

Paper 215-2007

Building Reports with SAS® Web Report Studio

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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

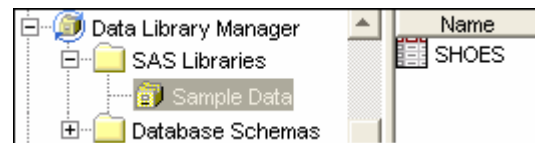
In order to create reports with SAS Web Report studio, a data source (information map) was defined based on a table and library that were registered in the metadata. The steps to create the data source and register the table and library are not covered in detail in this tutorial. The information below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

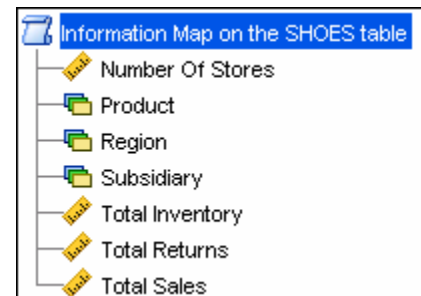
DATA TABLE AND LIBRARY

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**

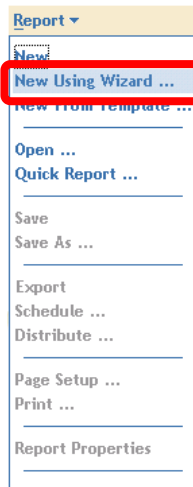
An information map named **Information Map on the SHOES table** has been created using the Shoes table from the Sample Data library. All of the columns from the physical table are include in the information map. Dynamically generated value generation has been set up for the **Product**, **Region**, and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



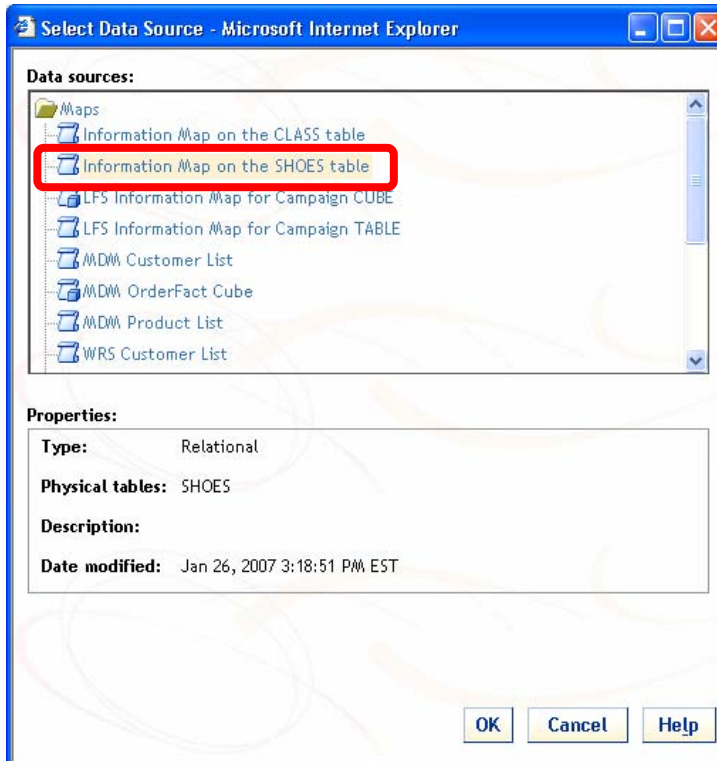
BUILD A NEW REPORT USING THE REPORT WIZARD

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 ...**.




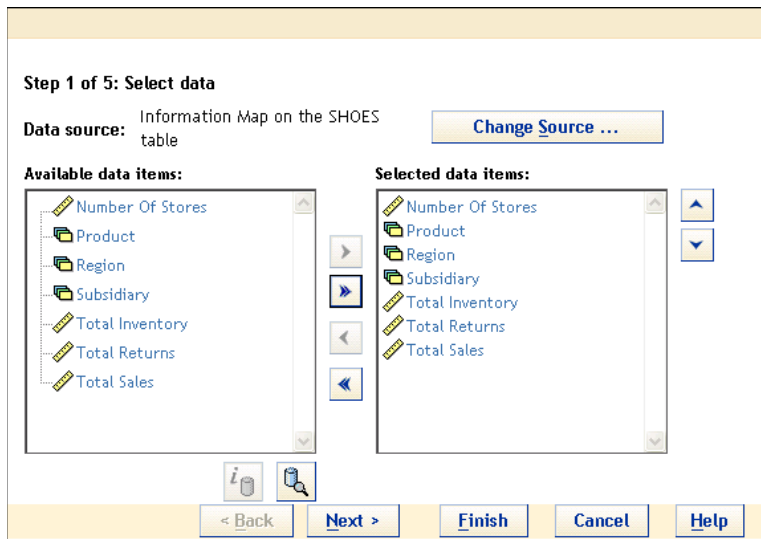
STEP 1 – SELECT DATA


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  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**.

Step 4 of 5: Select a table, graph, or both

☒ **Table**

Table type: ☐ List ☒ Crosstab

Show Data items

- ☒ Region
- ☒ Subsidiary
- ☐ Number Of Stores
- ☐ Total Inventory

☒ **Graph**

Type: ☒ Bar ☐ Line ☐ Pie

Bar height: Total Sales

Bars: Region

Bar subgroup: None

3. Click 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 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 to move it to the Available values list.
3. Select the following values in the Available values list and click to move them to the Selected values list: **Calgary**, **Chicago**, **Los Angeles**, **Mexico City**, **Minneapolis**, **Montreal**, **New York**, **San Juan**, **Seattle**, **Toronto**, and **Vancouver**.

Please answer the prompts below and click the View Report button to continue.

*** Select a subsidiary**

Subsidiary

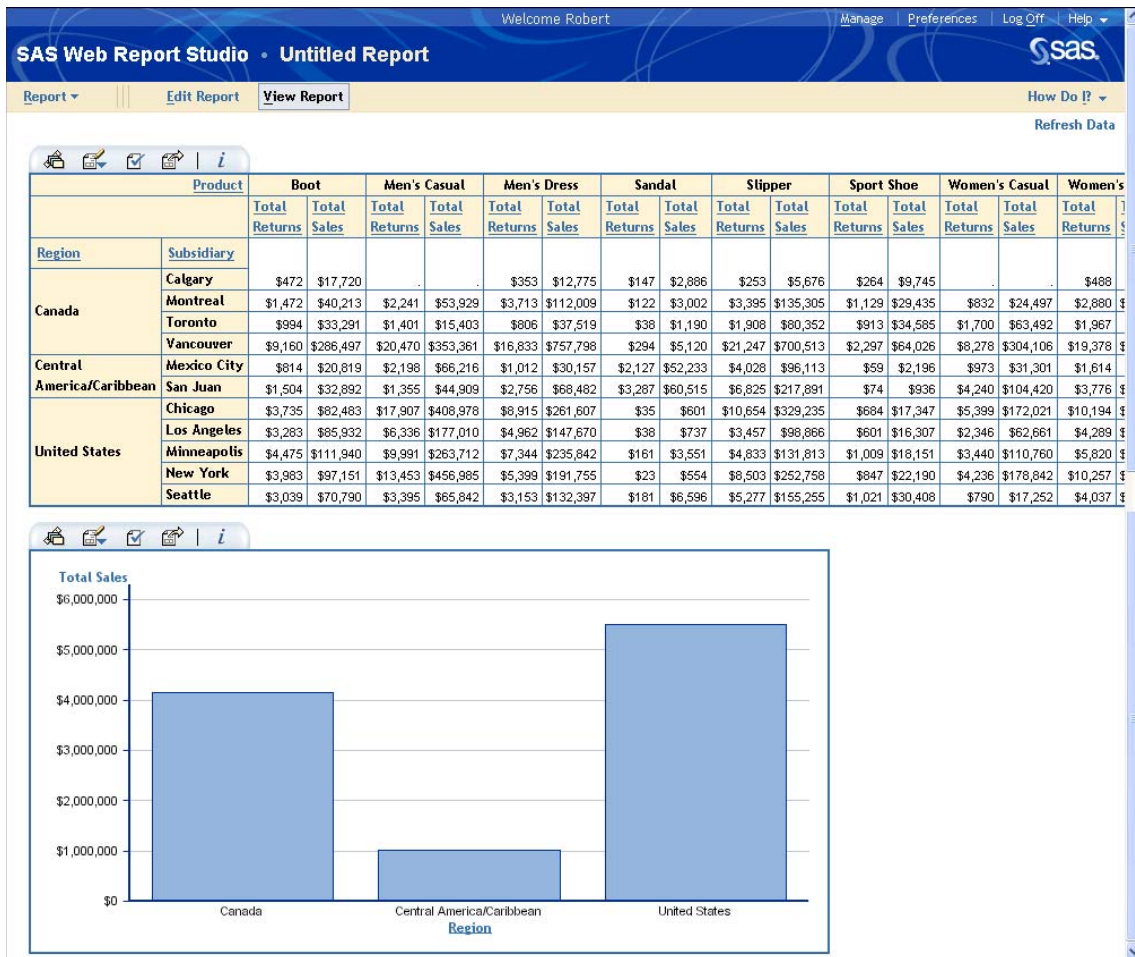
Available values:

- Al-Khobar
- Algiers
- Auckland
- Bangkok
- Bogota
- Budapest
- Buenos Aires
- Cairo
- Canberra
- Caracas
- Copenhagen
- Dubai

Selected values:

- Calgary
- Chicago
- Los Angeles
- Mexico City
- Minneapolis
- Montreal
- New York
- San Juan
- Seattle
- Toronto
- Vancouver

4. Click **View Report** to view the report and filter the data based on your choices for the subsidiary.



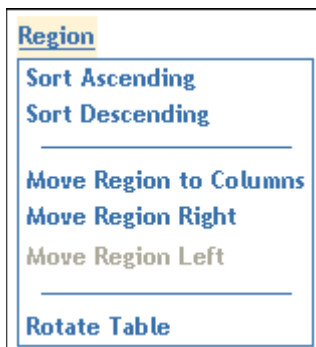
MODIFY THE REPORT

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.

Region		Canada				Central America/Caribbean		United States				
Subsidiary		Calgary	Montreal	Toronto	Vancouver	Mexico City	San Juan	Chicago	Los Angeles	Minneapolis	New York	Seattle
Product												
Boot	Total Returns	\$472	\$1,472	\$994	\$9,160	\$814	\$1,504	\$3,735	\$3,283	\$4,475	\$3,983	\$3,039
	Total Sales	\$17,720	\$40,213	\$33,291	\$286,497	\$20,819	\$32,892	\$82,483	\$85,932	\$111,940	\$97,151	\$70,790
Men's Casual	Total Returns		\$2,241	\$1,401	\$20,470	\$2,198	\$1,355	\$17,907	\$6,336	\$9,991	\$13,453	\$3,395
	Total Sales		\$53,929	\$15,403	\$353,361	\$66,216	\$44,909	\$408,978	\$177,010	\$263,712	\$456,985	\$65,842
Men's Dress	Total Returns	\$353	\$3,713	\$806	\$16,833	\$1,012	\$2,756	\$8,915	\$4,962	\$7,344	\$5,399	\$3,153
	Total Sales	\$12,775	\$112,009	\$37,519	\$757,798	\$30,157	\$68,482	\$261,607	\$147,670	\$235,842	\$191,755	\$132,397
Sandal	Total Returns	\$147	\$122	\$38	\$294	\$2,127	\$3,287	\$35	\$38	\$161	\$23	\$181
	Total Sales	\$2,886	\$3,002	\$1,190	\$5,120	\$52,233	\$60,515	\$601	\$737	\$3,551	\$554	\$6,596

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

Region		Canada			
Subsidiary		Calgary	Montreal	Toronto	Vancouver
Product					
Boot	Total Returns	\$472	\$1,472	\$994	\$9,160
	Total Sales	\$17,720	\$40,213	\$33,291	\$286,497

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

Region		Canada			
Subsidiary		Calgary	Montreal	Toronto	Vancouver
Product					
Boot	Total Returns	\$472	\$1,472	\$994	\$9,160
	Total Sales	\$17,720	\$40,213	\$33,291	\$286,497

5. Repeat this process so that each region and subsidiary value fit on one line.

Region		Canada				Central America/Caribbean		United States				
Subsidiary		Calgary	Montreal	Toronto	Vancouver	Mexico City	San Juan	Chicago	Los Angeles	Minneapolis	New York	Seattle

SAVE THE REPORT

1. Select **Report** ⇒ **Save As ...**.
2. Enter **Sales Analysis** as the Name.
3. Accept the defaults for all other values.

Save As - Microsoft Internet Explorer

Name: Sales Analysis

Description:

Keywords:

Type: Data is automatically refreshed

☐ Retain previous instances of output not to exceed 10

Save to

☒ **Shared folders**

☐ **My folders**

☐ **Publication Channel** Marketing Channel

☐ Make read-only

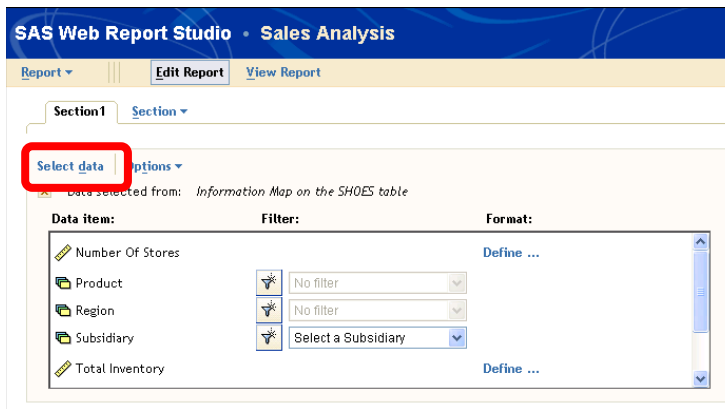
☐ Automatically replace if file already exists

OK **Cancel** **Help**

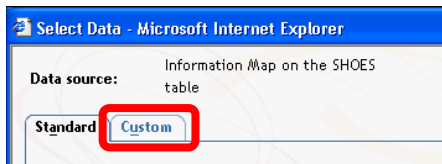
4. Click **OK**.





CREATE A NEW CUSTOM (CALCULATED) DATA ITEM

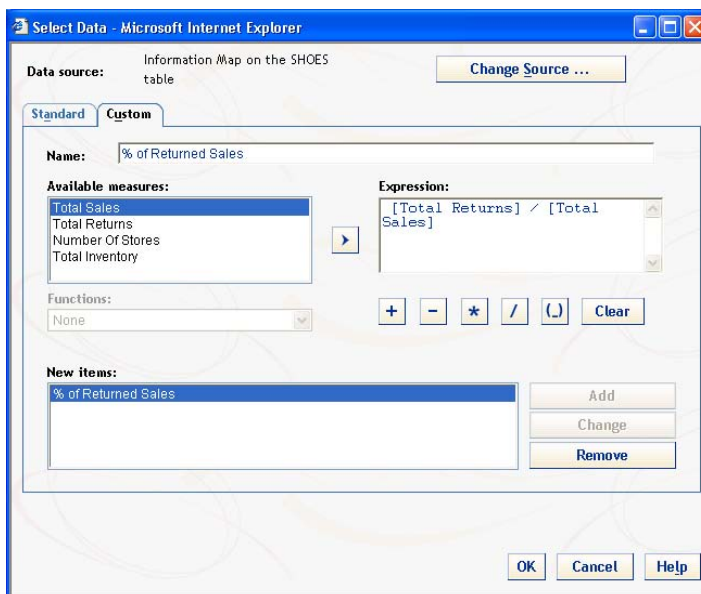
1. Select **Edit Report** to change to the Edit Report view.
2. New data sources are created in the Select Data window. To access the Select Data window, select the **Select Data** link in the data area of the Edit Report view.



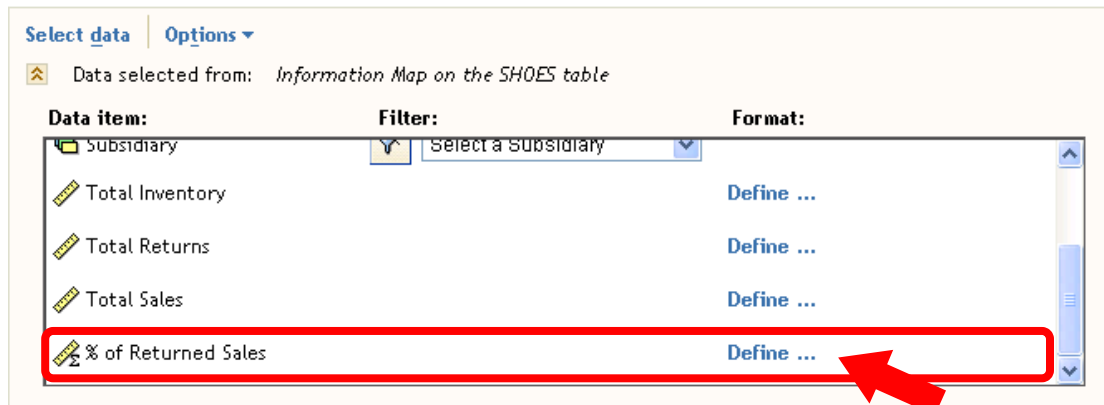
3. Select the **Custom** tab in the top portion of the Select Data window.



