

# 8

## Styles, Themes, and Templates

Up until now we have worked with Report Designs using the formatting elements in a very specific way. We have modified very specific properties of report items such as changing the font for a data item, changing the background color for a cell, and modifying alignment and weighting.

This is fine if you don't mind formatting every element in a report manually. This can become bothersome in larger reports. Imagine having a large report with lots of elements and having to settle on either the default visual properties, which are very plain, or having to manually edit the properties for each component. This can become time consuming. Libraries can help by allowing a developer to create commonly used elements such as headers that are already formatted for later use. However, there is a much more efficient way to format reports – using stylesheets.

The goal of this chapter is to look at how BIRT uses stylesheets in report designs and how styles can be grouped in a library to create themes. This will allow us to have certain sets of styles ready for use any time we develop a report so that we, as a report developer, can focus strictly on the technical aspects of the report while maintaining a consistent visual presentation.

We will also look at templates in this chapter. *Templates* are existing report layouts that can be used as a starting point for new reports. This is useful if we use a similar layout in all our reports; we can then create a template and build from that for each new report.

## Stylesheets

BIRT, being a web-based reporting environment, takes a page from general web development toolkits by importing stylesheets. However, BIRT stylesheets function slightly differently to regular stylesheets in a web development environment.

We are going to add on to the Customer Orders report we have been working with, and will create some styles that will be used in this report.

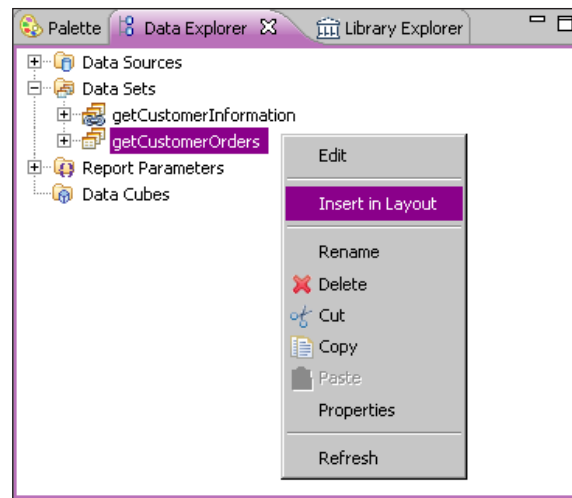
1. Open `Customer Order.rptDesign`.
2. Right-click on the `getCustomerInformation` dataset and choose **Insert into Layout**.
3. Modify the table visually to look like the next figure.

|                  |                  |
|------------------|------------------|
| CUSTOMER NUMBER: | [CUSTOMERNUMBER] |
| CUSTOMER NAME:   | [CUSTOMERNAME]   |
| ADDRESS          | [ADDRESSLINE1]   |
| CITY             | [CITY]           |
| STATE            | [STATE]          |
|                  | [POSTALCODE]     |
| COUNTRY          | [COUNTRY]        |
| PHONE            | [PHONE]          |

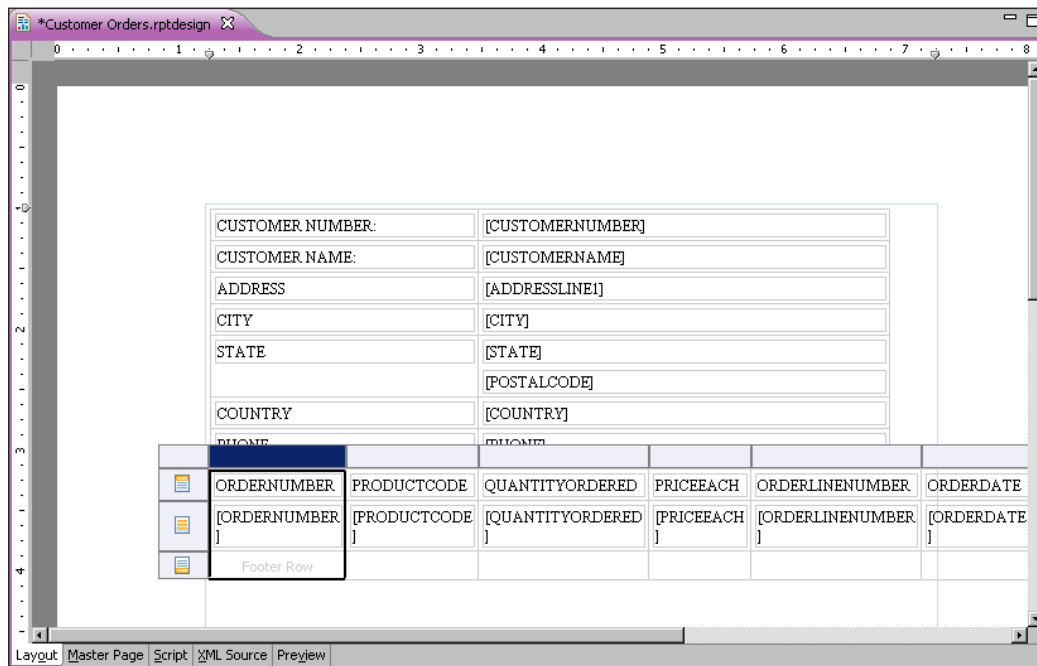
Create a new dataset called `getCustomerOrders` using the following query:

```
select *from CLASSICMODELS.ORDERDETAILS,CLASSICMODELS.ORDERS
where
CLASSICMODELS.ORDERS.ORDERNUMBER = CLASSICMODELS.ORDERDETAILS.
ORDERNUMBER
And CLASSICMODELS.ORDERS.CUSTOMERNUMBER = ?
```

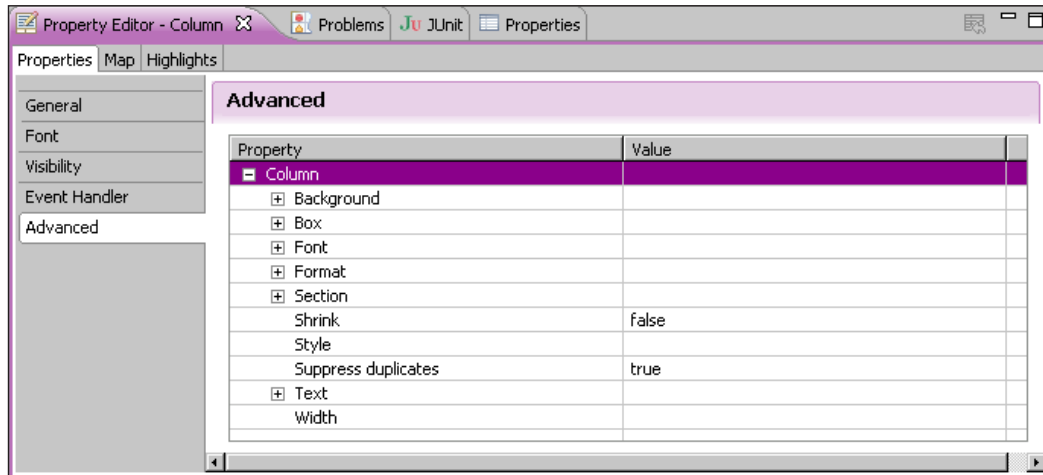
4. Link the dataset parameter to `rprmCustomerID`.
5. Save the dataset, right-click on it, and select **Insert to layout**.



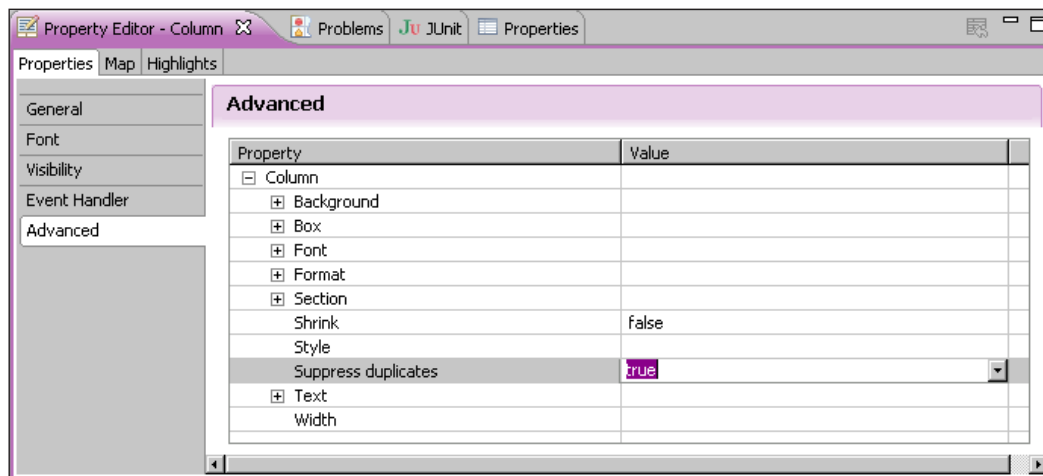
4. Select the first ORDERNUMBER column.



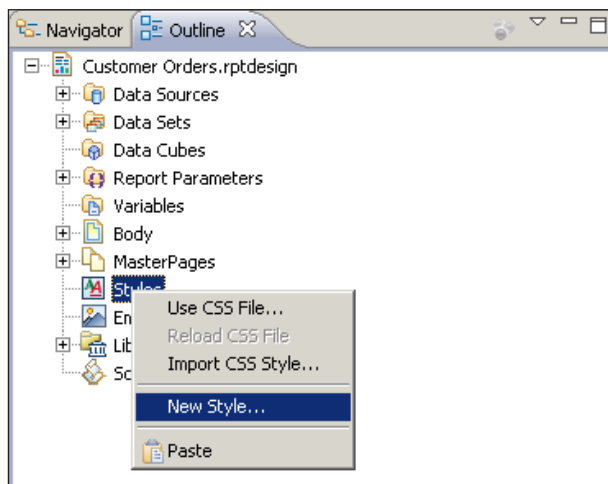
5. Under the **Property Editor**, Select **Advanced**.



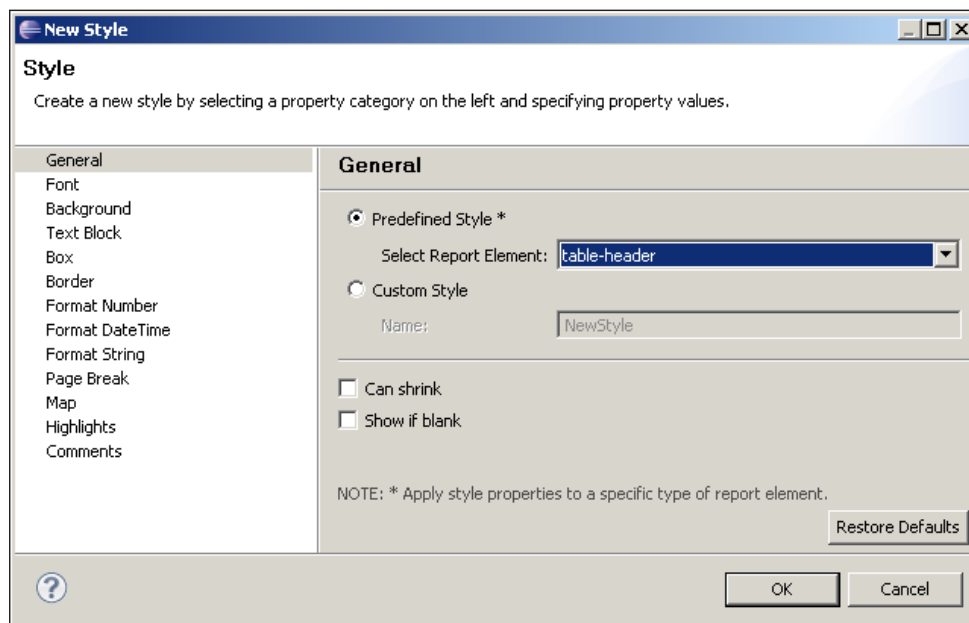
6. In the **Property Editor**, go to the **Suppress duplicates** option, and change it to true. This will prevent the `OrderNumber` data item from repeating the value it displays down the page.



7. In the **Outline**, right-click on **Styles** and choose **New Style....**

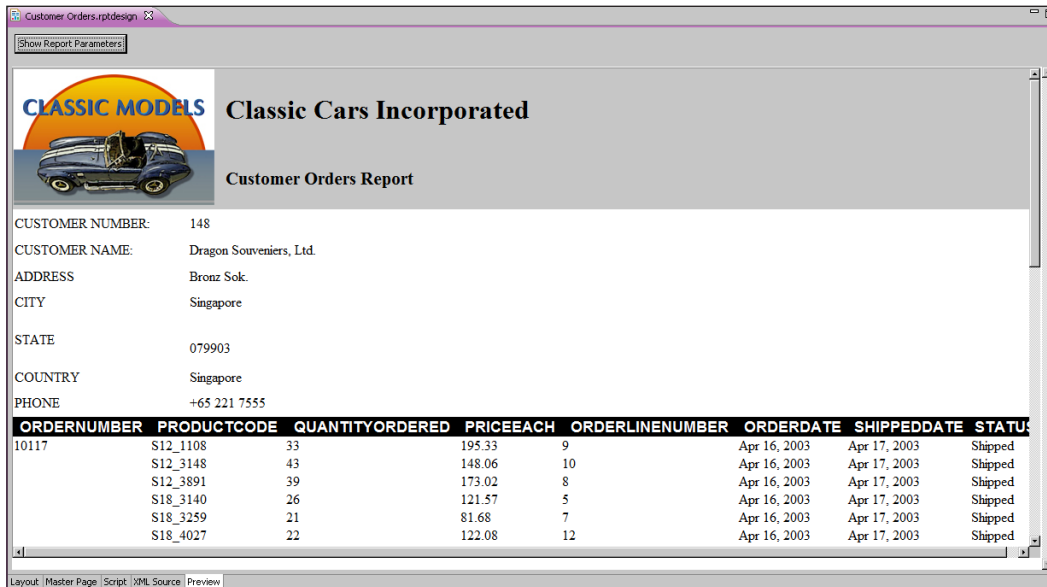


8. In the **Pre-Defined Style** drop down, choose **table-header**. A predefined style is an element that is already defined in the BIRT report. When selecting a predefined style, this will affect every element of that type within a report. In this case, for every table in the report, the table header will have this style applied.



9. Under the Font section, apply the following settings:
  - **Font: Sans-Serif**
  - **Font Color: White**
  - **Size: Large**
  - **Weight: Bold**
10. Under the **Background** section, set the **Background Color** to **Black**.
11. Click **OK**.

Now, when we run the report, we can see that the header line is formatted with a black background and white font.



