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Report Designer

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

1. Quick Start

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

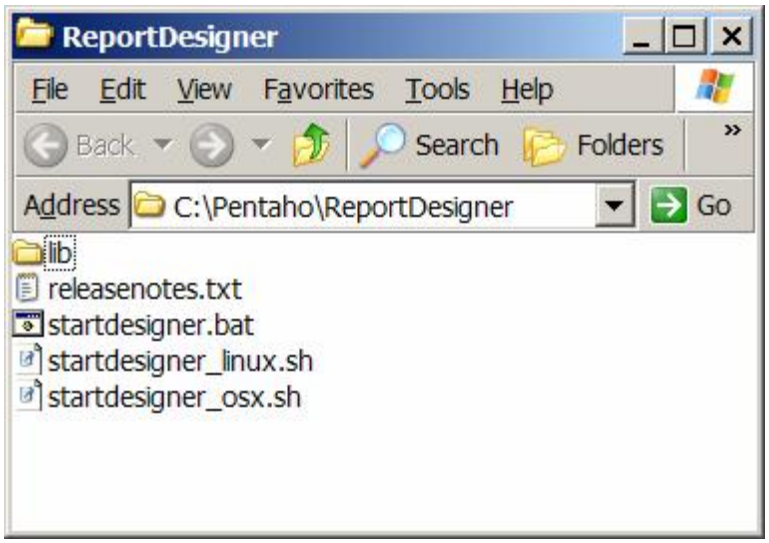
This chapter shows how to create a simple report and explains the minimal background of the underlying reporting model. When you want a more thorough description of the individual parts, you can use the supplied links to the full description.

System Requirements

- Windows XP Professional, Mac OSX 10.4.6, Linux SUSE, RedHat Linux
- Requires the 1.5.0_06 Java Runtime Environment (JRE)

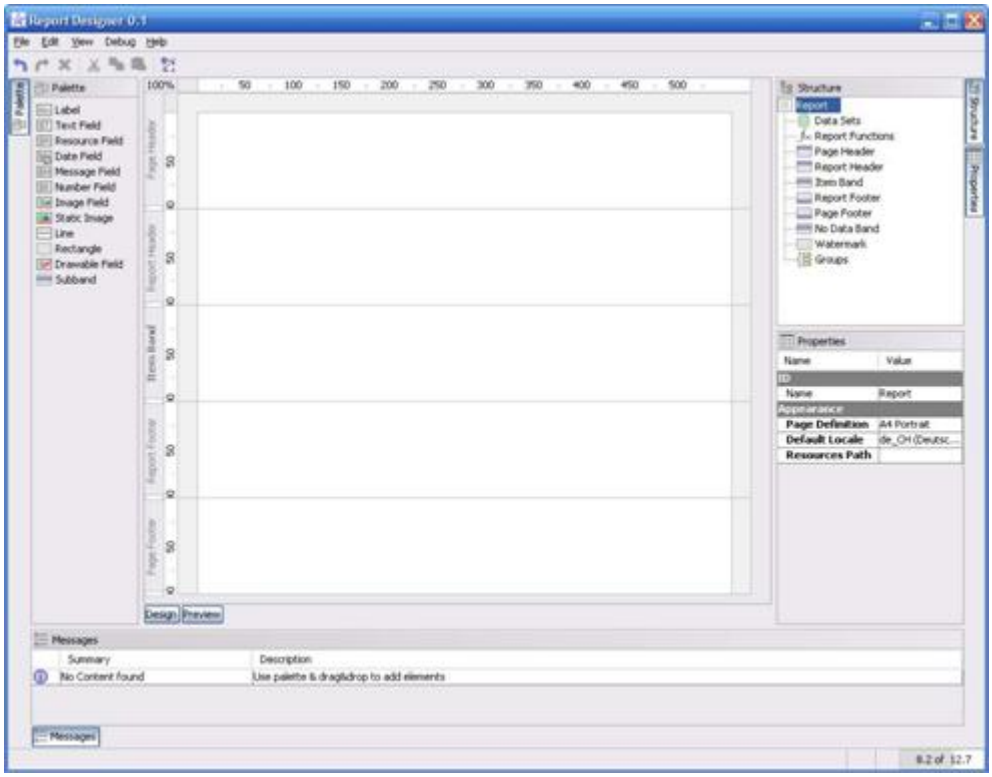
Installation

1. To install, extract contents into a folder.
2. In the ReportDesigner folder that is created, click the startdesigner.* file that is appropriate for your operating system.



The Report Designer

When you start the Report Designer you are presented with the default workspace divided into five main sections. In the middle of the screen there is a large white area which represents the main working area where the report can be composed. On the left side there is a toolwindow called "Palette" where all graphical elements are listed that can be placed on a report. On the right side are two toolwindows, the upper one called "Structure" where you can see a hierarchical representation of the report, below is a toolwindow called properties where can adjust the settings of the currently available selection. Last but no least theres the toolwindow called messages which shows useful information, hints warnings or, most importantly, errors that apply to your current report definition.



The Data Model

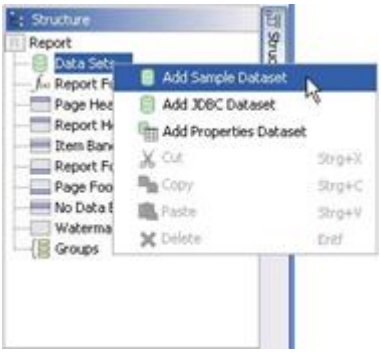
A report usually consist of data supplied by a database in the form of a table and a report definiton which defines how the report should be formatted or printed.

Table 1.1. Sample Data FIRST_NAME (String)	LAST_NAME (String)	PRODUCT_NAME (String)	PRICE (Number)
Erik	Brown	Electra	9.65
Erik	Brown	Harry Potter	6.95
Erik	Brown	Electra	9.65
Hans	Meiser	Electra	9.65
Hans	Meiser	Martix	15.98
Hans	Meiser	Mogli	23.98

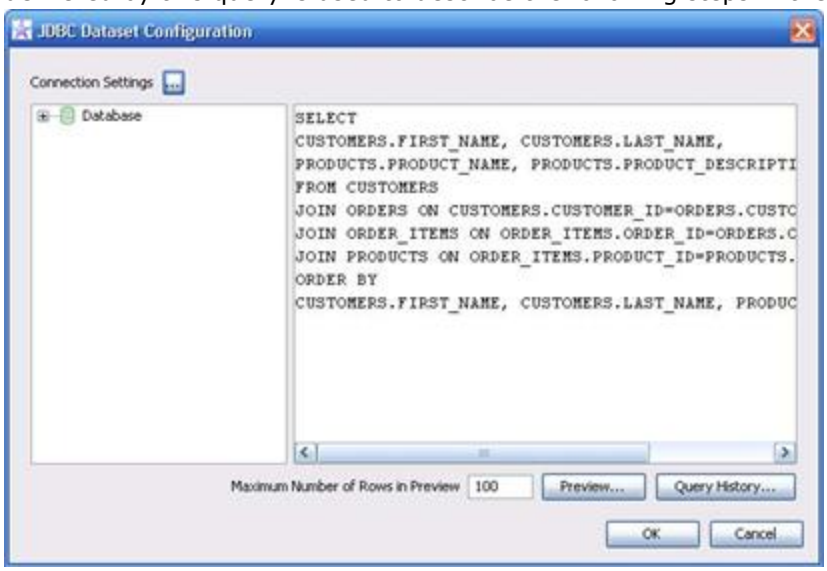
The columns can by identified by an unique columnname with a certain datatype. In the above sample FIRST_NAME is a column identifier and String is the datatype of this column.
For simplicity there is a database embedded in the Report Designer to have some useful data to play with. In this first step we are going to configure the sample dataset. If you have not yet started the Report Designer, and want to follow the next sections, then please start the Report Designer now.

Adding the Sample Dataset

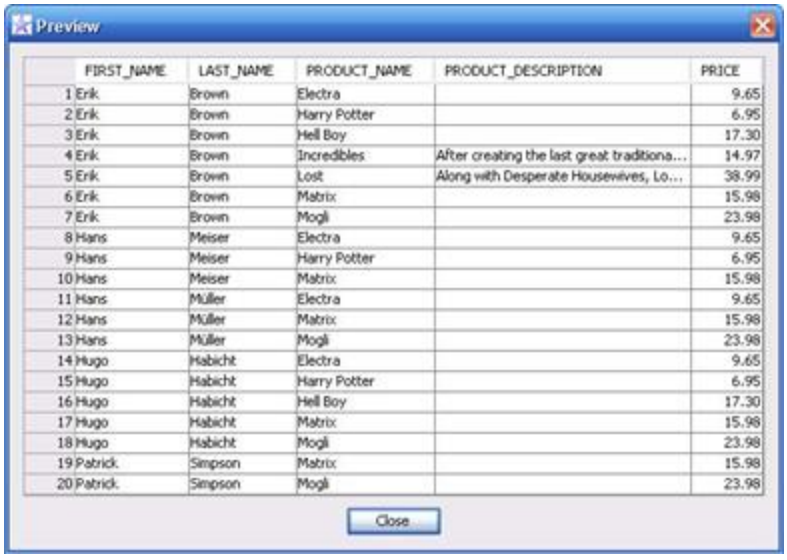
In the Structure toolwindow, open the popupmenu by clicking the right mouse button on the "Data Sets" node and add the "Sample Dataset"



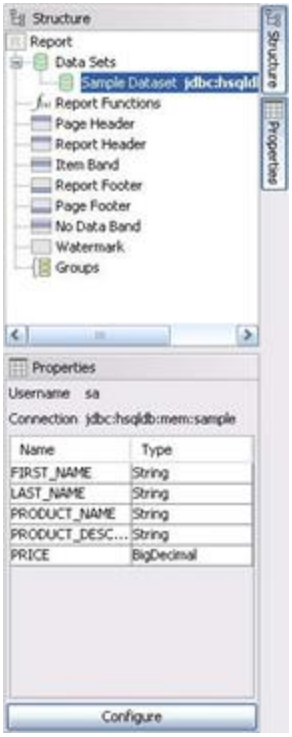
A window is opened where you can configure the query used in the dataset. A default query is automatically inserted when using the sample dataset. For now don't modify this query, as the data delivered by this query is used to describe the following steps in the quickstart chapter.



