ABSTRACT
This tutorial guides you through the task of building a report with SAS® Web Report Studio. You will begin by using the Report Wizard, which provides a step-by-step process for building a simple report. After the initial report is created, you will use the Edit Report and View Report views to modify the report. The report modifications will include adjusting the various properties of the report objects that are created by the Report Wizard and adding additional report objects.

INTRODUCTION
SAS Web Report Studio is a reporting application designed for business users who want to view, author, and share reports on the Web. SAS Web Report Studio is a zero-download Web application, which means that you need only a Web browser on your computer to access all the functionality of SAS Web Report Studio. As part of the SAS Intelligence Platform, SAS Web Report Studio provides access to enterprise data that is stored in terms the information consumer can understand. This form of the data is referred to as an information map. Information maps incorporate business rules and eliminate the need to understand data relationships. By using information maps, information consumers can concentrate on analysis and reporting.

SETUP STEPS
In order to create reports with SAS Web Report studio, a data source (information map) was defined based on a table and library that were registered in the metadata. The steps to create the data source and register the table and library are not covered in detail in this tutorial. The information below briefly documents the necessary steps.

LOGON CREDENTIALS
It is assumed that the necessary logon credentials have been created in the metadata. The user credentials for this tutorial are for Robert, who is a Report Administrator. Robert has the appropriate permissions to build reports in SAS Web Report Studio and access the necessary data and information maps used in this tutorial.

DATA TABLE AND LIBRARY
A SAS data library has been registered in the metadata using SAS® Management Console. The metadata library name is Sample Data and points to the physical path C:\Program Files\SAS\SAS 9.1\core\sashelp. Robert has been granted the following permissions to this library (and the tables it contains): ReadMetadata, CheckInMetadata, WriteMetadata, and Read. The metadata for the Shoes table from the Sample Data library has been defined using SAS Management Console.

INFORMATION MAP
An information map named Information Map on the SHOES table has been created using the Shoes table from the Sample Data library. All of the columns from the physical table are include in the information map. Dynamically generated value generation has been set up for the Product, Region, and Subsidiary data items.

The information map has been stored in the following path in the Foundation repository: BIP Tree/ReportStudio/Maps. Robert has been granted the following permissions to this information map: ReadMetadata, CheckInMetadata, WriteMetadata, and Read.
BUILD A NEW REPORT USING THE REPORT WIZARD

You will use the Report Wizard to build a new report. Begin by starting your Web browser and entering the correct URL for SAS Web Report Studio. Log on to SAS Web Report Studio using the correct user credentials. Once your credentials have been validated, you can access the Report menu. To begin creating the report, select Report → New Using Wizard ...

STEP 1 – SELECT DATA

1. Click Change Source … to view the data sources available to you based on your security.
2. In the Select Data Source window, locate and select Information Map on the SHOES table.
3. Click OK.
4. Select all of the data items in the Available data items list by clicking which will move them to the Selected data items list.

5. Click Next to move to step 2 of the wizard.
STEP 2 – FILTER OR FORMAT THE DATA

1. Specify a filter to subset the data used in the report based on the value of *Subsidiary*. Locate and click in the Filters column for *Subsidiary*.
   
   If filters had been defined for *Subsidiary* in the information map, they would be available from the drop-down list in the Filters column.

2. Enter *Select a Subsidiary* as the value for *Filter name*.

3. Verify *Equal to* is the value selected for *Operator*.

4. Select *Prompting users to select values from a list* as the value for *Specify values by*.

5. Change the *Message for user value* to *Select a Subsidiary*.

6. Select *Selecting values from a list* as the value for *Create user’s list by*.

7. Select all of the items in the *Available values* list and then click to move them to the *Selected values* list.

8. Click to close the Create New Filter window and return to the wizard.

9. Click to move to step 3 of the wizard.

STEP 3 – CREATE GROUP BREAKS

Since no group breaks are needed for this report, click to move to step 4 of the wizard.
STEP 4 – SELECT A TABLE, GRAPH, OR BOTH
1. Specify the properties for the Table section.
   a. Select the check box for **Crosstab**.
   b. Deselect the check boxes for **Number Of Stores** and **Total Inventory** since you do not want them in the table section of the report.
2. Specify the properties for the Graph section.
   a. Select the check box for **Graph** to include a graph in the report.
   b. Verify that **Bar** is selected as the value for **Type**.
   c. Select **Total Sales** as the value for **Bar height**.
   d. Select **Region** as the value for **Bars**.