Customer Orders Report

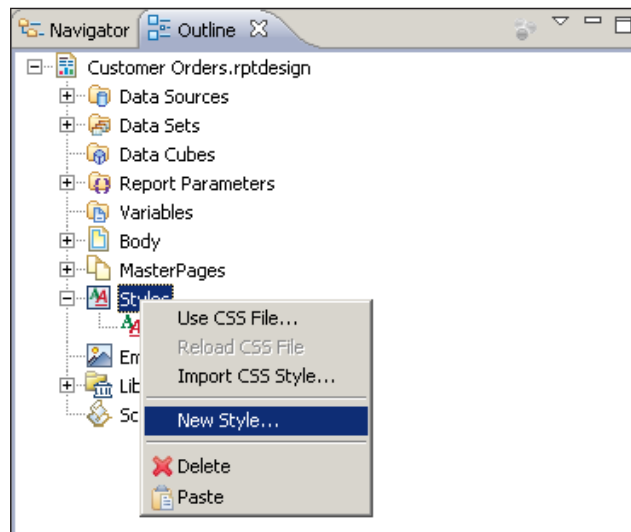
CUSTOMER NUMBER: 148  
CUSTOMER NAME: Dragon Souvenirs, Ltd.  
ADDRESS: Bronz Sok.  
CITY: Singapore  
STATE: 079903  
COUNTRY: Singapore  
PHONE: +65 221 7555

| ORDERNUMBER | PRODUCTCODE | QUANTITYORDERED | PRICEEACH | ORDERLINENUMBER | ORDERDATE    | SHIPPEDDATE  | STATUS  |
|-------------|-------------|-----------------|-----------|-----------------|--------------|--------------|---------|
| 10117       | S12_1108    | 33              | 195.33    | 9               | Apr 16, 2003 | Apr 17, 2003 | Shipped |
|             | S12_3148    | 43              | 148.06    | 10              | Apr 16, 2003 | Apr 17, 2003 | Shipped |
|             | S12_3891    | 39              | 173.02    | 8               | Apr 16, 2003 | Apr 17, 2003 | Shipped |
|             | S18_3140    | 26              | 121.57    | 5               | Apr 16, 2003 | Apr 17, 2003 | Shipped |
|             | S18_3259    | 21              | 81.68     | 7               | Apr 16, 2003 | Apr 17, 2003 | Shipped |
|             | S18_4027    | 22              | 122.08    | 12              | Apr 16, 2003 | Apr 17, 2003 | Shipped |

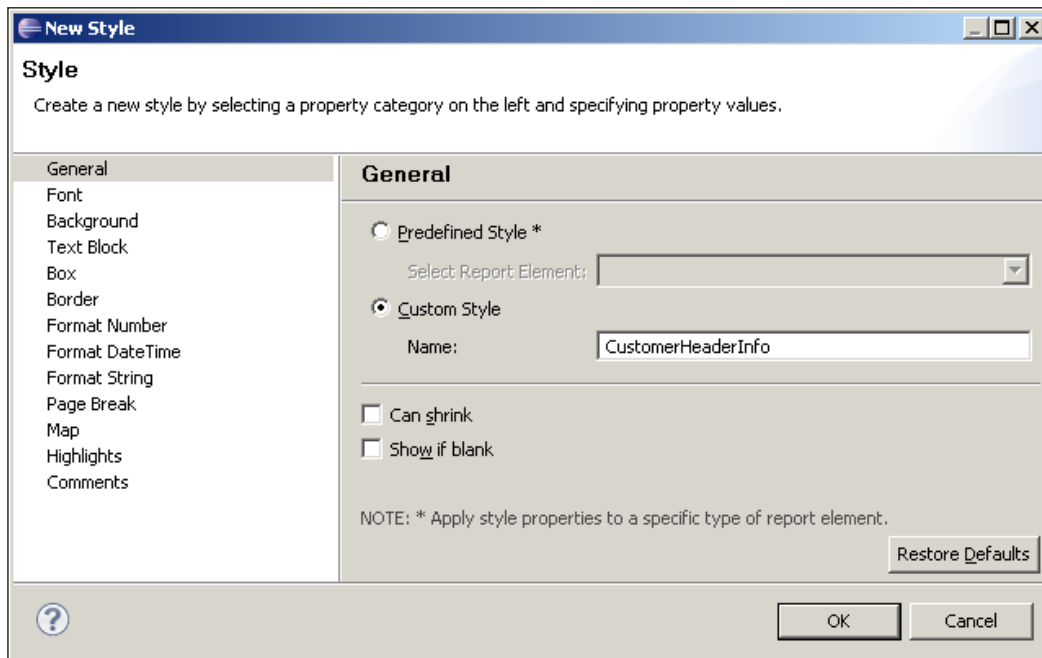
## Custom stylesheets

In the example we just saw, we didn't have to apply this style to any element, it was automatically applied to the header of the order details table as it was using a predefined style. This would be the case for any table that had the header row populated with something and the same is the case for any of the predefined styles in BIRT. So next, let's look at a custom defined style and apply it to our customer information table.

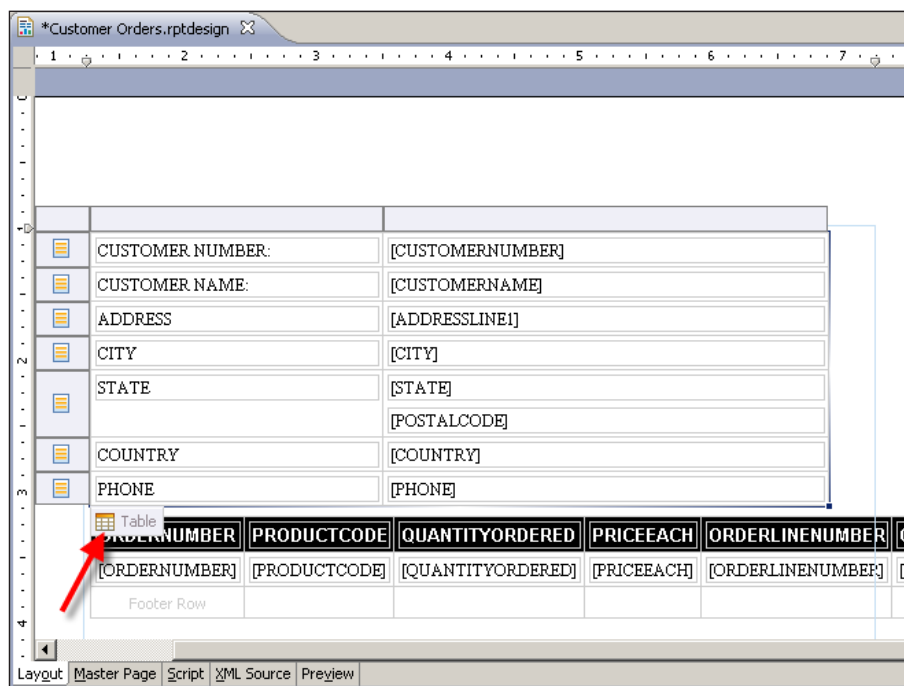
1. Right-click on the **Styles** section under the **Outline** tab and create a new style.



2. Under the **Custom Style** textbox, enter CustomerHeaderInfo.



3. Under the **Font** section, enter the following information:
  - **Font: Sans Serif**
  - **Color: White**
  - **Size: Large**
  - **Weight: Bold**
4. Under the **Background** section, set the **Background Color** to **Gray**.
5. Under the **Box** section, enter **1** points for all sections.
6. Under the **Border** section, enter the following information:
  - **Style (All): Solid**
  - **Color (All): White**
  - **Width (All): Thin**
7. Click **OK** and then click **Save**.
8. Select the table which contains the customer information.





9. Select the first column.

The screenshot shows the report design window for \*Customer Orders.rptdesign. It contains a form with the following fields:

- CUSTOMER NUMBER: [CUSTOMERNUMBER]
- CUSTOMER NAME: [CUSTOMERNAME]
- ADDRESS: [ADDRESSLINE1]
- CITY: [CITY]
- STATE: [STATE]
- POSTALCODE: [POSTALCODE]
- COUNTRY: [COUNTRY]
- PHONE: [PHONE]

Below the form is a table with the following columns:

| ORDERNUMBER   | PRODUCTCODE   | QUANTITYORDERED   | PRICEEACH   | ORDERLINENUMBER   | ORDERDATE   |
|---------------|---------------|-------------------|-------------|-------------------|-------------|
| [ORDERNUMBER] | [PRODUCTCODE] | [QUANTITYORDERED] | [PRICEEACH] | [ORDERLINENUMBER] | [ORDERDATE] |
| Footer Row    |               |                   |             |                   |             |

The first column of the table is selected.

10. Under the **Property Editor**, in the list box for the **Styles**, select CustomerHeaderInfo.

The screenshot shows the Property Editor - Column window. The General tab is selected. The Style dropdown is set to CustomerHeaderInfo. The Width is 2.229 in, and the Background color is Gray. The Font is Sans Serif, and the Color is White. The Suppress duplicates checkbox is unchecked.

11. The preview report will look like the following screenshot:

Customer Orders.rptdesign

Show Report Parameters    Note: Current maximum number of data rows is limited to 500. (Click to change Preview Preferences)

**Classic Models**    **Classic Cars Incorporated**

**Customer Orders Report**

**CUSTOMER NUMBER:** 148

**CUSTOMER NAME:** Dragon Souvenirs, Ltd.

**ADDRESS:** Bronz Sok.

**CITY:** Singapore

**STATE:** 079903

**COUNTRY:** Singapore

**PHONE:** +65 221 7555

| ORDERNUMBER | PRODUCTCODE | QUANTITY | ORDEREDPRICE | EACHORDERLINE | NUMBER | ORDERDATE    | REQUIREDDATE | SHIPPEDDATE  | STATUS  | COMMENTS |
|-------------|-------------|----------|--------------|---------------|--------|--------------|--------------|--------------|---------|----------|
| 10117       | S12_1108    | 33       | 195.33       | 9             |        | Apr 16, 2003 | Apr 24, 2003 | Apr 17, 2003 | Shipped |          |
|             | S12_3148    | 43       | 148.06       | 10            |        | Apr 16, 2003 | Apr 24, 2003 | Apr 17, 2003 | Shipped |          |
|             | S12_3891    | 39       | 173.02       | 8             |        | Apr 16, 2003 | Apr 24, 2003 | Apr 17, 2003 | Shipped |          |
|             | S18_3140    | 26       | 121.57       | 5             |        | Apr 16, 2003 | Apr 24, 2003 | Apr 17, 2003 | Shipped |          |
|             | S18_3259    | 21       | 81.68        | 7             |        | Apr 16, 2003 | Apr 24, 2003 | Apr 17, 2003 | Shipped |          |
|             | S18_4027    | 22       | 122.08       | 12            |        | Apr 16, 2003 | Apr 24, 2003 | Apr 17, 2003 | Shipped |          |
|             | S18_4522    | 23       | 73.73        | 4             |        | Apr 16, 2003 | Apr 24, 2003 | Apr 17, 2003 | Shipped |          |
|             | S24_2011    | 41       | 119.2        | 3             |        | Apr 16, 2003 | Apr 24, 2003 | Apr 17, 2003 | Shipped |          |
|             | S50_1514    | 21       | 55.65        | 11            |        | Apr 16, 2003 | Apr 24, 2003 | Apr 17, 2003 | Shipped |          |
|             | S700_1938   | 38       | 75.35        | 6             |        | Apr 16, 2003 | Apr 24, 2003 | Apr 17, 2003 | Shipped |          |
|             | S700_3962   | 45       | 89.38        | 1             |        | Apr 16, 2003 | Apr 24, 2003 | Apr 17, 2003 | Shipped |          |
|             | S72_3212    | 50       | 52.42        | 2             |        | Apr 16, 2003 | Apr 24, 2003 | Apr 17, 2003 | Shipped |          |

Layout   Master Page   Script   SQL Source   Preview

12. Right-click on the **Styles** section, and create a new custom style called CustomerHeaderData.

**New Style**

**Style**

Create a new style by selecting a property category on the left and specifying property values.

**General**

Font

Background

Text Block

Box

Border

Format Number

Format DateTime

Format String

Page Break

Map

Highlights

Comments

**General**

☐ Predefined Style \*

Select Report Element: [ ]

☒ Custom Style

Name: CustomerHeaderData

☐ Can shrink

☐ Show if blank

NOTE: \* Apply style properties to a specific type of report element.

Restore Defaults

OK Cancel

13. Under **Box**, put in **1** points for all fields.
14. Under **Border**, enter the following information:
  - **Style - Top: Solid**
  - **Style - Bottom: Solid**
  - **Color (All): Gray**
15. Click **OK**.
16. Select the Customer Information table.

The screenshot shows the 'Customer Orders.rptdesign' window. It contains a form with the following fields:

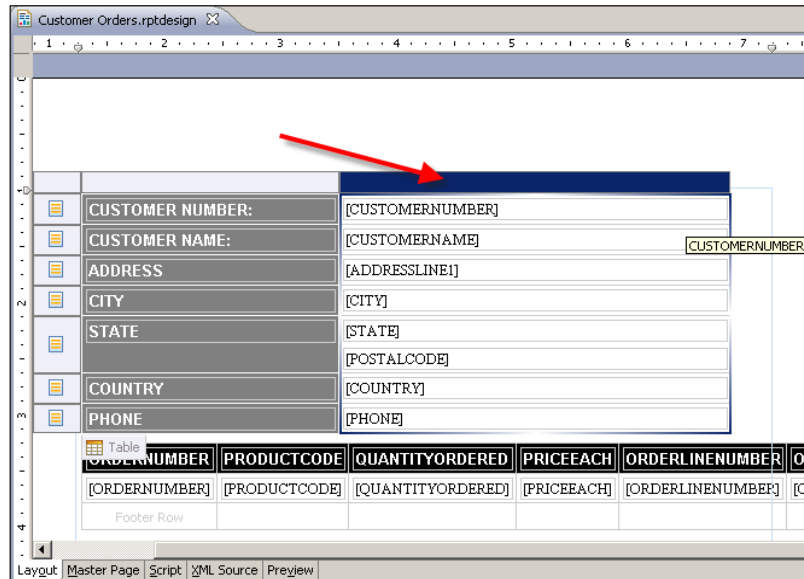
|                  |                  |
|------------------|------------------|
| CUSTOMER NUMBER: | [CUSTOMERNUMBER] |
| CUSTOMER NAME:   | [CUSTOMERNAME]   |
| ADDRESS          | [ADDRESSLINE1]   |
| CITY             | [CITY]           |
| STATE            | [STATE]          |
|                  | [POSTALCODE]     |
| COUNTRY          | [COUNTRY]        |
| PHONE            | [PHONE]          |

Below the form is a table with the following structure:

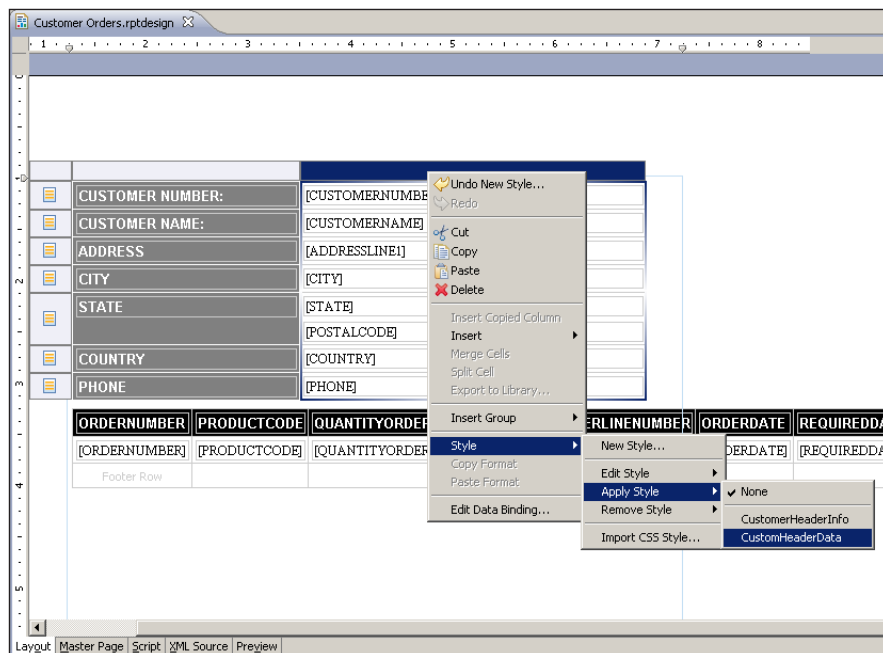
| ORDERNUMBER   | PRODUCTCODE   | QUANTITYORDERED   | PRICEEACH   | ORDERLINENUMBER   |
|---------------|---------------|-------------------|-------------|-------------------|
| [ORDERNUMBER] | [PRODUCTCODE] | [QUANTITYORDERED] | [PRICEEACH] | [ORDERLINENUMBER] |
| Footer Row    |               |                   |             |                   |

A red arrow points to the 'Table' icon in the design view. The bottom of the window shows tabs for 'Layout', 'Master Page', 'Script', 'XML Source', and 'Preview'.