You can press the "Preview" button to see the data we will use in the report. The sample consist of some kind of a sales listing, where customers bought some DVDs.



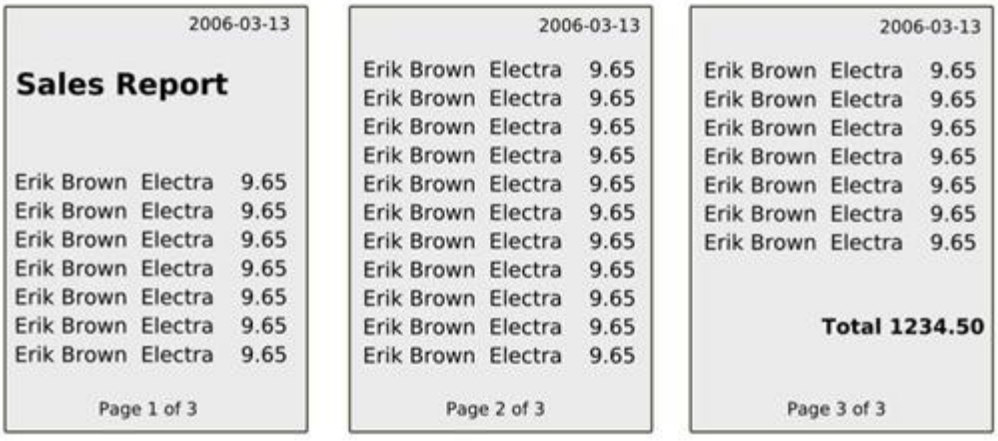
Press the Close button and approve the configuration by pressing OK
The dataset is added to the report. The Properties toolwindow shows the available columns and the datatype of each column. You can press the Configure button to change the configuration of a dataset.



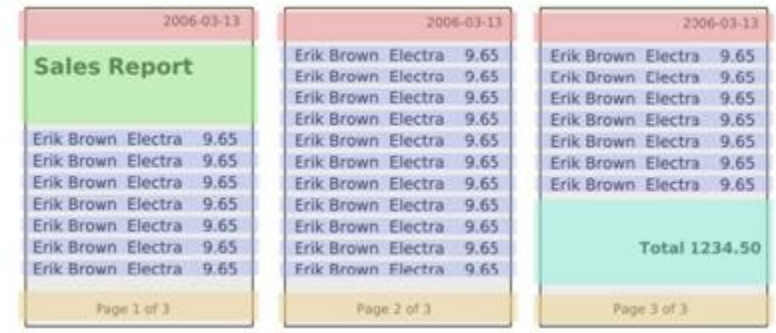
The dataset is now setup and installed correctly, we can now go on and define how the report should look like.

The Report Definition

The report definiton is what you compose in the main area of the graphical Report Designer. This definition tells the reporting engine where to place each field on the report. The report definition consist of several sections called bands, such bands may include a report header, a page header, the item band and others.
The following image represents a schematic report as it may appear on screen:

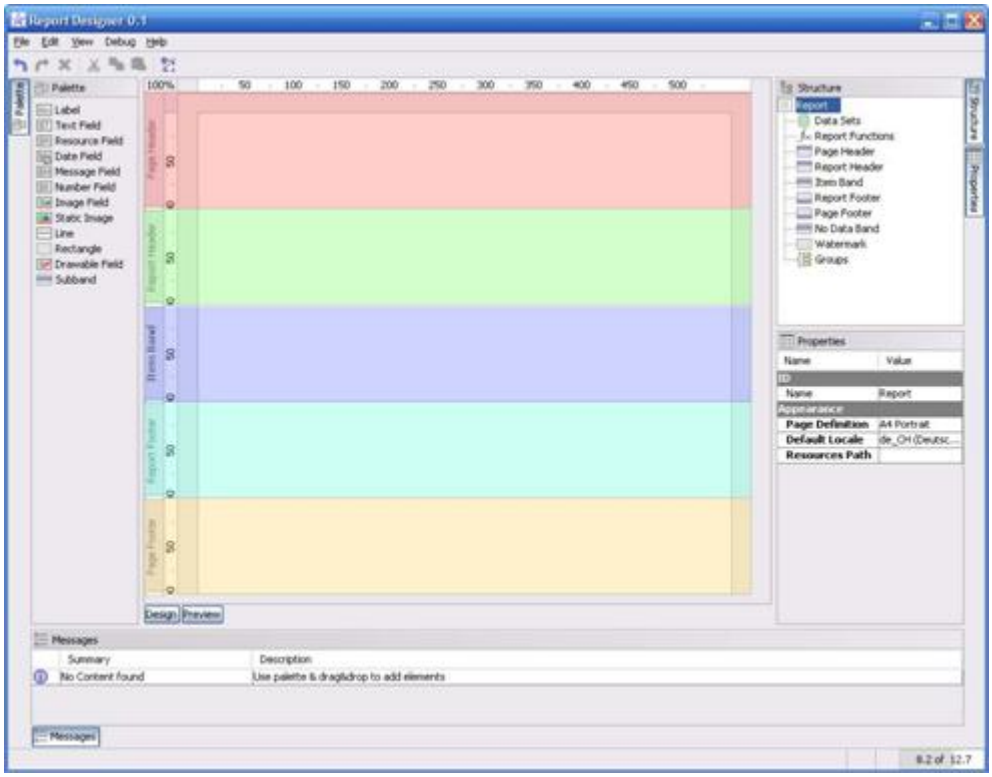


The standard bands available in all reports are marked with different colors in the following image.



- *Red: the page header band.* This band is usually printed at the top of each page
- *Green: the report header band.* This band is printed once when the report starts
- *Blue: the item band.* This band is printed for each row available in the data table
- *Turquoise: the report footer band.* This band is printed once at the end of the report
- *Orange: the page footer band.* This band is printed once at the bottom of each page

The same bands are marked with the same color in the Report Designer. Note that the bands have a label on the left side describing what this band is used for.



Tip

If you adjusted a band to be really small, chances are high that you can not read the descriptive label anymore. In this case you can hover with the mouse over the label and a tooltip appears with the text.

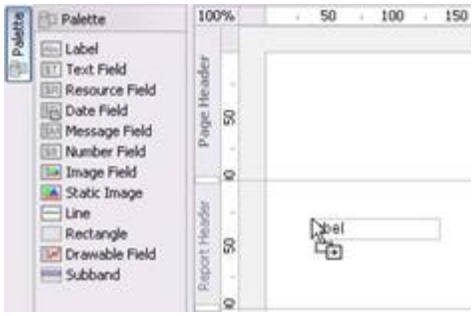
Note

There can also be multiple group header and group footer bands.

Creating the Report Definition

In a first step we are going to add a static title label to our report which should be printed once on the first page of the report. Therefore we are going to add this label to the report header band. This label does not depend on the data delivered by our sample dataset hence it's also called a static label.

Select the "Label" report element from the Palette toolwindow by pressing the mousebutton, dragging the label to the report header band and releasing the mouse button.



The label is automatically selected after it was added to the report header band. You can move the label around using the mouse or resize the label by dragging one of the handles.

You can use the Properties toolwindow to adjust the text and font in use. Change the text to "Sales Report" and the font to "Dialog 24 Bold".

If you did not considerably change the size of the label, there will probably appear a warning in the Messages toolwindow telling you that the label is not big enough to show the text. Use the mouse and resize the label until there's enough space for the label to print the contents. Note that the warning message is immediatly removed as soon as the label has a good size.

The report header band should now look roughly as shown in the screenshot below.

Now the report definition is already valid although minimal and can be previewed. Just press the Preview button on the bottom of the report definition area.

After the reporting engine has been started up, you are presented with a preview that looks the same as the final report, but is limited to a certain amount of data rows you can configure in the dataset. The booting process is only done once, subsequent invocations of the preview are almost instantaneous. You can go back to the design view by pressing the Design button.

Now we are going to add textfields to the which will finally show the selected data from our sample dataset. Report elements dynamically filled with data have the suffix field.
Drag&drop four Text Fields from the palette to the item band. The report definition should look like the following screenshot:

The Messages toolwindow now shows several warnings about undefined fields. Each textfield should display a column from our sample dataset hence we need to set each textfields "Field Name" property in the Properties toolwindow to match a column from the dataset.

You can now preview the report and customize the report definition by using different fonts, background colors, lines and additional static labels as you like.

The following section will show you how to create the total sum of all sales by introducing functions.

Functions

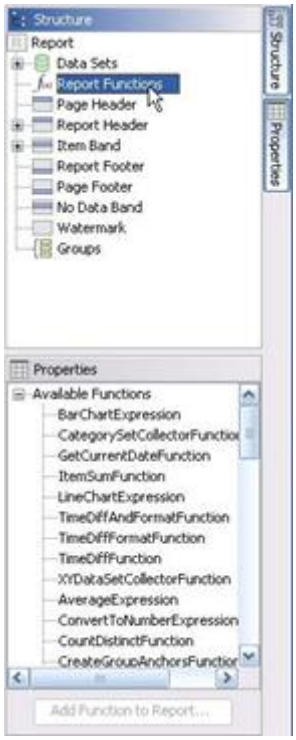
A function is a custom program that can return a value depending on other values available in the report. A function can use values available in a dataset or use the value returned by another function. This can

be used to calculate a total sum, average, minimum, maximum or can be used to hide a label or to hide a rectangle for every second line. Functions can also collect values used to create charts or to format/convert a value from a dataset into another datatype. Functions are very flexible and make almost everything possible.

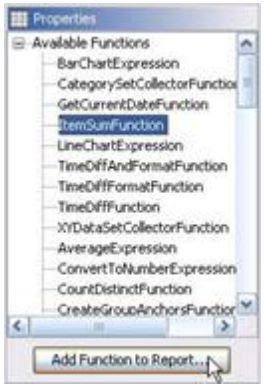
In the following section, we show you how to calculate the total sum of all sold items.

Adding the Total Sum

Functions can be added in the Structure toolwindow by selecting the "Reporting Functions" node. All available functions are listed in the Properties toolwindow with a short description in a tooltip.



