group footer with the calculated values. In order to give calculated values for an entire column across all groups, the wizard has an option for Grand Totals.

The Items section defines the columns that belong to the same group. The items section repeats for each row in the query. This is where the actual values from the query appear.

As discussed in the paragraph about calculations in Group Headers and Footers a report may have calculated values, such as subtotaling a column. These calculations are defined in terms of functions or expressions in a section called Functions. The Report Design Wizard will generate the functions needed by the report.

The Pentaho Report Design Wizard is capable of producing fairly complex reports that will meet most needs. The goal of the Report Design Wizard is to take the tedious guesswork out of creating reports. It dynamically adjusts almost every aspect of a report. For example, if you change the font height for your items/details section the row banding will automatically be adjusted. Previously this sort of thing had to be managed by hand and often resulted in many hours of trial and error.

License

1. Getting Started

This page last changed on Nov 29, 2006 by mdamour.

Downloading

The Pentaho Report Design Wizard is available for download on Sourceforge at http://sourceforge.net/project/showfiles.php?group_id=140317&package_id=175834 as a compressed ZIP file.

Installation

Unzip the Report Design Wizard archive using your favorite unzip program to a location you will remember. A good choice, on Windows, might be "C:\pentaho-reportwizard". If you're using *NIX we assume you can find a safe location on your own. From this point forward we will refer to the installation path as {WIZARD-ROOT}. To follow this documentation it may be to your benefit to install the Pentaho sample data available from Sourceforge (http://sourceforge.net/project/showfiles.php?group_id=140317&package_id=175834) The Pentaho data ZIP file contains Hypersonic, which can be started by clicking the start-hypersonic.bat (Windows) or start-hypersonic.sh (*NIX). This database will be referenced throughout this documentation.

Configuration

The Report Design Wizard is distributed as a ZIP archive and comes pre-configured. There is no installation process or configuration other than unzipping.

If you are going to be using JNDI you must edit {WIZARD-ROOT}/ resources/solutions/system/simple-jndi/jdbc.properties. An example entry in this file would appear as follows.

```
SampleData/type=javax.sql.DataSource
SampleData/driver=org.hsqldb.jdbcDriver
SampleData/url=jdbc:hsqldb:hsql://localhost/sampledata
SampleData/user=pentaho_user
SampleData/password=password
```

SampleData is the name of the JNDI connection being setup, all of the name/value pairs configure the pertinent connection information. The */type setting tells JNDI what is being managed, in this case, a SQL datasource. The */driver setting is the JDBC driver class name for the database we're accessing. The */url is the JDBC connect string, the example shown here is for a Hypersonic database server running locally. The next two settings are the user's credentials for logging in to the database if required.

Database driver setup only requires that the drivers be located in the {WIZARD-ROOT}/lib/jdbc directory. A Hypersonic database driver is included with the Report Design Wizard under {WIZARD-ROOT}/lib/jdbc. Additional drivers may be dropped into this same location and they will be picked up by the application automatically.

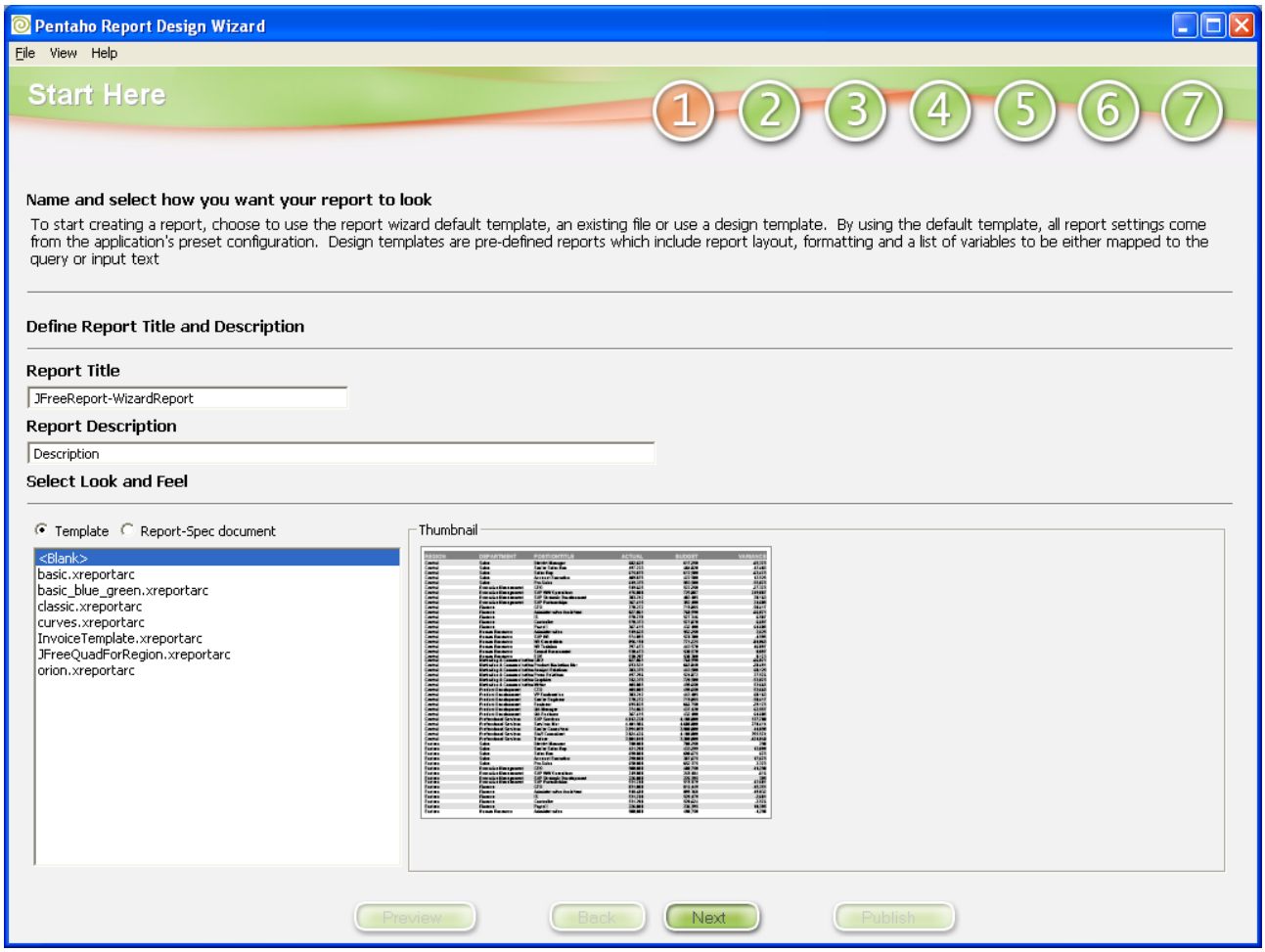
The easiest type of connection to create is an XQuery connection. Using an XML data-file and a query we can walk through the wizard and generate a report-spec. There is an XML data-file in {WIZARD-ROOT}/samples/data called Quad_Data.xml. This file is the same data in the Hypersonic database.

Launching

To launch the Report Design Wizard use the included Ant build.xml target called "launch". If you do not have Ant or are unfamiliar with it you may also double-click the reportwizard.bat file to launch the wizard using Microsoft Windows.

The starting point allows you to create a report from scratch or to work off an existing report. The Report Design Wizard supports 'templates,' which are pre-defined report definitions (layouts) for specific types of reports (e.g. Customer Invoices) and require the user to enter 'mappings'.

The Report Name field is used to set the name of the report in the JFreeReport XML definition and as a filename to create in the temporary Pentaho solution path while generating previews. When a report is exported several files are copied to the specified path. These files are the JFreeReport XML definition, the Pentaho Report-Spec document, images used by the report (watermark), and the action sequence document necessary to run the report by the Pentaho Solution engine.



2. Step-by-Step Guide

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Having the Hypersonic 'SampleData' database up and running on your machine (localhost) will be highly beneficial to follow along with this guide. We're going to walk you through the steps of our Report Design Wizard from setting up the database query to selecting a report template.

1. Query

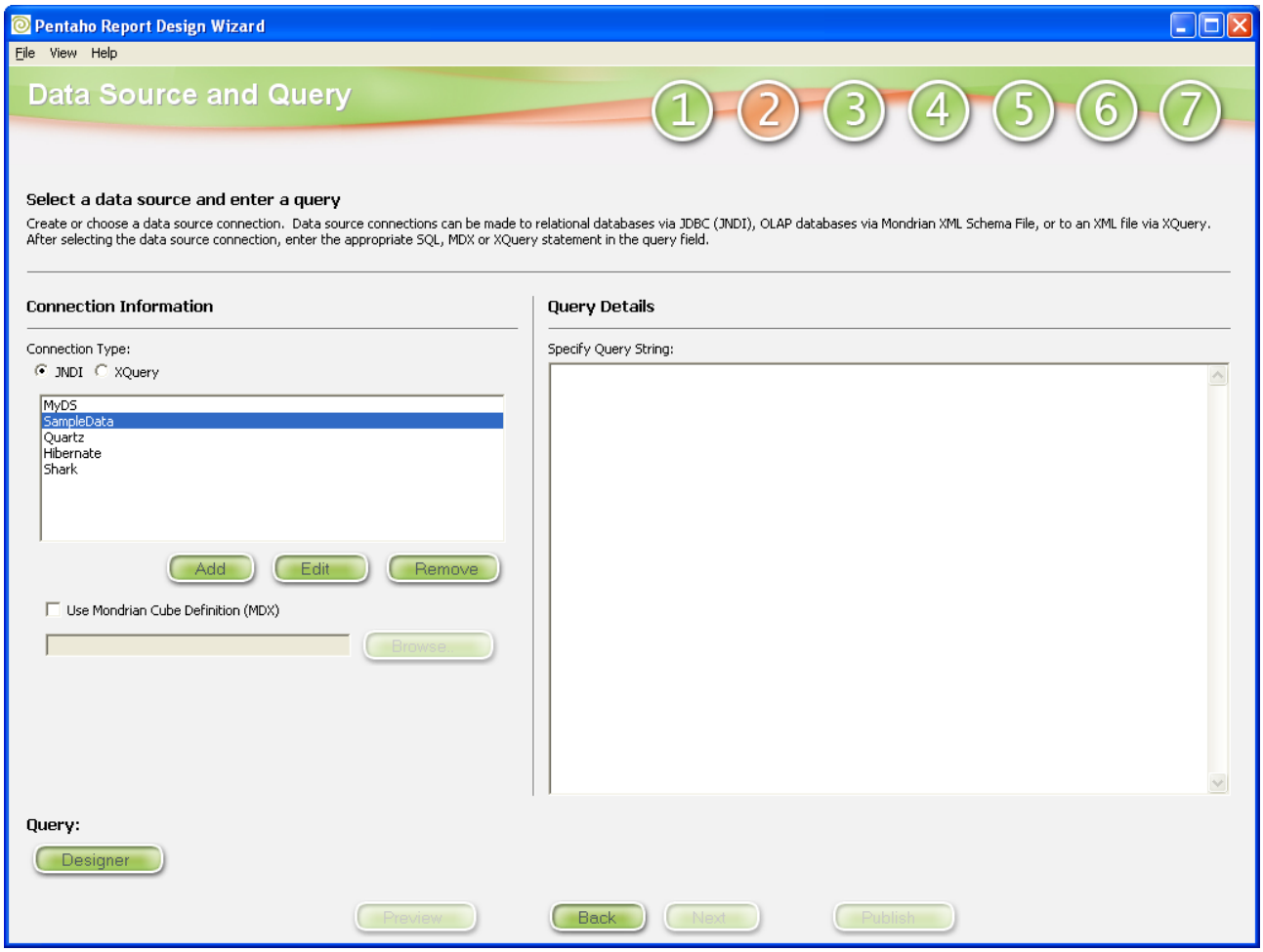
This page last changed on Nov 30, 2006 by bhagan.