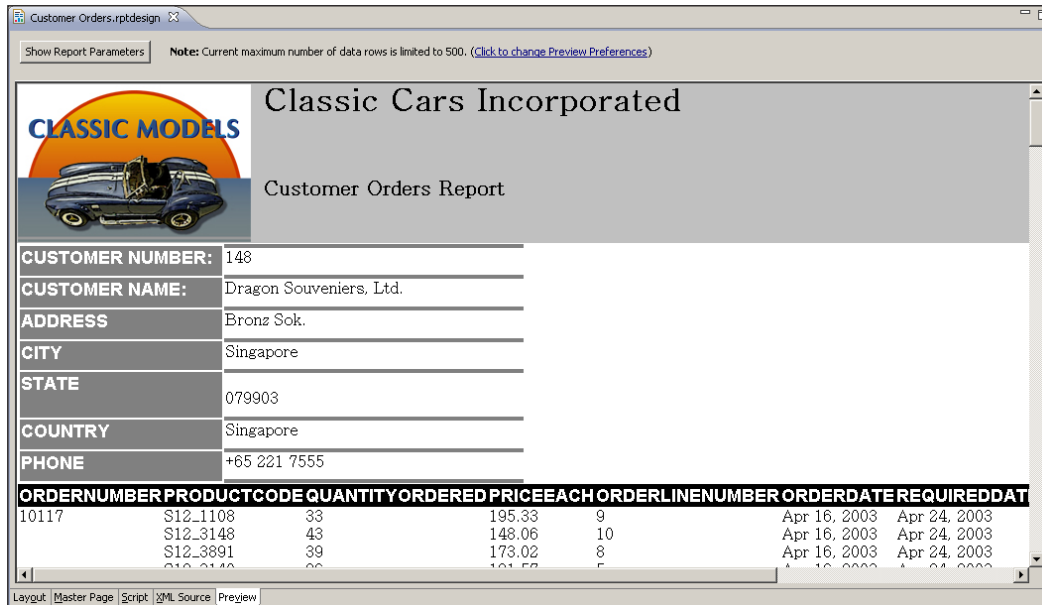
17. Select the second column.



18. Right-click on the column selector and select **Style | Apply Style | CustomHeaderData**.



19. The finished report should look something like the next screenshot:



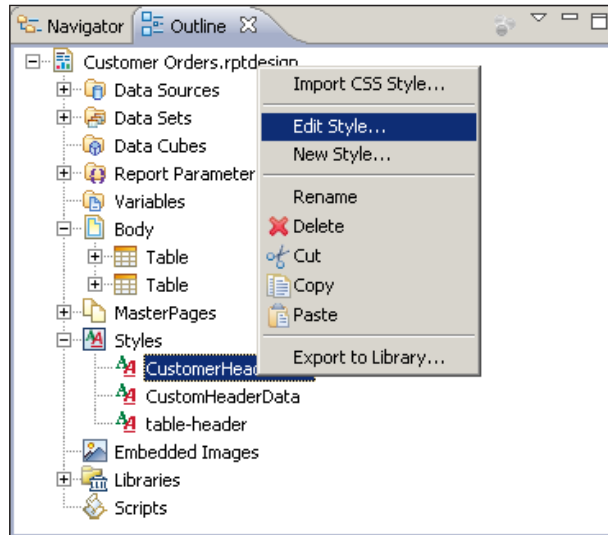
| ORDERNUMBER | PRODUCTCODE | QUANTITY | ORDERED PRICE EACH | ORDERLINENUMBER | ORDERDATE    | REQUIRED DATE |
|-------------|-------------|----------|--------------------|-----------------|--------------|---------------|
| 10117       | S12_1108    | 33       | 195.33             | 9               | Apr 16, 2003 | Apr 24, 2003  |
|             | S12_3148    | 43       | 148.06             | 10              | Apr 16, 2003 | Apr 24, 2003  |
|             | S12_3891    | 39       | 173.02             | 8               | Apr 16, 2003 | Apr 24, 2003  |

## Editing stylesheets

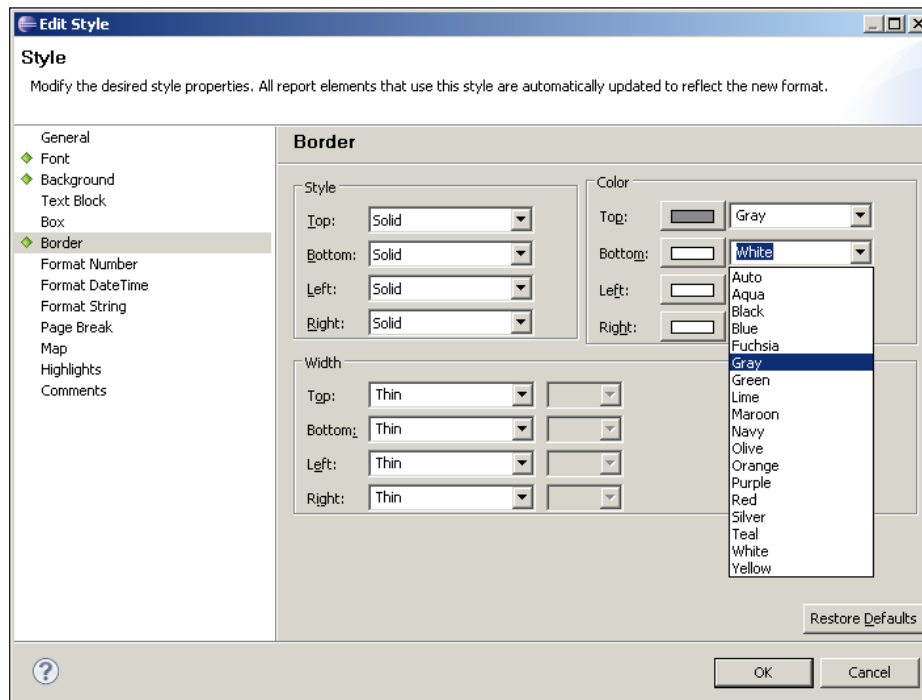
So, now we have two custom styles and one predefined style defined in the report. However, we need to make a change. If we look at this preceding example, the gray lines in the data section of our header do not match the white lines of the label section. Normally such tedious visual elements are the concerns for graphic designers, but in this case this provides us with the perfect excuse to look at editing stylesheets.

The following example will take a look at editing the column of the header information so that the lines are gray instead of white. Editing stylesheets is a fairly trivial task, where simply double-clicking existing styles brings up the style editor.

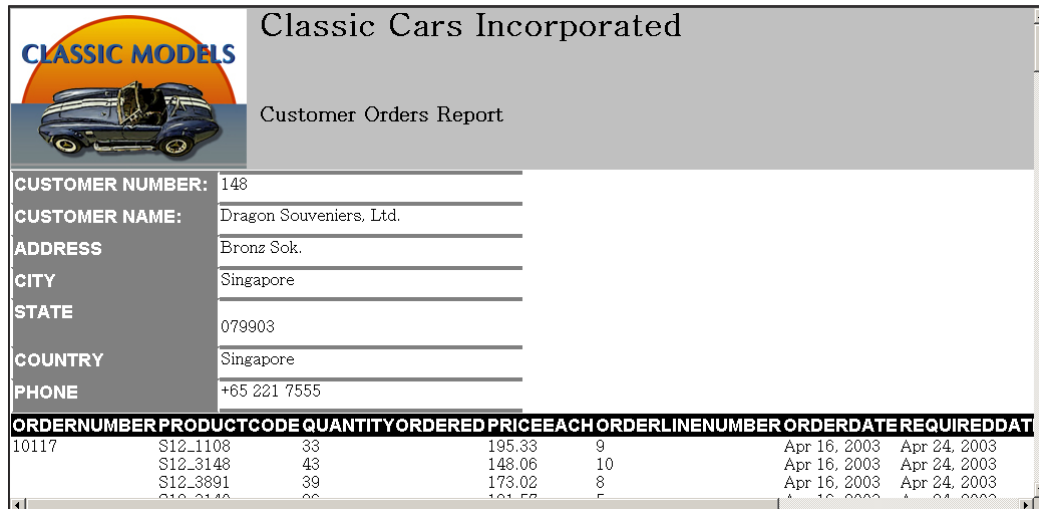
1. In the **Outline** tab, under the **Style** section, double-click on the CustomHeaderInfo style or right-click and select **Edit Style....**



2. Select the **Border** Section. Under the **Top** and **Bottom** colors, select **Gray**.



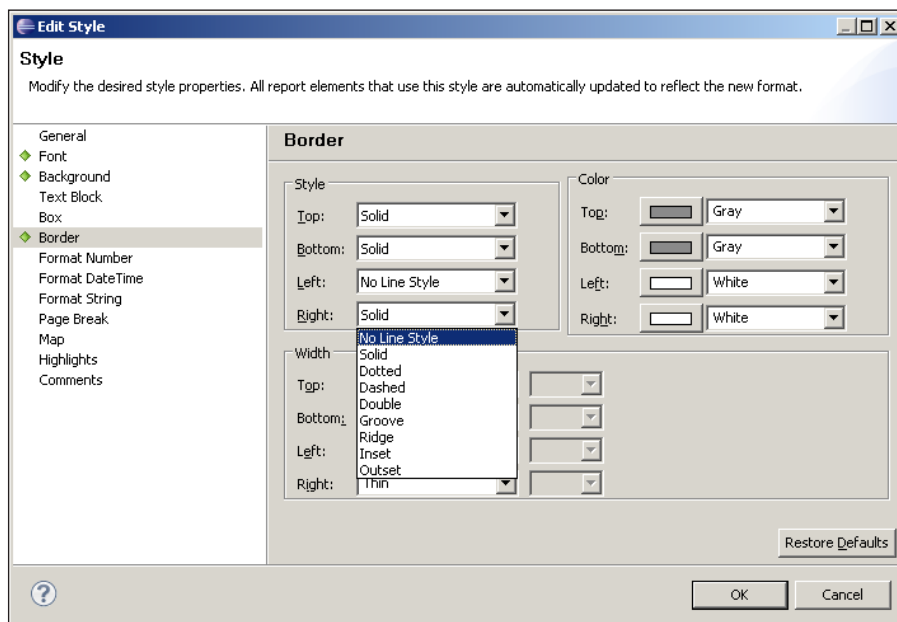
That was easy enough. Let's take a look at the report as it stands:



| ORDERNUMBER | PRODUCTCODE | QUANTITY | ORDERED PRICE | EACH ORDER | LINENUMBER | ORDERDATE    | REQUIRED DATE |
|-------------|-------------|----------|---------------|------------|------------|--------------|---------------|
| 10117       | S12_1108    | 33       | 195.33        | 9          |            | Apr 16, 2003 | Apr 24, 2003  |
|             | S12_3148    | 43       | 148.06        | 10         |            | Apr 16, 2003 | Apr 24, 2003  |
|             | S12_3891    | 39       | 173.02        | 8          |            | Apr 16, 2003 | Apr 24, 2003  |

There is a gap of a few pixels between the label column and the data column. The following steps show how to get rid of that gap:

1. Select CustomHeaderInfo and open it for editing.
2. Select **Border**. Change the **Left** and **Right** line style to **No Line Style**.



3. Repeat steps 1 to 3 for CustomHeaderData.

Customer Orders.rptdesign

Show Report Parameters: Note: Current maximum number of data rows is limited to 500. (Click to change Preview Preferences)

**CLASSIC MODELS**

**Classic Cars Incorporated**

Customer Orders Report

**CUSTOMER NUMBER:** 148

**CUSTOMER NAME:** Dragon Souvenirs, Ltd.

**ADDRESS:** Bronz Sok.

**CITY:** Singapore

**STATE:** 079903

**COUNTRY:** Singapore

**PHONE:** +65 221 7555

| ORDERNUMBER | PRODUCTCODE | QUANTITYORDERED | PRICEEACH | ORDERLIN |
|-------------|-------------|-----------------|-----------|----------|
| 10117       | S12_1108    | 33              | 195.33    | 9        |
|             | S12_3148    | 43              | 148.06    | 10       |
|             | S12_3891    | 39              | 173.02    | 8        |
|             | S12_3140    | 20              | 101.52    | 5        |

Layout Master Page Script XML Source Preview

## Alternating row colors using Highlights

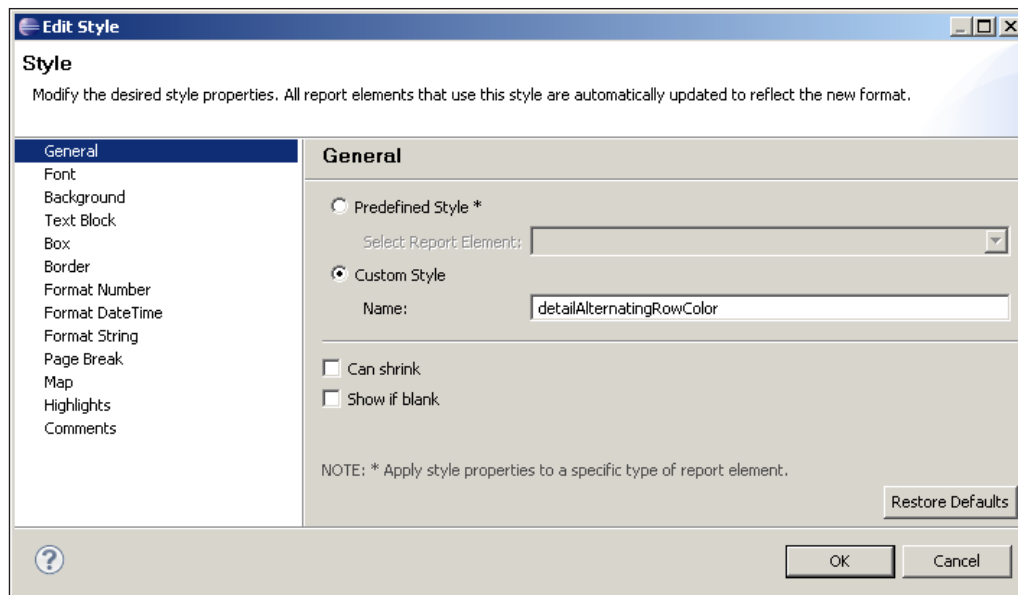
So far the report we are designing is coming along nicely. However, the details section leaves a little to be desired visually. It is hard to distinguish lines from each other, and it would be nice to have the first line of a new order be of a different color to distinguish it from the previous order. Well, we are in luck. BIRT provides a nice capability called **Highlight** that allows us to change formatting options based on a particular condition. What follows is a frequently requested report feature. We will add in an alternating row color to simulate the old fashioned "green bar" type reports.

Highlighting can be applied in one of two ways. It can be applied either to an element directly or in a style. There really is no difference in editing a style between the two. I will cover both methods.