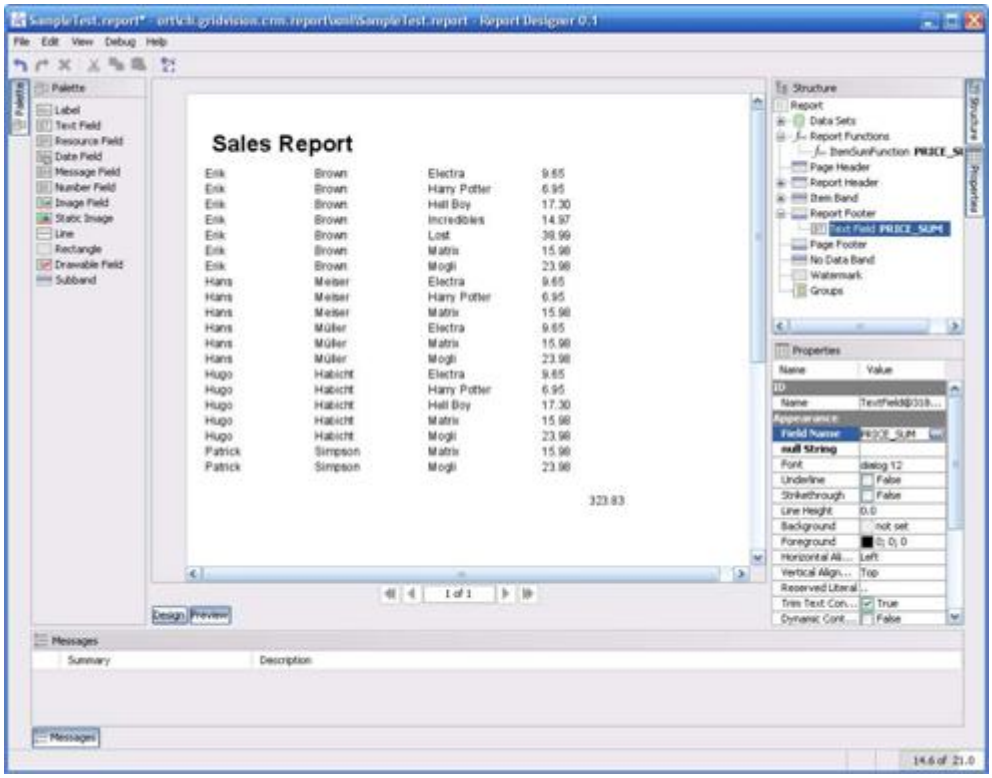
Since we want to calculate the sum of all price items in the report we select the "ItemSumFunction" and press the Add Function to Report button.



First we have to tell the function what field should be used to calculate the sum for and as a second property we must set the name of the function. This is very important, since the value of the sum will be accessible by this name. Note that an error is displayed in the messages toolwindow until you set the name. It won't be possible to preview a report as long as an error is shown in this toolwindow.
We set PRICE as the Field to use to calculate the sum and we use PRICE_SUM as the name of the function. Don't change the values of the Dependency Level and the Group.

We now just have to show this value somewhere on the report. For this purpose we best add a Text Field to the report footer band and set the Field Name property of the Text Field to PRICE_SUM (the functions name).

You can now preview the report and it should look something like the screenshot shown below.



The sum is printed after the last item is printed. As usual you can adjust the report definition as you like.

Report Groups

The structure of the report definition we have so far is perfectly fine, but we might want to merge the items for each customer and calculate the sum for each customer separately. This can by achieved by a concept called grouping. In the following section we show you how to group the data by customer.

Adding the Customer Group

Groups can be added in the Structure toolwindow by selecting the "Groups" node and opening the popup menu. Select "Add Group" from the menu.

A group merges or groups all consecutive items with the same values in a group. Each time a new group starts, the group header band of this group is printed. Whenever a group ends, the group footer band is printed.

When you take a look at the preview of our current report, we would like a group to start for the first item of "Erik Brown". The group should be finished after the last entry of "Erik Brown" and a new group should start for "Hans Meiser" etc.

For this to happen we have to tell the group to apply to the fields FIRST_NAME and LAST_NAME. (FIRST_NAME only won't be sufficient because there is a "Hans Meiser" and a "Hans Müller"). Therefore we set Group Fields of the group as shown in the next screenshot:

In addition it's always a good idea to give the group a meaningful name. In this sample we will use CUSTOMER_GROUP as the name.

When you expand the group in the Structure toolwindow you can see that there is also a group header band and a group footer band available. These bands do not yet appear in the graphical report definition area. To make them appear just select both bands in the Structure toolwindow and turn the Show In Layout GUI property on:

You can now see the the group header band above the item band and the group footer baand below the item band. This is also the direction how they are printed.

To effectively make the group take visually effect, we move the FIRST_NAME and LAST_NAME Text Fields to the group header. To do this you can either delete the existing fields and create new ones in the group header or you can cut/paste them. You can achieve this by selecting both fields, either in the graphical view or in the Structure toolwindow, by holding the **CTRL** button on your keyboard and selecting the fields with the mouse.

Now you can right click into the group header band and select paste:

The bands should look like this now:

Adding the total sum for each group is almost identical as before:

- Select the Report Functions node in the Structure toolwindow
- Choose the ItemSumFunction and add it to the report
- Enter PRICE as the Field, CUSTOMER_GROUP as the group and CUSTOMER_PRICE_SUM as the function name
- Add a Text Field to the group footer band, and set the Field Name to CUSTOMER_PRICE_SUM.

That's all! You now have a report that sums the total sales and calculates the total sum for each customer. You can now start to visually enhance the report definition as you like.
After some adjustments, additional labels and a few lines here and there there resulting report looks as follows:

Sales Report

Erik Brown	Price
Electra	9.65
Harry Potter	6.95
Hell Boy	17.30
Incredibles	14.97
Lost	38.99
Matrix	15.98
Mogli	23.98
	127.82

Hans Meiser	Price
Electra	9.65
Harry Potter	6.95
Matrix	15.98
	32.58

Tip

If you want to achieve almost the same thing with just a few clicks the chapter about the wizard is for you.

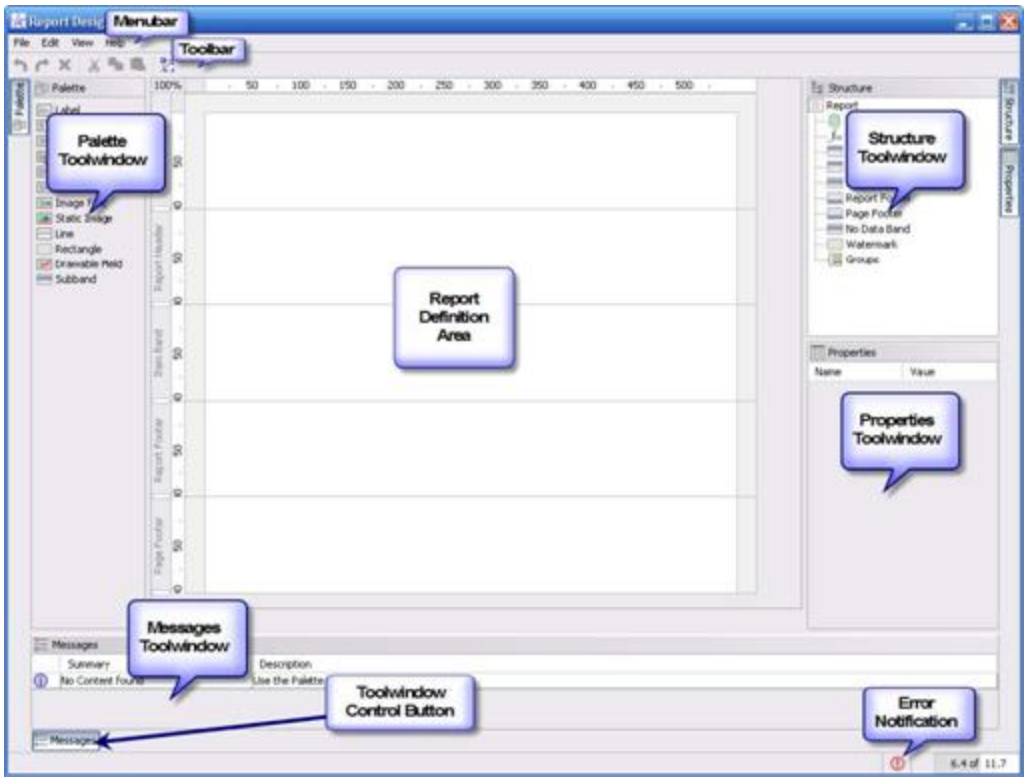
2. User Interface

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

This chapter describes all user interface elements of Report Designer. Most functions and available actions are designed to be easy accessible and easy to understand, yet this chapter might reveal some more advanced functions to customize the user interface.

When starting the Report Designer the following user interface is shown

The Main Window



Menubar & Toolbar & Commands

The menubar consists of most commands a user can invoke in the Report Designer. The following section provides a short overview of the main menuitems available:
Commands sometimes depend on the current state of the Report Designer like the current selection, contents available in the clipboard. If not all required information is available for a command to be executed successfully, the command is either disabled or will show a message explaining why this command can not be invoked at this time. Invoking the command is not possible in this case and visially drawn in a disabed style. Invoking the command by a keyboard shortcut is also prevented.

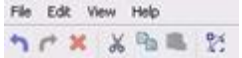


Table 2.1. Mainmenu Menu	Description
File	Provides the basic file operations for loading/saving and exporting reports. The applications settings are also available in this menu.
Edit	Commands related to editing the currently open report. Most actions apply to the current selection.
View	Commands to change the current view like zoominig, changing units or activating the preview. This does generally not have any effect on the definition of the report.
Help	Provides commands to show information about the Report Designer like the online help and links to tutorials.

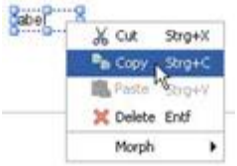
Report Definition Area

The report definition area is the center part of the Report Designer. It is used to graphically compose and preview the report. The following screenshot shows one of the bands of the report definition area.

Clicking on the Band Description makes the band receive the input. Invoking commands like Select All or Paste will be in the context of this band. The current selection is not changed by this action.
Clicking on the Page Border will select this band and makes the band receive the input.
Clicking on the Band Content Area will make the band receive the input and will possibly select elements under the cursor.
A band can be visually resized by dragging the mouse on the Band separator, this does not have any effect on the generated report. This just for convenience while designing the report:

Elements part of the band can be selected by clicking the mous on this element. If there are multiple overlapping elements under the mousecursor, you can repeatedly click on the same spot, and the selection will cycle through the possible elements. You can select multiple elements by holding down the **CTRL** key of your keyboard.

