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SAS[®] Add-In 4.2 **for Microsoft Office** **Getting Started with Data Analysis**



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SAS® Add-In 4.2 for Microsoft Office: Getting Started with Data Analysis

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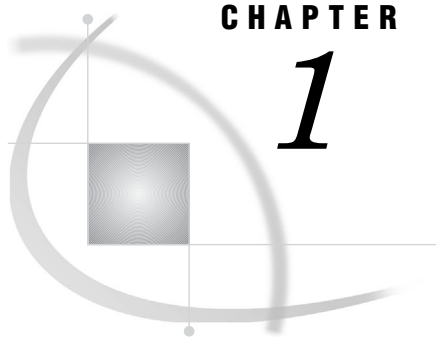
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CHAPTER

1

Introduction to the SAS Add-In for Microsoft Office

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What Is the SAS Add-In for Microsoft Office?

The SAS Add-In for Microsoft Office extends the functionality of Microsoft Excel, Microsoft Word, and Microsoft PowerPoint by enabling you to access SAS analytics and SAS reporting functionality without any SAS programming experience. The SAS add-in is designed for users who are familiar with these Microsoft Office programs but who might be new to SAS.

The SAS add-in includes approximately 80 SAS tasks that enable you to perform a variety of analyses. Examples of analyses that you can perform include linear and nonlinear regressions, multivariate analyses, time series analyses, one-way frequencies, and summary statistics. The SAS add-in enables you to refresh these analyses so that your results include the most up-to-date information. You can also easily share the results with others at your site.

When the SAS add-in is installed on your computer, a **SAS** tab is automatically integrated into the Ribbon in Excel, Word, and PowerPoint 2007. The **SAS** tab enables you to access the SAS analytics and reporting functionality directly from these Microsoft Office programs without having to open a separate SAS interface.

Note: If you are using Microsoft Office 2000-2003, then a **SAS** menu is automatically integrated into Excel, Word, and PowerPoint. You can perform the tasks in this book if you are using Microsoft Office 2000-2003. However, the SAS options are located in the **SAS** menu rather than the **SAS** tab. The instructions and screenshots in this book are specific to Microsoft Office 2007. Δ

Benefits to Using the SAS Add-In for Microsoft Office

Most of the SAS add-in functionality is identical in Excel, Word, and PowerPoint; for example, you can run analyses and reports in all three applications.

The SAS add-in extends the functionality in Excel, Word, and PowerPoint by enabling you to complete the following tasks:

- *Access SAS data sources as the input data for your analysis.* You can use any SAS data source or any data source available from your SAS server (including databases such as Oracle, Teradata, and DB2) as the input data for an analysis.

- *Perform more complex analyses and computations than what is available in Microsoft Excel.* For example, one of the complex analyses that SAS provides is the Canonical Correlation task. This task enables you to examine the relationship between a linear combination of a set of X variables and a linear combination of a set of Y variables. You might run a canonical correlation analysis to determine the degree of correspondence between a set of job characteristics and a set of measures of employee satisfaction. This extends the correlation analysis that is available in Excel. You can run these complex analyses and computations in Excel, Word, or PowerPoint.
- *Run custom analyses that were developed by others at your company.* Using the SAS add-in, you can also open reports that were developed by SAS Enterprise Guide or SAS Web Report Studio users at your site. Some of these reports might run programs called SAS Stored Processes. These programs are customized SAS code that is developed by business analysts or your IT department. Running these programs enables you to quickly generate a custom report without writing any SAS code.
- *Refresh the content in the Excel worksheet, Word document, or PowerPoint presentation on demand or automatically at a specified time.* Scheduling when the content is refreshed enables you to have the most up-to-date data and reports when you need it.
- *Publish the results to a central location.* By publishing a document, you can share it with others without having to e-mail it. If you publish the document to a metadata repository, then you can perform an impact analysis on the document. Impact analysis enables you to see where a data source came from and the items that are dependent on this source. This analysis enables you to know how changing a data source might affect other documents.

Additional functionality is available in Excel. In Microsoft Excel, you can also complete the following tasks:

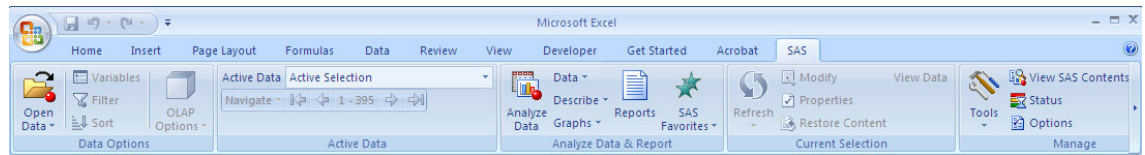
- *Access and view data sources that exceed the 1,048,576 record limitation in Microsoft Excel 2007.* (In Microsoft Excel 2000-2003, this record limit is 65,536.) The SAS add-in does its processing on the server, which enables it to by-pass the record limitation in Excel.
- *Copy data to a SAS server.* You can copy an Excel data source or a SAS data source to the SAS server. After a data source is copied to a SAS server, it becomes a SAS data set. This enables you to share Excel data with Word and PowerPoint users at your site. This functionality also enables Excel users to update information in a SAS data source and upload it to the SAS server.
- *Send the results from an analysis that you ran in Excel to a Word document or PowerPoint presentation.* For example, you ran an analysis of your company's sales for this year, and now you need to give a presentation of the results. Using this functionality in Excel, you can select which results to include in a PowerPoint presentation. This saves you time because you need to run the analysis only once.

This book explores some of the basic tasks that you can perform in Excel.

How to Use the SAS Add-In for Microsoft Office

When you open Microsoft Excel 2007, you should see a **SAS** tab in the Ribbon. You access the SAS add-in from the menu options on this tab.

Note: If you do not see a **SAS** tab, then you might not have the SAS add-in installed. For help, contact the SAS support personnel at your site. △

Display 1.1 The SAS Tab in Microsoft Excel

You can perform a variety of tasks using the SAS add-in. The following process briefly explains how you would run a SAS analysis:

- 1 Open Microsoft Excel.
- 2 Select the analysis that you want to perform.

Note: After you select the analysis, you might be prompted to log in to the SAS server if you have not previously logged in during the current session. You must be connected to a SAS server to run an analysis or to access a SAS data source. △

- 3 Select the data source that you want to use in the analysis. In Excel, you can use data in an existing Excel worksheet or in a SAS data source. If you select a SAS data source, you can choose to filter and sort the data before the analysis.

Note: If the SAS data source is open in an Excel worksheet, then the task uses the filter and sort criteria that you specified when opening the data source. △

- 4 Select the options in the analysis that you want to use and then run the analysis.
- 5 Specify the location of the output. For example, in Excel you can choose to include the results in the existing worksheet, in a new worksheet, or in a new workbook.