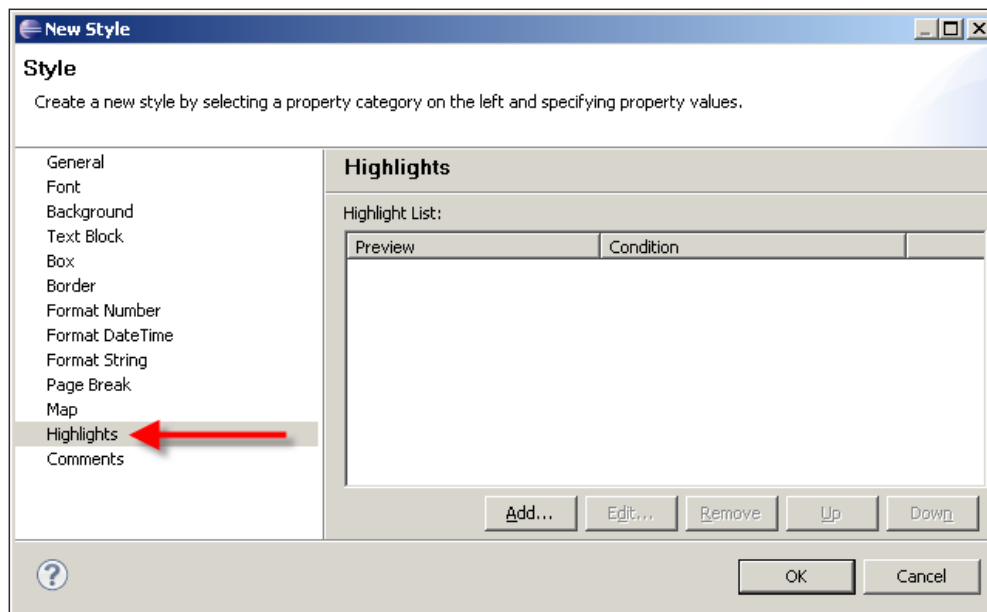
First, let's look at applying the alternating row color through a style:

1. Create a new style called detailAlternatingRowColor. A single word must be used, else an error will be thrown.

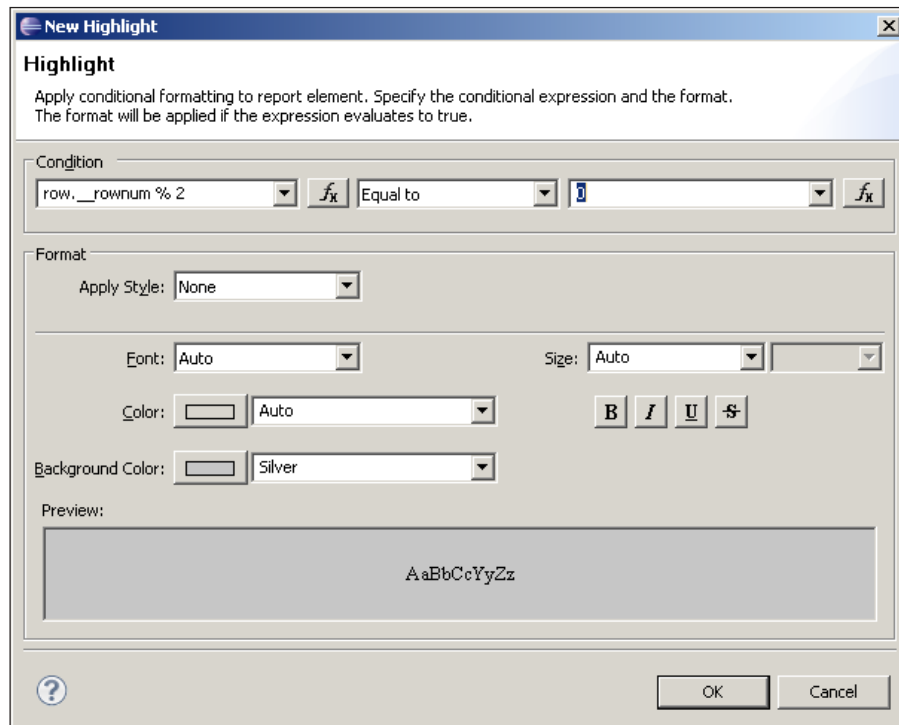




2. Select **Highlights** from the list of categories. Select **Add...**.



3. Use the following condition: `row.__rownum % 2`. This is an expression that will select every other row. We will discuss expression in more detail in *Chapter 10, Scripting and Event Handling*.
4. Set the operand to `Equals to`. This defines what type of comparison is used between the expression and what it expects as its final value.
5. Set the value to `0`. This defines what the expression's final value will cause this highlight to trigger.
6. Set the **Background color** to **Silver**.



7. Click **OK** and exit out of the **Style Editor**.
8. Select the **Detail** row for the `getCustomerOrders` table either from the **Visual Designer** or from the **Outline**.

Customer Orders.rptdesign

CUSTOMER NUMBER: [CUSTOMERNUMBER]

CUSTOMER NAME: [CUSTOMERNAME]

ADDRESS: [ADDRESSLINE1]

CITY: [CITY]

STATE: [STATE]

POSTAL CODE: [POSTALCODE]

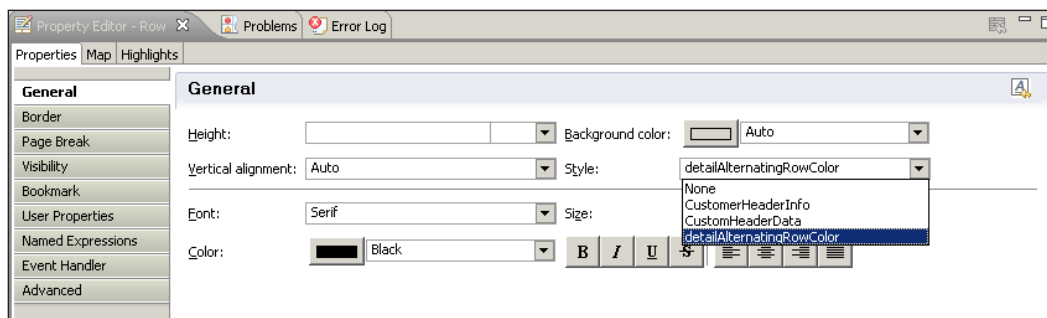
COUNTRY: [COUNTRY]

PHONE: [PHONE]

| ORDERNUMBER   | PRODUCTCODE   | QUANTITYORDERED   | PRICEEACH   | ORDERLINENUMBER   | ORDERDATE   | REQUIRED   |
|---------------|---------------|-------------------|-------------|-------------------|-------------|------------|
| [ORDERNUMBER] | [PRODUCTCODE] | [QUANTITYORDERED] | [PRICEEACH] | [ORDERLINENUMBER] | [ORDERDATE] | [REQUIRED] |
| Footer Row    |               |                   |             |                   |             |            |

Layout Master Page Script XML Source Preview

9. In the **Property Editor**, select **General**.
10. In the **Style** list box, select **detailAlternatingRowColor**.

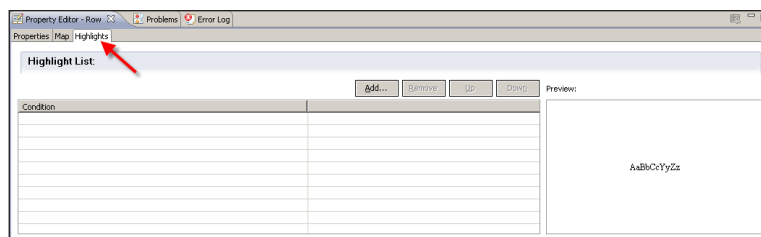


Now, when we run the report, we can see the detail row has the alternating colors we were looking for. We can easily apply this to any of the detail rows in our report.

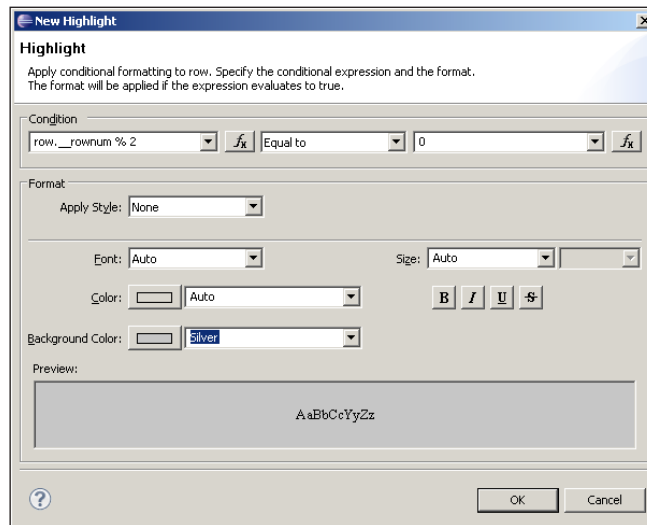
| Classic Cars Incorporated |                         |                 |           |
|---------------------------|-------------------------|-----------------|-----------|
| Customer Orders Report    |                         |                 |           |
| CUSTOMER NUMBER:          | 148                     |                 |           |
| CUSTOMER NAME:            | Dragon Souveniers, Ltd. |                 |           |
| ADDRESS                   | Bronz Sok.              |                 |           |
| CITY                      | Singapore               |                 |           |
| STATE                     | 079903                  |                 |           |
| COUNTRY                   | Singapore               |                 |           |
| PHONE                     | +65 221 7555            |                 |           |
| ORDERNUMBER               | PRODUCTCODE             | QUANTITYORDERED | PRICEEACH |
| 10117                     | S12_1108                | 33              | 195.33    |
|                           | S12_3148                | 43              | 148.06    |
|                           | S12_3891                | 39              | 173.02    |
|                           | S18_3140                | 26              | 121.57    |
|                           | S18_3259                | 21              | 81.68     |
|                           | S18_4027                | 22              | 122.08    |
|                           | S18_4522                | 23              | 73.73     |
|                           | S24_2011                | 41              | 119.2     |
|                           | S50_1514                | 21              | 55.65     |
|                           | S700_1938               | 38              | 75.35     |
|                           | S700_3962               | 45              | 89.38     |
|                           | S72_3212                | 50              | 52.42     |
| 10150                     | S10_1949                | 45              | 182.16    |
|                           | S10_4962                | 20              | 121.15    |
|                           | S12_1666                | 30              | 135.3     |
|                           | S18_1097                | 34              | 95.67     |
|                           | S18_2949                | 47              | 93.21     |
|                           | S18_2957                | 30              | 56.21     |
|                           | S18_3136                | 26              | 97.39     |

Now let's move to the next method – applying Highlighting property directly to an element.

1. Select the Detail row of the customer information table and remove the detailAlternatingRowColor style applied in the last two steps of the previous method.
2. With the Detail row selected, use the **Property Editor** and select the **Highlight** tab.



3. Click the **Add...** button.
4. Set the **Condition** as `row.__rownum % 2`.
5. Set the comparison operator to **Equal to**.
6. Set the value to **0**.
7. Set the **Background color** to **Silver**.



**New Highlight**

**Highlight**  
Apply conditional formatting to row. Specify the conditional expression and the format. The format will be applied if the expression evaluates to true.

**Condition**  
`row.__rownum % 2` **fx** **Equal to** `0` **fx**

**Format**  
 Apply Style: **None**

Font: **Auto** Size: **Auto**

Color: **Auto** **B** **I** **U** **&**

Background Color: **Silver**


Preview:  
 AaBbCcYyZz

OK Cancel

8. Click **OK**.
9. Preview the report.

Customer Orders.rptdesign

Show Report Parameters: Note: Current maximum number of data rows is limited to 500. (Click to change Preview Preferences)



**Classic Cars Incorporated**

Customer Orders Report

CUSTOMER NUMBER: 148

CUSTOMER NAME: Dragon Souvenirs, Ltd.

ADDRESS: Bronx Sok.

CITY: Singapore

STATE: 079903

COUNTRY: Singapore

PHONE: +65 221 7555

| ORDERNUMBER | PRODUCTCODE | QUANTITYORDERED | PRICEEACH | ORDERLINENUMBER | ORDERDATE    | REQUIREDDATE | SHIPPEDDATE  | STATUS  |
|-------------|-------------|-----------------|-----------|-----------------|--------------|--------------|--------------|---------|
| 10117       | S12_1108    | 33              | 195.33    | 9               | Apr 16, 2003 | Apr 24, 2003 | Apr 17, 2003 | Shipped |
|             | S12_3148    | 43              | 148.06    | 10              | Apr 16, 2003 | Apr 24, 2003 | Apr 17, 2003 | Shipped |
|             | S12_3891    | 39              | 173.02    | 8               | Apr 16, 2003 | Apr 24, 2003 | Apr 17, 2003 | Shipped |
|             | S18_3140    | 26              | 121.57    | 5               | Apr 16, 2003 | Apr 24, 2003 | Apr 17, 2003 | Shipped |
|             | S18_3259    | 21              | 81.68     | 7               | Apr 16, 2003 | Apr 24, 2003 | Apr 17, 2003 | Shipped |
|             | S18_4027    | 22              | 122.08    | 12              | Apr 16, 2003 | Apr 24, 2003 | Apr 17, 2003 | Shipped |
|             | S18_4532    | 23              | 73.73     | 4               | Apr 16, 2003 | Apr 24, 2003 | Apr 17, 2003 | Shipped |
|             | S24_2011    | 41              | 119.2     | 3               | Apr 16, 2003 | Apr 24, 2003 | Apr 17, 2003 | Shipped |
|             | S50_1514    | 21              | 55.65     | 11              | Apr 16, 2003 | Apr 24, 2003 | Apr 17, 2003 | Shipped |
|             | S700_1938   | 38              | 75.35     | 6               | Apr 16, 2003 | Apr 24, 2003 | Apr 17, 2003 | Shipped |
|             | S700_3962   | 45              | 89.38     | 1               | Apr 16, 2003 | Apr 24, 2003 | Apr 17, 2003 | Shipped |
|             | S72_3212    | 50              | 52.42     | 2               | Apr 16, 2003 | Apr 24, 2003 | Apr 17, 2003 | Shipped |

Layout: Master Page | Script | SQL Source | Preview

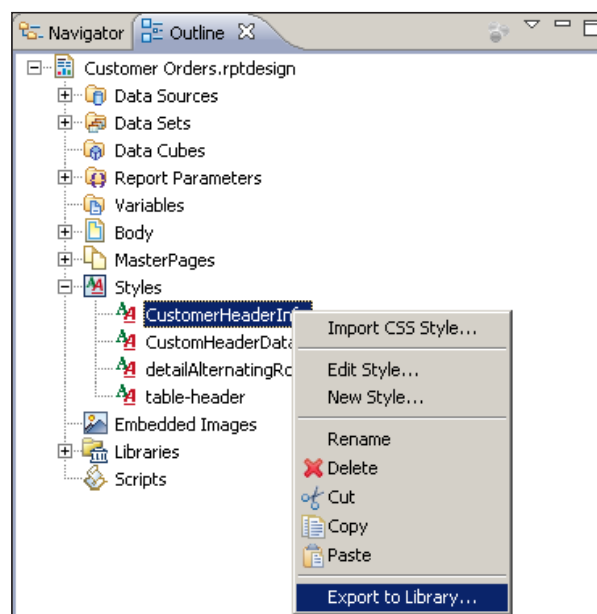
Just like with the previous example, we have an alternating row color in the details section. The only difference is where this is applied. In the first example it is applied as a style, whereas in the second it is applied to the detail row directly.

## Creating themes

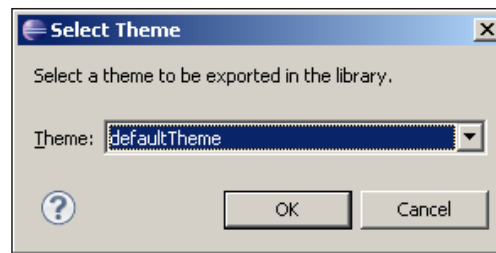
Using the power of stylesheets and libraries, one has the ability to apply general formatting to an entire report design using themes and reuse these among different reports. Themes provide a simple mechanism to apply a wide range of styles to an entire report design without the need to manually apply them.

The following example will move the styles that we have created in our library and will show how to apply them to our report using a theme.