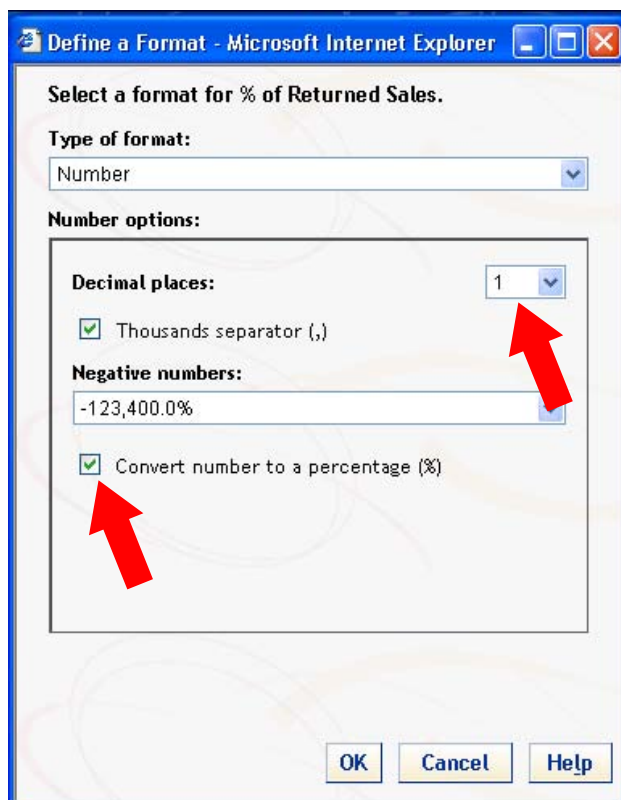
4. Enter **% of Returned Sales** as the Name of the new custom data item.
5. Select **Total Returns** in the Available measures list and then click  to move it to the Expression box.
6. Click  under the Expression box to add it to the expression.
7. Select **Total Sales** in the Available measures list and then click  to move it to the Expression box.
8. Click  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.




- 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.

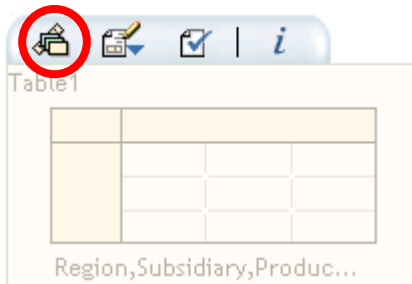


- f. Click **OK**.

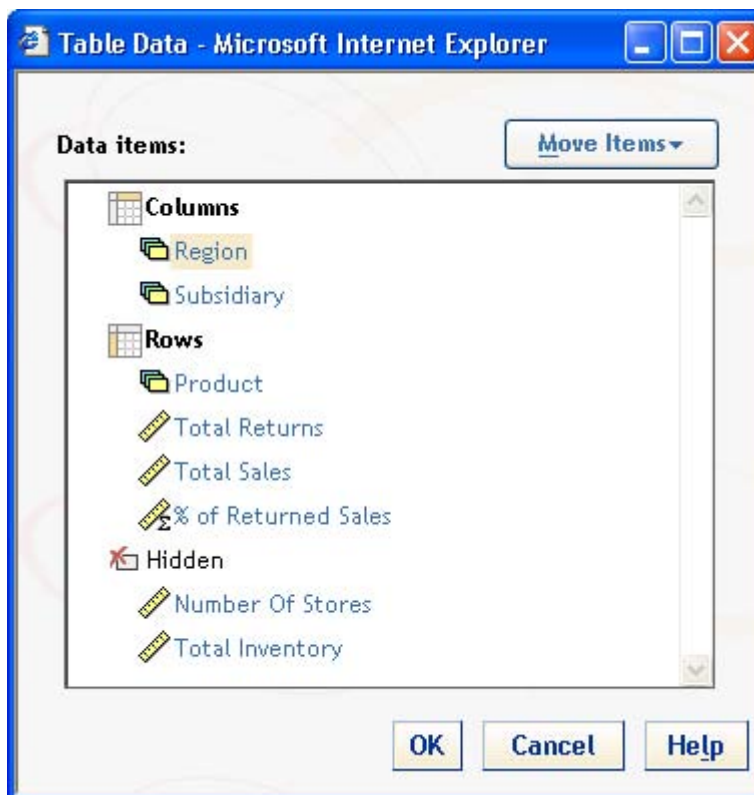
USE THE NEW CUSTOM DATA ITEM

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.

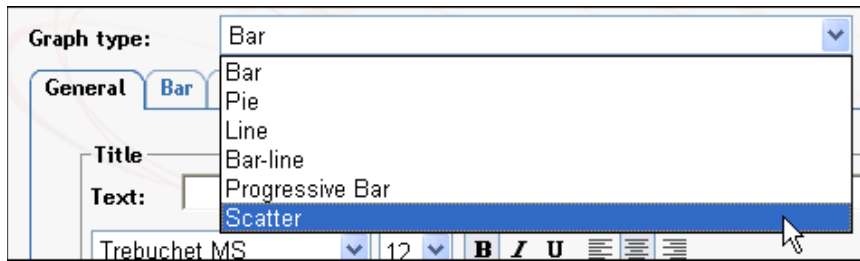


- b. Verify that the % of Returned Sales data item was automatically added to the Rows section.



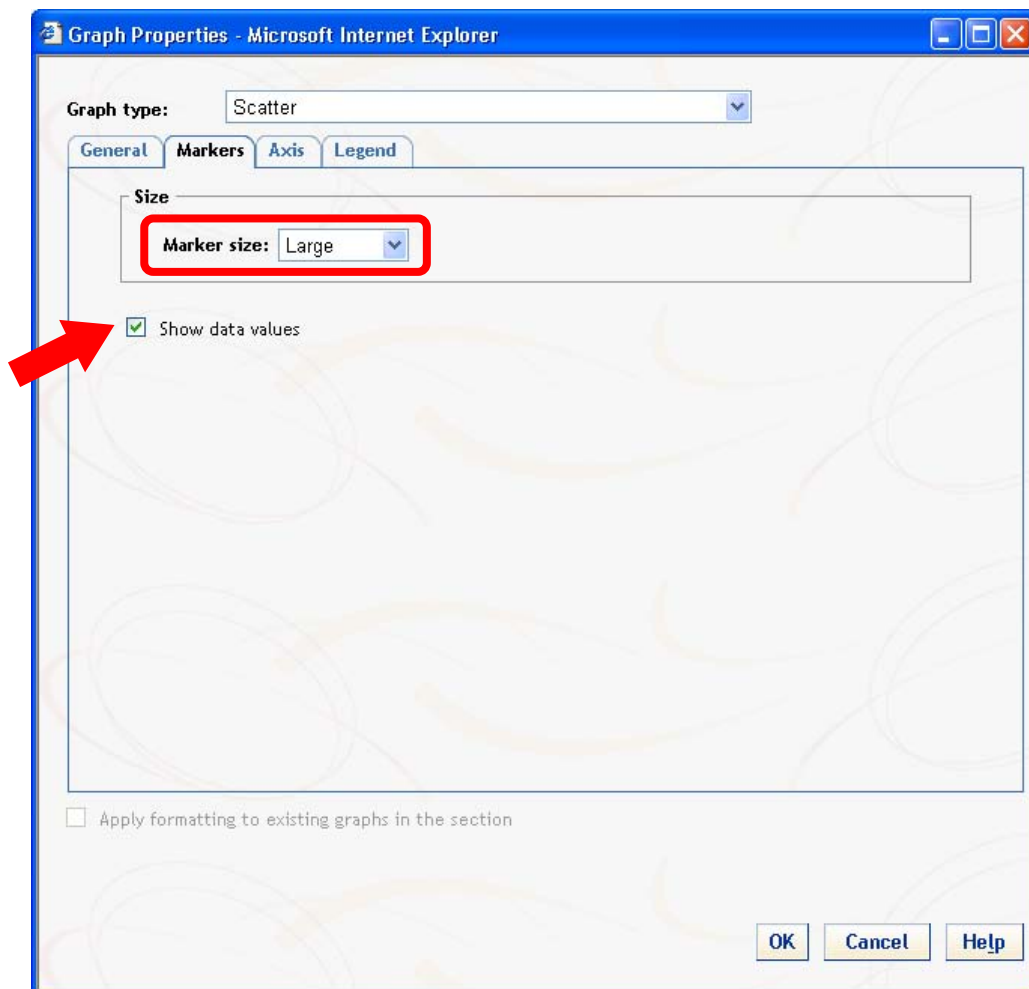
- c. Click  .

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.