Doubleclicking a text element starts the inline editing mode. You can directly type in text like in a usual textfield. You can leave this inline editing mode by hitting **Enter** and accepting the changes you made or by hitting **Escape** and undo the changes you made. Clicking outside the element will also cancel the inline editing mode and not accept your changes.
!Report Designer^inline_labels.jpg!
A popup menu for the most common commands like copy/paste is available by clicking the right mouse button.



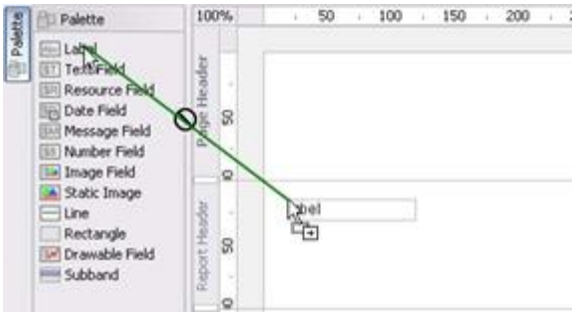
Toolwindows

A Toolwindow is a part of the iterface that groups together related control elements. There are four built in toolwindows available in the Report Designer.
• *Palette Toolwindow*
• *Structure Toolwindow*
• *Properties Toolwindow*
• *Messages Toolwindow*

Toolwindows can be resized with the mouse and can be completely hidden by pressing the Toolwindow control button. By clicking the right mouse button on the toolwindow control button you can move the Toolwindow to another side of the screen.

Palette Toolwindow

The Palette toolwindow stores all graphical report elements available to be added to a report. You can drag&drop elements from the palette to one of the bands available in the report definition area by pressing the mouse button on an element in the palette and dragging the mouse to the band and releasing the mouse button:



Structure Toolwindow

The Structure toolwindow shows all visual and non visual report elements added to a report:

- *Report* Under this node are all report elements, visual and non-visual, currently available in the report.
- *Data Sets* Under this node are all datasets listed currently added to the report.
- *Report Functions* All functions that are available in the report.
- *Page Header* All visual elements added to the page header band .
- *Report Header* All visual elements added to the report header band .
- *Item Band* All visual elements added to the item band .
- *Report Footer* All visual elements added to the report footer band .
- *Page Footer* All visual elements added to the page footer band .
- *No Data Band* All visual elements added to the no data band .
- *Watermaark* All visual elements added to the watermark band .
- *Groups* All groups with their subgroups and visual elements.

All these listed report elements are mandatory and can only occure once in a report definition. Therefore these elements can not be deleted, and can not be part of a cut/copy/paste command.
Each node in the Structure toolwindow has an individual popup menu. The Data Sets node has special entries to add additional datasets. The Groups node has a special popupmenu to add additional groups to the report. All entries in the popupmenu are enabled or disabled depending on the current selection or clipboard content.
The Structure Toolwindow can also be used to select multiple elements from the same or from different bands. Just keep the **CTRL** key pressed while selecting elements with the mouse or keyboard.

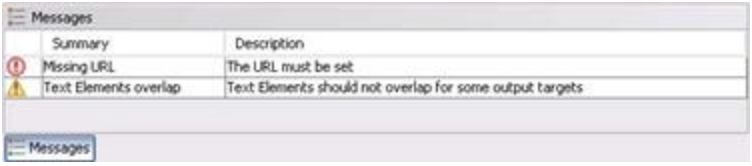
Properties Toolwindow

The Properties toolwindow lists all properties of the currently active selection. You can also select multiple elements and the common properties can be modified at once. This is useful if you want to e.g. change the background color of several labels at once. Each type of report element has its own set of properties. The toplevel report element has a Name, Page Definition, Default Locale and Resources Path. Depending on the type of property there are different components to edit value of the property. All those editors are pretty self-explanatory. The most important properties for a report element are printed in bold.

The properties are grouped into different sections depending by the type of influence they can take. All properties listed under ID don't have a direct impact to the visual appearance of the report, but are used to refer to an element from a function or similar.
All properties listed under Appearance have a direct impact on how this report element will look on the report.
All properties listed under Spatial affect the size or position of a report element. These properties usually also have a direct or indiret impact on how the report will look.
All properties listed under Output take effect for some output targets. Font embedding and encoding are only used when a report is stored as a PDF file.

Messages Toolwindow

The Messages toolwindow shows at any given time what kind of errors or warnings are available in your current report definition. An error is a problem that prevents the report from being generated. A preview is not possible when an error is shown. A warning is a problem that doas not prevent the report from being generated but means that not all report elements are printed.



When you select an error or a warning in the Messages toolwindow the report elements posing the problem are automatically selected if available. If possible the property that needs to be adjusted is also selected in the Properties toolwindow.

Statusbar

The statusbar can show descriptions of the commands the mouse is currently hovering. In addition it shows the memory consumption of the application. You can click on the memory consumption panel to force a garbage collection.

A red blinking icon indicates that an internal error has occured. This is usually a bad sign and the developers of the application should be contacted and the error reported. You can do this by clicking on the blinking icon. A dialog asking for a description what the user did to make the error occur and a submit button. The developers are automatically notified about the problem if you press the Submit button.

Warning

If an error occured, it is recommended to save the report *under a different name* and to restart the Report Designer If you can not open the saved report anymore, it is important to send the report file to the developers by sending them a mail to <reportdesignerbugs@pentaho.org> .

3. Report Wizard

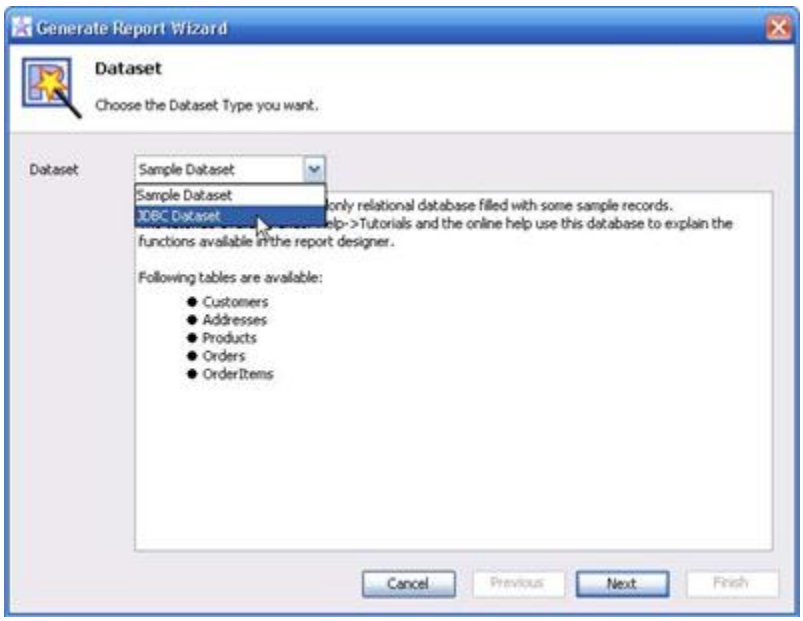
This page last changed on Nov 29, 2006 by mdamour.

The Report Wizard is a very easy to use way to create basic reports which you can customize afterwards in the Report Designer It is meant to get you started, and not to create highly customized sophisticated reports directly.

The wizard can be started from the Menubar using the File->Report Wizard... command.

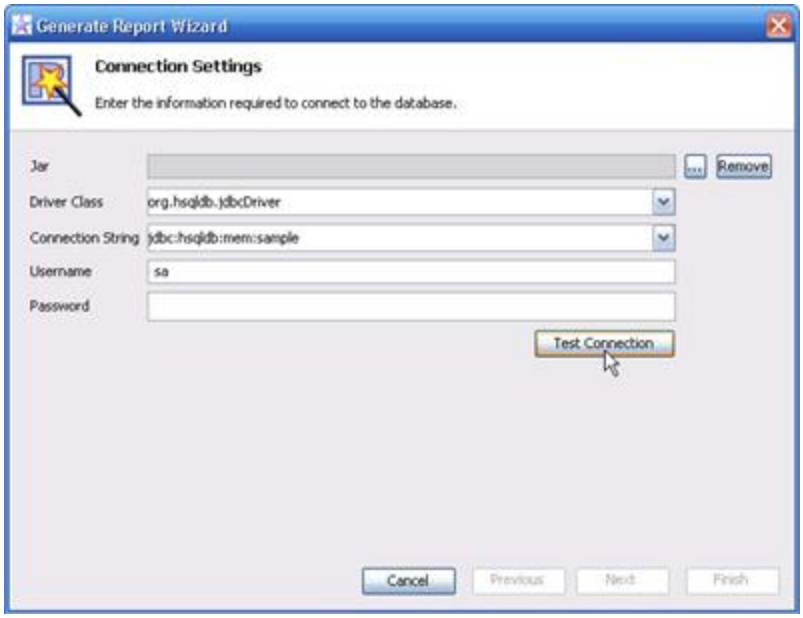
Data Set

The first page lets you select what kind of dataset you would like to use. We will use the JDBC Dataset to show all possible pages supplied with the built in datasets. Note that the wizard highly depends on what kind of dataset is selected. Third party datasets can provide their own completely different wizard pages.