2. Step-by-Step Guide 2. Map Template

From the first step of the wizard, select the <Blank> template and hit Next. You are now at the Query step. We assume that you will have a query to insert into the Query section. For this tutorial we are using the following query:

```
select QUADRANT_ACTUALS.REGION, QUADRANT_ACTUALS.DEPARTMENT, QUADRANT_ACTUALS.POSITIONTITLE,
QUADRANT_ACTUALS.ACTUAL, QUADRANT_ACTUALS.BUDGET, QUADRANT_ACTUALS.VARIANCE
from QUADRANT_ACTUALS order by QUADRANT_ACTUALS.REGION,QUADRANT_ACTUALS.DEPARTMENT
```

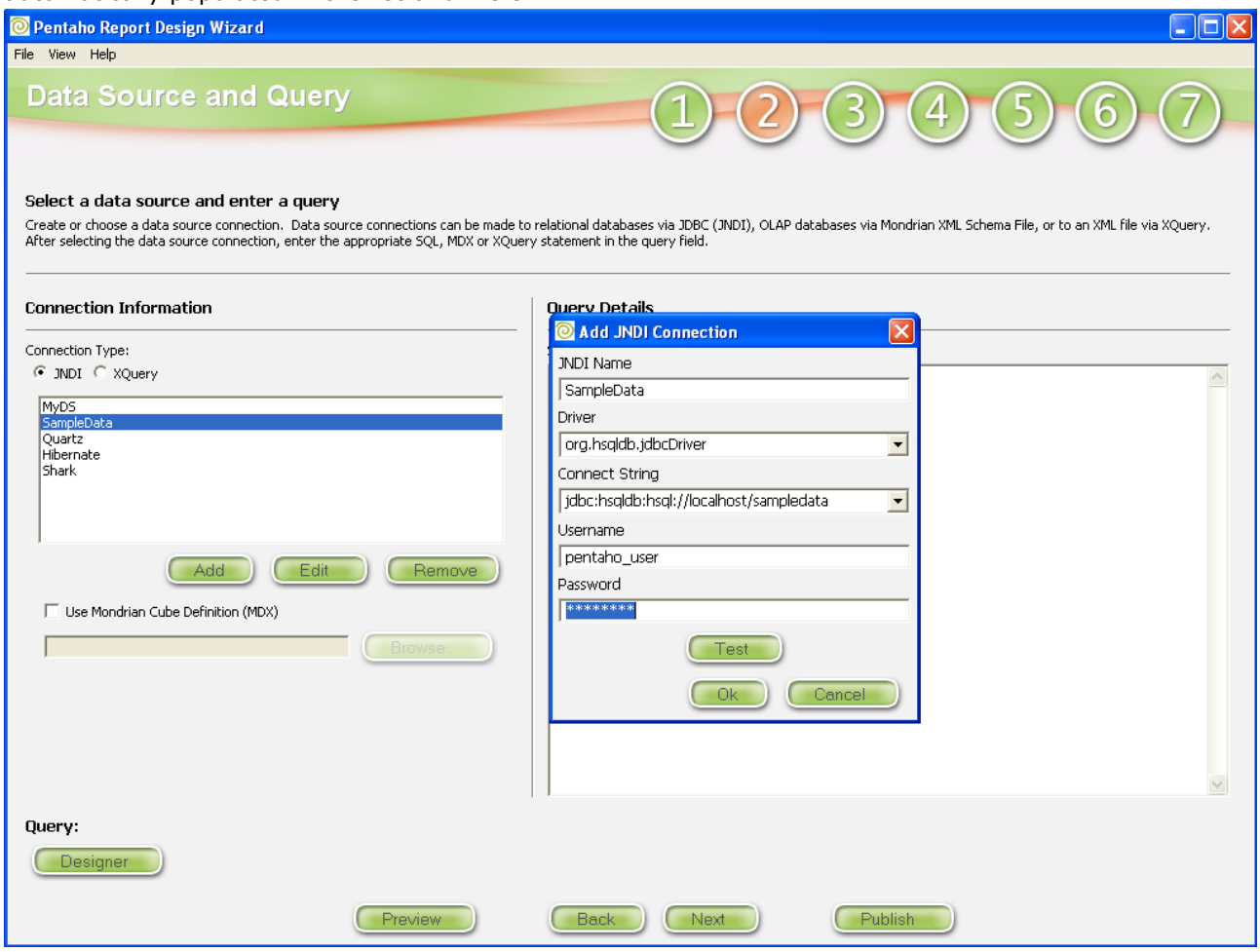
JNDI



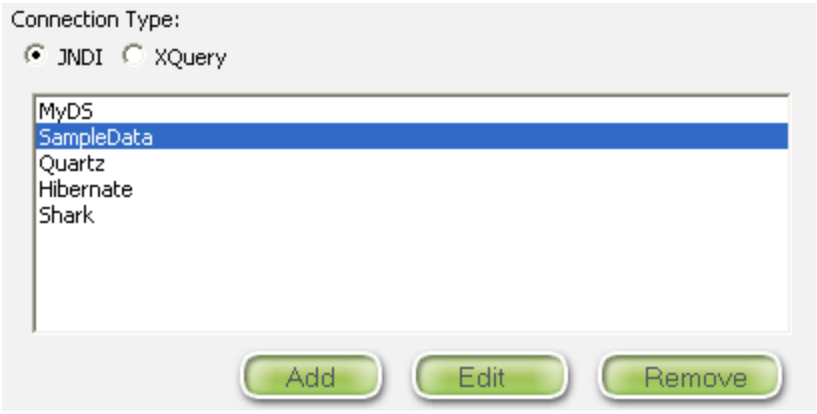
You have the option of using JNDI or XQuery for our 'SampleData' database. The JNDI name to select is 'SampleData'.

Adding a new JNDI connection

If you are going to create a new JNDI connection, click the "Add" button and enter the JDBC information for the JNDI connection. Be sure to give the connection a name. The list of drivers found in lib/jdbc is automatically populated in the list of drivers.



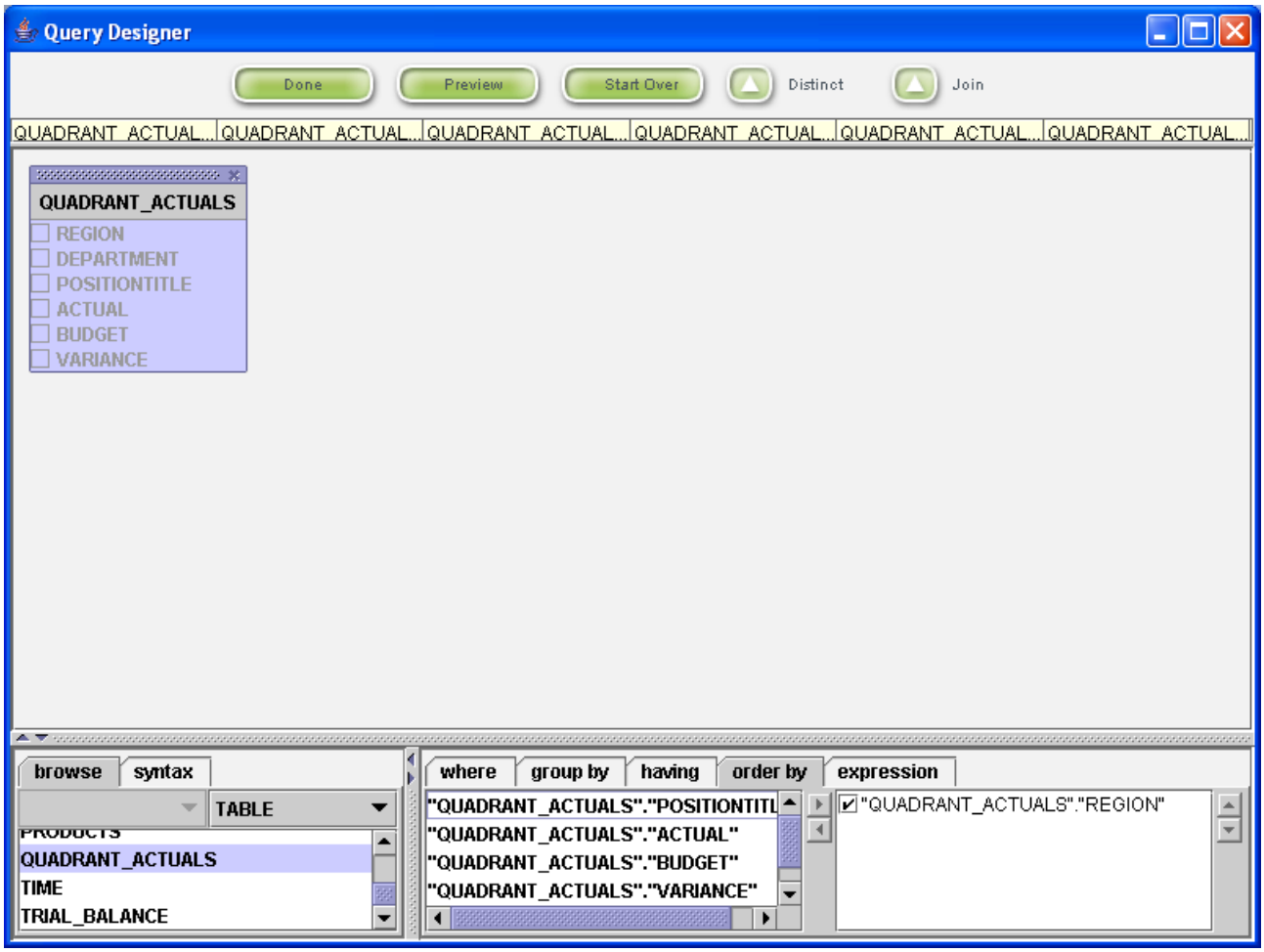
Adding a new JNDI connection.