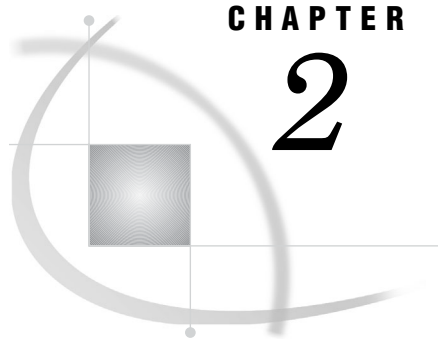
The results automatically open in Excel in the location that you chose.

Note: The SAS add-in is also available in Microsoft Word and PowerPoint. △

Accessibility Features of the SAS Add-In for Microsoft Office

The SAS Add-In for Microsoft Office includes accessibility and compatibility features that improve usability of the product for users with disabilities. These features are related to accessibility standards for electronic information technology adopted by the U.S. Government under Section 508 of the U.S. Rehabilitation Act of 1973, as amended. For more information about the accessibility of the SAS Add-In for Microsoft Office, see the online Help.

If you have questions or concerns about the accessibility of SAS products, send e-mail to accessibility@sas.com.



CHAPTER

2

Learning by Example: Analyzing and Reporting Using SAS

About the Scenario in This Book 5

Prerequisites for This Scenario 6

How to Get Help for the SAS Add-In for Microsoft Office 6

About the Scenario in This Book

This book is intended for Microsoft Excel 2007 users. Each topic in this book builds on the previous topic, so you must work through the chapters in sequence.

For the purpose of the scenario in this book, you are a data analyst for a company that sells men's and women's shoes worldwide. You have been asked to analyze the company's global sales for 2008. The data is saved as a SAS data source. Your company recently purchased the SAS Add-In for Microsoft Office, so you can now access SAS data sources from Excel. You are an experienced Excel user, but are new to SAS.

The next three chapters provide step-by-step instructions for analyzing a data source and creating an Excel workbook that can be shared with others at your site. During the first part of the scenario, you will open the SAS data source that contains your company's 2008 sales data into an Excel worksheet. Then you will run four SAS tasks to analyze the data. Running these SAS tasks will enable you to answer the following questions:

- ☐ Which product had the highest sales in 2008? Which product had the lowest sales?
- ☐ What are the average total sales, average total inventory, and average returns for each product?
- ☐ Is there a correlation between the total sales and inventory and returns for each product?
- ☐ Which parameters (inventory, returns, and number of stores) determine the total sales for a product?

After answering these questions, you are asked to analyze the sales for the product line with the lowest sales. During this second part of the scenario, you will open the SAS data source into a PivotTable report to answer the following questions:

- ☐ Which regions have sales less than \$10,000?
- ☐ Which region has the lowest sales? What are the sales and inventory costs for each subsidiary in that region?

By the end of this scenario, you will have an Excel worksheet that you can publish to a common repository, so it can be viewed by other SAS add-in users at your site.

Prerequisites for This Scenario

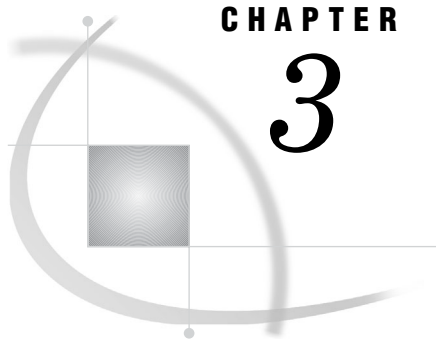
By the time that you are ready to perform the tasks in this book, administrators at your site should have installed and configured all necessary components of the SAS Enterprise Intelligence Platform. You must also have the following set up:

- Microsoft Office 2007 installed on your desktop.
- Permissions to access the SAS Metadata Server. SAS support personnel at your site set these permissions. Contact SAS support personnel at your site for the name and location of the SAS Metadata Server.
- A metadata configuration file to specify which SAS Metadata Server you will connect to by default. This file enables you to access SAS data sources on remote servers. For more information about setting up a metadata configuration file, see the online Help for the SAS add-in.
- Access to the SHOES data source that is available in the SASHELP library. This is the data source that you will be using during the analysis. The SASHELP library ships with the SAS Add-In for Microsoft Office. If you do not have access to this SAS library, contact the SAS support personnel at your site.

How to Get Help for the SAS Add-In for Microsoft Office

Use any of the following methods to get Help for the SAS Add-In for Microsoft Office:

- In the Ribbon, click the **SAS** tab. In the **Manage** group, click **Help** and select **SAS Add-In for Microsoft Office Help**.
- Press F1 in most application windows and dialog boxes.



CHAPTER

3

Opening a SAS Data Source in Microsoft Excel

About the Tasks That You Will Perform 7

Open the Sales Data in an Excel Worksheet 7

Save the Workbook 10

About the Tasks That You Will Perform

To open and view the data that you will be using in the analysis, you will perform the following main tasks:

- 1 Select the data source to open.

Note: In this scenario, you are accessing a SAS data source from the SAS server. However, you can use the SAS add-in to access data from a database, such as Oracle, Teradata, and DB2. In Excel, you can also use Excel worksheets as the data source. △

- 2 For the data source, select the following:

- ☐ the variables to include in the output
- ☐ the sorting order for the data
- ☐ the output location for the data

Open the Sales Data in an Excel Worksheet

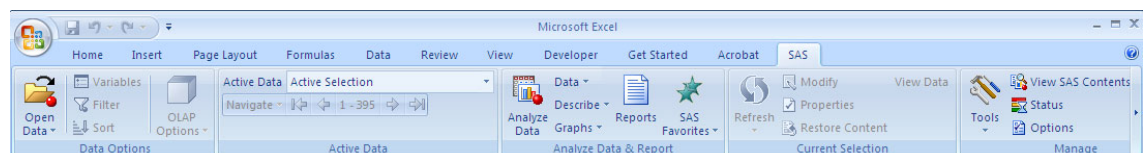
To open the SHOES data source (which is available in the SASHELP library) in Excel, follow these steps:

- 1 Select **Start ► Programs ► Microsoft Office ► Microsoft Office Excel 2007**.

Microsoft Excel opens. In the Ribbon, you should see a **SAS** tab. You access the SAS add-in from this menu.