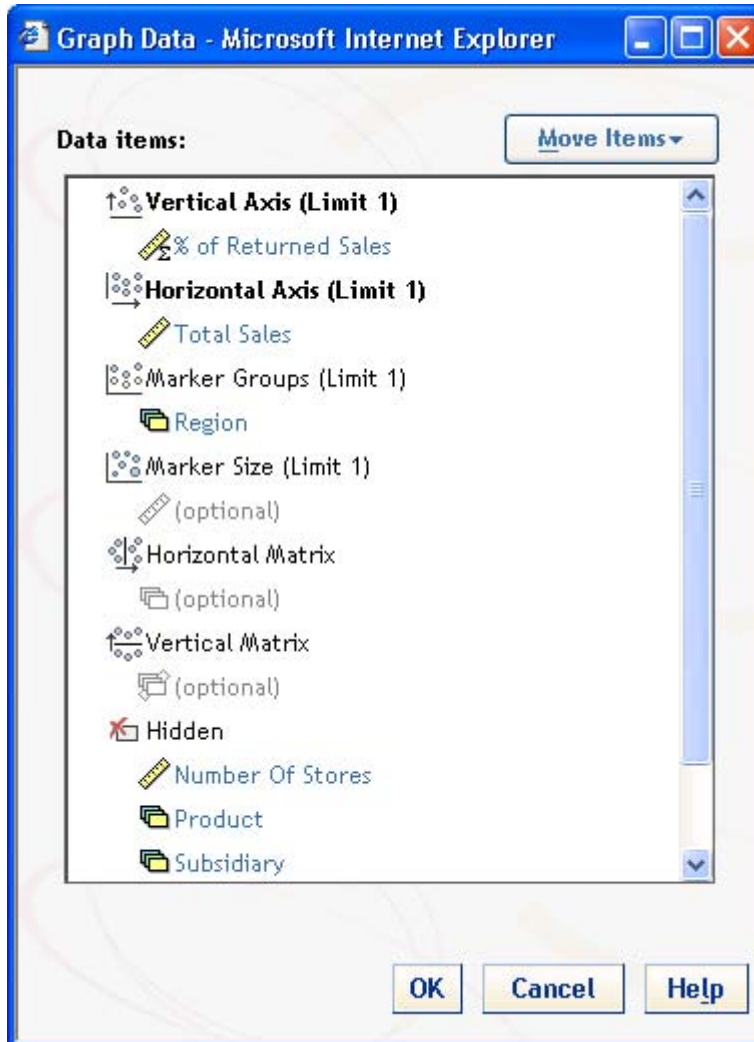
These steps are needed to select a scatter plot since it is not a choice in the Report Wizard.

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



- f. Click  .

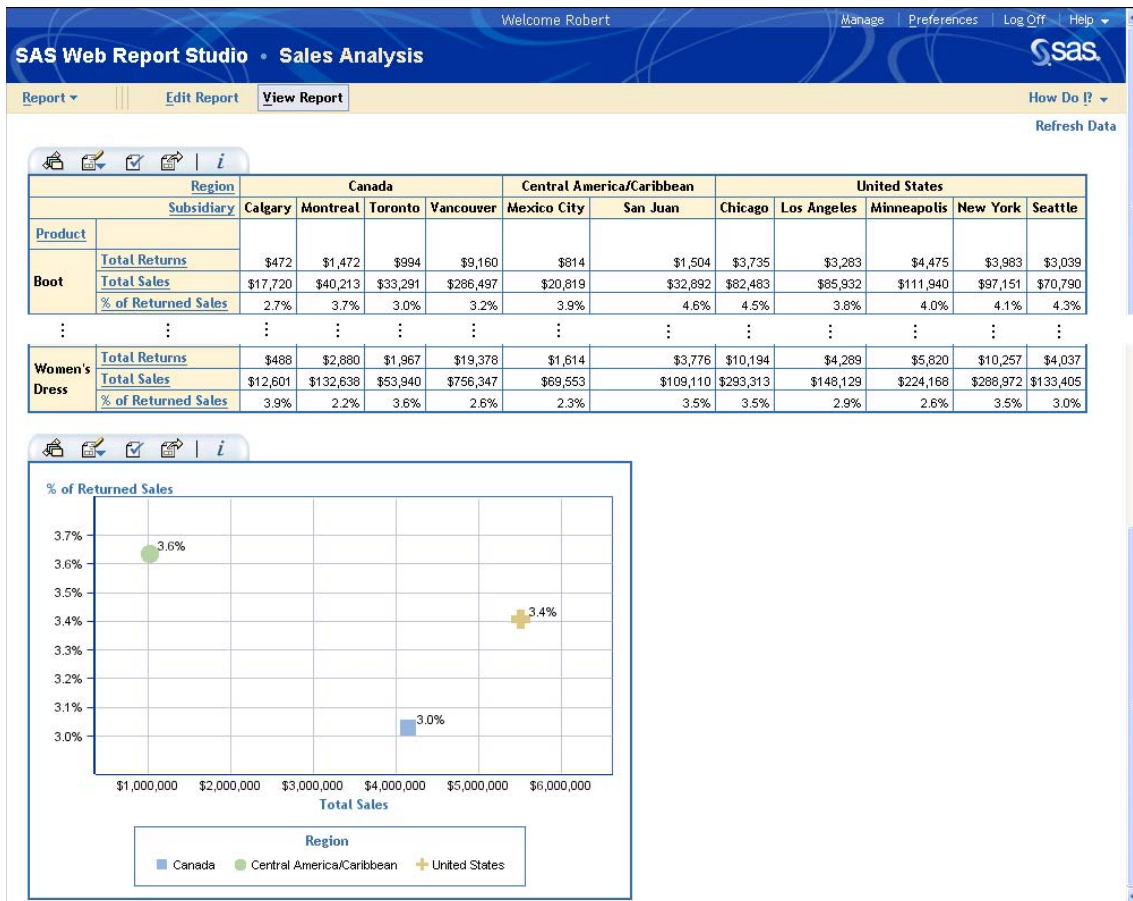
- g. Click the Graph data icon () on the graph toolbar.
- h. Select % of Returned Sales in the Hidden section.
- i. Click .
- j. Select Move to Vertical Axis.
- k. Select Total Sales in the Hidden section.
- l. Click .
- m. Select Move to Horizontal Axis.
- n. Verify Region is selected in the Marker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



- o. Click .
3. Select View Report.

4. Accept the previous choices for the subsidiary and click



View Report

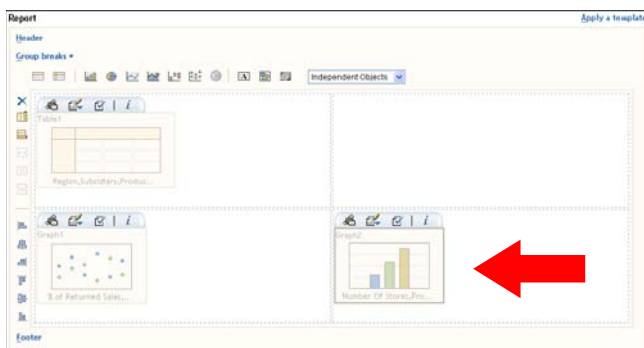



5. Save the report by selecting **Report** ⇌ **Save**.

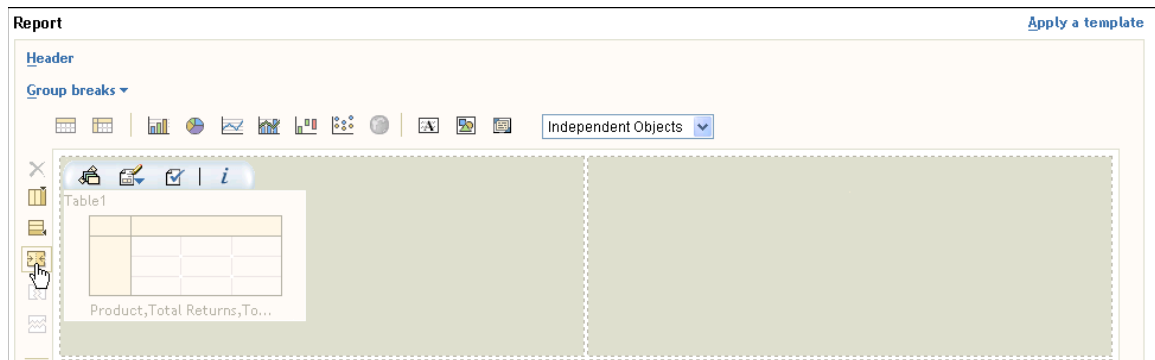
ADD A NEW REPORT OBJECT TO THE REPORT


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.