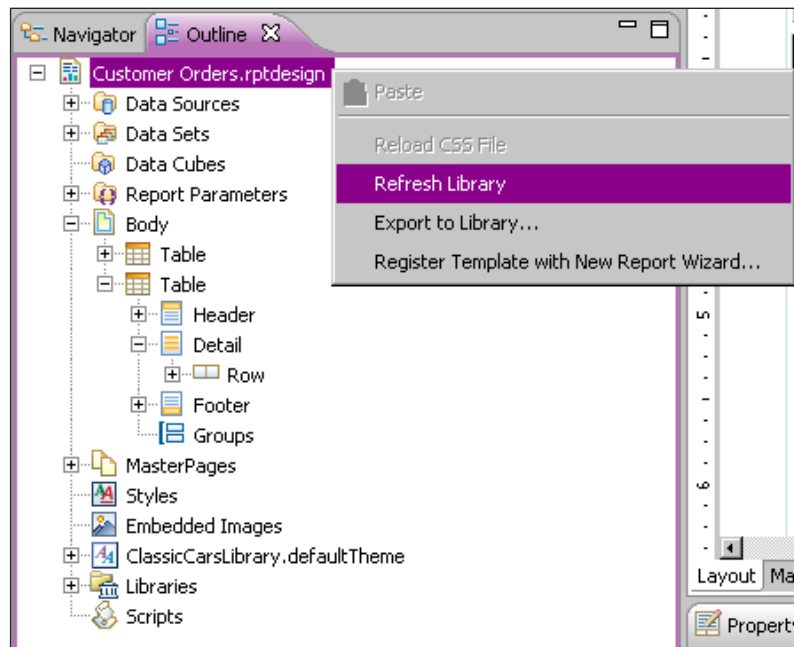
1. For each of the styles we have created, select them under the **Outline** tab and choose **Export to Library....**



2. Choose the ClassicCarsLibrary.rptLibrary file.
3. All of the styles will reside under the defaultTheme themes section, so select this from the drop-down list that appears next to the **Theme** option.

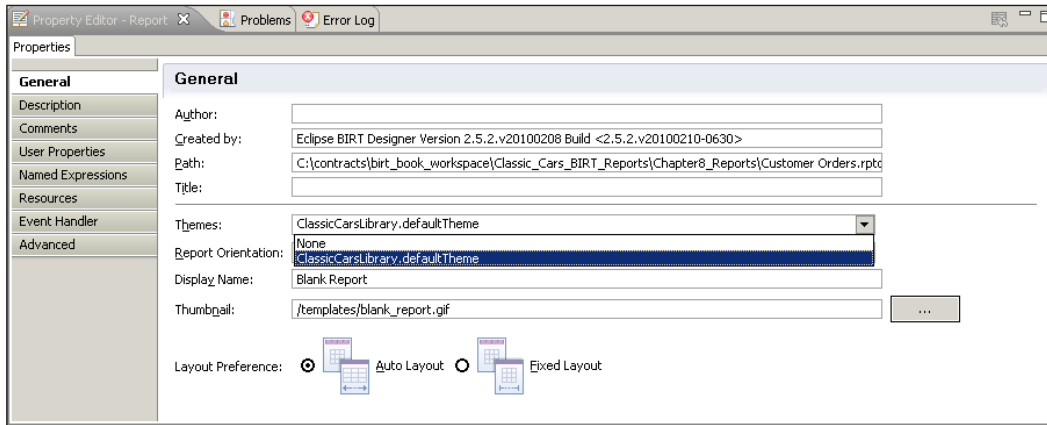


4. Repeat these steps for all styles we have created in `Customer Orders.rptDesign`.
5. Delete all of the styles stored in the `Customer Orders.rptDesign` file. You will notice all the styles disappear from the report designer.
6. In the **Outline** tab, under the `Customer Orders.rptDesign` file, select the root element titled `Customer Orders.rptDesign`. Right-click the element and select **Refresh Library**.



7. The library should already be shared since we built the report using the library's data source and datasets. If it is not, open the **Resource Explorer**, choose `ClassicCarsLibrary.rptLibrary`, right-click and choose **Use Library**.

- Under the **Property Editor**, change the **Themes** drop down to `ClassicCarsLibrarydefaultTheme`.



- When we apply the theme, we will see the detail table header automatically apply the style for table-header.
- Apply the remaining custom styles to the two columns in the customer information section and the order detail row.

Now, we know that we can create several different themes by grouping styles together in libraries. So, when developing reports, you can create several different looks that can be applied to reports, simply by applying themes to reports with the help of libraries.

## Using external CSS stylesheets

Another stylesheet feature is the ability to use external stylesheets and simply link to them. This works out very well when report documents are embedded into existing web portals by using the portals stylesheets to keep a consistent look and feel. This creates a sense of uniformity in the overall site.

Imagine that our graphics designer gives us a CSS file and asks us to design our reports around it. There are two ways one can use CSS files in BIRT:

- Importing CSS files
- Using CSS as a resource

In the following examples we are going to illustrate both scenarios. I have a CSS file containing six styles – five styles that are for predefined elements in reports and one style that is a custom style.



The following is the CSS stylesheet for the given report:

```
.page {
    background-color: #FFFFFF;
    font-family: Verdana, Arial, Helvetica, sans-serif;
    font-size: 12px;
    line-height: 24px;
    color: #336699;
}

.table-group-footer-1 {
    font-family: Verdana, Arial, Helvetica, sans-serif;
    font-size: 12px;
    line-height: 24px;
    color: #333333;
    background-color: #FFFFCC;
}

.title {
    font-family: Verdana, Arial, Helvetica, sans-serif;
    font-size: 24px;
    line-height: 40px;
    background-color: #99CC00;
    color: #003333;
    font-weight: bolder;
}

.table-header {
    font-family: Verdana, Arial, Helvetica, sans-serif;
    font-size: 20px;
    background-color: #669900;
    color: #FFFF33;
}

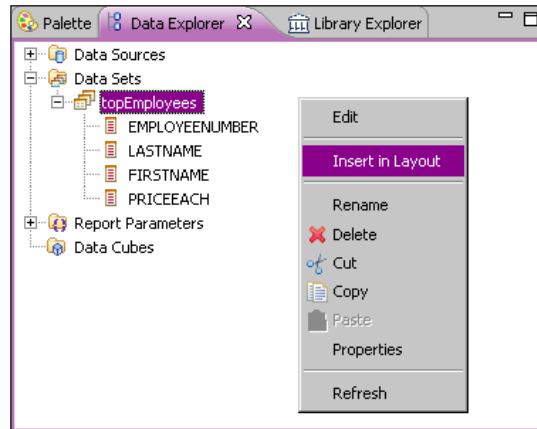
.table-footer {
    font-family: Arial, Helvetica, sans-serif;
    font-size: 14px;
    font-weight: bold;
    line-height: 22px;
    color: #333333;
    background-color: #CCFF99;
}
```

1. Create a new report titled *Top Employees*, under the *Classic Cars - with Library* project.
2. Import the `dsClassicCars` data source from `ClassicCarsLibrary.rptLibrary`.
3. Create a new dataset called `topEmployees` using the following query:

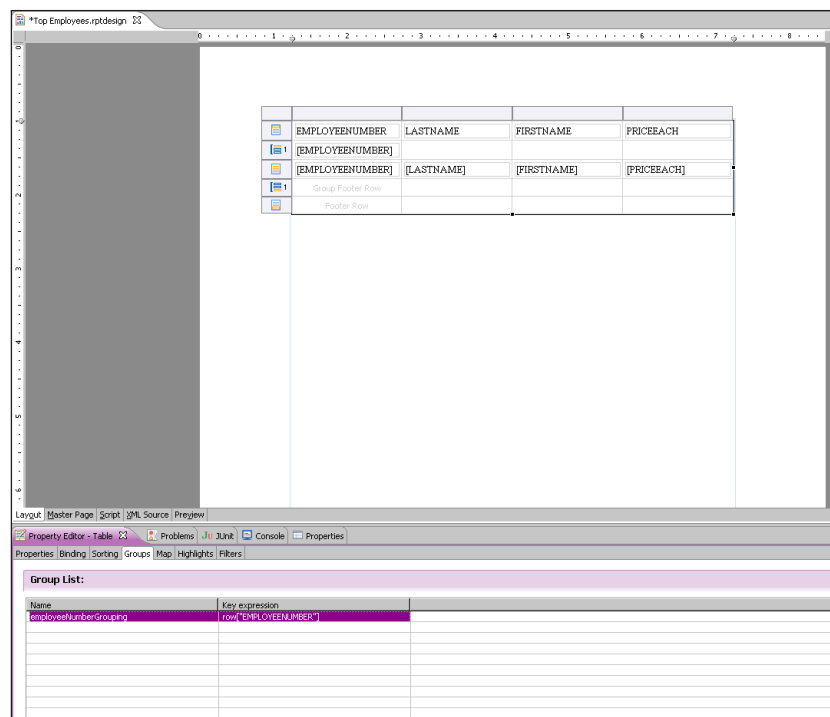
4. Create two date parameters, `startDate` and `endDate`, and link them to the two dataset parameters in `topEmployees`.



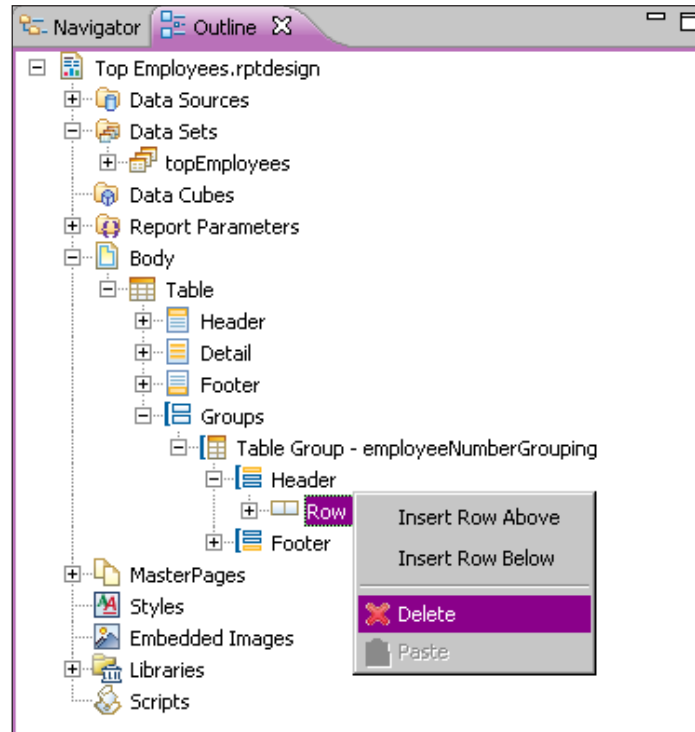
5. Insert the `topEmployees` dataset into the report design.



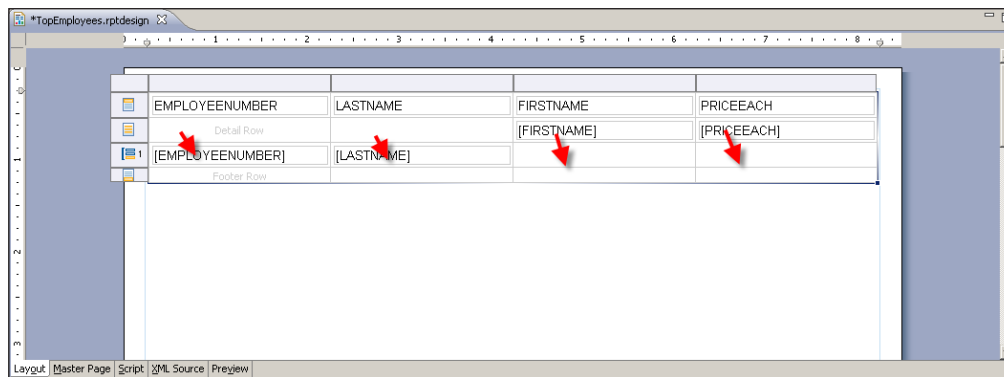
6. Create a grouping on the `EmployeeNumber` field in the table and call it `employeeNumberGrouping`.
7. The following screenshot shows the table after the grouping has been created:



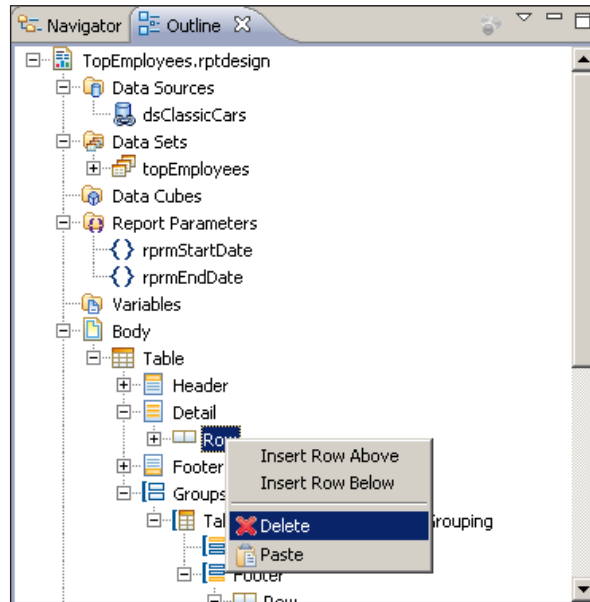
8. In the **Outline** tab, delete the row under the Groups header.



9. Drag-and-drop all of the data elements from the Tables Detail row cells into the Table Group Footers cells.

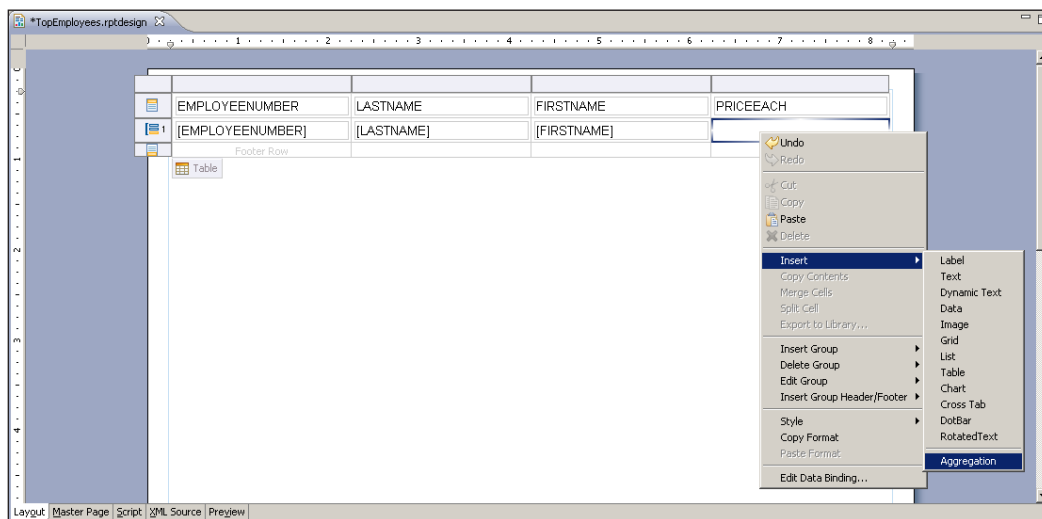


10. Delete the **Detail | Row** from the Table.

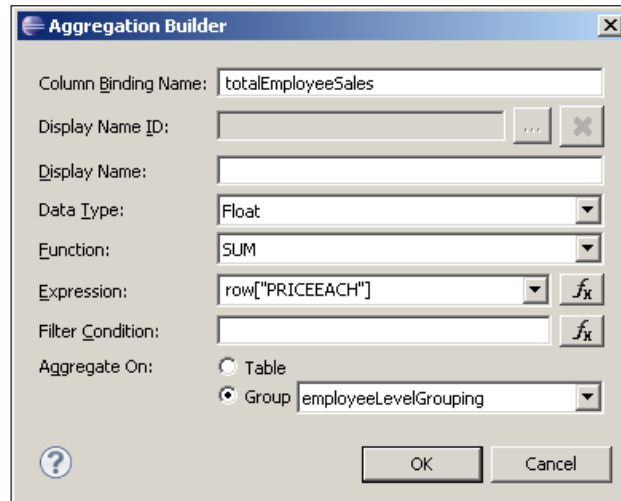


11. Delete the PRICEEACH data report item.

12. Right-click on the cell where PRICEEACH was located and select **Insert | Aggregation**.



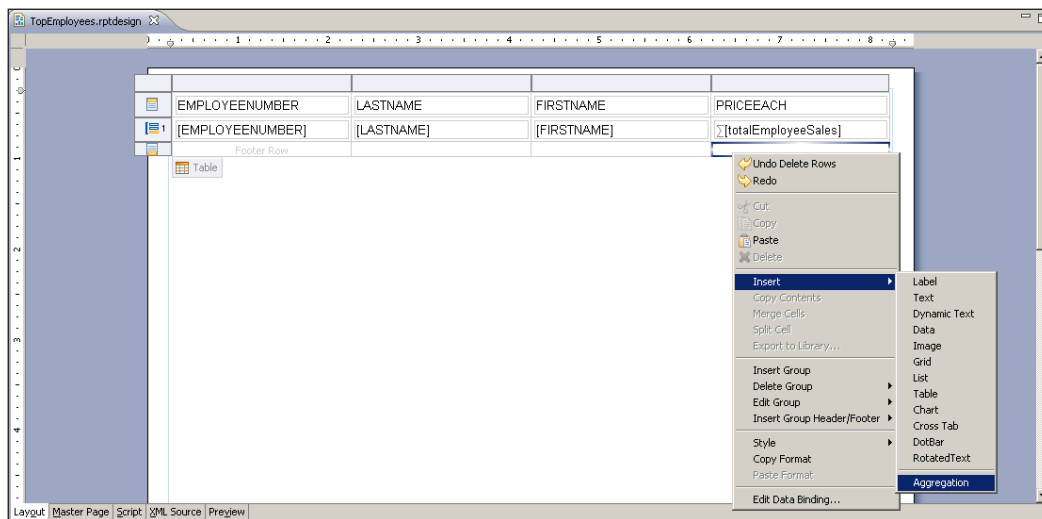
13. Fill in the following information:



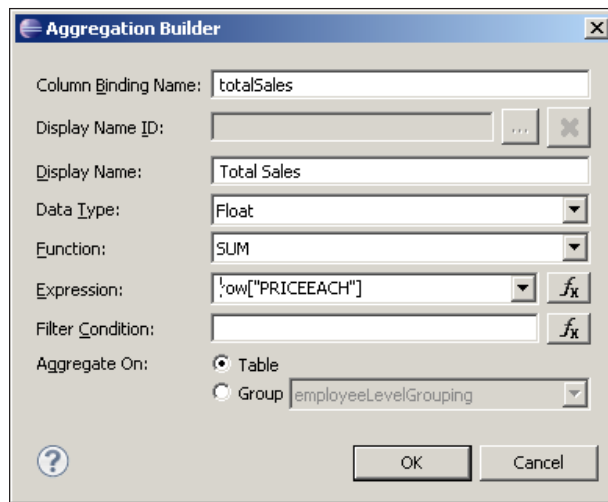
The Aggregation Builder dialog box is shown with the following settings:

- Column Binding Name: totalEmployeeSales
- Display Name ID: (empty)
- Display Name: (empty)
- Data Type: Float
- Function: SUM
- Expression: row["PRICEEACH"]
- Filter Condition: (empty)
- Aggregate On: ☒ Group employeeLevelGrouping

14. Select the last column in the Table Footers row, right-click on it and select **Insert | Aggregation**.



15. Set the aggregation name to totalSales, type to SUM, value to the PRICEEACH column, and the group level to **Table**.

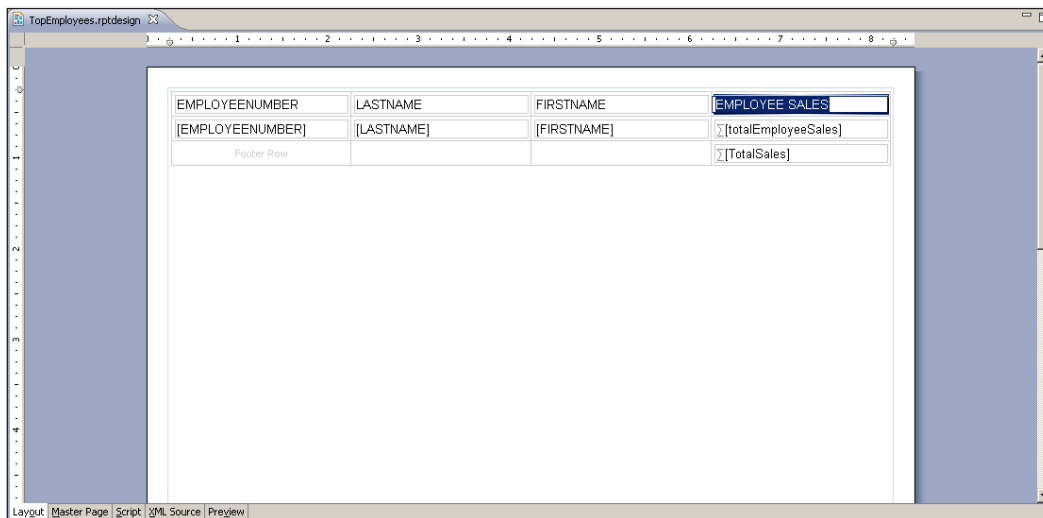


The Aggregation Builder dialog box is shown with the following settings:

- Column Binding Name: totalSales
- Display Name ID: (empty)
- Display Name: Total Sales
- Data Type: Float
- Function: SUM
- Expression: row["PRICEEACH"]
- Filter Condition: (empty)
- Aggregate On: ☒ Table, ☐ Group (employeeLevelGrouping)

Buttons: OK, Cancel, and a help icon (?) are at the bottom.

16. Click on the Table header row and change the text alignment to left.
17. Click on the header label for PRICEEACH and change it to **EMPLOYEE SALES**.

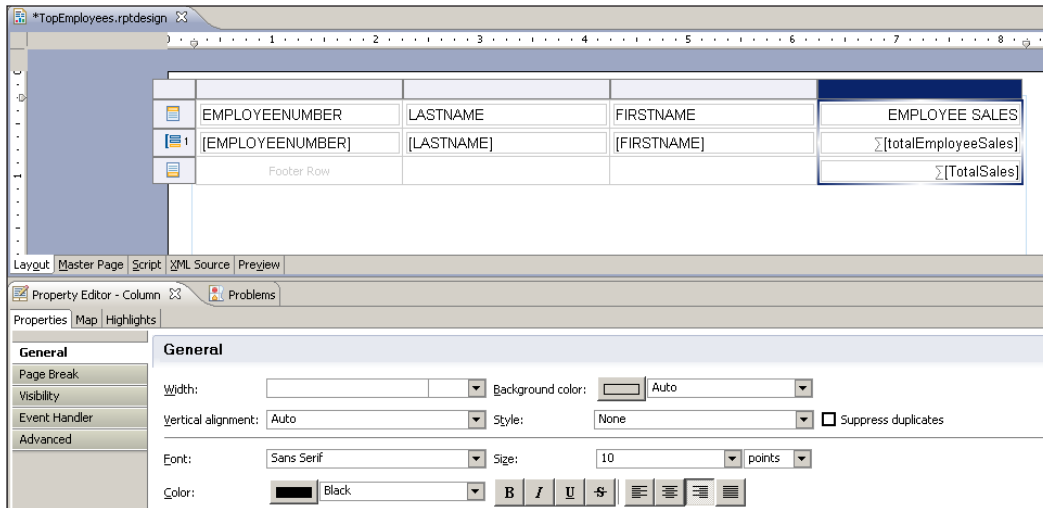


The screenshot shows the design view of a report table. The table has four columns: EMPLOYEEENUNBER, LASTNAME, FIRSTNAME, and EMPLOYEE SALES. The EMPLOYEE SALES column is highlighted with a blue border. The table structure is as follows:

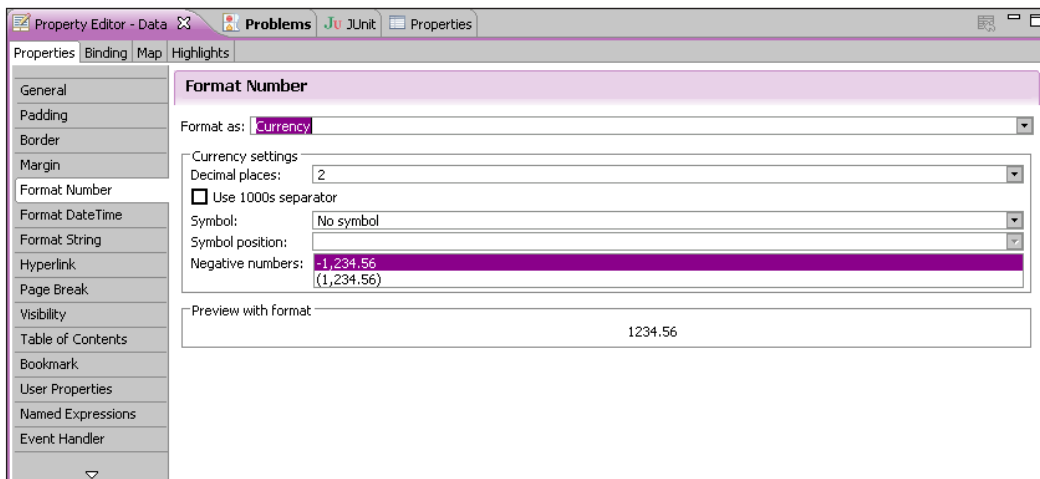
| EMPLOYEEENUNBER   | LASTNAME   | FIRSTNAME   | EMPLOYEE SALES         |
|-------------------|------------|-------------|------------------------|
| [EMPLOYEEENUNBER] | [LASTNAME] | [FIRSTNAME] | Σ [totalEmployeeSales] |
| Footer Row        |            |             | Σ [TotalSales]         |

The bottom of the window shows tabs for Layout, Master Page, Script, XML Source, and Preview.

18. Click on the last column and change the text alignment to right. Because this is a currency field, we want this to be right justified, which is normal for accounting-related reporting.

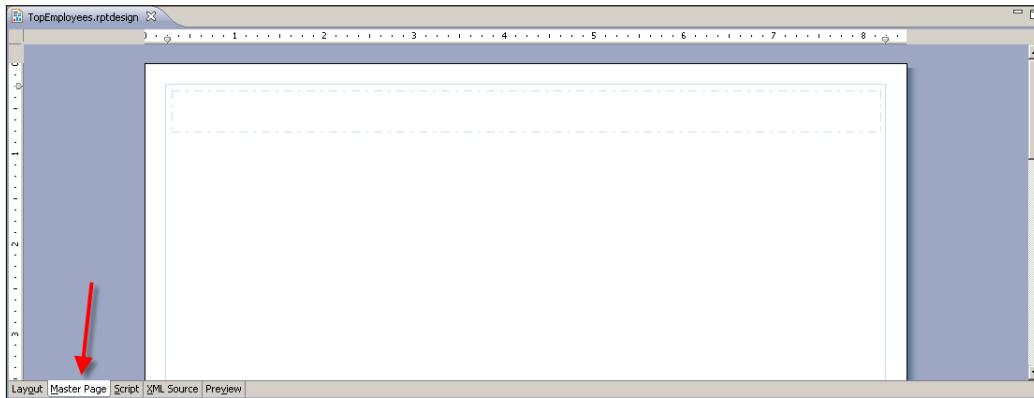


19. In the data elements for totalEmployeeSales and totalSales, change the **Format Number | Format as value** to Currency.





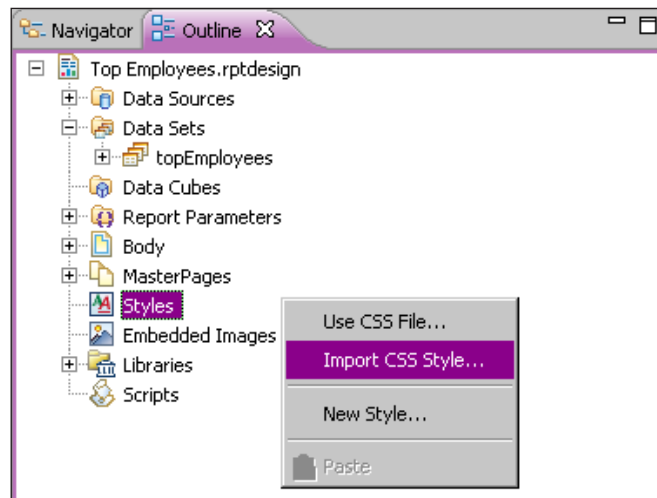
20. Select the **Master Page** tab in the Report Designer.



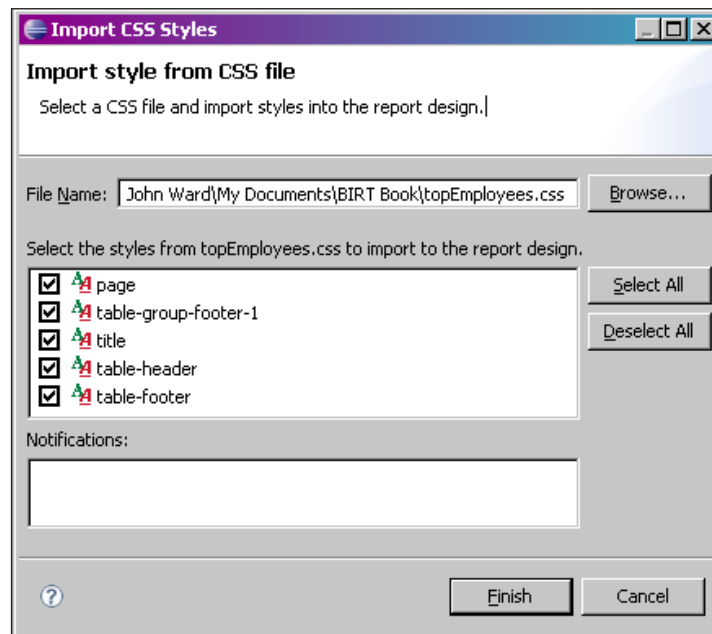
21. Drag a label over to the header and enter **Top Employees**.

| Top Employees        |           |           |                |
|----------------------|-----------|-----------|----------------|
| EMPLOYEE NUMBER      | LASTNAME  | FIRSTNAME | EMPLOYEE SALES |
| 1165                 | Jennings  | Leslie    | 9137.12        |
| 1166                 | Thompson  | Leslie    | 1171.38        |
| 1188                 | Firrelli  | Julie     | 1013.86        |
| 1216                 | Patterson | Steve     | 2069.89        |
| 1286                 | Tseng     | Foon Yue  | 946.47         |
| 1323                 | Vanauf    | George    | 1649.76        |
| 1337                 | Bondur    | Loui      | 2119.26        |
| 1370                 | Hernandez | Gerard    | 11149.47       |
| 1401                 | Castillo  | Pamela    | 3974.08        |
| 1501                 | Bott      | Larry     | 4099.64        |
| 1504                 | Jones     | Barry     | 747.53         |
| 1611                 | Fixter    | Andy      | 3765.23        |
| 1612                 | Marsh     | Peter     | 3167.06        |
|                      |           |           | 45010.75       |
| Oct 11, 2007 9:54 PM |           |           |                |

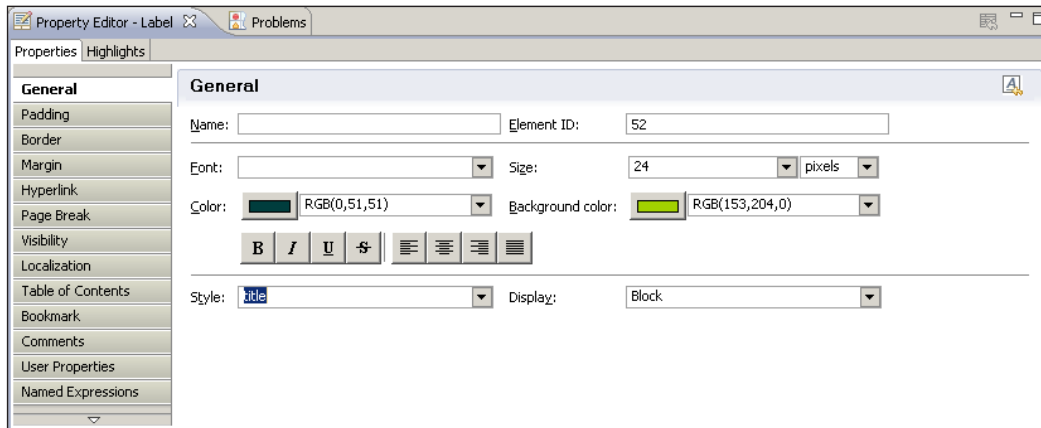
22. Now we need to import the stylesheet. I have it saved as `topEmployees.css`. In the **Outline** tab, right-click on **Styles** and select **Import CSS Style...**.