Note: If you do not see a **SAS** tab, then you might not have the SAS add-in installed. For help, contact the SAS support personnel at your site. △

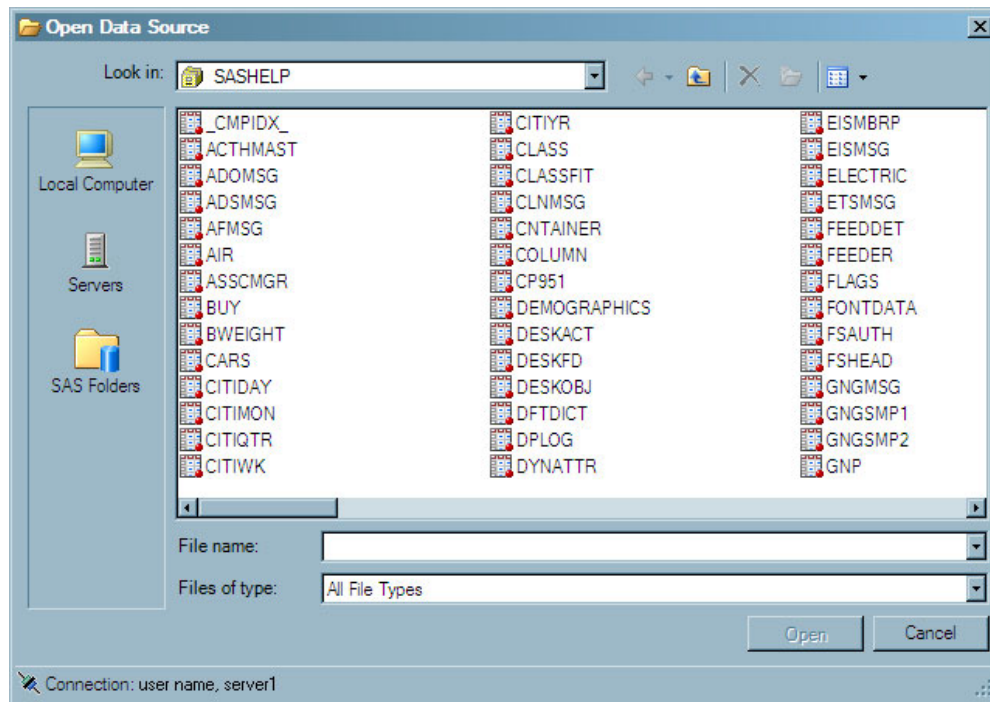
Display 3.1 The SAS Tab in Microsoft Excel



- In the Ribbon, select the **SAS** tab. In the **Data Options** group, click **Open Data** and select **Into Worksheet**. The Open Data Source window opens.

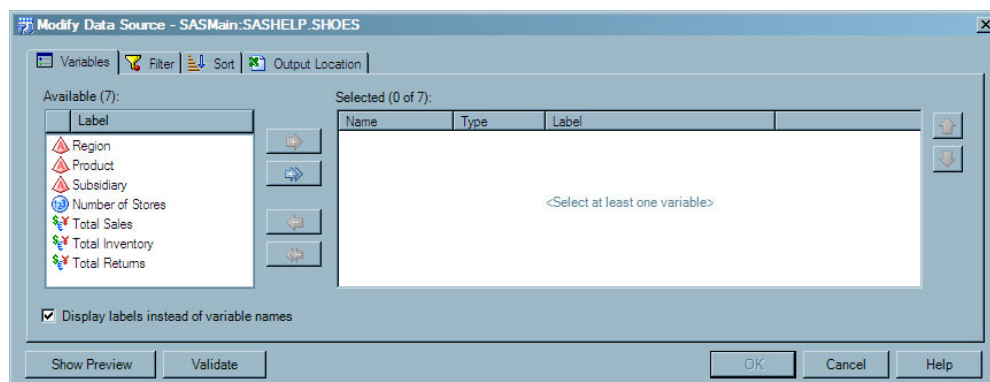


- Click **Servers** to select the SAS server that you want to use. The Open Data Source window now displays the libraries on the selected server.
- Select **SASHELP** and click **Open**. The Open Data Source window now displays the contents of the SASHELP library.




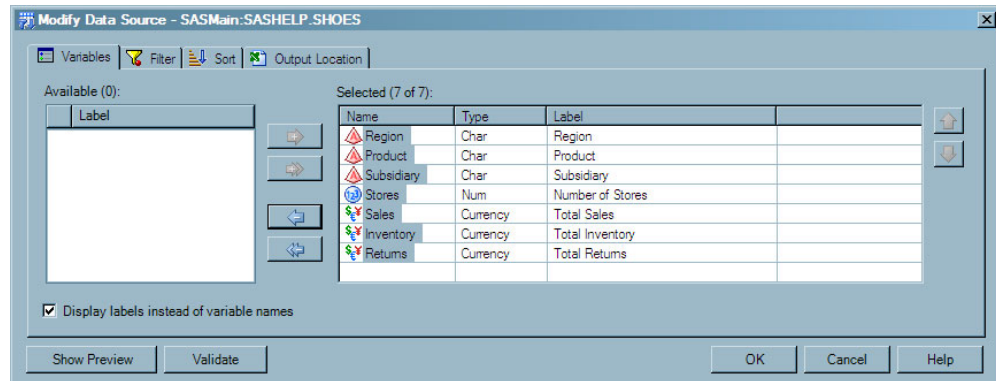
Note: The location of the SASHELP library is dependent on how SAS was installed at your site. If you cannot find the SASHELP library, contact the SAS support personnel at your site. △

- In the SASHELP library, select the **SHOES** data source and click **Open**. The Modify Data Source window opens.



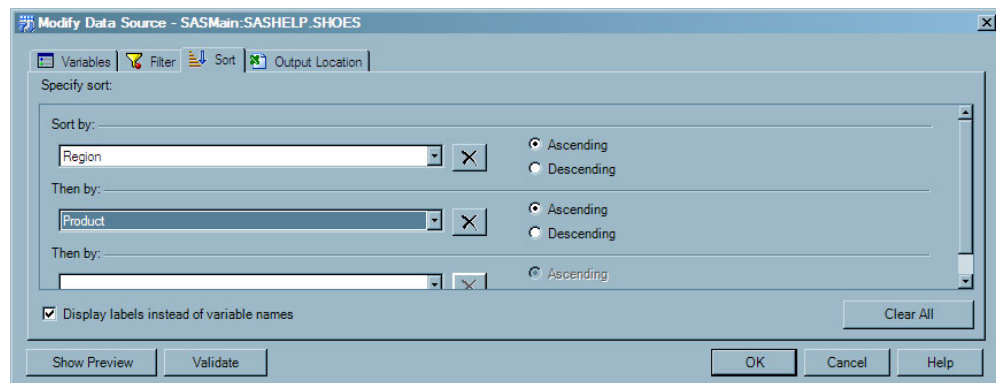
- On the **Variables** tab, select the variables that you want to include in the final output. You can also specify the order of the variables.

Click  to move all the variables from the **Available** list box to the **Selected** list box. Select the variables so they appear in the following order:



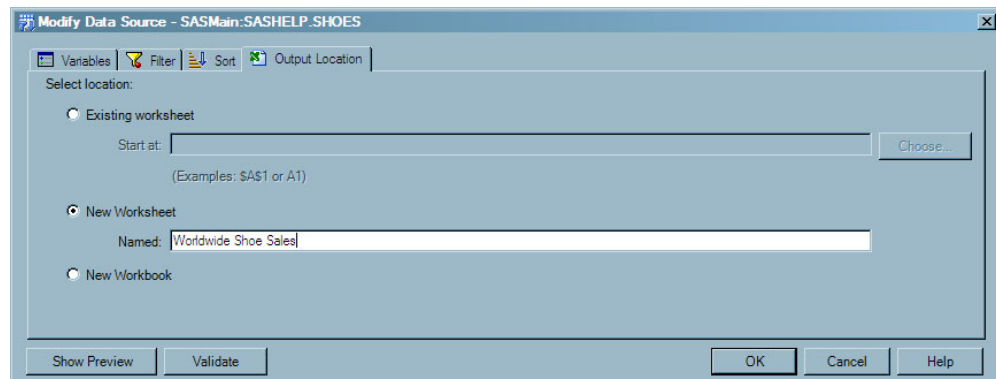
Click the **Sort** tab and continue.