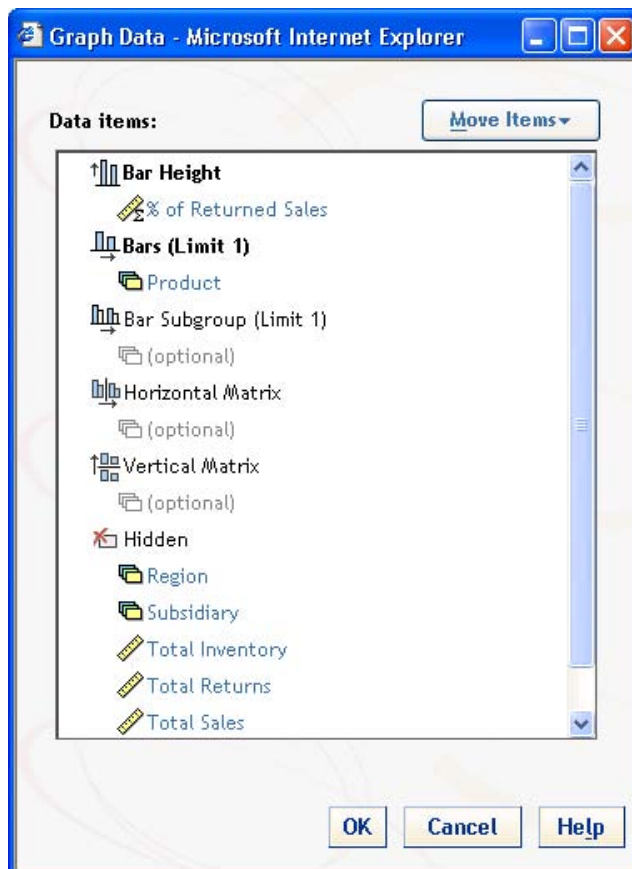
1. Select **Edit Report** to change to the Edit Report view.
2. Click the Add column on right icon () to add a new column to the report grid.
3. In the report grid, drag the bar chart icon () from the toolbar into the cell that is in the second row, second column.




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.

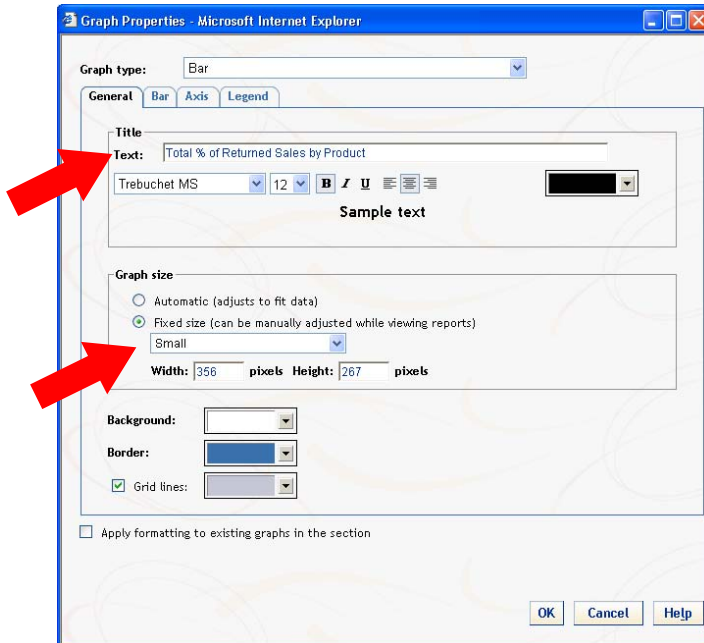


5. Modify how the data items are used in the bar chart object.
 - a. Click the Graph data icon () on the graph toolbar.
 - b. Select **Number of Stores** in the Bar Height section.
 - c. Click **Move Items** and select **Move to Hidden**.
 - d. Select **% of Returned Sales** in the Hidden section.
 - e. Click **Move Items** and select **Move to Bar Height**.

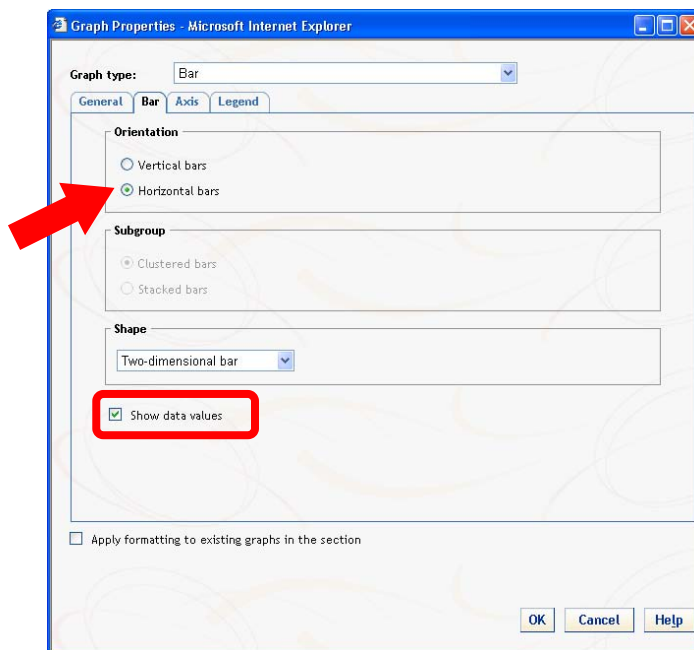


- f. Click **OK**.


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.

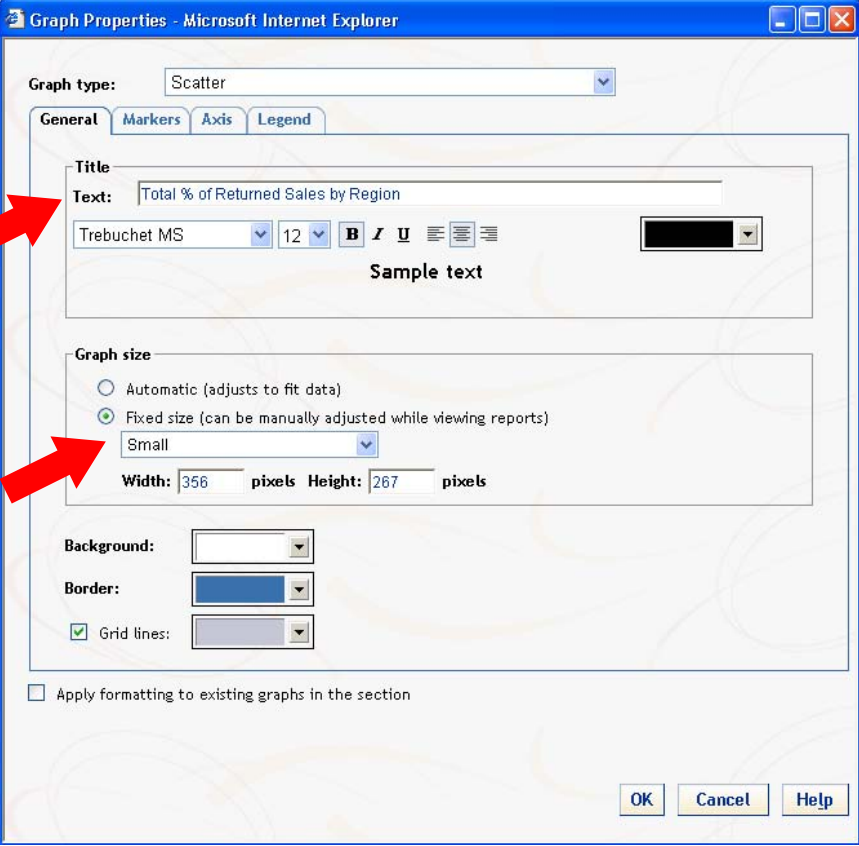


- d. Select the **Bar** tab.
 - e. Select **Horizontal bars** in the Orientation section.
 - f. Select the **show data values** check box.