3. Click **Next >** to move to step 5 of the wizard.

STEP 5 – DEFINE THE HEADER AND FOOTER

Since no headers or footers are needed for this report, click **Finish** to complete the wizard.

VIEW THE REPORT
1. Select **View Report** to see the report rendered in the View Report view. Because you created a prompted filter, you need to select the desired values for **Subsidiary** before the report is rendered.
2. Select **Addis Ababa** in the **Selected values** list and click **Left-Click** to move it to the **Available values** list.
3. Select the following values in the **Available values** list and click **Right-Click** to move them to the **Selected values** list: Kyoto, Chicago, Los Angeles, Mexico City, Minneapolis, Montreal, New York, San Juan, Seattle, Toronto, and Vancouver.
4. Click **View Report** to view the report and filter the data based on your choices for the subsidiary.

**MODIFY THE REPORT**

The report created based on the choices made in the Report Wizard can be enhanced by using a combination of the View Report view and the Edit Report view.

**CHANGE THE LAYOUT OF THE TABLE**

To make the table in the report easier to read, you can swap the data items that are used to populate the columns and row as well as increase the width of several of the report columns.

1. Select **Region** to view the actions available for that data item in the View Report view.
2. Select **Rotate Table** to swap the data items used to populate the rows and the columns.

<table>
<thead>
<tr>
<th>Region</th>
<th>Canada</th>
<th>Central America/Caribbean</th>
<th>United States</th>
</tr>
</thead>
<tbody>
<tr>
<td>Subsidiary</td>
<td>Calgary</td>
<td>Montreal</td>
<td>Toronto</td>
</tr>
<tr>
<td>Product</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Boot</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>$472</td>
<td>$1,472</td>
<td>$994</td>
</tr>
<tr>
<td>Total Sales</td>
<td>$17,720</td>
<td>$40,213</td>
<td>$93,291</td>
</tr>
<tr>
<td>Men's Casual</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>$2,241</td>
<td>$3,108</td>
<td>$20,670</td>
</tr>
<tr>
<td>Total Sales</td>
<td>$55,629</td>
<td>$15,403</td>
<td>$83,061</td>
</tr>
<tr>
<td>Men's Dress</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>$12,775</td>
<td>$21,209</td>
<td>$57,519</td>
</tr>
<tr>
<td>Total Sales</td>
<td>$147</td>
<td>$412</td>
<td>$730</td>
</tr>
<tr>
<td>Sandal</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>$2,858</td>
<td>$3,022</td>
<td>$813</td>
</tr>
</tbody>
</table>

3. Position the cursor on the line between row headings and data values until the shape of the cursor changes.

<table>
<thead>
<tr>
<th>Region</th>
<th>Canada</th>
</tr>
</thead>
<tbody>
<tr>
<td>Subsidiary</td>
<td>Calgary</td>
</tr>
<tr>
<td>Product</td>
<td></td>
</tr>
<tr>
<td>Boot</td>
<td></td>
</tr>
<tr>
<td>Total Returns</td>
<td>$472</td>
</tr>
<tr>
<td>Total Sales</td>
<td>$17,720</td>
</tr>
</tbody>
</table>

4. Hold down the mouse button and drag the width of the column until the text fits on one line.

<table>
<thead>
<tr>
<th>Region</th>
<th>Canada</th>
</tr>
</thead>
<tbody>
<tr>
<td>Subsidiary</td>
<td>Calgary</td>
</tr>
<tr>
<td>Product</td>
<td></td>
</tr>
<tr>
<td>Boot</td>
<td></td>
</tr>
<tr>
<td>Total Returns</td>
<td>$472</td>
</tr>
<tr>
<td>Total Sales</td>
<td>$17,720</td>
</tr>
</tbody>
</table>

5. Repeat this process so that each region and subsidiary value fit on one line.
SAVE THE REPORT
1. Select **Report ➔ Save As ...**
2. Enter **Sales Analysis** as the **Name**.
3. Accept the defaults for all other values.