- 7 On the **Sort** tab, you can specify the order of the rows in the output.
Use the drop-down lists to specify the following sort order:



Click the **Output Location** tab and continue.

- 8 On the **Output Location** tab, you can select the location for the final output.
By default, the data source is opened in a new worksheet. In the **Named** box, delete **SASHELP.SHOES** and type **Worldwide Shoe Sales**.



Click **OK**. The results open in a new worksheet called **Worldwide Shoe Sales**.

	A	B	C	D	E	F	G	H	I
1		Region	Product	Subsidiary	Number of Stores	Total Sales	Total Inventory	Total Returns	
2	1	Africa	Boot	Algiers	21	\$21,297	\$73,737	\$710	
3	2	Africa	Boot	Kinshasa	16	\$13,921	\$70,736	\$553	
4	3	Africa	Boot	Cairo	20	\$4,846	\$18,965	\$229	
5	4	Africa	Boot	Luanda	8	\$6,081	\$51,572	\$325	
6	5	Africa	Boot	Khartoum	24	\$19,282	\$105,370	\$700	
7	6	Africa	Boot	Addis Ababa	12	\$29,761	\$191,821	\$769	
8	7	Africa	Boot	Nairobi	25	\$16,282	\$66,017	\$844	
9	8	Africa	Boot	Johannesburg	14	\$8,365	\$33,011	\$483	
10	9	Africa	Men's Casual	Algiers	4	\$63,206	\$100,982	\$2,221	
11	10	Africa	Men's Casual	Addis Ababa	4	\$67,242	\$118,036	\$2,284	
12	11	Africa	Men's Casual	Luanda	3	\$62,893	\$149,864	\$1,701	
13	12	Africa	Men's Casual	Khartoum	1	\$9,244	\$16,230	\$478	
14	13	Africa	Men's Casual	Cairo	25	\$360,209	\$1,063,251	\$9,424	
15	14	Africa	Men's Dress	Algiers	13	\$123,743	\$428,575	\$3,621	
16	15	Africa	Men's Dress	Khartoum	3	\$18,053	\$51,132	\$1,177	
17	16	Africa	Men's Dress	Nairobi	1	\$8,587	\$20,877	\$363	
18	17	Africa	Men's Dress	Addis Ababa	7	\$76,793	\$136,273	\$2,433	
19	18	Africa	Men's Dress	Kinshasa	5	\$57,691	\$95,663	\$1,699	
20	19	Africa	Men's Dress	Cairo	5	\$4,051	\$45,962	\$97	
21	20	Africa	Men's Dress	Luanda	2	\$29,582	\$67,247	\$705	
22	21	Africa	Sandal	Kinshasa	10	\$16,662	\$104,438	\$611	
23	22	Africa	Sandal	Luanda	9	\$11,145	\$19,900	\$657	
24	23	Africa	Sandal	Nairobi	19	\$16,289	\$47,406	\$1,175	
25	24	Africa	Sandal	Khartoum	18	\$26,427	\$81,825	\$1,281	
26	25	Africa	Sandal	Algiers	25	\$29,198	\$84,447	\$1,530	
27	26	Africa	Sandal	Cairo	9	\$10,532	\$50,430	\$598	
28	27	Africa	Sandal	Johannesburg	13	\$17,337	\$63,003	\$809	


As you scroll through the data, you see the following:

- Ten regions are represented: Africa, Asia, Canada, Central America/Caribbean, Eastern Europe, Middle East, Pacific, South America, United States, and Western Europe.
- There are eight product types: Boot, Men's Casual, Men's Dress, Sandal, Slipper, Sport Shoe, Women's Casual, and Women's Dress.
- For each Region, the data is divided into product and subsidiary.
- For each subsidiary, the data contains the number of stores that sell each product, the total sales, total inventory, and total returns for the product.

Save the Workbook

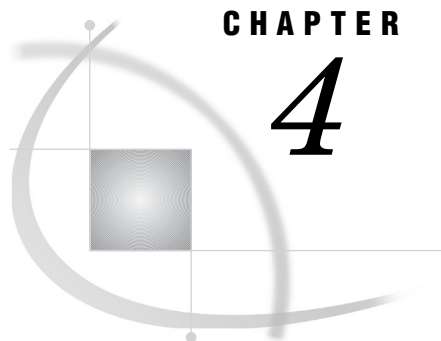
To save the workbook, follow these steps:



- 1 Click  and select **Save As ► Excel Workbook**. The Save As dialog box opens.
- 2 From the **Save in** drop-down list, select **C:\My Documents**.
- 3 Type **Shoe Sales 2008** in the **File name** box.
- 4 Click **Save** to save the workbook.

You are now ready to analyze the data source. For the next steps, see Chapter 4, “Running SAS Tasks to Analyze the Data,” on page 11.

Tip: After opening a data source in Excel, you do not have to save the workbook before analyzing the data.



CHAPTER

4

Running SAS Tasks to Analyze the Data

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<i>Determine Average Sales, Inventory, and Returns for Each Product</i>	16
<i>Determine Correlation between Sales, Inventory, and Returns</i>	21
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About the Tasks That You Will Perform

These tasks assume that you have the SHOES data source open in a Microsoft Excel worksheet. For these steps, see Chapter 3, “Opening a SAS Data Source in Microsoft Excel,” on page 7.

To analyze the data, you will perform the following main tasks:

- 1 Create a bar chart to compare the sales of each product and to determine which products have the highest and lowest sales.
- 2 Use summary statistics to determine the average total sales, average total inventory, and average returns for each product.
- 3 Determine whether there is any correlation between the total sales and total inventory and total returns for each product.
- 4 Use a linear regression to determine whether the parameter estimates for inventory, returns, and number of stores should be included in a linear regression model of sales.

Compare Sales for Each Product

To create a bar chart that shows the sales for each product, follow these steps:

- 1 From the **Active Data** drop-down list on the **SAS** tab in the Ribbon, verify that SASHELP.SHOES is the active data source that you opened in the previous chapter.