Connection Settings

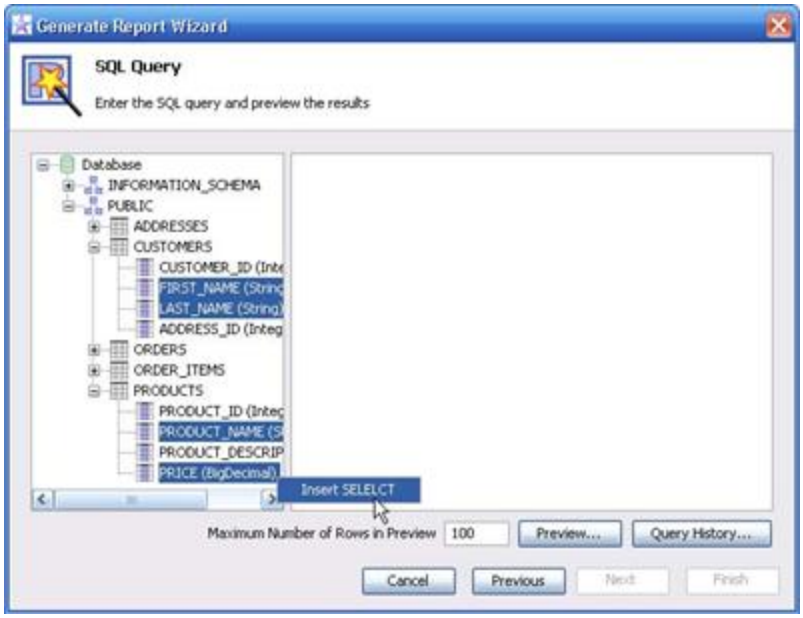
In the case of the JDBC dataset there is a wizardpage that can be used to configure the connection settings. Following fields are available:
• *Jar* Path to a third-party Jar-file that contains a valid JDBC driver.
• *Driver Class* The fully qualified classname of the driver class.
• *Connection String* The vendor dependent connection string to connect to the database.
• *Username* The username used to connect to the database.
• *Password* The password used to connect to the database.
The following screenshot shows the settings used to connect to the built in database.



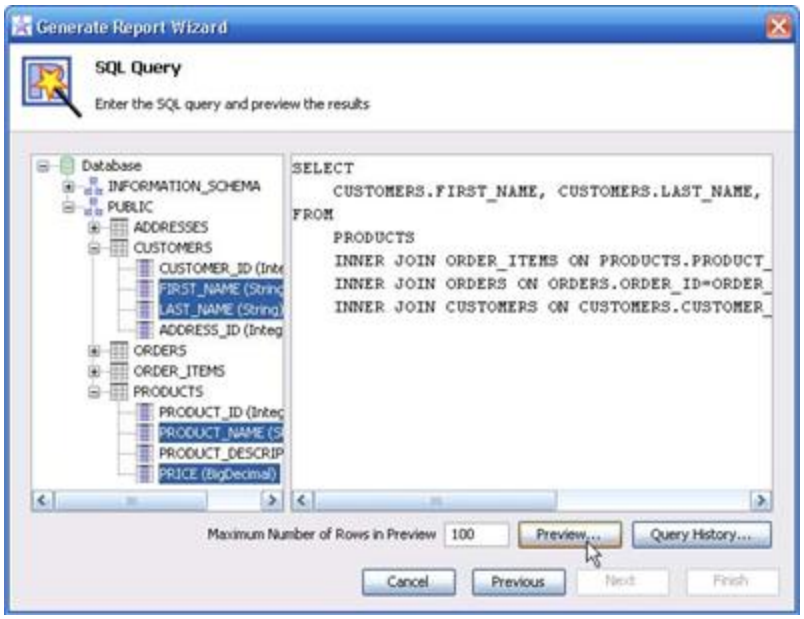
If the connection test was successfull, the Next button is enabled and we can proceed to the next page.

SQL Query

The SQL Query page lets you compose a userdefined query by either writing it on your own, or you can try to let the automatic querybuilder to this for you. Just select the columns you want to see in your report and invoke the Insert SELECT command from the popup menu. Select the columns as shown in the screenshot below:

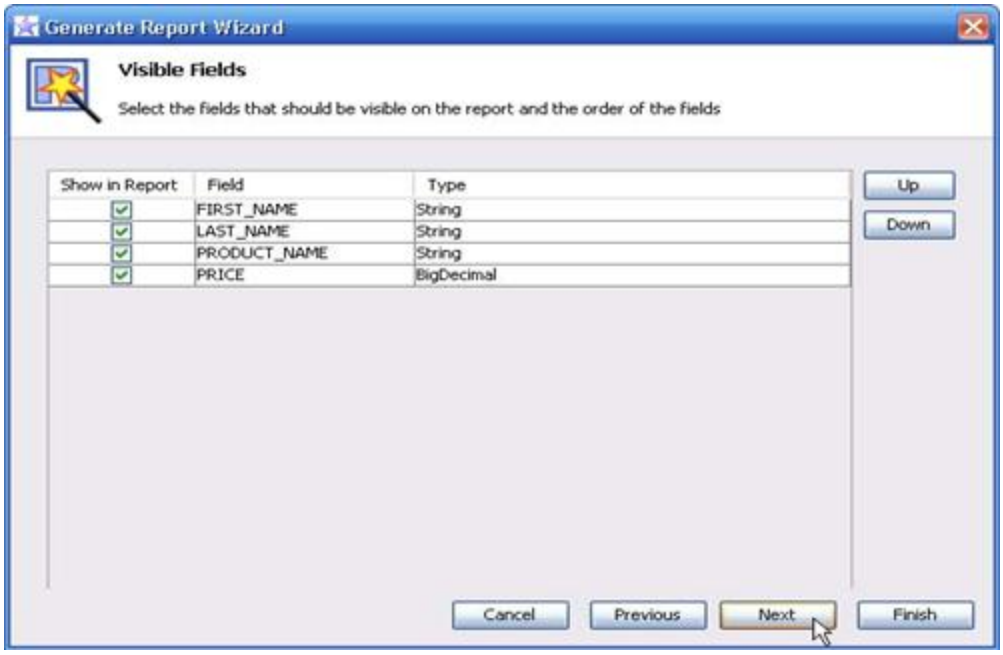


When the querybuilder successfully analysed your database and all required foreignkeys have been set, the query is inserted.
You need to use the Preview button to see if your query can be successfully executed and the wizard can fetch the required data to continue.



When the preview was successfull, the Next button is enabled and we can go to the next wizardpage.

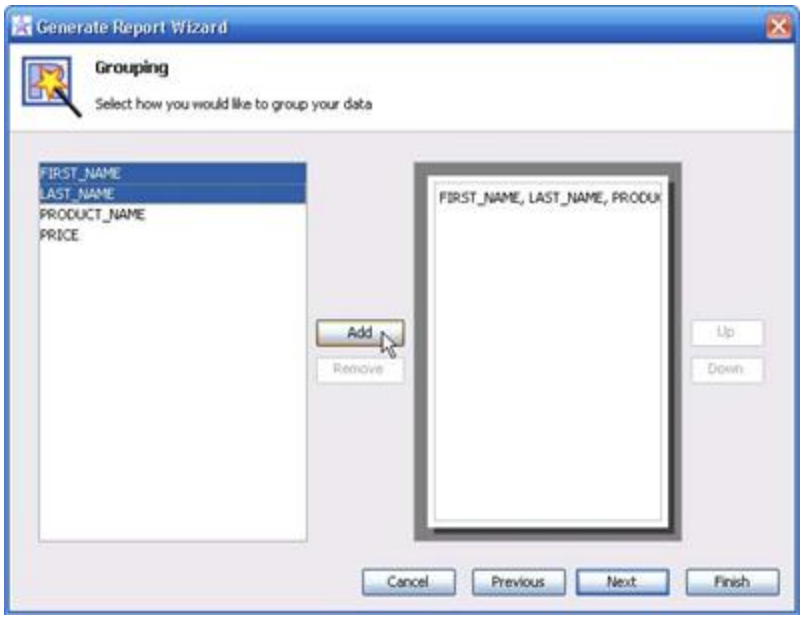
Visible Fields



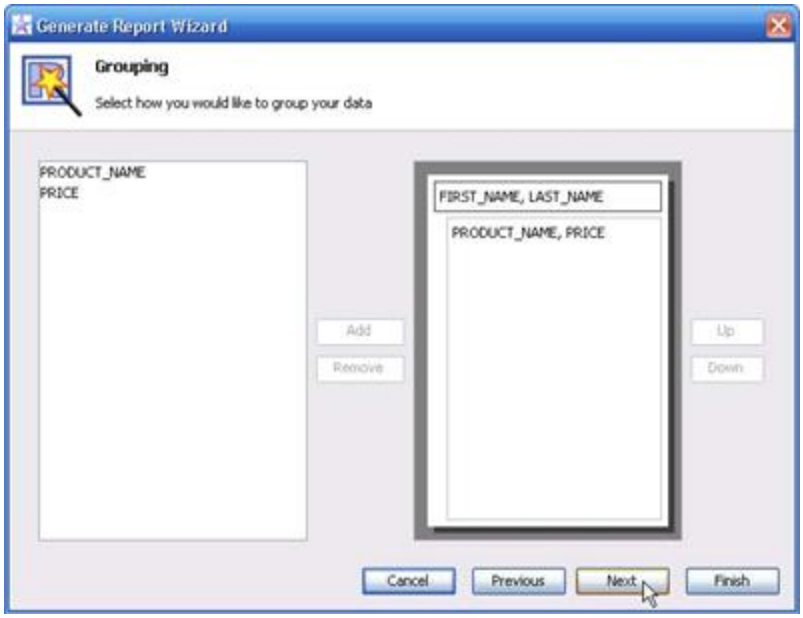
In this sample we already sufficiently specified the columns in the query page and can therefore continue with all fields selected.

Groups

The Groups wizardpage is used to specify how the data should be grouped. We add the FIRST_NAME and the LAST_NAME as our grouping fields as shown in the following screenshot.



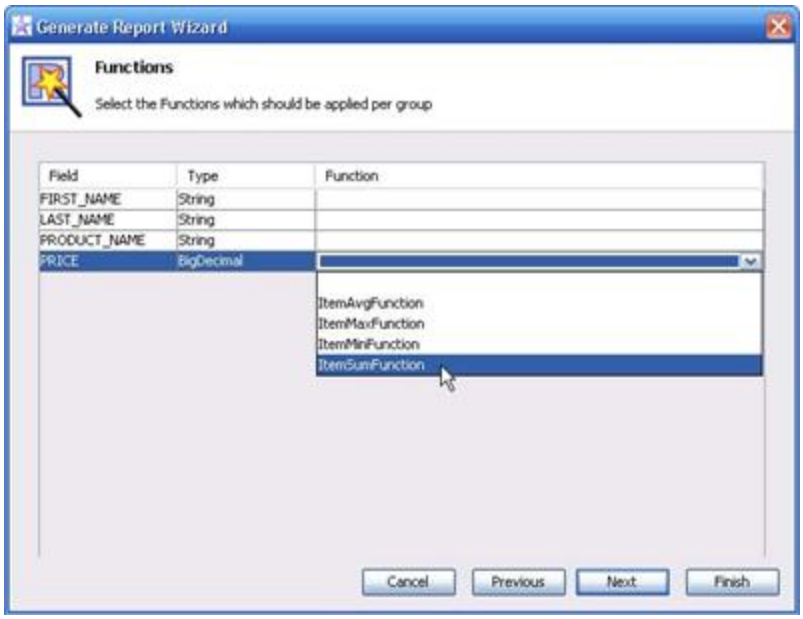
Press the Add button to add the selected fields.