4. Click **OK**
CREATE A NEW CUSTOM (CALCULATED) DATA ITEM

1. Select **Edit Report** to change to the Edit Report view.
2. New data sources are created in the Select Data window. To access the Select Data window, select the **Select Data** link in the data area of the Edit Report view.

3. Select the **Custom** tab in the top portion of the Select Data window.

4. Enter **% of Returned Sales** as the **Name** of the new custom data item.
5. Select **Total Returns** in the **Available measures** list and then click **»** to move it to the Expression box.
6. Click **/** under the Expression box to add it to the expression.
7. Select **Total Sales** in the **Available measures** list and then click **»** to move it to the Expression box.
8. Click **Add** to add the new custom data item.
9. Click **OK** to close the Select Data window and return to the Edit Report view.

10. Specify a format for the new custom data item.
   a. Use the scroll bars in the list of data items to locate % of Returned Sales.
   b. Locate and select the Define … link in the Format column for % of Returned Sales.

   ![Select data options](image)

   c. In the Define a Format window, verify that the type of format is **Number**.
   d. Change the value for **Decimal places** to 1.
   e. Check the box for the **Convert number to a percentage (%)** option.

   ![Define a format](image)

   f. Click **OK**.
USE THE NEW CUSTOM DATA ITEM
Once the new data item has been defined, it can be used in both the crosstab and line chart objects.
1. Modify the crosstab table object.
   a. Click the Table data icon ( ) on the table toolbar.
   b. Verify that the % of Returned Sales data item was automatically added to the Rows section.
   c. Click OK.
2. Modify the bar chart object.
   a. Click the Graph properties icon ( ) on the graph toolbar.
   b. Change the chart type to a scatter plot by selecting Scatter from the drop-down list for Graph type.

   ![Graph Properties](image)

   These steps are needed to select a scatter plot since it is not a choice in the Report Wizard.

   c. Select the Markers tab.
   d. Select Large as the value for Marker size.
   e. Check the box to Show data values.

   ![Graph Properties](image)

   f. Click OK.
g. Click the Graph data icon on the graph toolbar.
h. Select % of Returned Sales in the Hidden section.
i. Click Move Items.
j. Select Move to Vertical Axis.
k. Select Total Sales in the Hidden section.
l. Click Move Items.
m. Select Move to Horizontal Axis.
n. Verify Region is selected in the Marker Groups section.

![Graph Data - Microsoft Internet Explorer](image)

Data items:

- Vertical Axis (Limit 1)
  - % of Returned Sales
- Horizontal Axis (Limit 1)
  - Total Sales
- Marker Groups (Limit 1)
  - Region
- Marker Size (Limit 1)
  - (optional)
- Horizontal Matrix
  - (optional)
- Vertical Matrix
  - (optional)
- Hidden
  - Number Of Stores
  - Product
  - Subsidiary

o. Click OK

4. Accept the previous choices for the subsidiary and click **View Report**.

5. Save the report by selecting **Report** ➔ **Save**.

**ADD A NEW REPORT OBJECT TO THE REPORT**

In addition to the crosstab table and line graph objects, you want to see a pie chart that shows the total percentage of returned sales by product.

1. Select **Edit Report** to change to the Edit Report view.

2. Click the Add column on right icon ( ) to add a new column to the report grid.

3. In the report grid, drag the bar chart icon ( ) from the toolbar into the cell that is in the second row, second column.
4. Specify that the crosstab table object spans the two columns that contain the line graph and pie chart.
   a. Click in the cell with the crosstab table and drag the mouse to the right until both columns of the first row are selected.
   b. Click the Merge Cells icon ( ) to merge the two cells together.

5. Modify how the data items are used in the bar chart object.
   a. Click the Graph data icon ( ) on the graph toolbar.
   b. Select **Number of Stores** in the **Bar Height** section.
   c. Click and select **Move to Hidden**.
   d. Select **% of Returned Sales** in the **Hidden** section.
   e. Click and select **Move to Bar Height**.
   f. Click **OK**.
6. Change the properties of the bar chart.
   a. Click the Graph properties icon (✓) on the graph toolbar.
   b. Enter Total % of Returned Sales by Product as the Title Text.
   c. Select Fixed size and Small as the value for the Graph size.
   d. Select the Bar tab.
   e. Select Horizontal bars in the Orientation section.
   f. Select the Show data values check box.
   g. Click OK.
7. Change the properties of the scatter plot.
   a. Click the Graph properties icon (Graph properties icon) on the graph toolbar.
   b. Enter **Total % of Returned Sales by Region** as the Title Text.
   c. Select **Fixed size** and **Small** as the value for the Graph size.