Note: In the **Active Data** drop-down list, the name of the SAS server appears before the name of the data source. The name of the server depends on the SAS server at your site. △

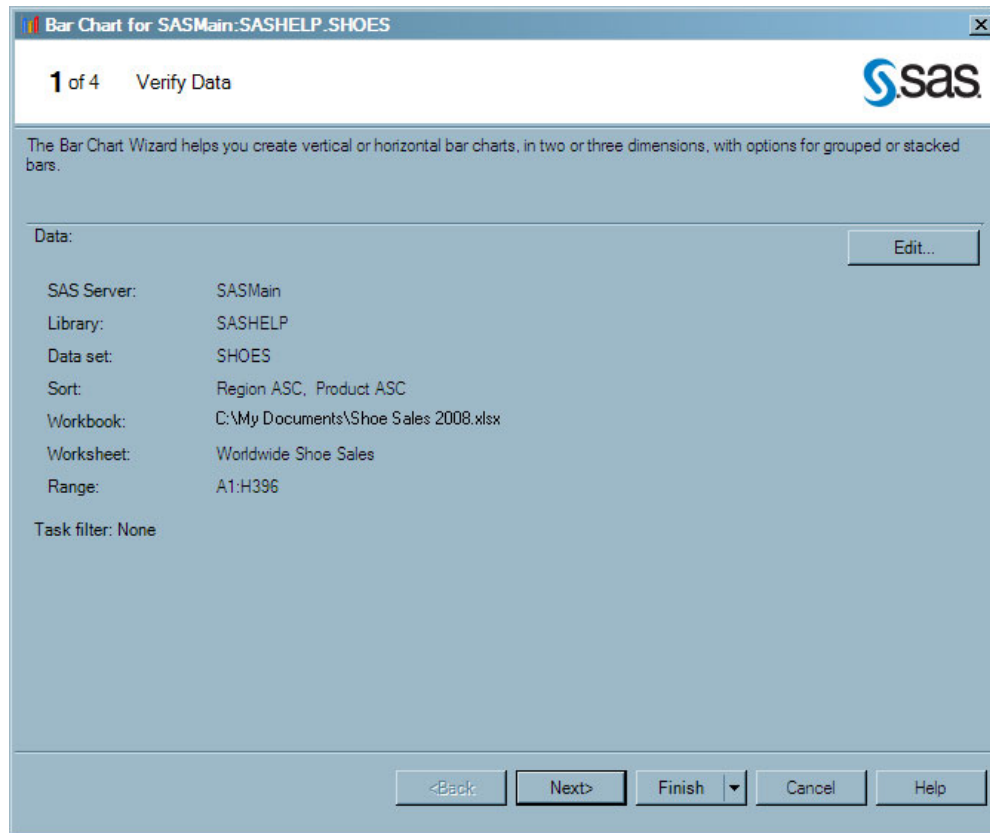


Tip: In Excel, data sources that are open are at the top of the **Active Data** drop-down list and have an exclamation point (!) before the name. By default, the current selection is the active data source. Depending on where your cursor is in a worksheet, you might have a different active data source.

- 2 In the **Analyze Data & Report** group, click **Graphs** and select **Bar Chart Wizard**. The Bar Chart Wizard opens.
- 3 In step 1 of the wizard, you can verify that you have selected the data source that you want to use.

Tip: You cannot change the data source after you open a SAS task. However, you can apply a filter by clicking **Edit**.

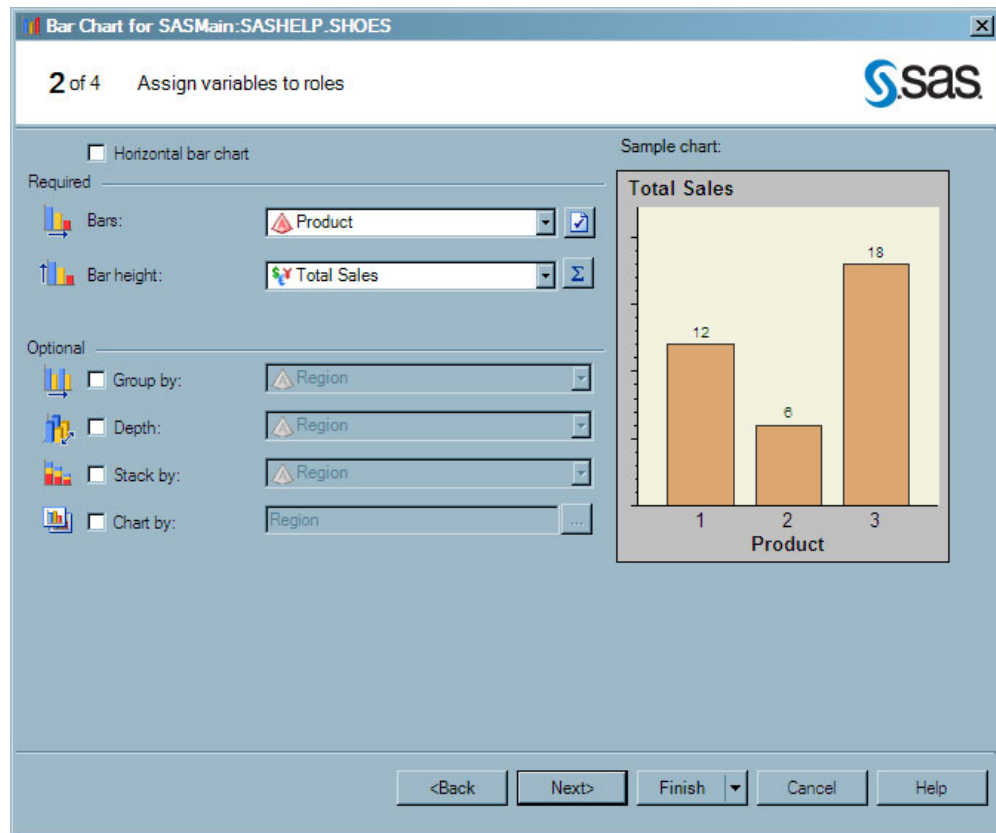
For this example, you should have the SHOES data source as the active data. Click **Next** to continue.



- 4 In step 2 of the wizard, you can assign variables from the data to roles. You can also specify whether to create a horizontal bar chart. By default, the Bar Chart Wizard creates vertical bar charts.

In the second step, specify the following options:

- ☐ From the **Bars** drop-down list, select **Product**.
- ☐ From the **Bar height** drop-down list, select **Total Sales**.




Click **Next** to continue.

- 5 In step 3 of the wizard, you can specify the appearance of the chart.

In the third step, select the **Data labels** check box, and then select **Sum** from the drop-down list.

Bar Chart for SASMain:SASHELP.SHOES


3 of 4 Specify appearance



☐ 3D chart

Colors

Color bars by: (All bars the same)

Bar color: 

Labels

☐ Legend: South

☒ Data labels: Sum

Axis Labels

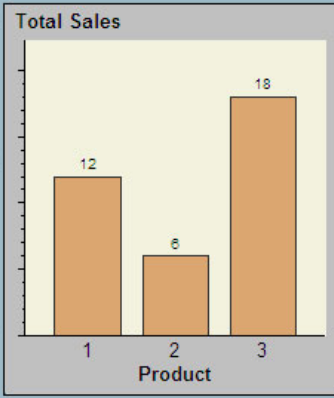
Lines and ticks

☐ Use reference lines

☒ Tick marks

Sample chart:

Total Sales



Product	Total Sales
1	12
2	8
3	18

<Back Next> Finish Cancel Help

Click **Next** to continue.