We can continue to the next wizardpage by pressing the Next button.

Functions

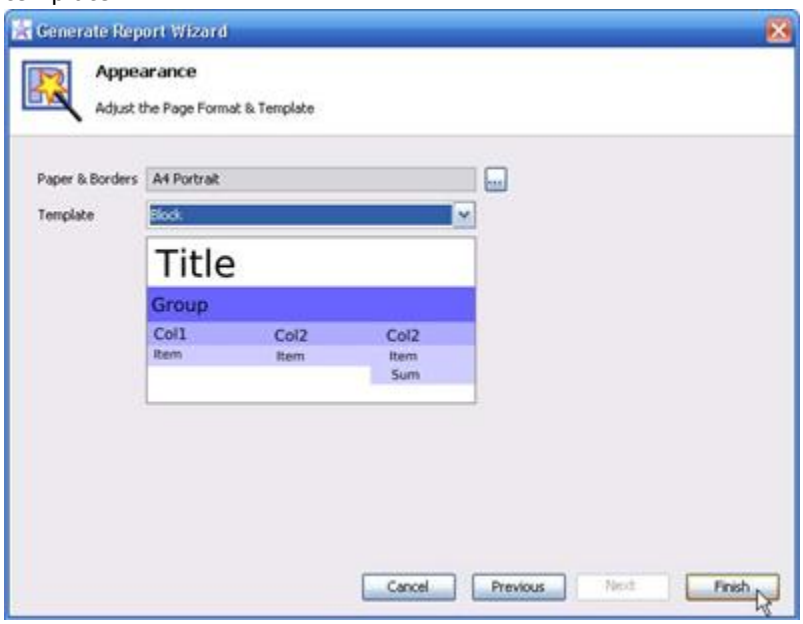
The Functions wizardpage is used to specify what calculations should be applied to the columns. Note that only a subset with the most important functions is available.



Choose the ItemSumFunction for the PRICE column and proceed to the next page by pressing the Next button.

Appearance

The Appearance wizardpage is the last page and can be used to specify the pageformat and to choose a template.



Press the Finish button to let the wizard generate the report.

Generated Report

You now have a simple yet complete report and you can start to customize the layout or add more advanced elements or functions as you like.

Tip

It is usually a good idea to verify that you have ordered your data according to the fields you specified as group fields.
You can use the Layout Bands command from the View menu to automatically adjust the visual size of the bands. This adjusts the bands to the size they will use on the final report.

4. Data Sets

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

Datasets are the parts that supply the report with data. Right now there are three built in datasets available at your disposal:
• *Sample Dataset* used to access the relational sample database
• *JDBC Dataset* used to access a custom database accessible by a JDBC driver
• *Properties Dataset* used to supply single values to the report like a date, a company name

The Sample Dataset and the JDBC Dataset are the most important datasets since these datasets are so called table dataset and can be used to fill the item band with data. The Properties Dataset is just a comfortable way to supply additional values. If you wanted to use inputs from a Pentaho Action Sequence, you could add them to the Properties Dataset making them available to the report. A report with just the Properties Dataset won't be sufficient to create a meaningful report.
Only one table dataset can be added to a report at a time.

5. Graphical Report Elements

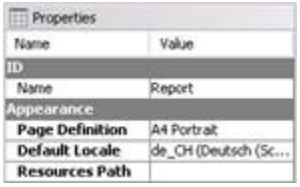
This page last changed on Nov 29, 2006 by mdamour.

Report elements are the parts that make up a report. Graphical elements, functions, groups, datasets to name just the most important. This chapter will deal with just the graphical report elements.
The Structure toolwindow visualizes the hierarchical structure the best:

The topmost all-embracing report element is the report itself.

Report

Although the report is one of the most important elements one can not set that many properties and it's a special visual element because most of the characteristic properties for visual elements, size and position, are missing.



•Name The name is used by some output targets to set the metainformations but is not very important.
•Page Definition

The page definition specifies the page format, orientation and the borders, you can use the ellipsis button to open a configuration dialog.
•Default Locale
The default locale defines what language to use for the localization and also influences how numbers and dates are formatted. It's set to the system default locale.
•Resources Path
Specifies where the resource engine should look for localization files, files containing translations for the languages you want to support.

Bands

On the next hierarchical level of the visual elements there are the toplevel bands. These elements are real visual elements as they have the characteristic size properties.

Size Properties

• Minimum Size
This is the size that an element has at least. For bands this size is automatically adjusted to include all contained elements. This is the size mostly set by the designer and is automatically set by placing and resizing elements visually. Most of the time it is perfectly fine to just use this size. The other sizes discussed below are for advanced purposes only.
• Preferred Size
The size that should be used when possible. When not enouogh space is available the element can also be printed smaller, but not smaller than the minimum size. The preferred size should therefore always be bigger than the minimum size or not set at all (0, 0).
• Maximum Size
The biggest possible size an element can grow, the maximum size must always be bigger than the preferred size or not set at all (0,0).
The toplevel bands have some common properties only used in the Report Designer and which do not affect the printed report in any way.
• Visual Height
The height the band occupies in the report definition area. This does not have any effect on the printed report.
• Show in Layout GUI
Whether to show the band in the report definition area. This does not have any effect on the printed report. You can use this to hide bands you don't use to not clutter the user interface.

Page Header Band

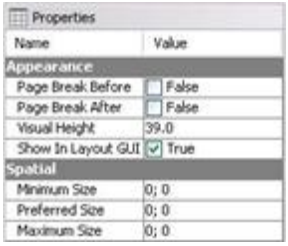
The page header band, when not empty, is printed at the top of each page.

• Display on First Page
Whether to print the page header on the first page or not.

• Display on Last Page
Whether to print the page header on the last page or not.

Report Header Band

The report header band, when not empty, is printed once when the report starts but after the page header band.



•Page Break Before Whether to insert a pagebreak just before the header is printed. This does not really have an effect.

• Page Break After
Whether to insert a pagebreak just after the header is printed.

Item Band

•Page Break Before Whether to insert a pagebreak before every line. This ensures that only one row is printed per page.
•Page Break After Whether to insert a pagebreak after every line. This ensures that only one row is printed per page.

Report Footer Band

The report footer band, when not empty, is printed once when the report ends just before the last page footer is printed.
•Page Break Before Whether to insert a pagebreak before the footer is printed.
•Page Break After Whether to insert a pagebreak after the footer is printed.

Page Footer Band

The page footer band, when not empty, is printed at the bottom of each page.
• Display on First Page
Whether to print the page header on the first page or not.

• Display on Last Page
Whether to print the page header on the last page or not.

Watermark Band

The watermark band is printed on the background of every page. You can use it to embed a company logo or to mark a report as draft.
• Page Break Before
Has no effect.

• Page Break After
Has no effect.

NoData Band

The nodata band is printed once and only when there is not one single row of data available.
• Page Break Before Has no effect.
• Page Break After Has no effect.

Text Elements

A text element is an element that prints some kind of static text or dynamic text from a dataset on the report. Text elements used to print dynamic values from a dataset have the suffix Field .

Common Properties

• Name
The name or identifier of this report element. It is mainly used to reference fields from functions and is not required for basic reports.
• Font
The font used to print the report element. Note that a large font size requires the element to be big enough, otherwise a warning is shown in the Messages toolwindow and nothing is printed.
• Underline
Whether to underline the text. Always the complete text is underlined, and there is now way to just underline some characters of the text. You have to use lines for this purpose.
• Strikethrough
Whether to strikethrough the text.
• Background
Specifies the background color to fill the element. To remove the background color you have to delete the text in the editor and press **Enter**
• Foreground
Specifies the foreground color to paint the text of the element. To remove the foreground color you have to delete the text in the editor and press **Enter**
• Horizontal Alignment
How the text should be aligned on the horizontal axis. Available values are Left , Center , Right
• Vertical Alignment
How the text should be aligned on the vertical axis. Available values are Top , Middle , Bottom
• Reserved Literal
Specifies the text to use when the text is too long to fit into the elements bounds.
• Trim Text Content Whether to remove whitespace characters at the start and end of the element.
• Dynamic Content

Whether the elements height should automatically grow to make the element big enough to print all text. You can restrict the growth by setting the maximum size.
• Position
The position of the element in respect to its parent. This property is set whenever you move an element using the mouse.
• Wrap Text In Excel
Whether to make the cell wrap the text when the report is saved as an Excel sheet.
• Encoding
Encoding to use when saving as PDF. Set this to Identity-H when you want to save the report in unicode or some characters are outside the ASCII range. Note that a font should be embedded that supports the foreign characters.
• Embed Font
Whether to embed the font in the generated PDF file. Note that not all fonts are allowed to be embedded.

Label

Label

The label is a static report element and the text does not change depending on the dataset, but it can be adjusted using functions.

• Text

The text to print.

Text Field

value

The text field is the most basic dynamic field. It prints the text representation as delivered by the dataset.

• Field Name

The name of the field/column used to get the data from the dataset.

•null String Text to print when the dataset has no value for the current row, and is null.

Resource Field

value

The resource field prints a value from a resource bundle that is available for the given key.

•Resource Base

The name of the resource bundle to use. If you have the textfields Translations.properties and Translationsde.properties, the resource base should be set to Translations To make the resource bundles available to th reporting engine, you have to set the resources path property on the report.

• Field Name

The name of the field/column used to get the key from the dataset.

• null String

Key to use when the dataset has no value for the current row, and is null.

Date Field

20. März 2006

The date field formats and prints a date from the dataset.

•Format

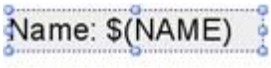
Specifies how the data should be formatted.