The new connection is now available in the list of JNDI connections.

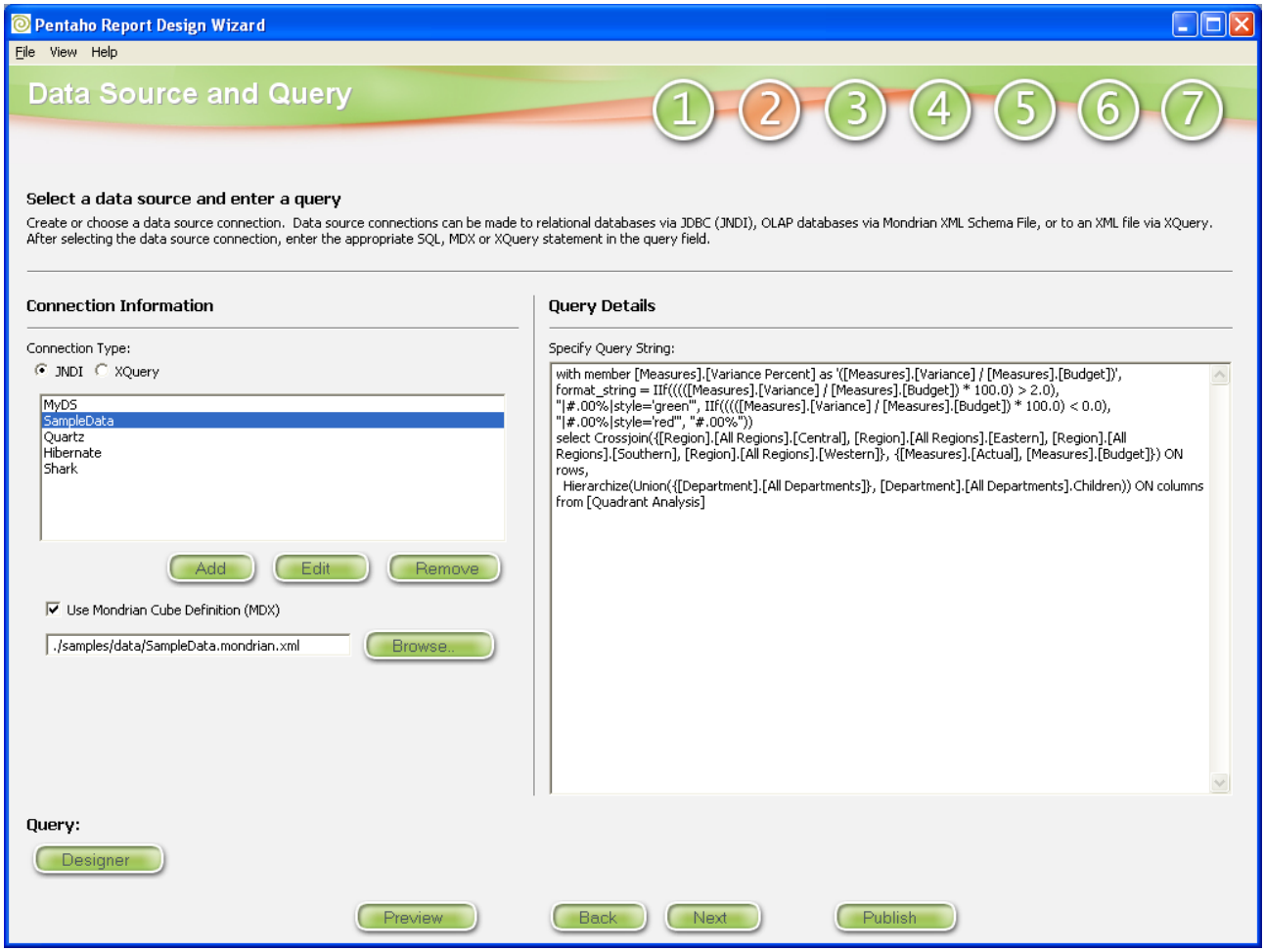
SQL Query Designer

For SQL queries you can design your query using the Query Designer. This will allow you to graphically



Mondrian/MDX

If you would like to use MDX instead of SQL select "Use Mondrian/MDX" and then browse to your Mondrian Cube Definition file. We have included a few sample MDX reports in the samples folder. Next, simply enter your MDX query for your Mondrian cube and proceed to the next step.



Using Mondrian in the Report Design Wizard

XQuery

To use XQuery with our sample data browse to the Quad_Data.xml file under {WIZARD_ROOT}/samples/data. The query to use for this type of connection is /result-set/*. A more interesting query might be to select only data for the Central region. That query might look something like

```
/descendant::row[REGION='Central']
```

2. Map Template

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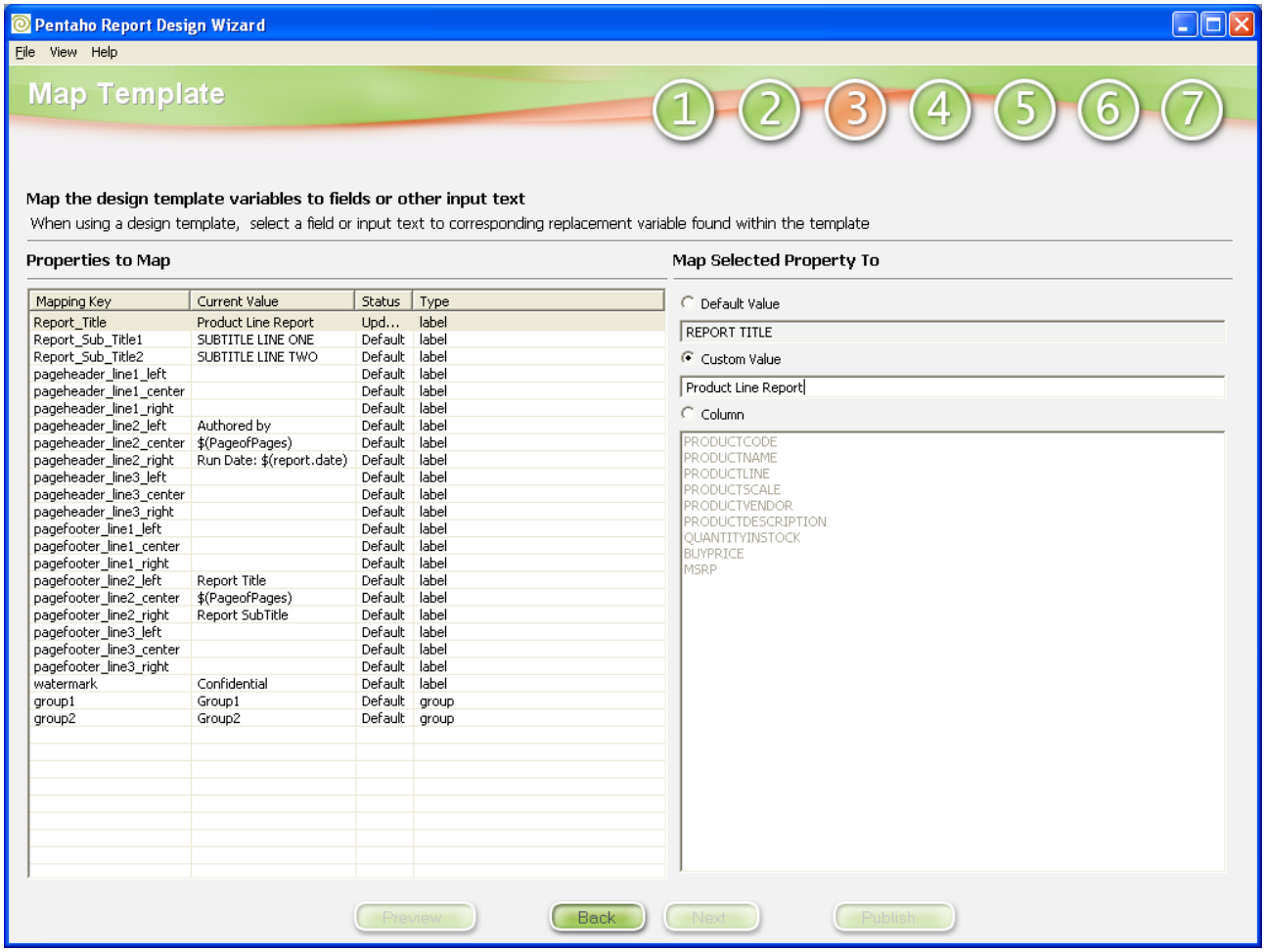
1. Query 2. Step-by-Step Guide 3. Layout

This step is only valid for reports that are being created from a template. When using a template report you must provide the wizard with values for certain labels that might appear in the report. Templates will also have custom headers/footers that reference certain columns from the query. Since the template cannot know what column name you might have you must provide that mapping in this step.