- 6 In step 4 of the wizard, you can customize the title and footnote for the chart. The Bar Chart Wizard provides a default title and footnote.

In the **Graph** box, delete **Bar Chart**, and type **Total Sales for Each Product**.

Bar Chart for SASMain:SASHELP.SHOES

4 of 4 Provide a title and footnote

Graph: Total Sales for Each Product Reset

Footnote: Generated by SAS (&_SASSERVERNAME, &SYSSCP) on %TRIM(%QSYFNC(DATE0, NLDATE20,)) at %SYFNC(TIME0, NLTMAP20,). Reset

<Back Next> Finish Cancel Help

Click **Finish**. The Choose Location dialog box opens.

- 7 From the Choose Location dialog box, select **New worksheet** and in the **Named** box, type **Total Sales for Each Product**.

Choose Location

Specify the location for the results of "Bar Chart Wizard":

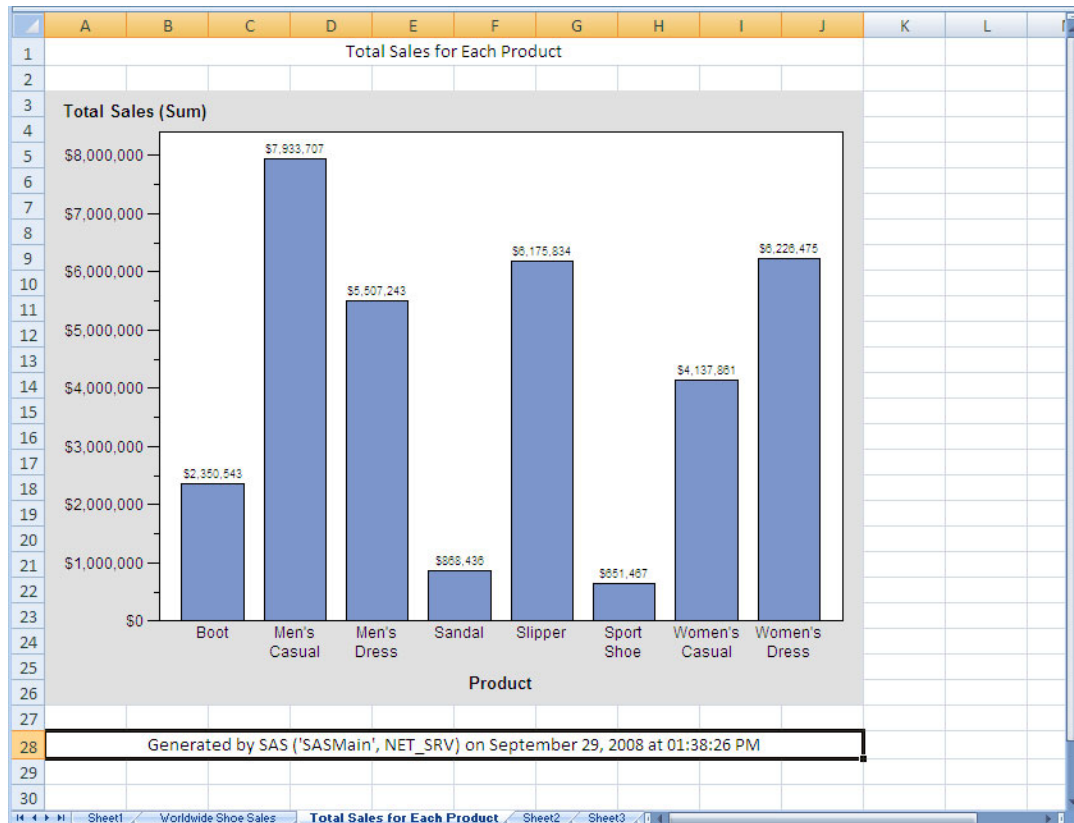
☐ Existing worksheet
Start at: (Examples: \$A\$1 or A1)

☒ New worksheet
Named: Total Sales for Each Product

☐ New workbook

OK Cancel

Click **OK**. The results open in a new worksheet called **Total Sales for Each Product**.



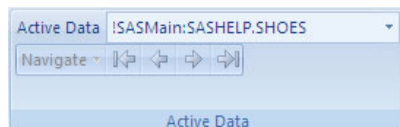
The bar chart shows the following:

- Men's Casual shoes had the highest sales with \$7,933,707.
- Sport Shoes had the lowest sales with \$651,467.

Determine Average Sales, Inventory, and Returns for Each Product

To create an analysis that shows the average sales, inventory, and returns for each product, follow these steps:

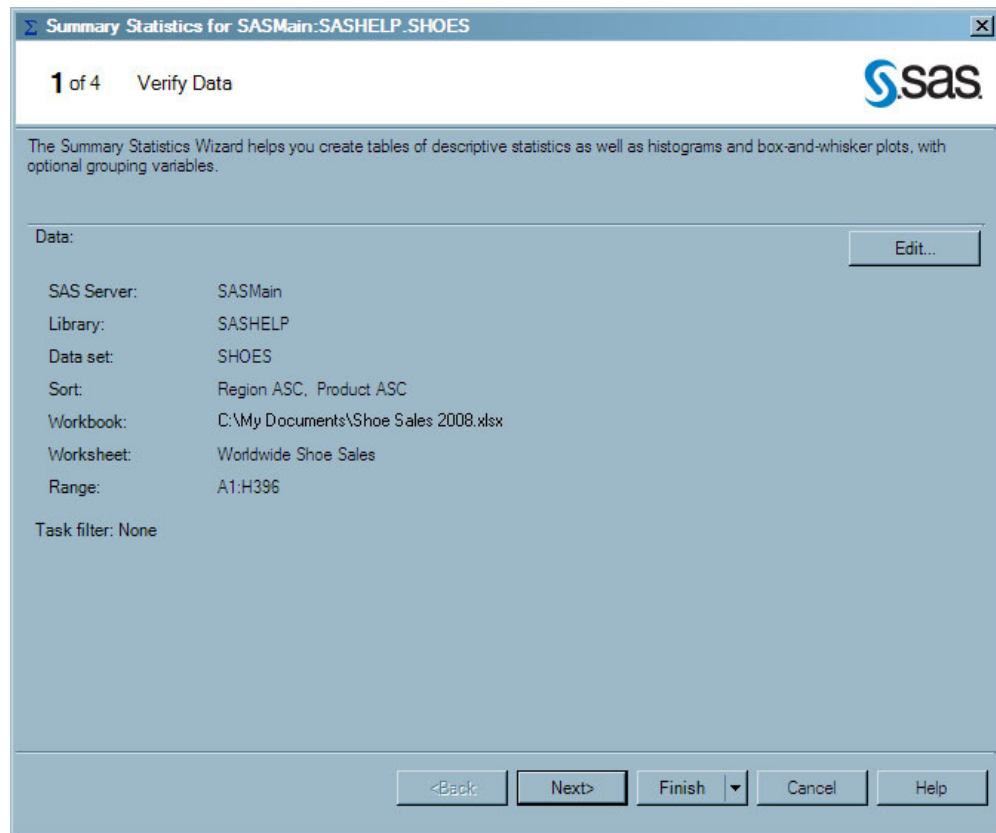
- 1 From the **Active Data** drop-down list on the **SAS** tab in the Ribbon, verify that **SASHELP.SHOES** is the active data source.