Table 5.1. Format Symbols Letter Date or Time Component	
G	Era designator
y	Year
M	Month in year
w	Week in year
W	Week in month
D	Day in year
d	Day in month
F	Day of week in month
E	Day in week
a	Am/pm marker
H	Hour in day (0-23)
k	Hour in day (1-24)
K	K Hour in am/pm (0-11)
h	h Hour in am/pm (1-12)
m	m Minute in hour
s	s Second in minute
S	S Millisecond
z	z Time zone
Z	Z Time zone

Examples
Era designator 1996 96 July Jul 07 27 2 189 10 2 Tuesday Tue PM 0 24 0 12 30 55 978 Pacific Standard Time PST GMT-08:00 -0800

The name of the field/column used to get the date from the dataset.
• null String Text to use when the dataset has no value for the current row, and is null.
• Excel Date Format
Format to use when exporting to an Excel sheet.

Message Field



The message field formats and prints one or multiple values from the dataset and formats the values according to the specified format. This field is the most powerful one and can be used to replace the ordinary text-, number-and date fields.
•Format String

Specifies how the text of the field should be assembled. Unformatted fields can be specified as $(fieldname) . When you want to format a field as a number you can append number to the format like $(fieldname, number) . If you additionally want to format the number according to a custom format, you can use $(fieldname, number, HH:mm:ss) . The same applies to date formatting: $(fieldname, date, dd.MM.yyyy) .
You can also use this field to print values from multiple columns from the dataset: e.g. you could print the combined customer names with Customername: $(FIRSTNAME) $(LASTNAME) .
•null String
Text to use when the dataset has no value for the current row, and is null.

Number Field

The number field formats and prints a number from the dataset and formats the value according to the specified format.
•Format Specifies how the number should be formatted.
The name of the field/column used to get the number from the dataset.
•null String Text to use when the dataset has no value for the current row, and is null.
• Excel Format
Format to use when exporting to an Excel sheet.

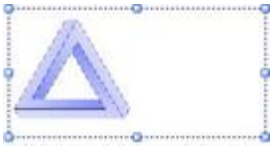
Table 5.2. Format Symbols	Symbol	Location Localized	*Meaning*
	0	Number Yes	Digit
		Number Yes	Digit, zero shows as absent
	.	Number Yes	Decimal separator or monetary decimal separator
		Number Yes	Minus sign
	,	Number Yes	Grouping separator
	E	Number Yes	Separates mantissa and exponent in scientific notation. Need not be quoted in prefix or suffix.
		Subpattern boundary Yes	Separates positive and negative subpatterns
	%	Prefix or suffix Yes	Multiply by 100 and show as percentage
	u2030	Prefix or suffix Yes	Multiply by 1000 and show as per mille value
	¤(u00A4)	Prefix or suffix No	Currency sign, replaced by currency symbol. If

			doubled, replaced by international currency symbol. If present in a pattern, the monetary decimal separator is used instead of the decimal separator.
	'	Prefix or suffix No	Used to quote special characters in a prefix or suffix, for example,"'#'#" formats 123 to "#123". To create a single quote itself, use two in a row:"# o''clock".

Image Field

A field used to print dynamic images delivered by a database.
• Field Name The name of the field/column used to get the data from the dataset.
• Keep Aspect Whether to preserve the aspect ration of the image or to sqeeze the image to fit the defined area.

Static Image



An element used to print a static image available on the harddisc or available as a URL. You can use this element to print a company logo in the report header band.
• URL
The URL to the image. You can also drag&drop images from the local harddrive directly onto the report definition area.
• Keep Aspect Whether to preserve the aspect ration of the image or to sqeeze the image to fit the defined area.

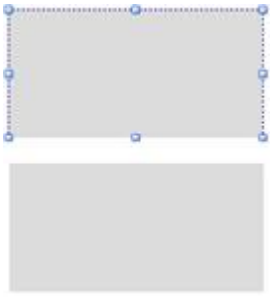
Line

An element used to print a horizontal or vertical line on the report.
• Color
Specifies the color used to draw the line.

• Line Width
Specifies the thickness of the line.

•Direction Specifies the directioon of the line. Possible values are Horizontal and Vertical .

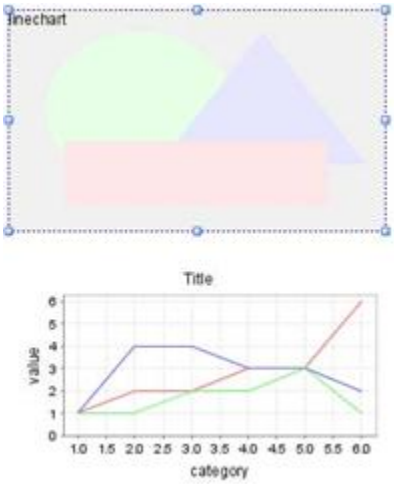
Rectangle



An element used to print a rectangle on the report.
•Color Specifies the color used to draw/fill the rectangle.
• Fill
Whether to fill the rectangle or not.

•Draw Whether to draw the rectangles outline or not.
•Line Width Specifies the thickness of the line used to outline the rectangle.

Drawable Field



A field used to draw a drawable. A drawable can be a chart or some other component usually emitted by a function.

• Field Name
The name of the field/column used to get the data from the dataset.

Subband

A special element used to group elements together. This is especially useful to print multiple elements with dynamic content.
• Layout
The type of Layoutmanager to use to arrange the contained elements. Valid values are Stacked toarrange elements under each other or Null to disable automatic layout.

6. Localizing Reports

This page last changed on Apr 27, 2007 by dkincade.

This chapter shows how to incorporate internationalization while using the report designer. This allows the report designer to specify labels in the report template that will be substituted during report generation with values from the language appropriate properties file.

Externalize Label Strings

The first step is to externalize the strings required for the report. This is done by creating a properties file with the value of each property being the text you want to appear in the report. The name of each property will be used in the report definition.

As with other internationalization efforts, a default set of properties can be created using the .properties extension. Then language specific properties files can override the defaults given the default local of the system generating the report.

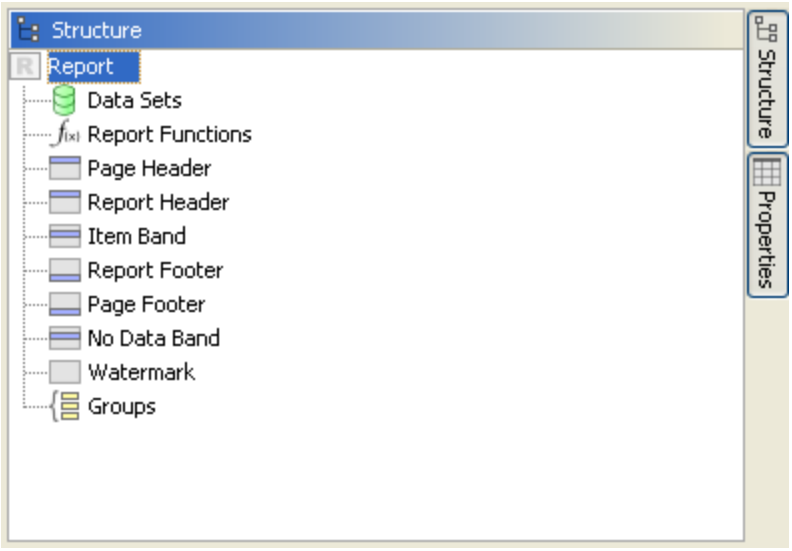
In your favorite text editor, create a properties file named "MyReport.properties" and add the following name-value pairs:

```
report.title=Sample Product Inventory Report
label.1=Product Code
label.2=Product Name
label.3=Quantity
```

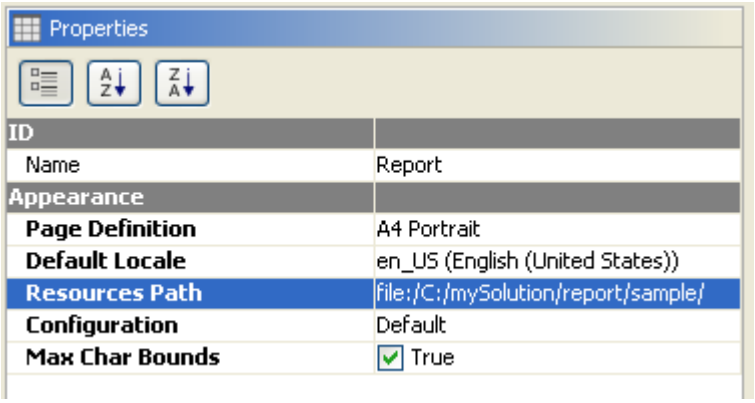
Define the Resource Path

The report template needs to know where it will be able to find the properties files that will be used as a resource for localized strings.

In report designer, click on the Report element in the Structure pane.



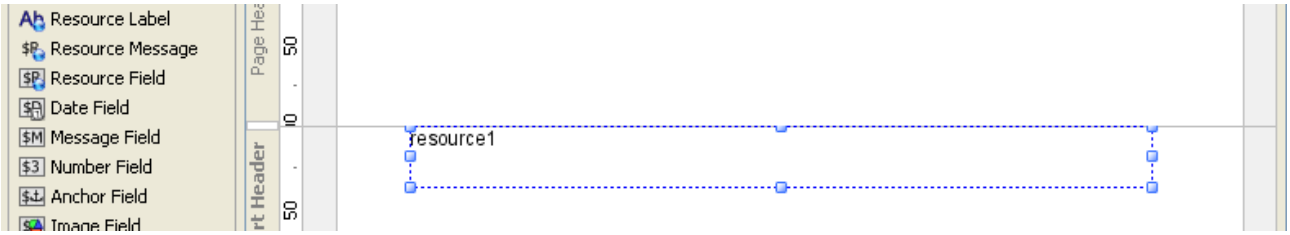
In the Properties pane, specify the directory in which the MyReport.properties file was saved.



Add Resource Labels

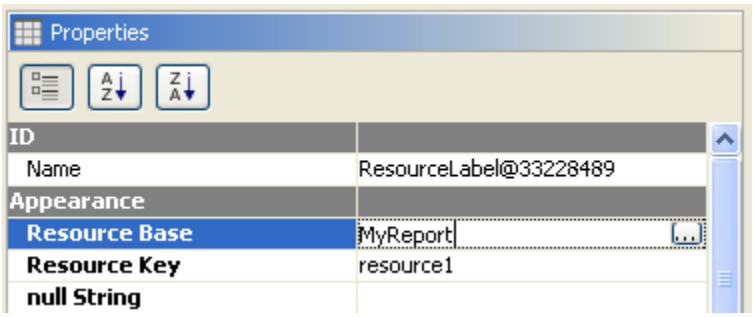
The resource labels defined on the report will look in the resource files (in the report's resource path) when the report is generated. The resource key of the resource label is the property name for this lookup.