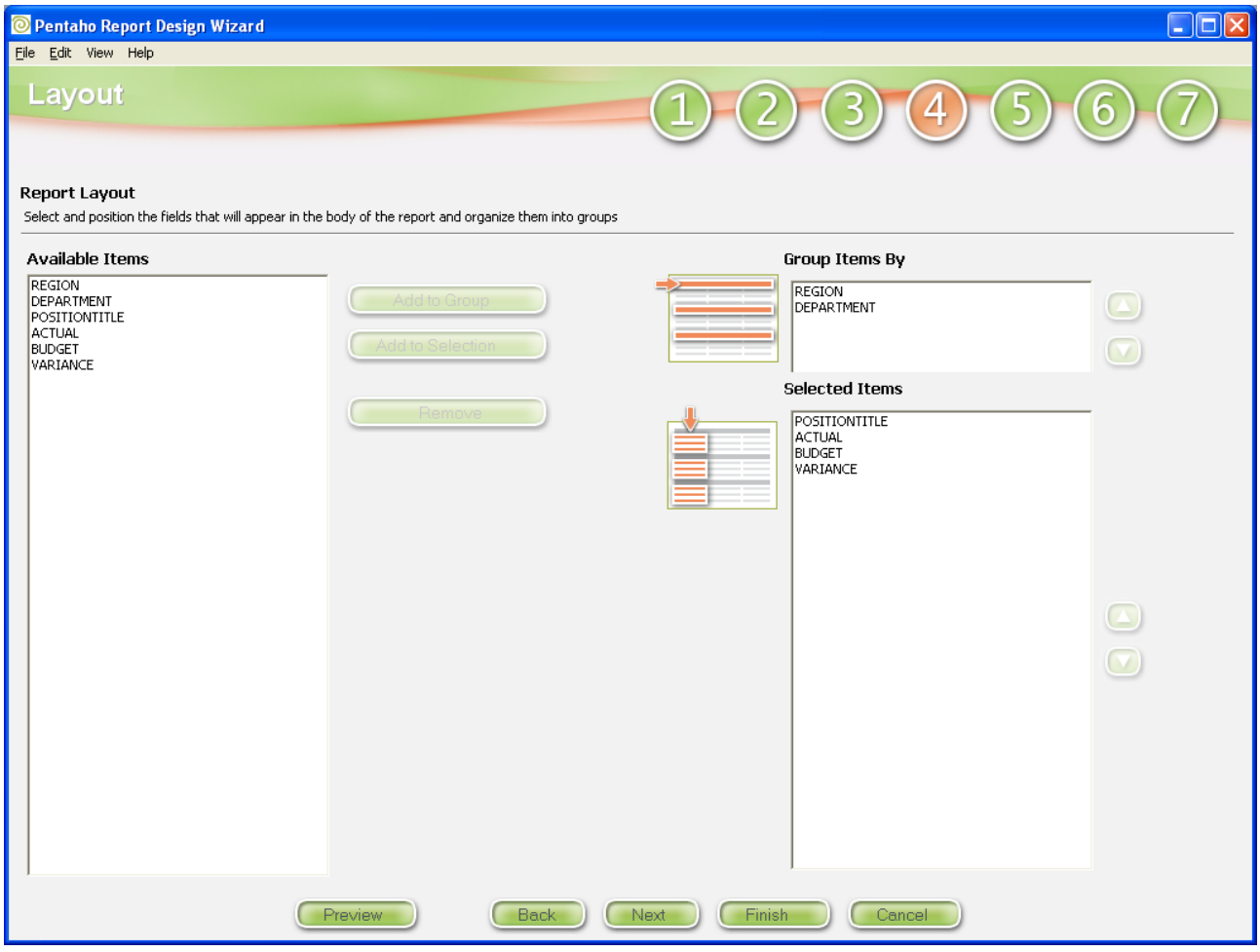
Here we are setting the 'Report_Title' Mapping Key to the "Product Line Report"

There are three different types of mappings. A label mapping is simply a straight text replacement used only for display purposes. An item or detail mapping is used to map a column which will appear in the items section of the report. A group mapping is used to setup report groups. When the report groups are mapped, the wizard will automatically update the report to use the desired columns as groups.

3. Layout

After defining the query our next step is to choose Item Details & Groups. By default all of the columns that are returned from the connection's metadata are put into Item Details. There is no obligation to move items into groups. For this example we are going to pick two groups, REGION and DEPARTMENT. When the report is generated the Item Details will be grouped by REGION and DEPARTMENT. The report will have 4 columns of data (details) and two groups.

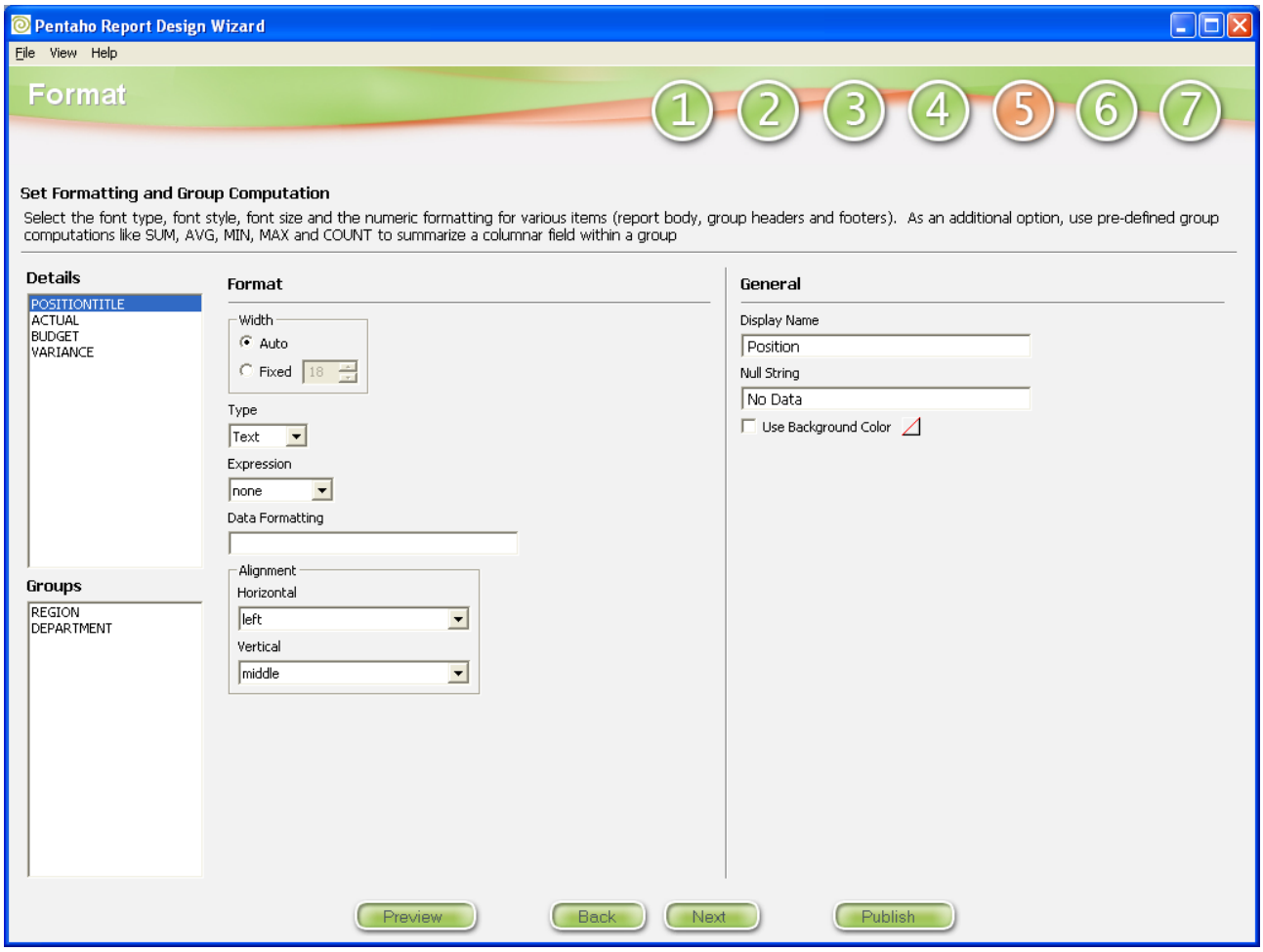
Notice that this wizard step allows Item Details and Groups to be sorted. The order that you arrange the Item Details will dictate the order which the columns will appear in the report. If you think of groups as nested, the outermost group is the highest in the groups list and the innermost group is the lowest.



This screenshot shows the Layout wizard step setup as described above.

4. Format Setup

The Format Setup step is not required but it is the step where you can really make a report take shape. For each field there is a row of configuration that can be setup.



Report Formatting - Detail

The Display Name text field allows you to enter a human friendly / pretty name for a column. The name POSITIONTITLE might not be all that appealing in a generated report so we can change it to 'Position'. Anytime the column name POSITIONTITLE appears in the report it will be replaced with 'Position." In the example shown below, all of the fields have been given a display name. The Null String field is a text replacement which is used when there is no data available. The default is to use the string 'null'.

Expressions are used to create a row of 'summary' data for a group in its footer. If no expressions are selected the group footer will be blank and not take up any report real estate. The expression types are filtered based on the metadata pulled for the column. We're not exactly sure what an "average" of a set of strings would look like! For the report we are building in this example give ACTUAL, BUDGET and VARIANCE an expression of "sum". For each group we will see a row at the bottom (footer) of the group containing these expressions.