- 2 In the **Analyze Data & Report** group, click **Describe** and select **Summary Statistics Wizard**. The Summary Statistics Wizard opens.
- 3 In step 1 of the wizard, you can verify that you have selected the data source that you want to use.

Tip: You cannot change the data source after you have opened a SAS task. However, you can apply a filter by clicking **Edit**.

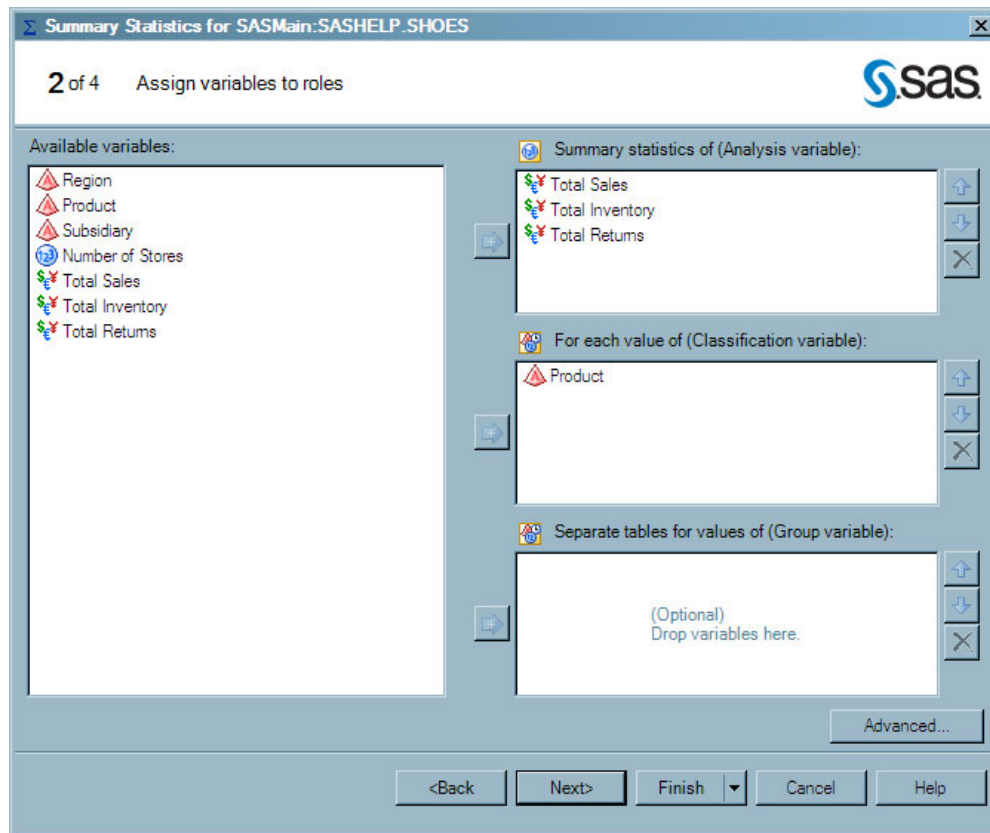
For this example, you should have the **SHOES** data source as the active data. Click **Next** to continue.



- 4 In step 2 of the wizard, you can assign variables from the data to roles.

Select the following variables in the **Available variables** pane and drag and drop them to the following roles:

Variables	Role
Total Sales, Total Inventory, Total Returns	Summary statistics of (Analysis variable)
Product	For each value of (Classification variable)

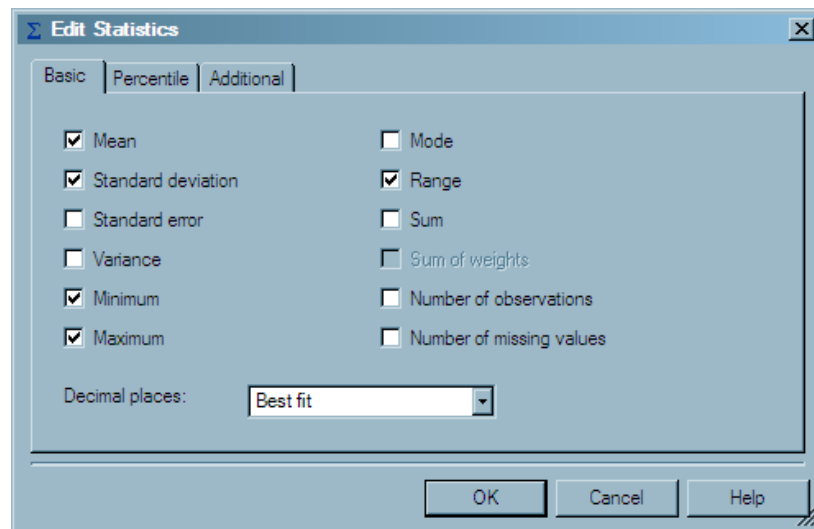


Click **Next** to continue.

- 5 In step 3 of the wizard, you can specify the statistics and the results to include in the output. By default, the Summary Statistics Wizard calculates the mean, standard deviation, minimum, maximum, and number of observations for each classification variable. However, you want to include the range of values and remove the number of observations from the output.