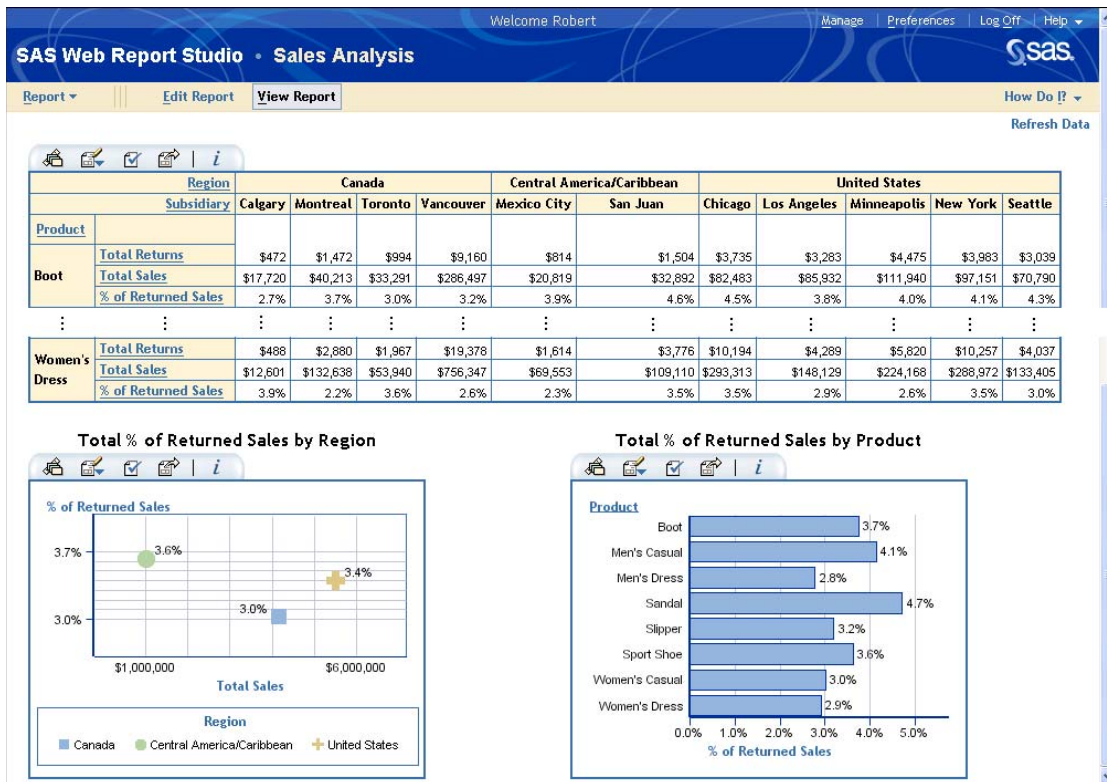
- g. Click .

7. Change the properties of the scatter plot.
 - a. Click the 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.



- d. Click  .
8. Select **View Report**.

9. Accept the previous choices for **subsidiary** and click [View Report](#).



MODIFY THE CROSTAB TABLE

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

- Click the Edit Table Options icon () on the table toolbar and then select **Conditional Highlighting**




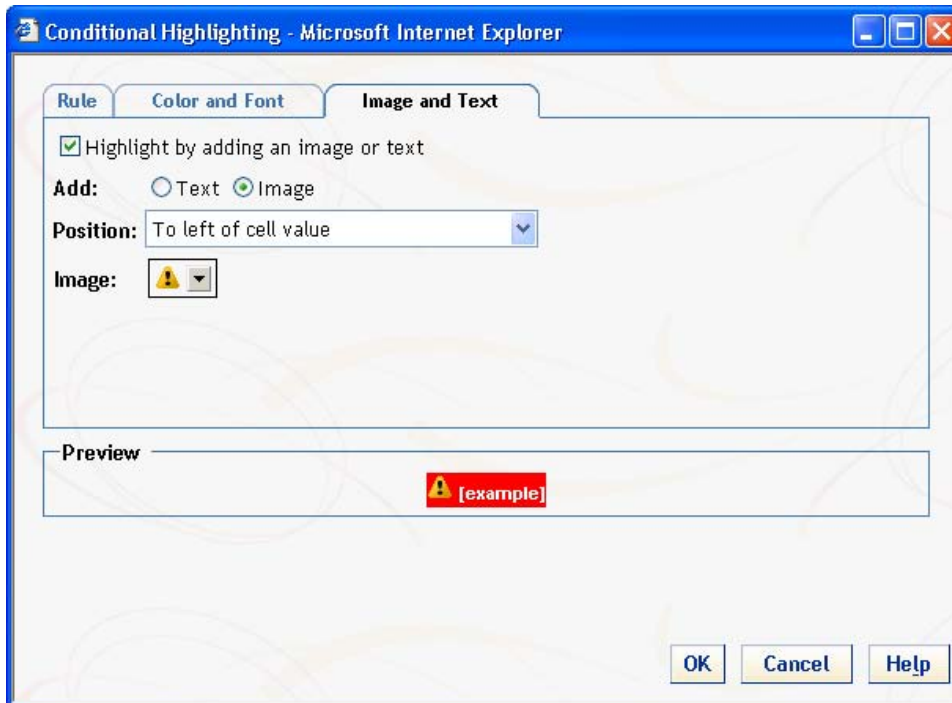
2. Click **New...** to create a new conditional highlighting rule.
3. Select **% of Returned Sales** as the value for Measure.
4. Select **Greater than or equal to** as the value for Condition.
5. Enter **0.05** as the Value.


The screenshot shows the 'Conditional Highlighting - Microsoft Internet Explorer' dialog box with the 'Rule' tab selected. The 'Measure' dropdown is set to '% of Returned Sales', the 'Condition' dropdown is set to 'Greater than or equal to', and the 'Value' dropdown is set to '0.05'. Below these fields is a 'Preview' section showing the text '[example]' in a standard font. At the bottom right are 'OK', 'Cancel', and 'Help' buttons.

6. Select the **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).






The screenshot shows the same dialog box but with the 'Color and Font' tab selected. The 'Font' dropdown is set to 'Arial' and the size dropdown is set to '8'. The 'Font style' section has 'B' (bold) and 'I' (italic) buttons. There are two color selection boxes: the first shows a white color swatch and the second shows a red color swatch. The 'Preview' section now shows the text '[example]' in bold, italicized white font on a red background. The 'OK', 'Cancel', and 'Help' buttons are at the bottom right.

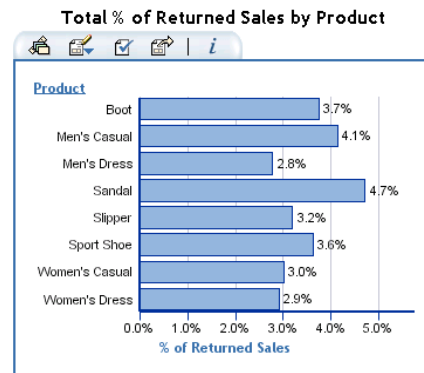
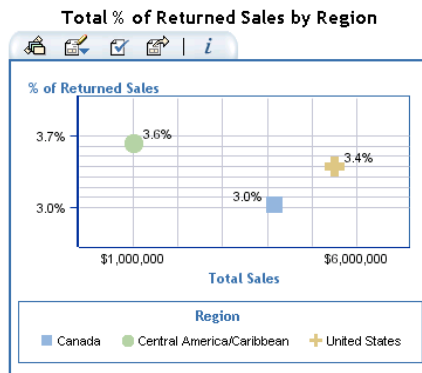
9. Select the **Image and Text** tab.
10. Select the check box for **Highlight by adding an image or text**.
11. Select **Image**.
12. Select **To left of cell value** as the Position.
13. Select the exclamation point () as the Image.



14. Click  to complete the rule definition.

15. Click  to view the updated report.

<div><div></div><div>Region</div></div>											
Subsidiary		Canada				Central America/Caribbean		United States			
		Calgary	Montreal	Toronto	Vancouver	Mexico City	San Juan	Chicago	Los Angeles	Minneapolis	
Product											
Boot	Total Returns	\$472	\$1,472	\$994	\$9,160	\$814		\$1,504	\$3,735	\$3,283	\$4,475
	Total Sales	\$17,720	\$40,213	\$33,291	\$286,497	\$20,819		\$32,892	\$82,483	\$85,932	\$111,940
	% of Returned Sales	2.7%	3.7%	3.0%	3.2%	3.9%		4.6%	4.5%	3.8%	4.0%
Men's Casual	Total Returns	.	\$2,241	\$1,401	\$20,470	\$2,198		\$1,355	\$17,907	\$6,336	\$9,991
	Total Sales	.	\$53,929	\$15,403	\$353,361	\$66,216		\$44,909	\$408,978	\$177,010	\$263,712
	% of Returned Sales	.	4.2%	9.1%	5.8%	3.3%		3.0%	4.4%	3.6%	3.8%
Men's Dress	Total Returns	\$353	\$3,713	\$806	\$16,833	\$1,012		\$2,756	\$8,915	\$4,962	\$7,344
	Total Sales	\$12,775	\$112,009	\$37,519	\$757,798	\$30,157		\$68,482	\$261,607	\$147,670	\$235,842
	% of Returned Sales	2.8%	3.3%	2.1%	2.2%	3.4%		4.0%	3.4%	3.4%	3.1%
Sandal	Total Returns	\$147	\$122	\$38	\$294	\$2,127		\$3,287	\$35	\$38	\$161
	Total Sales	\$2,886	\$3,002	\$1,190	\$5,120	\$52,233		\$60,515	\$601	\$737	\$3,551
	% of Returned Sales	5.1%	4.1%	3.2%	5.7%	4.1%		5.4%	5.8%	5.2%	4.5%
Slipper	Total Returns	\$253	\$3,395	\$1,908	\$21,247	\$4,028		\$6,825	\$10,654	\$3,457	\$4,833
	Total Sales	\$5,676	\$135,305	\$80,352	\$700,513	\$96,113		\$217,891	\$329,235	\$98,866	\$131,813
	% of Returned Sales	4.5%	2.5%	2.4%	3.0%	4.2%		3.1%	3.2%	3.5%	3.7%
Sport Shoe	Total Returns	\$264	\$1,129	\$913	\$2,297	\$59		\$74	\$684	\$601	\$1,009
	Total Sales	\$9,745	\$29,435	\$34,585	\$64,026	\$2,196		\$936	\$17,347	\$16,307	\$18,151
	% of Returned Sales	2.7%	3.8%	2.6%	3.6%	2.7%		7.9%	3.9%	3.7%	5.6%
Women's Casual	Total Returns	.	\$832	\$1,700	\$8,278	\$973		\$4,240	\$5,399	\$2,346	\$3,440
	Total Sales	.	\$24,497	\$63,492	\$304,106	\$31,301		\$104,420	\$172,021	\$62,661	\$110,760
	% of Returned Sales	.	3.4%	2.7%	2.7%	3.1%		4.1%	3.1%	3.7%	3.1%
Women's Dress	Total Returns	\$488	\$2,880	\$1,967	\$19,378	\$1,614		\$3,776	\$10,194	\$4,289	\$5,820
	Total Sales	\$12,601	\$132,638	\$53,940	\$756,347	\$69,553		\$109,110	\$293,313	\$148,129	\$224,168
	% of Returned Sales	3.9%	2.2%	3.6%	2.6%	2.3%		3.5%	3.5%	2.9%	2.6%