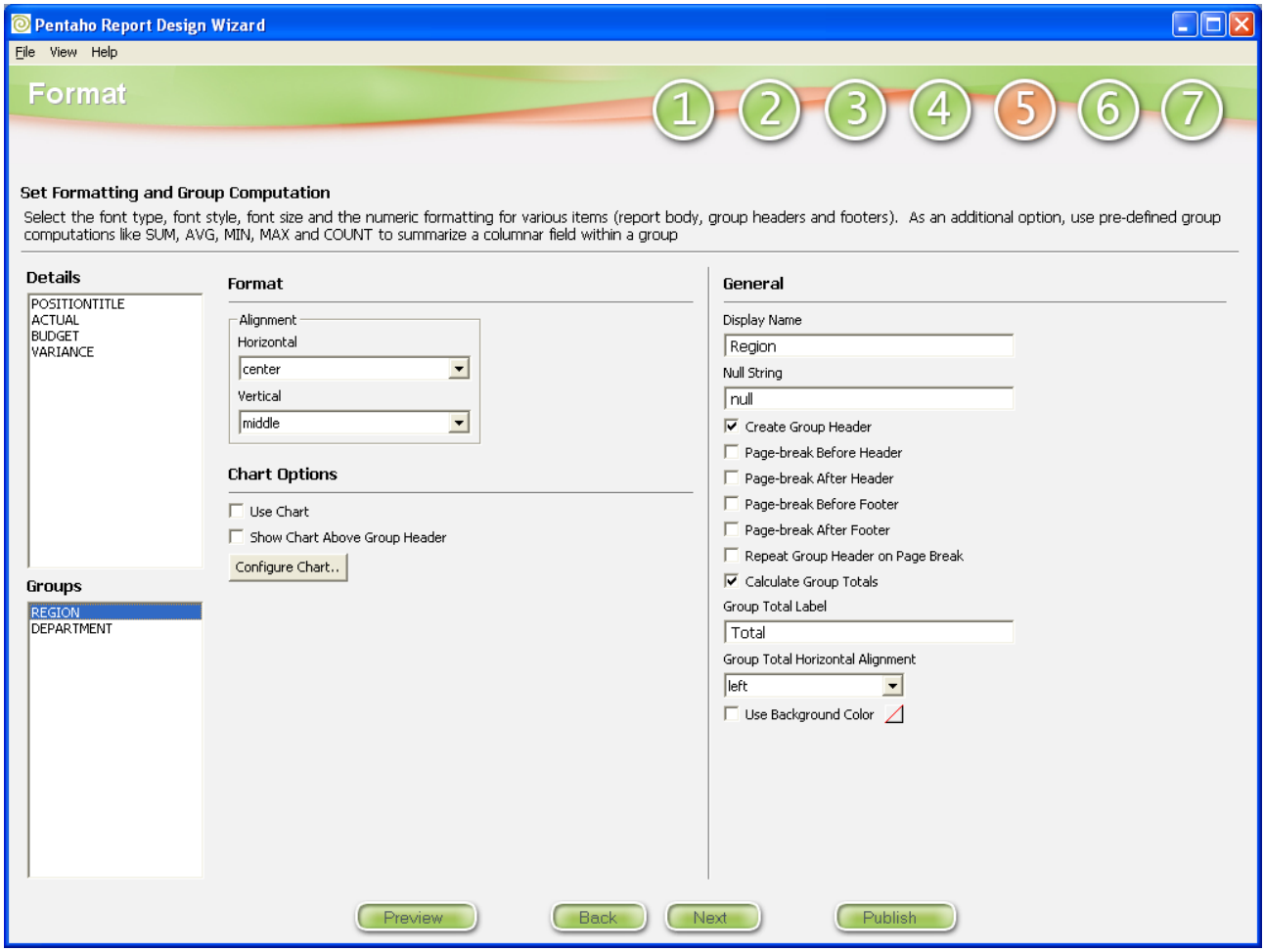
Since we know the data uses US dollars we will add a Data Formatting string of "$#,###". This format

will attach a dollar sign in front of the data and force digit groups by comma separator. The number 235832 in the database will appear in our report as $235,832. For a detailed explanation of legal format strings please see http://java.sun.com/j2se/1.5.0/docs/guide/intl/overview.html for an explanation of each type of formatting.

The columns widths section might be a bit confusing at first, especially when trying to see the effect changing them has on the generated report output. Column widths are only valid for details, not for groups. The widths are percent based out of a maximum of 100%, you do not have to worry about the page type or margins. The default values are created by dividing 100% of the space evenly by the number of details. In this report we have 4 details, so each item gets 25% of the report width. The POSITIONTITLE column contains significantly longer data than our numeric fields such as ACTUAL and BUDGET. Because of this, we're going to give POSITIONTITLE 40% of the useable page width and divide the rest of the space evenly. ACTUAL, BUDGET AND VARIANCE will each have 20% of the width. All told, we make sure the total space accounted for is 100%, although it is not necessary, as we could intentionally use less space.

For fields that will be used as groups it may be desirable to page break after each set of data for the group. This behavior can be turned on/off using the Group Page Break checkbox. You might also repeat group headers on each page that the group spans. This can be turned on/off using the Repeat Group Header on Page Break checkbox.

Each field has left horizontal alignment by default. Numeric fields will be easier to read and compare if they are right aligned, so adjust ACTUAL, BUDGET and VARIANCE to right. Alignment on groups sets the location of the group in the group header. REGION is out outermost group and it may look more appealing if it is centered. In this example we gave POSITION title right alignment as well. Vertical alignment may also be specified and the default is to be aligned to the middle of the space.



Report Formatting - Group

If the default size of your window opens a bit small it chops off data in right column

The Master Detail option creates a special Group Header for the innermost group (the last group in the Groups list) with the group information appearing below the column headers and above the items. Since the value is present for all rows in the group we get away with not producing redundancy and creating a cleaner looking report. Since the master detail is part of a group header the background color for the group will be used unless specifically turned off. The master detail will get its own column header as well, so we have to shift the columns accordingly. This is handled by the Report Design Wizard automatically based on the widths given in the field setup. Bear in mind that the width of the master detail must be defined as well or else it will have a width of zero and will not appear in the report, although I can assure you it present. Last part of this sentence lost me

These settings work well with this set of data, feel free to change any of the settings once we have finished with the report. After hitting finish you can go back to this step, make changes and hit finish again to see what effect the settings might have on the report. See the screenshot above showing the Format Setup wizard step filled out as required for this guide.

5. Page Setup

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4. Format Setup | 2. Step-by-Step Guide | 6. Advanced Options

The Report Setup wizard step allows you to setup some high level report details like page format, margins and watermark.

Paper

The Paper setup consists of three sections, orientation, page size and margins.

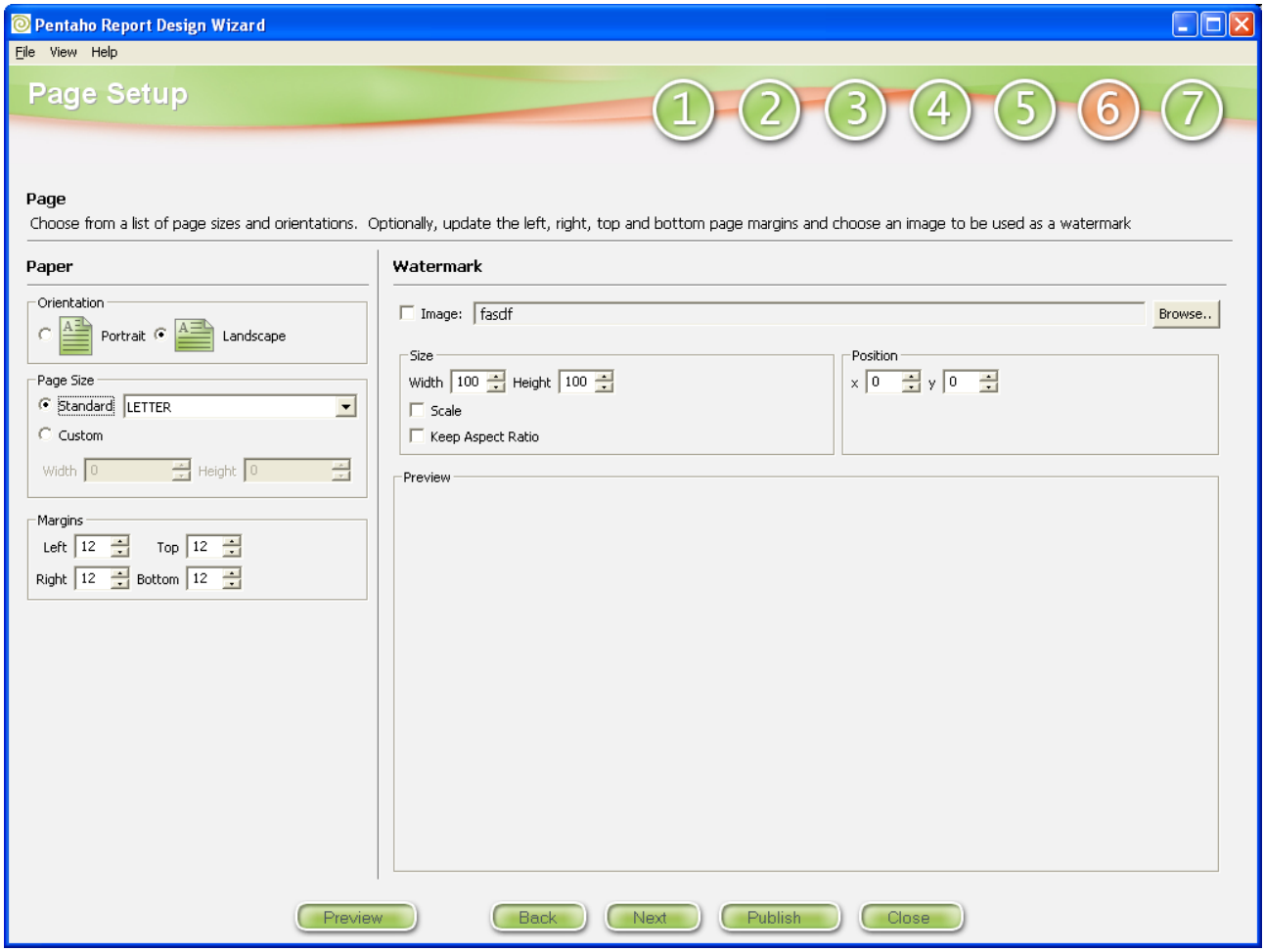
The orientation is typically set to portrait or landscape. When the report output is generated it will be put on pages respecting the orientation. We're going to select portrait for this example.

Think of the page size as the type of paper being used. The default choice here is "LETTER". Other common choices are LEGAL and A4. There is quite a long list of supported page types.

Margins create reserved white space surrounding the report on all sides. Selecting page margins is trivial and does not require much discussion. We've selected margins of 12 all the way around.

Watermark

The watermark is a page element that is rendered behind all other elements. It should be a non-obtrusive image, as to not interfere with the appearance of the report. There is a watermark included in the {WIZARD-ROOT}/resources/images folder called "watermark.jpg". Select this image by picking the browse button. The width, height, x and y settings are all percent based. For this watermark a width of 75%, a height of 75%, a x coordinate of 0 and a y coordinate at 30% of the y axis. The scale checkbox indicates whether or not we want the image to stretch to fit the width/height chosen. Keep aspect ratio means that if an image is stretched, the dimensions will retain the original width to height ratio. This setting is useful if it is important to keep a rectangle from becoming square or vice-versa. Uncheck the image checkbox if you have selected an image but no longer wish to use it.



Screenshot showing Page Setup

6. Advanced Options

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5. Page Setup | 2. Step-by-Step Guide | 7. Integrating Charts

The Advanced Options step allows you to setup some high level report details like row banding, grid lines, and fonts.

Options

To improve the readability of your reports a convenient feature is row banding. This will alternate every other row of data with the selected background color. To turn row banding on select the "Use Row Banding" checkbox. Press the "Color.." button to launch the color chooser dialog to select the row banding color. This example does not use row banding, but you are welcomed to use it if you like.