23. From the dialog, navigate to where the CSS file is saved and select it.
24. The dialog will show a list of styles in the CSS file. Click the **Select All** button next to the list of styles.



25. Click **Finish**. We will see all of the predefined styles getting applied automatically.
26. **TITLE**, which is one of the styles defined in the CSS, is a custom style and will not automatically be defined. We need to apply it manually to the label in the Master Page. Select the label under **Master Page** and in the **General** section under the **Property Editor** tab, select **Title** from the **Style** listbox.



27. Preview the report.

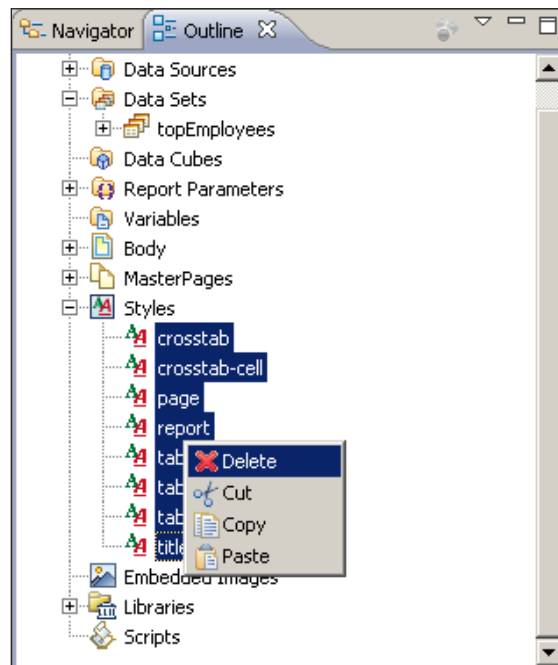
| Top Employees         |           |           |                 |
|-----------------------|-----------|-----------|-----------------|
| EMPLOYEE NUM          | LASTNAME  | FIRSTNAME | EMPLOYEE SALES  |
| 1165                  | Jennings  | Leslie    | 9137.12         |
| 1166                  | Thompson  | Leslie    | 1171.38         |
| 1188                  | Firrelli  | Julie     | 1013.86         |
| 1216                  | Patterson | Steve     | 2069.89         |
| 1286                  | Tseng     | Foon Yue  | 946.47          |
| 1323                  | Vanauf    | George    | 1649.76         |
| 1337                  | Bondur    | Loui      | 2119.26         |
| 1370                  | Hernandez | Gerard    | 11149.47        |
| 1401                  | Castillo  | Pamela    | 3974.08         |
| 1501                  | Bott      | Larry     | 4099.64         |
| 1504                  | Jones     | Barry     | 747.53          |
| 1611                  | Fixter    | Andy      | 3765.23         |
| 1612                  | Marsh     | Peter     | 3167.06         |
|                       |           |           | <b>45010.75</b> |
| Oct 11, 2007 10:08 PM |           |           |                 |

It is important to note when creating external stylesheets that as long as the style name corresponds to the BIRT Element name and is preceded by a dot, it will be applied automatically. In this earlier example, everything except TITLE was applied automatically because there is not a BIRT element called TITLE. A list of BIRT predefined style elements is available in the BIRT Style Editor, under the **Pre-Defined** drop-down list. If we decide to use predefined styles, the style will apply to all elements in a report unless explicitly overridden.

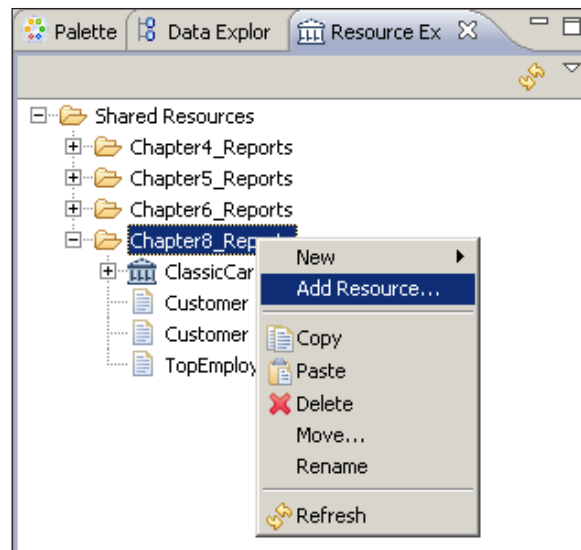
## Using CSS as a resource

Another option is to import the CSS style as a report project resource and use the file in our resources folder.

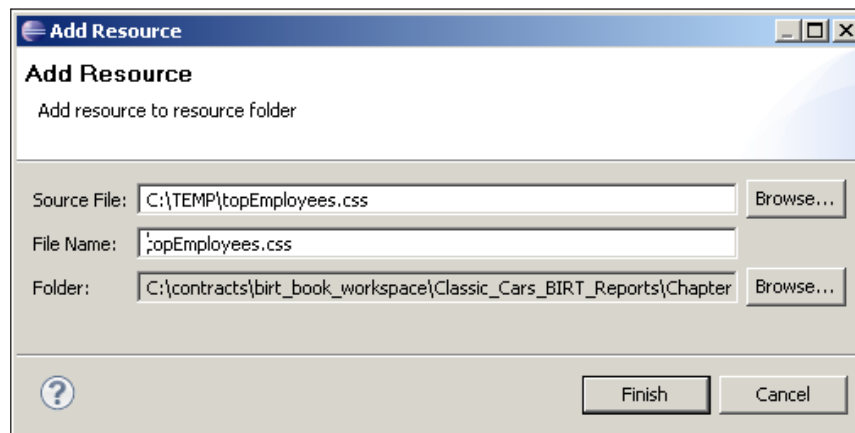
1. Delete the styles in the Top Employees report.



2. Open the **Resource Explorer**.
3. Right-click on either the **Shared Resources** section or one of our project subfolders, and choose **Add Resource**.

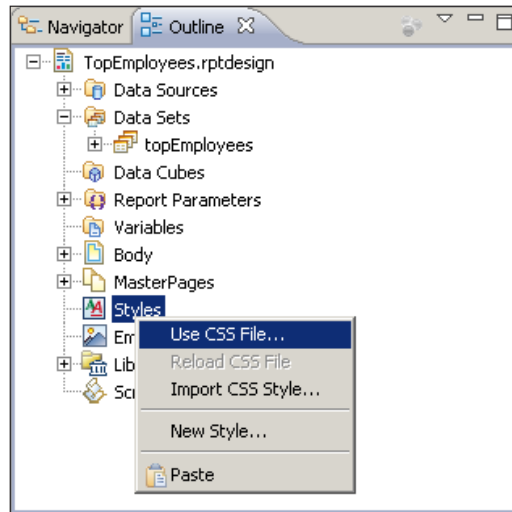


4. Navigate to where the `topEmployees.css` file is located and click **Finish**.

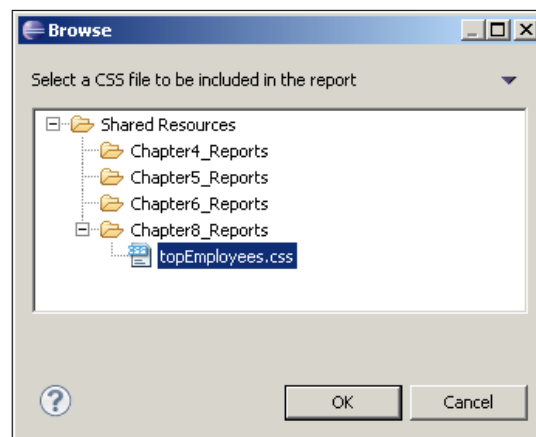


5. The CSS file is now part of your project resources. In the **Outline** tab, right-click on **Styles** and select **Use CSS File....**

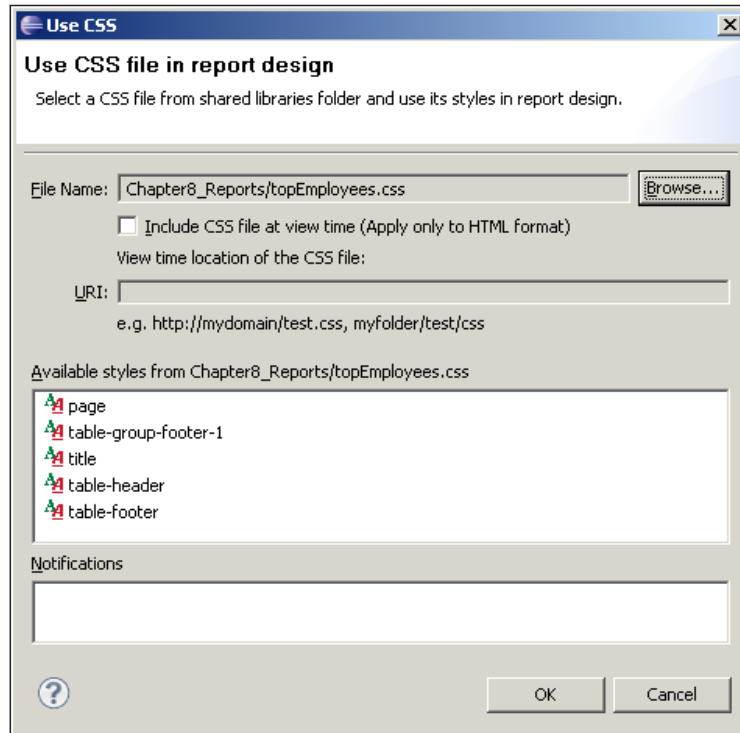
[  If **Use CSS...** is chosen from the **Resource Explorer**, step 6 can be skipped. ]



6. From the **Use CSS...** dialog, click on the **Browse** button to select file.
7. We will see two tree view nodes, with the **Shared Resources** folder available to be expanded. Expand the **Shared Resources** folder and select the **topEmployees.css** file.

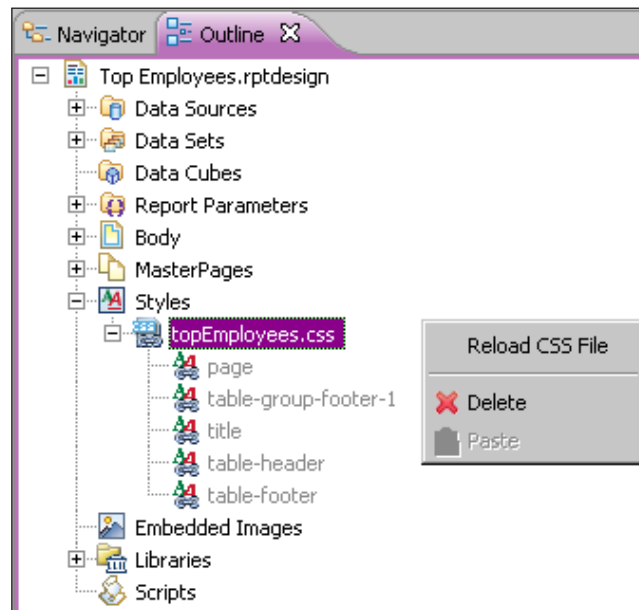


8. A list of styles will show up under the **Available styles...** box. Just click **OK** as there is no option to select individual styles.



9. The styles that are predefined BIRT element names get automatically applied. Go ahead and apply the custom style of title to the master page header section.

We might notice that the **Styles** section in the **Outline** tab is a little different. Rather than displaying the styles themselves, when using a resource, it shows the CSS filename, and when we right-click on the filename, we have the option to reload. This allows users to make changes to the external CSS file and reload them into the BIRT report without having to re-import the CSS file.



## Templates

Templates are predesigned report layouts. We have been using templates throughout the entire book, when we create the Blank report. Let's expand the conversation and take a look at using templates to set up for the detail reports that we will build in the next chapter.

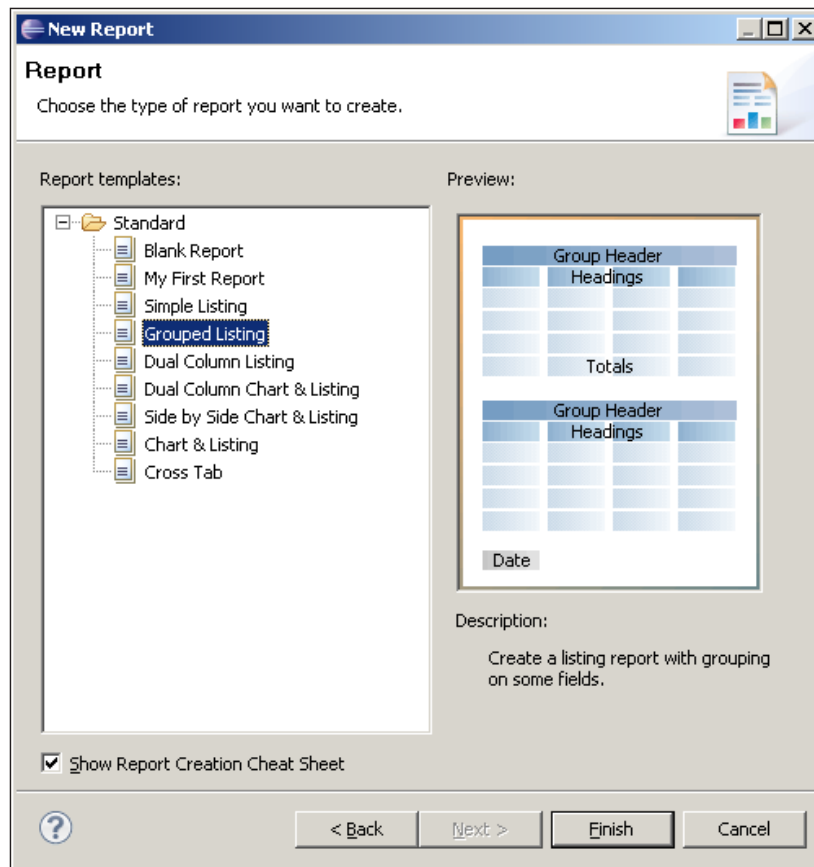
## Building a report from a template

Templates, for the most part, take the leg work out of having to recreate the same layout over and over again. For instance, in this book we have constantly dragged over a single dataset into the report designer to create a single listing report. With templates, we could either use the existing, canned Listing Report template or build our own, saving your time for more complex tasks. It's as simple as creating a new report, using a template, and following the Cheat Sheets.

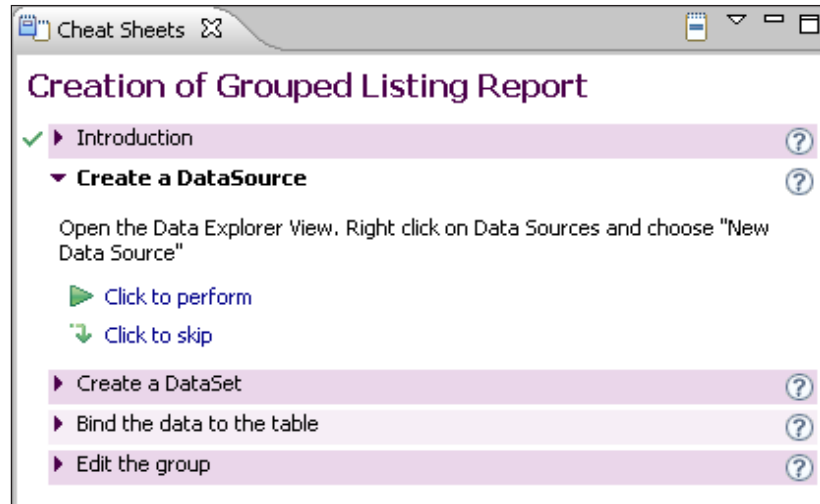


In this example, we are going to use a **Grouped Listing** report template to create a simple Employee Sales Detail report, which we will use as a target for a drill down report (explained in the next chapter).