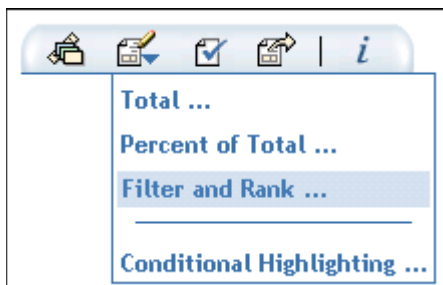
16. Save the report by selecting **Report** ⇒ **Save**.

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 CROSTAB TABLE

- 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**.

Filter and Rank - Microsoft Internet Explorer

Category Filters | Measure Filter or Rank

Item | **Filter**

Region
Subsidiary
Product: Men's Casual, Men's Dress, Women's Casual, Women's Dress

Filter type: Select category values

☐ Filter on formatted values

Select filter values: [Select All] [Deselect All]

☐ Boot
☒ Men's Casual
☒ Men's Dress
☐ Sandal
☐ Slipper
☐ Sport Shoe
☒ Women's Casual
☒ Women's Dress

[OK] [Cancel] [Help]

5. Click **OK** to view the updated report.

		Canada				Central America/Caribbean		United States		
Region		Subsidiary				Mexico City		San Juan		
Product		Calgary	Montreal	Toronto	Vancouver			Chicago	Los Angeles	Minneapolis
Men's Casual	Total Returns		\$2,241	\$1,401	\$20,470	\$2,198	\$1,355	\$17,907	\$6,336	\$9,991
	Total Sales		\$53,929	\$15,403	\$353,361	\$66,216	\$44,909	\$408,978	\$177,010	\$263,712
	% of Returned Sales		4.2%	9.1%	5.8%	3.3%	3.0%	4.4%	3.6%	3.8%
Men's Dress	Total Returns	\$353	\$3,713	\$806	\$16,833	\$1,012	\$2,756	\$8,815	\$4,962	\$7,344
	Total Sales	\$12,775	\$112,009	\$37,519	\$757,798	\$30,157	\$68,482	\$261,607	\$147,670	\$235,842
	% of Returned Sales	2.8%	3.3%	2.1%	2.2%	3.4%	4.0%	3.4%	3.4%	3.1%
Women's Casual	Total Returns		\$832	\$1,700	\$8,278	\$973	\$4,240	\$5,399	\$2,346	\$3,440
	Total Sales		\$24,497	\$63,492	\$304,106	\$31,301	\$104,420	\$172,021	\$62,661	\$110,760
	% of Returned Sales		3.4%	2.7%	2.7%	3.1%	4.1%	3.1%	3.7%	3.1%
Women's Dress	Total Returns	\$488	\$2,880	\$1,967	\$19,378	\$1,614	\$3,776	\$10,194	\$4,289	\$5,820
	Total Sales	\$12,601	\$132,638	\$53,940	\$756,347	\$69,553	\$109,110	\$293,313	\$148,129	\$224,168
	% of Returned Sales	3.9%	2.2%	3.6%	2.6%	2.3%	3.5%	3.5%	2.9%	2.6%

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.

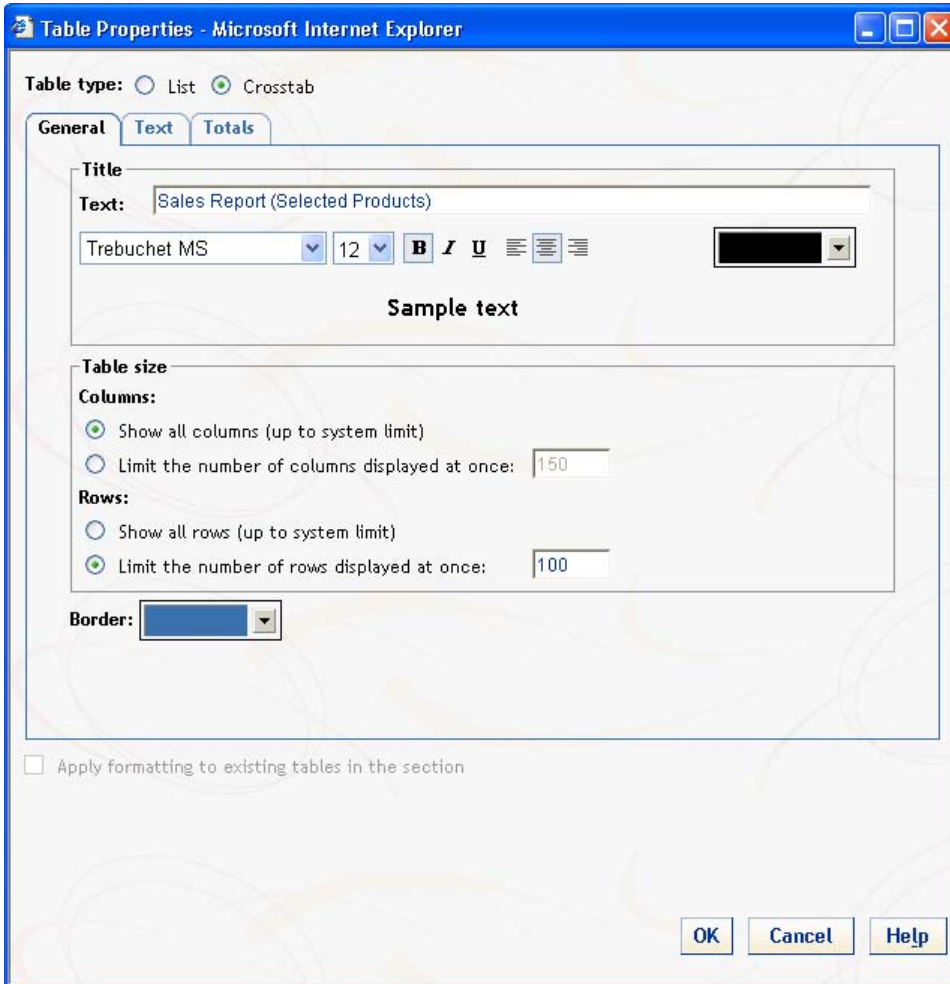


Table Properties - Microsoft Internet Explorer

Table type: ☐ List ☒ Crosstab

General Text Totals

Title

Text: Sales Report (Selected Products)

Trebuchet MS 12 **B** *I* U [List Style Icons] [Color Picker]

Sample text

Table size

Columns:

☒ Show all columns (up to system limit)

☐ Limit the number of columns displayed at once: 150

Rows:

☐ Show all rows (up to system limit)