Another nice thing to add to certain reports are gridlines. You can create horizontal and vertical gridlines and specify their colors.

The horizontal offset shifts the report to the right by the specified percentage of total space. This will move all report elements including group headers, column headers and the details section.

Expression Setup

The expression setup section is used to configure miscellaneous report features. Here you can choose to generate Grand Totals (calculations across all groups). For some financial reports the calculated values are underlined or double underlined. This can be configured by checking them on or off as needed.

Column Headers

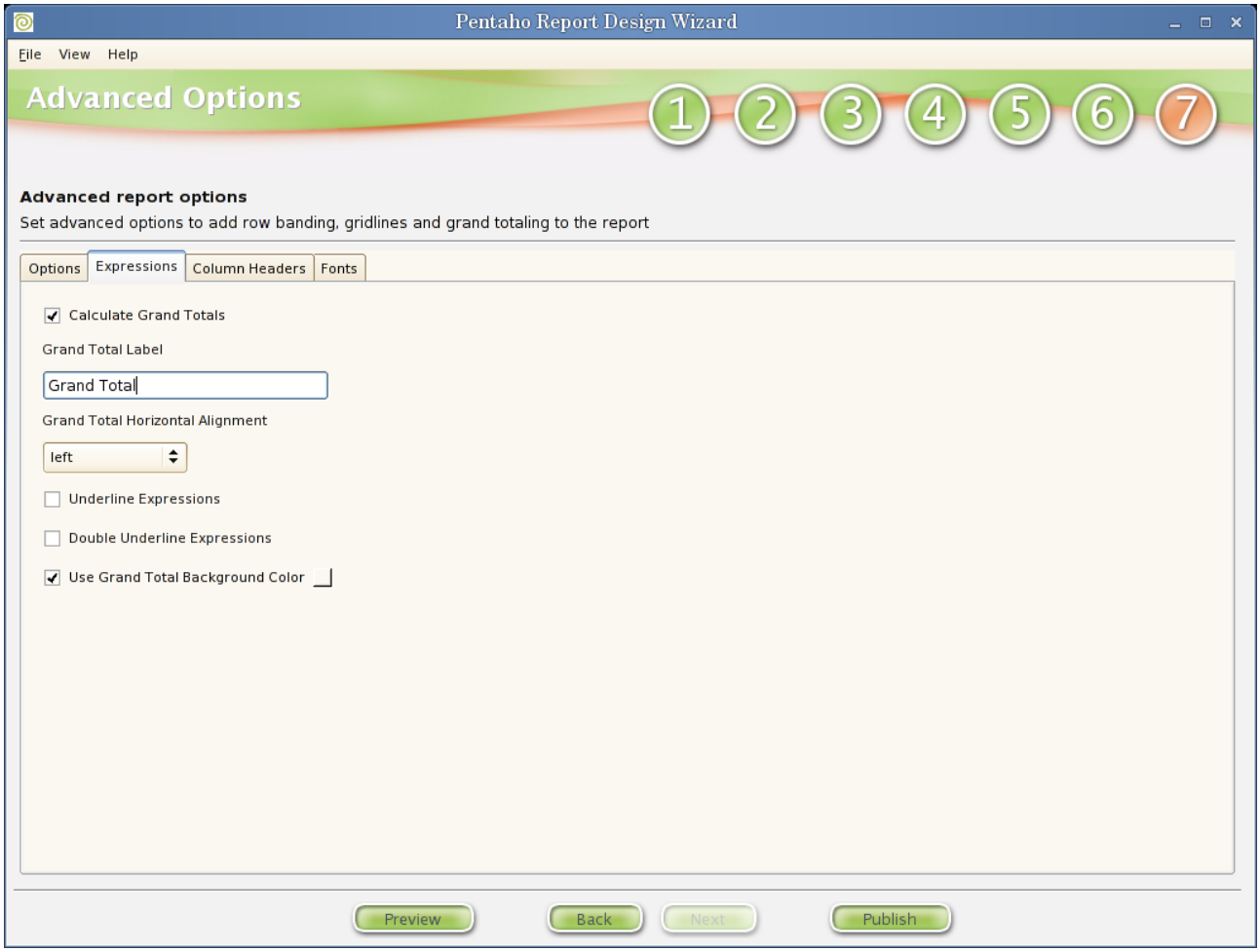
Column Headers are technically created on the innermost group so their default values come from the settings of that group. This is mostly undesirable. To address this you can manually adjust the column header height and the column background color.

Font Setup

Fonts may be defined for all of the major parts of a report and a font preview is provided as well.

Include

There may be times when you have a group of related reports that share a common report or page header (for example) which exists as a separate definition (XML). This file may be included into the report to customize it in ways not possible with the wizard.



Screenshot showing Advanced Options

7. Integrating Charts

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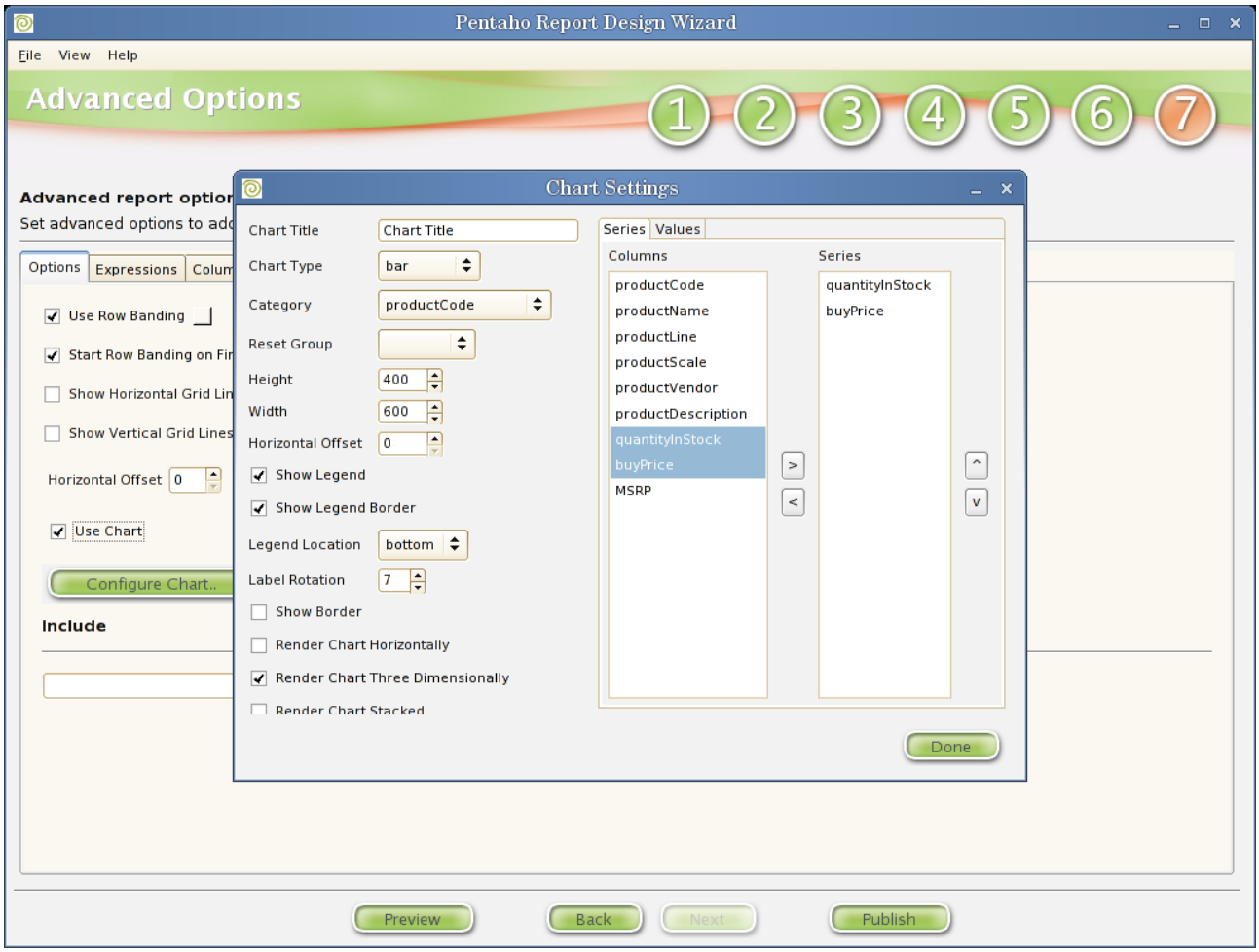
6. Advanced Options | 2. Step-by-Step Guide | 8. Preview

Using the Report Design Wizard you can create reports with charts embedded in them. The supported chart types include area, bar, line, pie, multi-pie, ring and waterfall. The Chart Settings dialog may be reached from the Advanced Options step of the wizard for report-level charting. If you would like a chart to repeat for each group in your report, this is available from the Formatting step when you select a group.

The Series and Values tabs are where you define the labels for the series and where the data will be coming from. In the example given below we are using ACTUAL and BUDGET as the Series names and we are selecting ACTUAL and BUDGET as our values columns.