   ![Graph Properties Window]

   d. Click **OK**.

8. Select **View Report**.
9. Accept the previous choices for Subsidiary and click **View Report**.

**MODIFY THE CROSSTAB TABLE**

Add conditional highlighting to the crosstab table in order to quickly see all values for returned sales that are 5% or higher.

1. Click the Edit Table Options icon ( ) on the table toolbar and then select **Conditional Highlighting**...
2. Click \textit{New...} to create a new conditional highlighting rule.
3. Select \textit{\% of Retuned Sales} as the value for Measure.
4. Select \textit{Greater than or equal to} as the value for Condition.
5. Enter \textit{0.05} as the Value.

![Conditional Highlighting](image1)

6. Select the \textit{Color and Font} tab.
7. Select white as the foreground color for the text (first box).
8. Select red as the background color for the text (second box).

![Conditional Highlighting](image2)
9. Select the **Image and Text** tab.
10. Select the check box for **Highlight by adding an image or text**.
11. Select **Image**.
12. Select **To left of cell value** as the **Position**.
13. Select the exclamation point (❗) as the **Image**.

14. Click **OK** to complete the rule definition.
15. Click **OK** to view the updated report.

16. Save the report by selecting **Report ➤ Save**.

**FILTER THE INFORMATION DISPLAYED IN THE TABLE AND SHOW FILTER INFORMATION**

Now that your report layout is complete, you want to limit which products are displayed in the table (the line graph and pie chart will still include information for all products). You also want to include filter information for each object in the report.

**ADD A FILTER TO THE CROSSTAB TABLE**

1. Click the Edit Table Options icon ( ) on the table toolbar and then select **Filter and Rank ...**
2. Select the **Product** data item.
3. Select **Select category values** as the **Filter type**.
4. Select the check boxes for Men’s Casual, Men’s Dress, Women’s Casual, and Women’s Dress.

5. Click **OK** to view the updated report.
ADD A TITLE TO THE CROSSTAB TABLE

1. Click the Table properties icon () on the table toolbar.
2. Enter Sales Report (Selected Products) as the Title Text.
3. Click OK to view the updated report.

![Sales Report (Selected Products)](image)

4. Save the report by selecting Report ➔ Save.
DISPLAY THE FILTER INFORMATION FOR EACH REPORT OBJECT
2. Select the **Format** tab.
3. Select the check box for **Display filter information for each table and graph**.
4. Click OK to view the updated report.

<table>
<thead>
<tr>
<th>Sales Report (Selected Products)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Applied Filters:</strong> Product equals 'Mens Casual', 'Mens Dress', 'Womens Casual', 'Womens Dress' AND (Subsidiary equals 'Calgary', 'Chicago', 'Los Angeles', 'Mexico City', 'Minneapolis', 'Montreal', 'New York', 'San Juan', 'Seattle', 'Toronto', 'Vancouver')</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Region</th>
<th>Canada</th>
<th>Central America/Caribbean</th>
<th>United States</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Calgary</td>
<td>Montreal</td>
<td>Toronto</td>
</tr>
<tr>
<td>% of Returned</td>
<td>2.6%</td>
<td>2.2%</td>
<td>2.2%</td>
</tr>
<tr>
<td>% of Returned</td>
<td>2.6%</td>
<td>2.2%</td>
<td>2.2%</td>
</tr>
<tr>
<td>% of Returned</td>
<td>2.6%</td>
<td>2.2%</td>
<td>2.2%</td>
</tr>
</tbody>
</table>

5. Save the report by selecting Report → Save.

CONCLUSION
This tutorial provided an overview of SAS Web Report Studio and showed some of the features and how they can be used to quickly create and customize reports.

RESOURCES
You can learn more about SAS Web Report Studio by attending the following SAS Education course:
Using SAS® Web Report Studio for Thin-Client Reporting.

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