1. Create a new report called `Employee Sales Details Report.rptDesign`. Do not go through the wizard; stop at the template selection dialog.
2. On the **New Report – Template** screen, select **Grouped Listing** report.



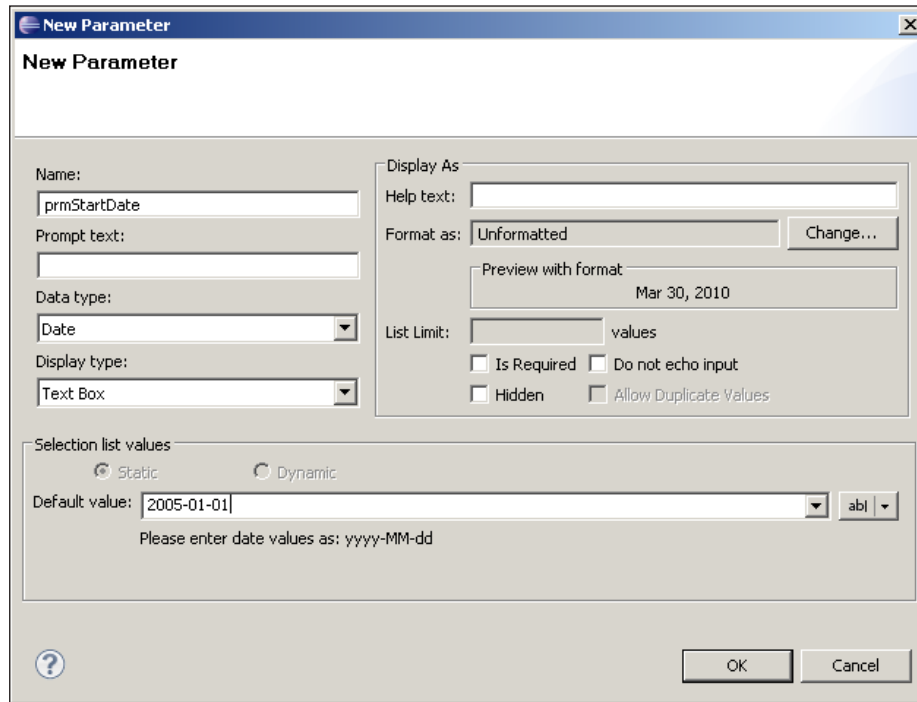
- When the report design opens, the Cheat Sheet is open on the right-hand side. It lays out a series of steps to create a basic report. As we already have the data source created in our library, go ahead and add the data source from the library, and click on the skip option for the data source hint.



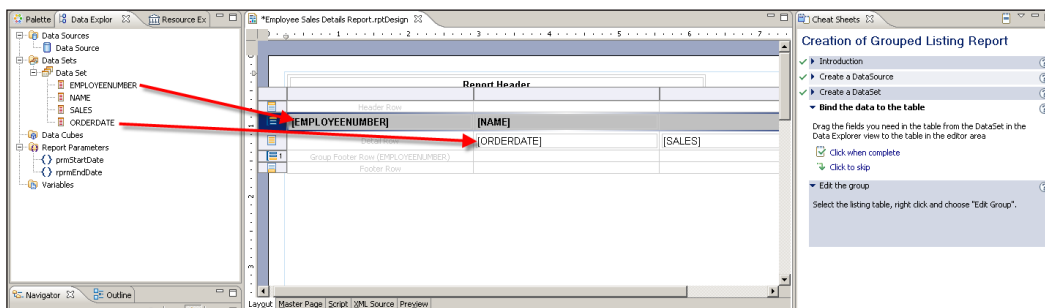
- For the dataset, click on the **Click to perform** option. Name the dataset Get Employee Sales, and use the following query:

```
select
    EMPLOYEES.EMPLOYEENUMBER,
    EMPLOYEES.LASTNAME || ', ' || EMPLOYEES.FIRSTNAME name,
    ORDERDETAILS.PRICEEACH sales,
    ORDERS.ORDERDATE
from
    EMPLOYEES,
    CUSTOMERS,
    ORDERS,
    ORDERDETAILS
where
    ORDERS.ORDERNUMBER = ORDERDETAILS.ORDERNUMBER
    and EMPLOYEES.EMPLOYEENUMBER = CUSTOMERS.
SALESREPEMPLOYEENUMBER
    and ORDERS.CUSTOMERNUMBER = CUSTOMERS.CUSTOMERNUMBER
    and ORDERS.ORDERDATE between ? and ?
```

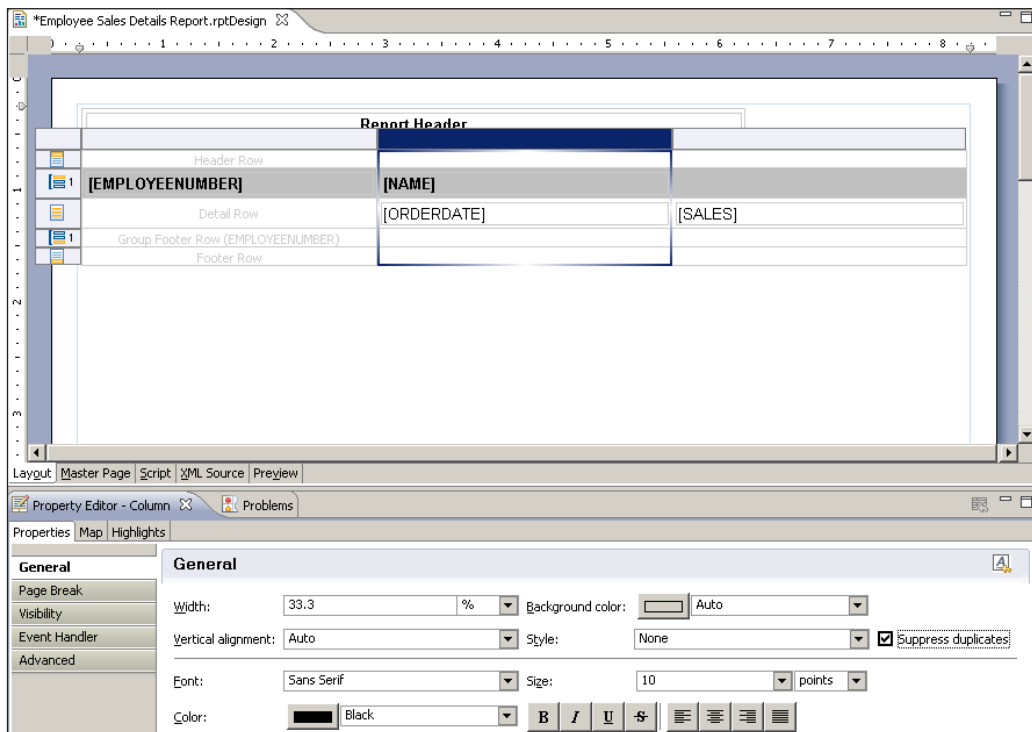
5. Create two report parameters called `startDate` and `endDate`, and bind them to the data set parameters. For `startDate`, use the default value of 2005-01-01, and for `endDate`, use the default parameter of 2005-04-01.



6. When we are back at the Cheat Sheet, we click on **Click to Complete** for the dataset.
7. For the **Edit Date Binding** cheat sheet section, drag the fields over like next screenshot. Make the Group Header row appear with a silver background and the text appear in bold.

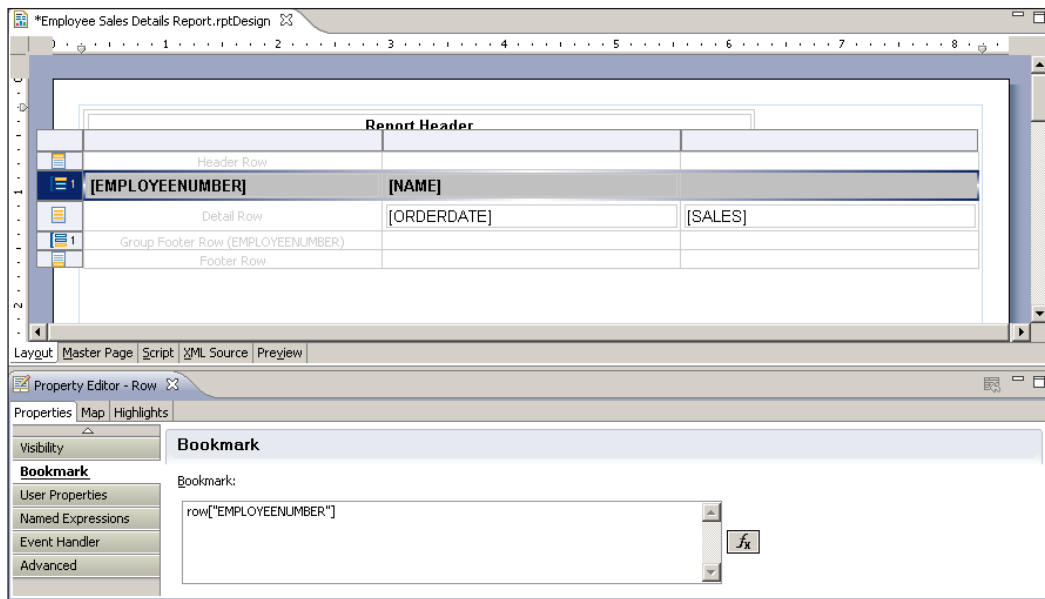


8. When we drag EmployeeNumber over, it will automatically create the group on the EmployeeNumber express. Just be sure to drag it to the GroupHeader section as illustrated in the screenshot.
9. Select the column with the Name and OrderDate fields, and select **Suppress duplicates**.



10. Select the Group Header row, and under the **Property Editor**, choose the **Bookmark** tab. Use the following expression:

`row [ "EMPLOYEEENUNBER" ]`



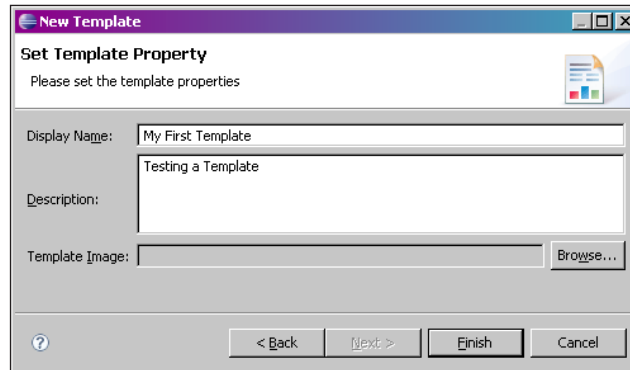
Now we have built a report based on a template. Consuming other templates is similar, where a Cheat Sheet can be used.

## Creating a template

Creating templates can be done by using the new file menu. From there, new templates can be registered with BIRT to be shown on the **New Report** wizard. Let's take a look at creating a new template from scratch.

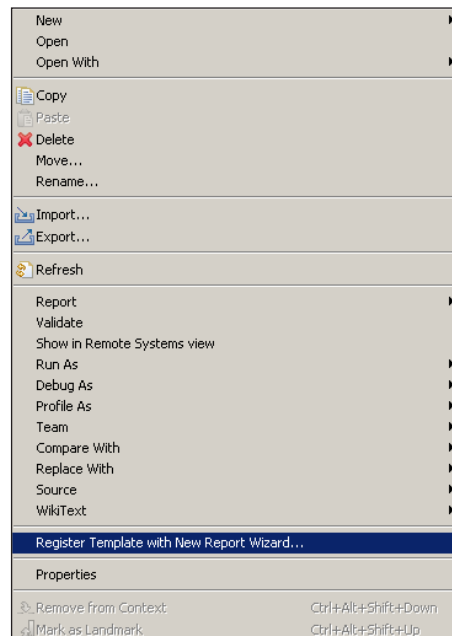
1. Go to **File | New | Template**.
2. Call the template as `myNewTemplate.rptTemplate`.
3. Enter **My First Template** for the **Display Name**.
4. Enter **Testing a new Template** for the **Description**.

5. If we have an image, we can associate it with one with our template using the **Template Image** option.

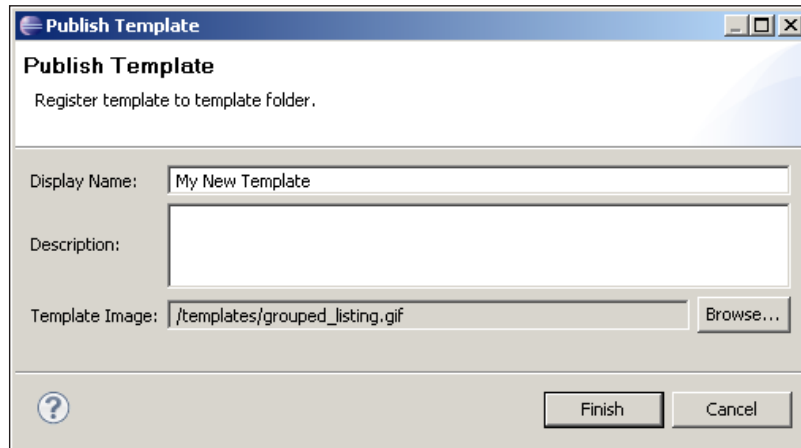


Now we have a new template to create reports from. Go into the template and create any sort of layout you would like, just like with a regular report design, and save that layout. When we want to use this template, we can simply open it and save it as a report design. If we wish to show this up in the **New Report** wizard, let's use the following steps.

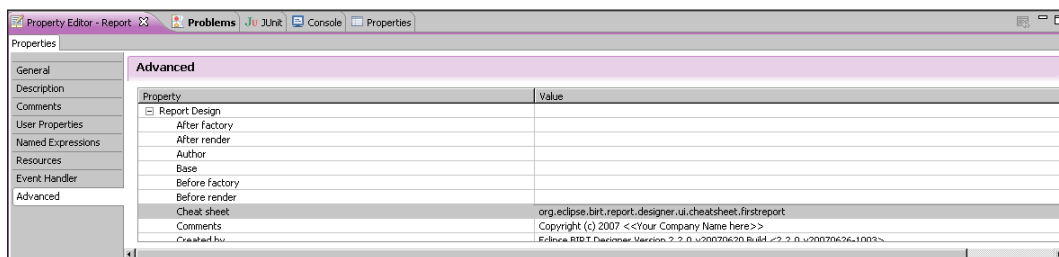
1. In the **Navigator**, right-click on the template we just created and select **File | Register Template with New File Wizard....**



2. Follow the wizard to create a new template.



So, what about the Cheat Sheets that we saw in the canned templates? Well, Cheat Sheets are simply XML files that explain the steps that are installed as Eclipse plugins. Describing how to do so is beyond the scope of this book. However, it is possible to create new Cheat Sheets if we are familiar with the process. So, let's say we want to associate the My First Report template cheat sheet with the template we just created. Under the Report Properties/Properties, we would put in the plugin class under the Cheat Sheet Property. The Dev2Dev article, *Building Cheat Sheets in Eclipse*, provides a good tutorial on building Cheat Sheets, and is available at <http://www.oracle.com/technology/pub/articles/dev2arch/2006/08/eclipse-cheat-sheets.html>.



## Summary

This chapter showed you how to create styles and themes that can be used to create a consistent appearance for our reporting projects. This becomes important later when we have report projects with a large number of reports, and we do not want to spend a whole lot of development time on formatting.

The chapter also covered how to work with external CSS files in report projects. This is useful if our reporting project will be part of a larger web portal and we want to maintain a uniform look and feel throughout the site. We can also create templates using these stylesheets, and use these templates as a starting point for all our reports so that we do not need to repeat the steps to include stylesheets.

The next chapter will look at Charts and Drilldowns. We will be using the Employee Sales report that we built in this chapter as a detail for a summary chart report.