8. Preview

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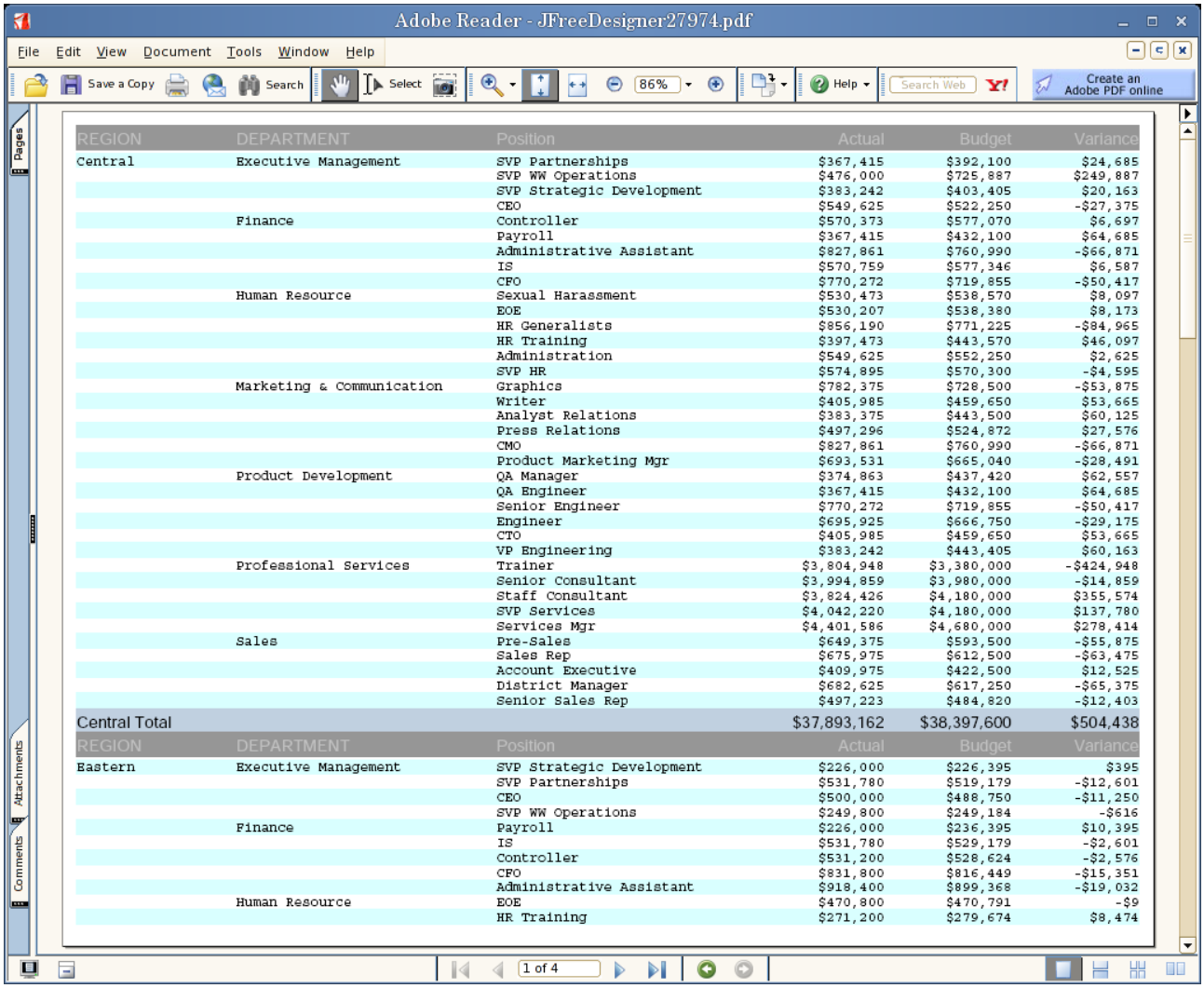
7. Integrating Charts 2. Step-by-Step Guide

All of the information collected from the wizard is used to create a Report Spec XML document. In order to generate a preview of the report the Report Spec is merged with the template creating a JFreeReport XML flle. The JFreeReport XML file is then referenced by a Pentaho Action Sequence to generate output. The output, either PDF, HTML or Excel is displayed in an SWT browser component which allows to preview directly in the wizard PDF, HTML or Excel.

The preview tab can be detached from the application by double clicking on it. This will allow you to make changes, hit finish, and instantly see the preview. You can go through many iterations of report tweaking by doing this. Once you close the detached preview it will return back to the wizard application.

Using SWT we're able to use an embedded browser with the Adobe Reader plug-in within the wizard.

At this point if you are happy with your report you may save the report-spec definition and edit it at a later time. Most users will end up publishing their report which is covered in more detail in the next section.



REGION	DEPARTMENT	Position	Actual	Budget	Variance
Central	Executive Management	SVP Partnerships	$367,415	$392,100	$24,685
		SVP WW Operations	$476,000	$725,887	$249,887
		SVP Strategic Development	$383,242	$403,405	$20,163
		CEO	$549,625	$522,250	-$27,375
	Finance	Controller	$570,373	$577,070	$6,697
		Payroll	$367,415	$432,100	$64,685
		Administrative Assistant	$827,861	$760,990	-$66,871
		IS	$570,759	$577,346	$6,587
		CFO	$770,272	$719,855	-$50,417
	Human Resource	Sexual Harassment	$530,473	$538,570	$8,097
		EOE	$530,207	$538,380	$8,173
		HR Generalists	$856,190	$771,225	-$84,965
		HR Training	$397,473	$443,570	$46,097
		Administration	$549,625	$552,250	$2,625
		SVP HR	$574,895	$570,300	-$4,595
	Marketing & Communication	Graphics	$782,375	$728,500	-$53,875
		Writer	$405,985	$459,650	$53,665
		Analyst Relations	$383,375	$443,500	$60,125
		Press Relations	$497,296	$524,872	$27,576
		CMO	$827,861	$760,990	-$66,871
		Product Marketing Mgr	$693,531	$665,040	-$28,491
	Product Development	QA Manager	$374,863	$437,420	$62,557
		QA Engineer	$367,415	$432,100	$64,685
		Senior Engineer	$770,272	$719,855	-$50,417
		Engineer	$695,925	$666,750	-$29,175
		CTO	$405,985	$459,650	$53,665
		VP Engineering	$383,242	$443,405	$60,163
	Professional Services	Trainer	$3,804,948	$3,380,000	-$424,948
		Senior Consultant	$3,994,859	$3,980,000	-$14,859
		Staff Consultant	$3,824,426	$4,180,000	$355,574
		SVP Services	$4,042,220	$4,180,000	$137,780
		Services Mgr	$4,401,586	$4,680,000	$278,414
	Sales	Pre-Sales	$649,375	$593,500	-$55,875
		Sales Rep	$675,975	$612,500	-$63,475
		Account Executive	$409,975	$422,500	$12,525
		District Manager	$682,625	$617,250	-$65,375
		Senior Sales Rep	$497,223	$484,820	-$12,403
Central Total			$37,893,162	$38,397,600	$504,438

REGION	DEPARTMENT	Position	Actual	Budget	Variance
Eastern	Executive Management	SVP Strategic Development	$226,000	$226,395	$395
		SVP Partnerships	$531,780	$519,179	-$12,601
		CEO	$500,000	$488,750	-$11,250
		SVP WW Operations	$249,800	$249,184	-$616
	Finance	Payroll	$226,000	$236,395	$10,395
		IS	$531,780	$529,179	-$2,601
		Controller	$531,200	$528,624	-$2,576
		CFO	$831,800	$816,449	-$15,351
		Administrative Assistant	$918,400	$899,368	-$19,032
	Human Resource	EOE	$470,800	$470,791	-$9
		HR Training	$271,200	$279,674	$8,474

PDF Preview

3. Deploying Reports into Pentaho BI Platform

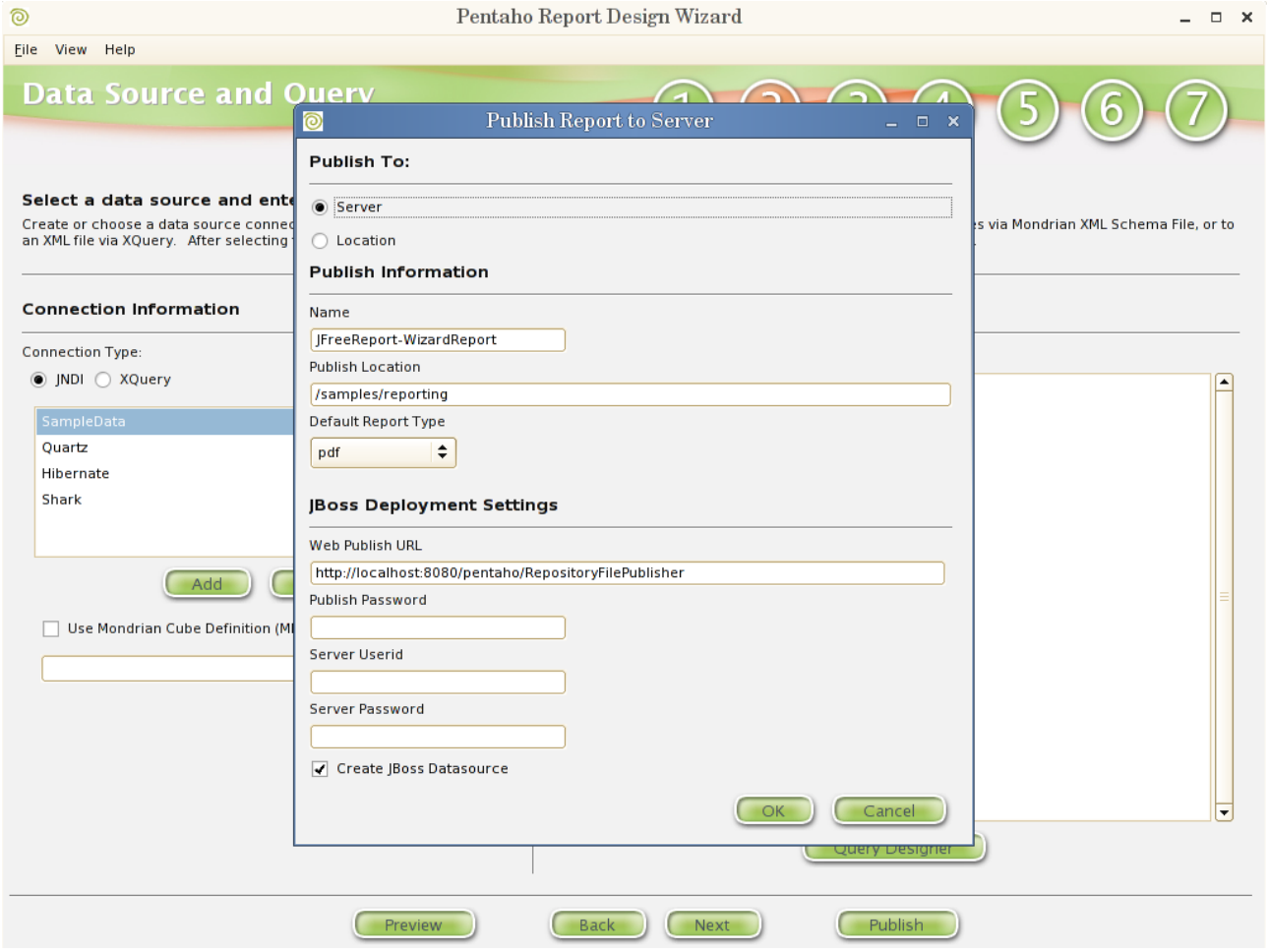
This page last changed on Nov 28, 2006 by mdamour.