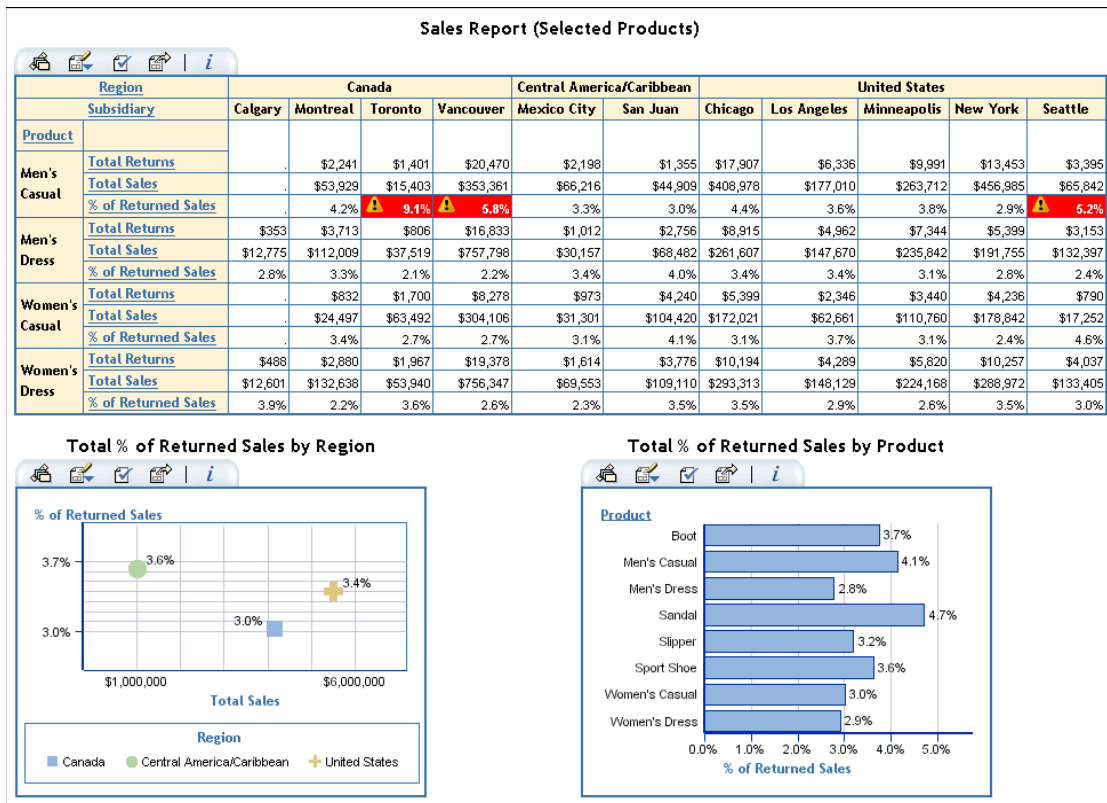
☒ Limit the number of rows displayed at once: 100

Border: [Blue Color Picker]

☐ Apply formatting to existing tables in the section

OK Cancel Help

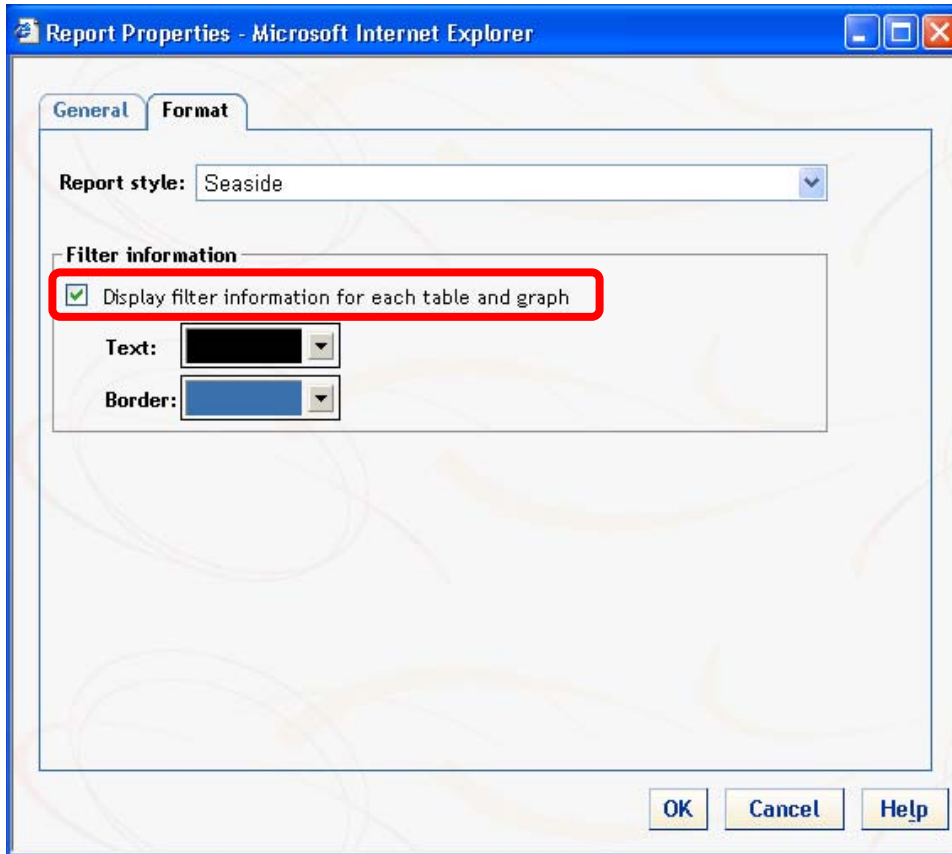
3. Click  to view the updated report.




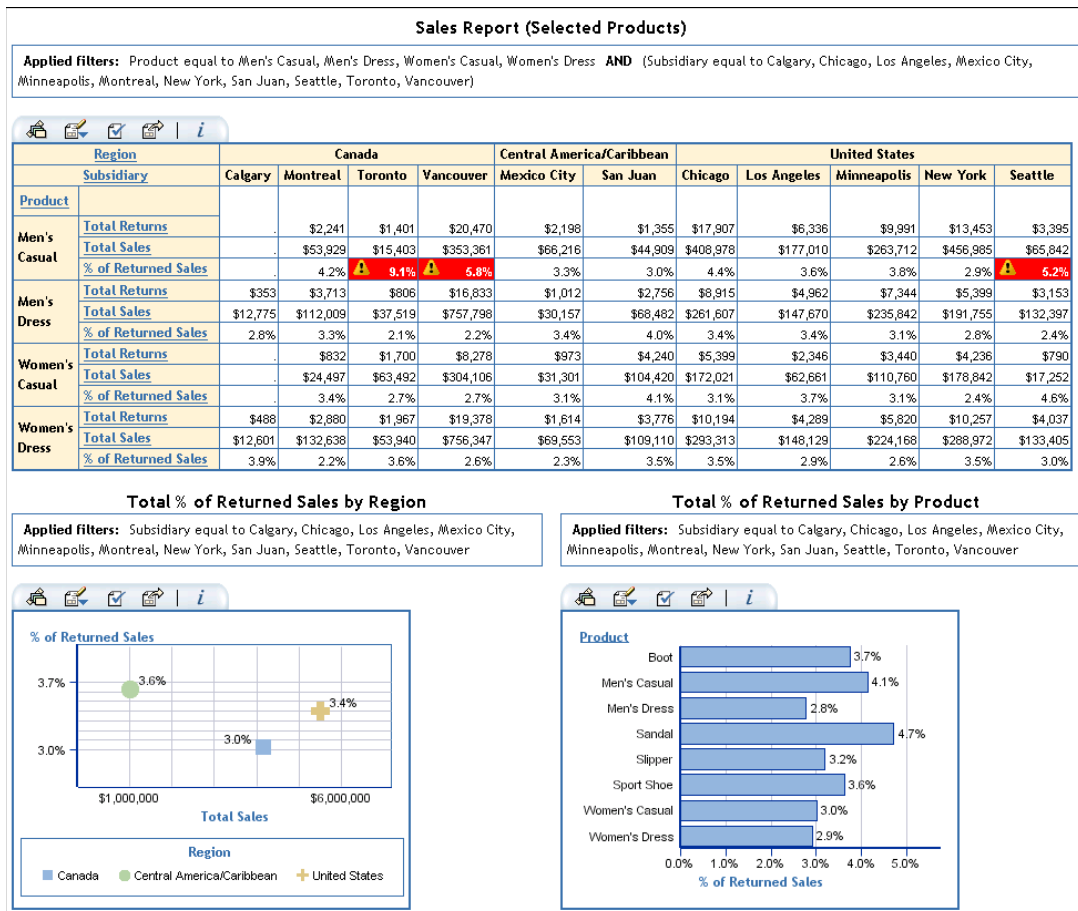
4. Save the report by selecting **Report** ⇒ **Save**.

DISPLAY THE FILTER INFORMATION FOR EACH REPORT OBJECT

1. Select **Report** ⇒ **Report Properties**.
2. Select the **Format** tab.
3. Select the check box for **Display filter information for each table and graph**.



4. Click  to view the updated report.



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.

CONTACT INFORMATION

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