Drag a Resource Label to the Report Header section of the report and expand it to a suitable size for a report title.

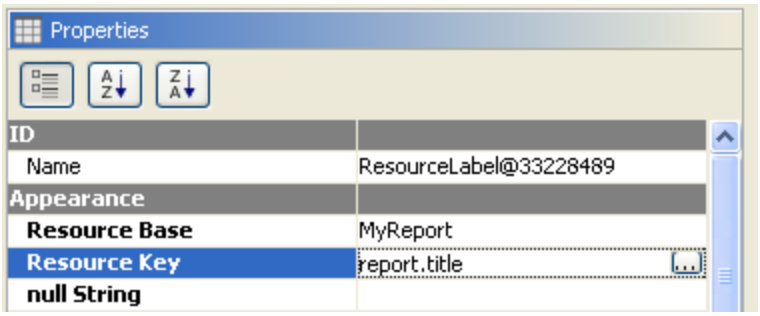


In the properties pane for the newly created Resource Label, set the Resource Base to the name of the properties file (not the full filename, but the name portion of the filename ... this way the report

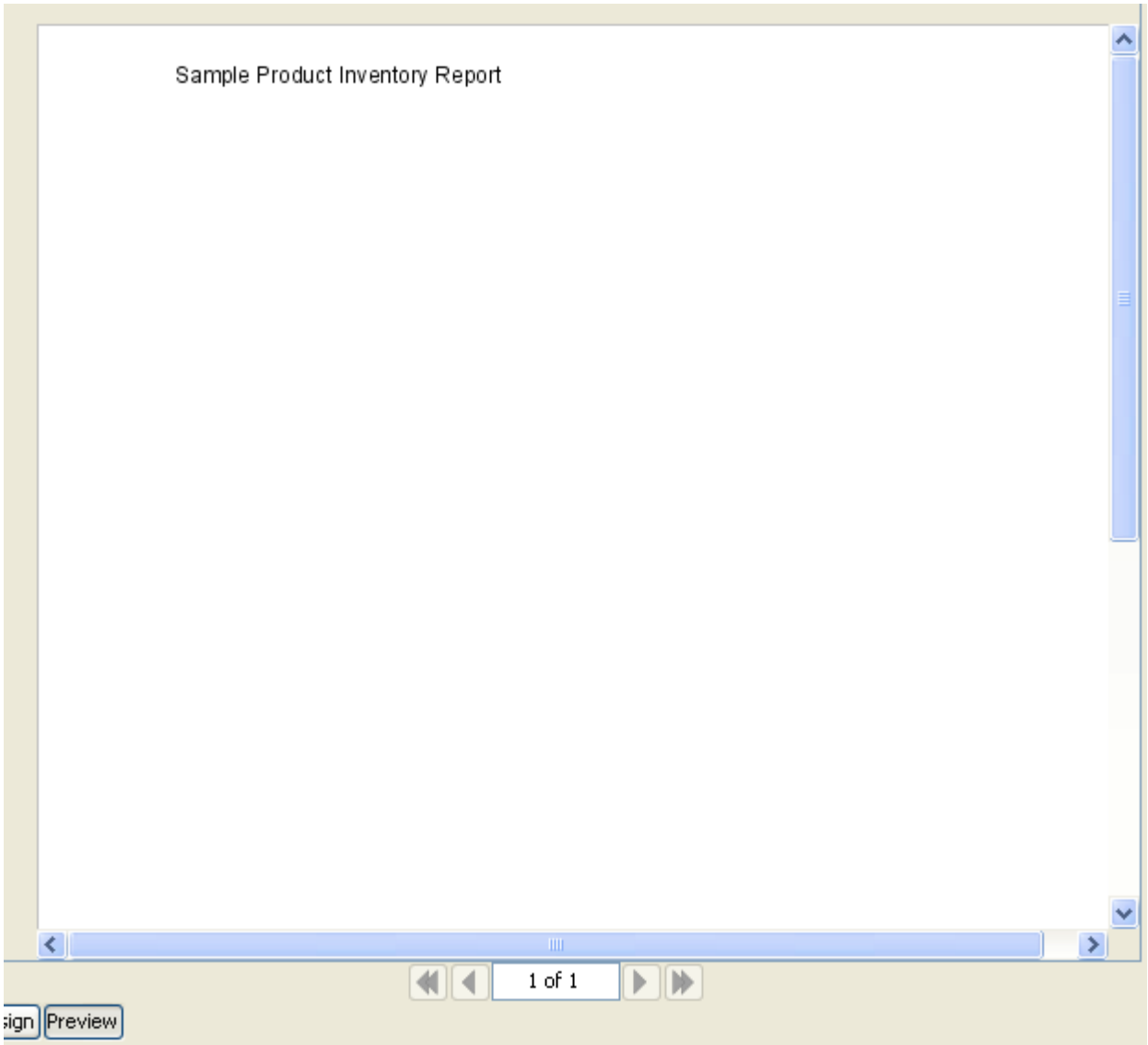
generator can search for other files with the same base name depending on the default local of the system). In our example, specify the Resource Base of "MyReport".



Next, set the Resource Key to the name of the property in the properties file that should be used for substation. In our example, we use "report.title" for the report title.

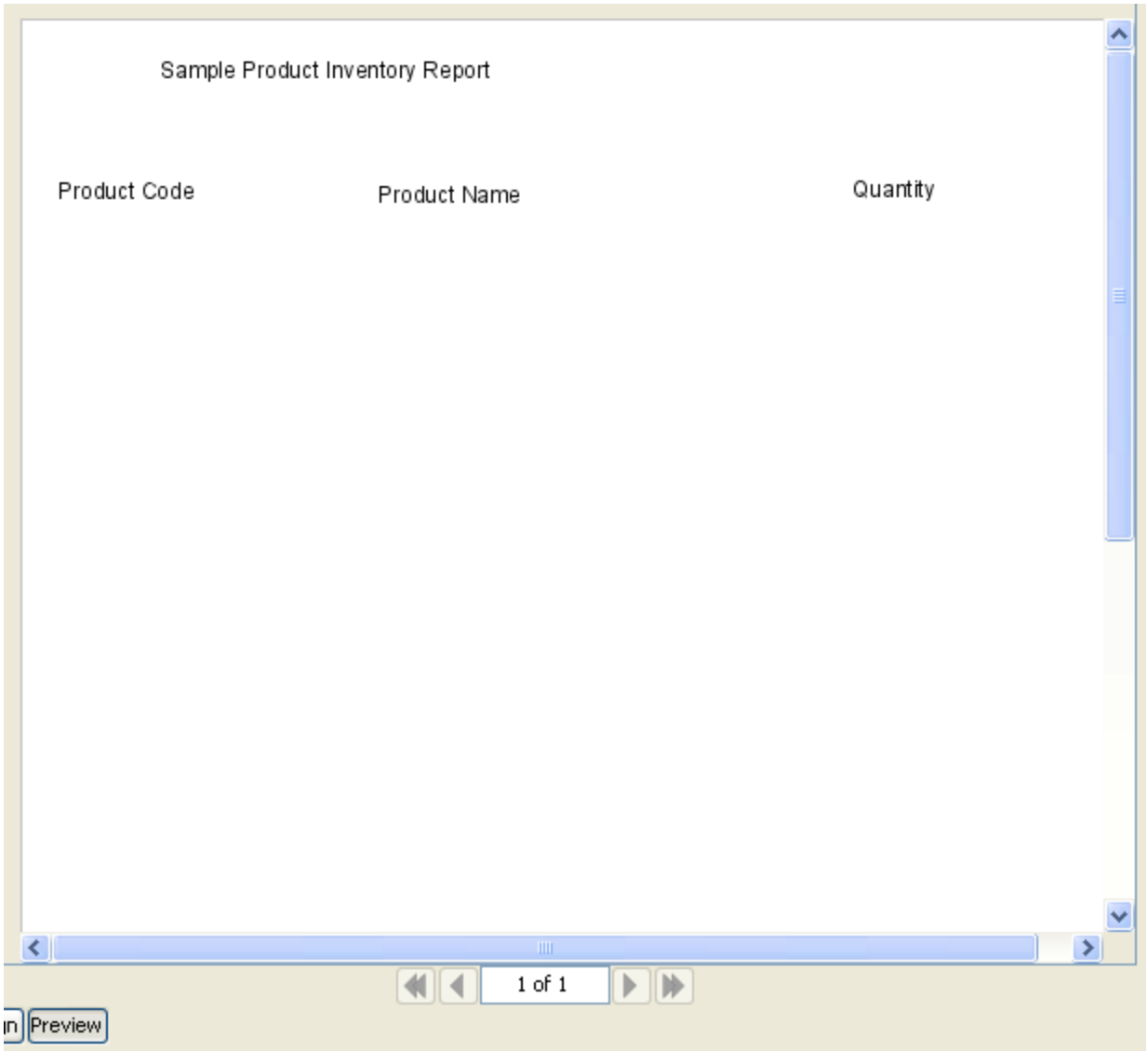


Click on the Preview button, and you should see the value taken from the properties file displayed on the screen.



Repeat the process to add labels at the bottom of the Report Header section for label.1, label.2 and label.3

Again, click on the Preview button to see that the system found and substituted the proper labels.



Create Localized Resource Files

If the report needs to be translated to different languages, more resource files (properties files) need to be created - one per language.

Since the base properties file was created in English, we can create the English properties file by copying MyReport.properties to MyReport_en.properties (in the same directory).

If we need to translate the report to German locale for Switzerland, create the properties file (in the same directory) with the name MyReport_de_CH.properties and translate the property values to German. (NOTE: only the property values ... the property names need to be the same in all the properties files for the substitution to occur correctly).

NOTE: the resource files (properties files) are searched with the most specific locale first and then moving to the most generic. So with MyReport.properties, if your default locale is set to en_US, the application will look for resource files in the following order:

1. MyReport_en_US.properties
2. MyReport_en.properties
3. MyReport.properties