The publish feature allows you to deploy your report to a Pentaho Solution path or to a folder of your choice. The files exported are the JFreeReport XML, an action sequence, the report-spec, and a datasource file if used. If you export to the Pentaho Samples, your report will appear as a solution if the PCI is restarted or re-published.

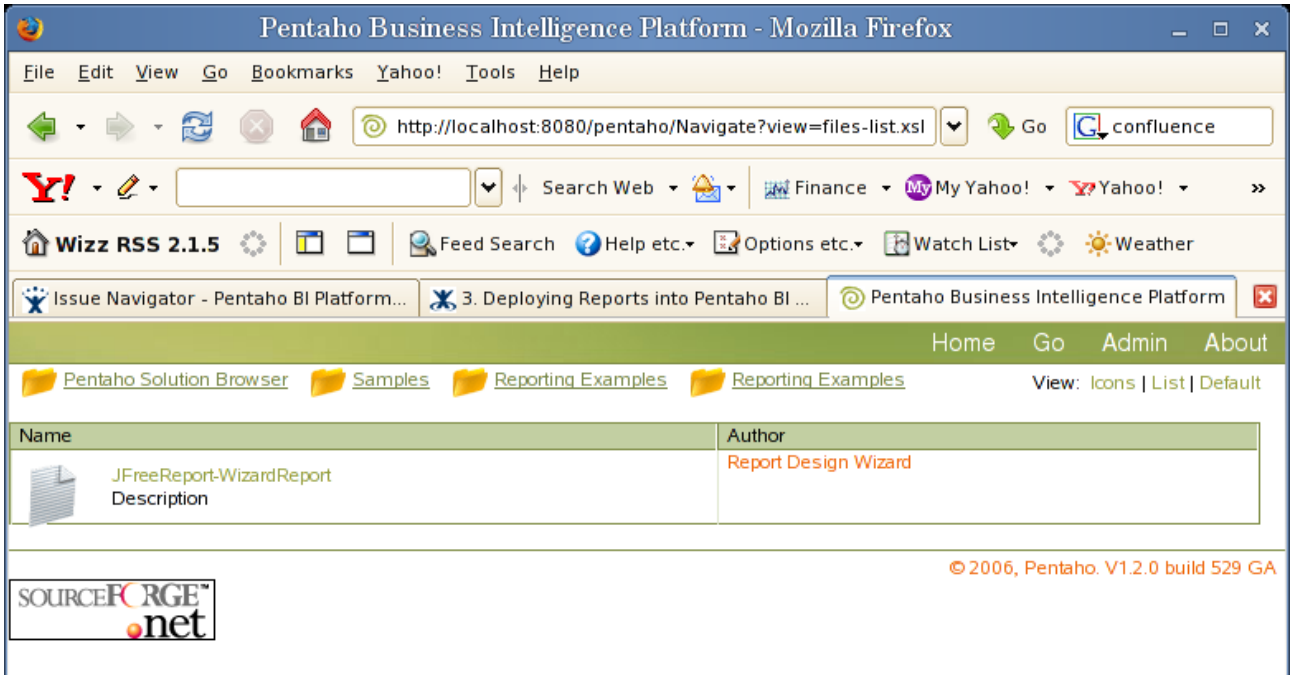
There are two publish options, to location or to server. If you have an running application server with the Pentaho web application running you can publish directly to the running server. Additionally, if your server is running JBoss you can have the server automatically generate a JBoss JNDI datasource for you.

If you are publishing against the open source server you will have to enter only the server's publish password, which is located in the publish_config.xml in pentaho-solutions/system. You do not need to enter user id or password when publishing to an open source server as there is no additional security.

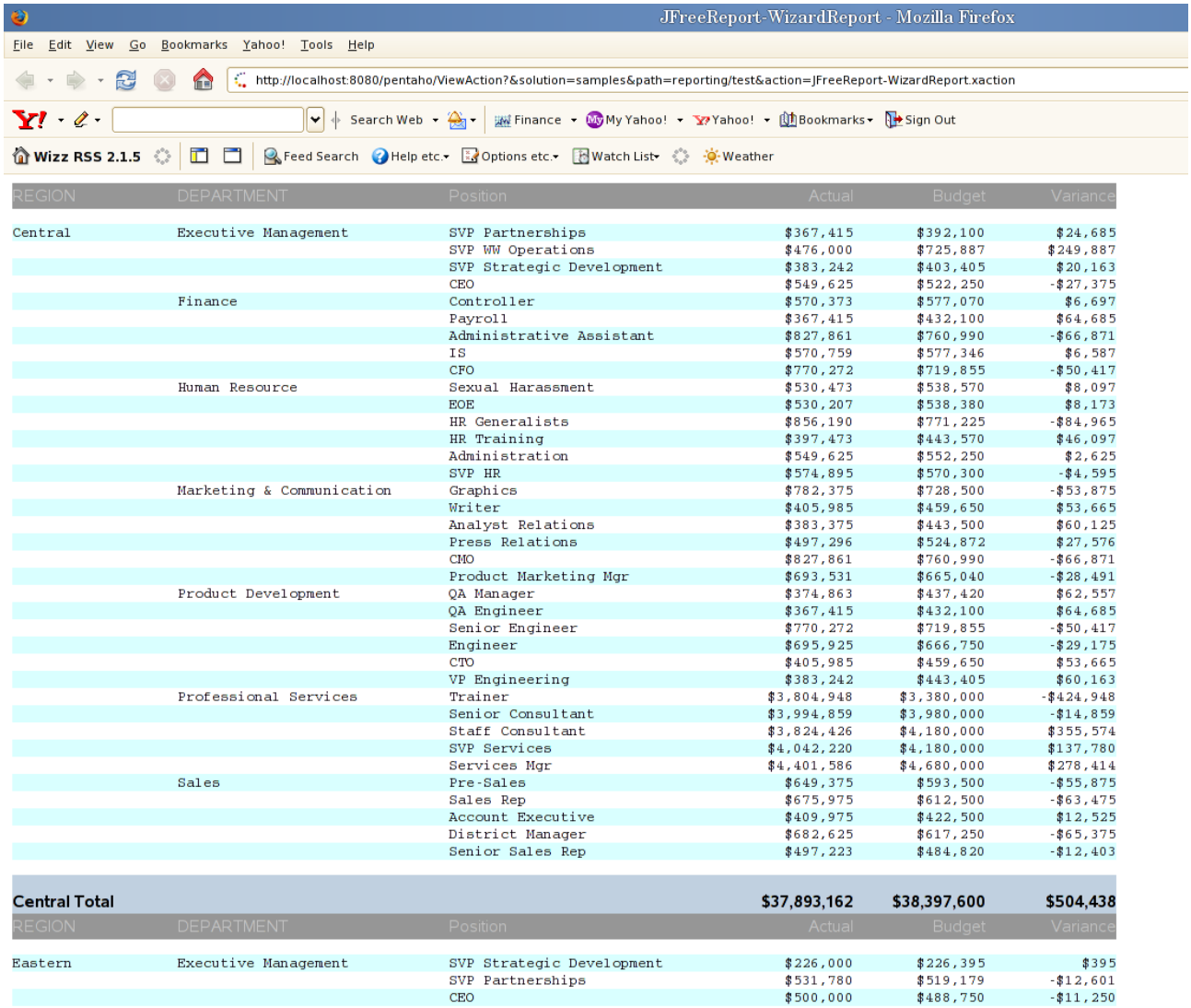
When publishing to a Pentaho Professional BI server you will need to supply a valid userid and password along with the system publish password.



Publishing a report from the Report Design Wizard to the Pentaho BI Web Application.



The report (action sequence) is now available in the sample solutions.



REGION	DEPARTMENT	Position	Actual	Budget	Variance
Central	Executive Management	SVP Partnerships	$367,415	$392,100	$24,685
		SVP WW Operations	$476,000	$725,887	$249,887
		SVP Strategic Development	$383,242	$403,405	$20,163
		CEO	$549,625	$522,250	-$27,375
	Finance	Controller	$570,373	$577,070	$6,697
		Payroll	$367,415	$432,100	$64,685
		Administrative Assistant	$827,861	$760,990	-$66,871
		IS	$570,759	$577,346	$6,587
		CFO	$770,272	$719,855	-$50,417
	Human Resource	Sexual Harassment	$530,473	$538,570	$8,097
		EOE	$530,207	$538,380	$8,173
		HR Generalists	$856,190	$771,225	-$84,965
		HR Training	$397,473	$443,570	$46,097
		Administration	$549,625	$552,250	$2,625
		SVP HR	$574,895	$570,300	-$4,595
	Marketing & Communication	Graphics	$782,375	$728,500	-$53,875
		Writer	$405,985	$459,650	$53,665
		Analyst Relations	$383,375	$443,500	$60,125
		Press Relations	$497,296	$524,872	$27,576
		CMO	$827,861	$760,990	-$66,871
		Product Marketing Mgr	$693,531	$665,040	-$28,491
	Product Development	QA Manager	$374,863	$437,420	$62,557
		QA Engineer	$367,415	$432,100	$64,685
		Senior Engineer	$770,272	$719,855	-$50,417
		Engineer	$695,925	$666,750	-$29,175
		CTO	$405,985	$459,650	$53,665
		VP Engineering	$383,242	$443,405	$60,163
	Professional Services	Trainer	$3,804,948	$3,380,000	-$424,948
		Senior Consultant	$3,994,859	$3,980,000	-$14,859
		Staff Consultant	$3,824,426	$4,180,000	$355,574
		SVP Services	$4,042,220	$4,180,000	$137,780
		Services Mgr	$4,401,586	$4,680,000	$278,414
	Sales	Pre-Sales	$649,375	$593,500	-$55,875
		Sales Rep	$675,975	$612,500	-$63,475
		Account Executive	$409,975	$422,500	$12,525
		District Manager	$682,625	$617,250	-$65,375
		Senior Sales Rep	$497,223	$484,820	-$12,403
Central Total			**$37,893,162**	**$38,397,600**	**$504,438**

REGION	DEPARTMENT	Position	Actual	Budget	Variance
Eastern	Executive Management	SVP Strategic Development	$226,000	$226,395	$395
		SVP Partnerships	$531,780	$519,179	-$12,601
		CEO	$500,000	$488,750	-$11,250

After selecting the report, the query is run and the report generated it is displayed here as HTML.