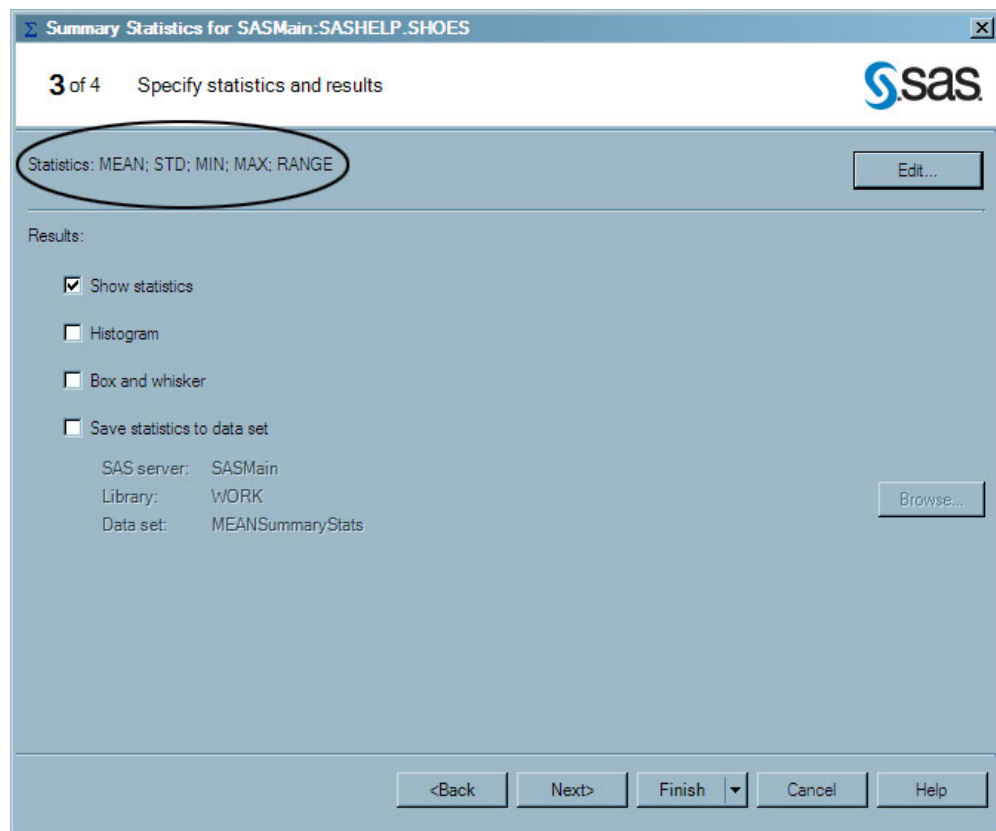
To specify the statistics to include in the output, follow these steps:

- a Click **Edit**. The Edit Statistics dialog box opens.
- b On the **Basic** tab, select the **Range** check box, and clear the **Number of observations** check box.



c Click **OK** to return to step 3 of the Summary Statistics Wizard.

The statistics that are listed in the Summary Statistics Wizard should now be as shown:



Click **Next** to continue.

6 In step 4 of the wizard, you can customize the title and footnote for the output.

In the **Analysis** box, delete **Summary Statistics Results** and type **Summary Statistics for Each Product**.

Summary Statistics for SASMain:SASHELP.SHOES

4 of 4 Provide title and footnote

Analysis: Summary Statistics for Each Product Reset

Histogram: Summary Statistics Histograms Reset

Box and Whisker Plot: Summary Statistics Box and Whisker Plots Reset

Footnote: Generated by SAS (&_SASSERVERNAME, &SYSSCP) on %TRIM(%QSYSFUNC(DATE), NLDATE20.) at %SYSFUNC(TIME), NLTIMAP20. Reset

<Back Next> Finish Cancel Help

Click **Finish**. The Choose Location dialog box opens.

- 7 In the Choose Location dialog box, select **New worksheet**, and in the **Named** box, type **Summary Statistics**. Click **OK**.

Choose Location

Specify the location for the results of "Summary Statistics Wizard":

☐ Existing worksheet

Start at: (Examples: \$A\$1 or A1)

☒ New worksheet

Named: Summary Statistics

☐ New workbook

OK Cancel

The results open in a new worksheet called Summary Statistics.

	A	B	C	D	E	F	G	H	I
1	Summary Statistics for Each Product								
2									
3	Product	Variable	Label	Mean	Std Dev	Minimum	Maximum	Range	
4	Boot	Sales	Total Sales	45202.75	45705.28	1179.00	286497.00	285318.00	
5		Inventory	Total Inventory	187012.90	172214.37	374.0000000	882080.00	881706.00	
6		Returns	Total Returns	1896.58	1652.97	80.0000000	9160.00	9080.00	
7	Men's Casual	Sales	Total Sales	176304.60	224859.90	9244.00	1298717.00	1289473.00	
8		Inventory	Total Inventory	379672.29	504818.08	2176.00	2881005.00	2878829.00	
9		Returns	Total Returns	6911.89	9505.67	478.0000000	57362.00	56884.00	
10	Men's Dress	Sales	Total Sales	110144.86	126085.43	3033.00	757798.00	754765.00	
11		Inventory	Total Inventory	290146.80	318693.70	538.0000000	1847559.00	1847021.00	
12		Returns	Total Returns	3281.98	3160.15	52.0000000	16833.00	16781.00	
13	Sandal	Sales	Total Sales	17723.18	31555.64	325.0000000	200156.00	199831.00	
14		Inventory	Total Inventory	65964.80	101080.69	960.0000000	624163.00	623203.00	
15		Returns	Total Returns	778.9795918	1341.49	10.0000000	8365.00	8355.00	
16	Slipper	Sales	Total Sales	118766.04	127423.85	3019.00	700513.00	697494.00	
17		Inventory	Total Inventory	427526.54	451452.76	10234.00	2520085.00	2509851.00	
18		Returns	Total Returns	4037.31	4029.22	127.0000000	21247.00	21120.00	
19	Sport Shoe	Sales	Total Sales	12773.86	17910.54	449.0000000	101922.00	101473.00	
20		Inventory	Total Inventory	65151.02	79344.15	455.0000000	370388.00	369933.00	
21		Returns	Total Returns	493.7058824	694.7706469	10.0000000	4204.00	4194.00	
22	Women's Casual	Sales	Total Sales	91952.47	105862.92	5389.00	502636.00	497247.00	
23		Inventory	Total Inventory	215481.13	251422.76	6972.00	1110412.00	1103440.00	
24		Returns	Total Returns	2919.87	3561.21	185.0000000	17448.00	17263.00	
25	Women's Dress	Sales	Total Sales	122087.75	138840.16	4659.00	756347.00	751688.00	
26		Inventory	Total Inventory	378525.08	447663.59	19899.00	2503387.00	2483488.00	
27		Returns	Total Returns	3797.12	4177.35	210.0000000	19378.00	19168.00	
28									
29	Generated by SAS ('SASMain', NET_SRV) on September 29, 2008 at 02:24:29 PM								
30									

The output shows the mean, standard deviation, minimum value, maximum value and range of the total sales, total inventory, and total returns for each product. An analysis shows the following aspects of the data:

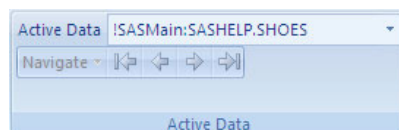
- For each product, the average total cost of the inventory exceeds the average total sales. For example, for Boots, the average total inventory is \$187,012.90, but the average total sales is only \$45,202.75.
- The ranges for all products are rather large. For example, for Boots, the minimum total sales is \$1,179 and the maximum total sales is \$286,497. This large range (\$285,318.00) implies that sales for boots vary across stores worldwide.

Determine Correlation between Sales, Inventory, and Returns

In the previous analysis, you saw that total inventory exceed sales for all products. Therefore, you want to analyze whether there is any correlation between total inventory and sales. You also decide to analyze the correlation between total returns and sales.

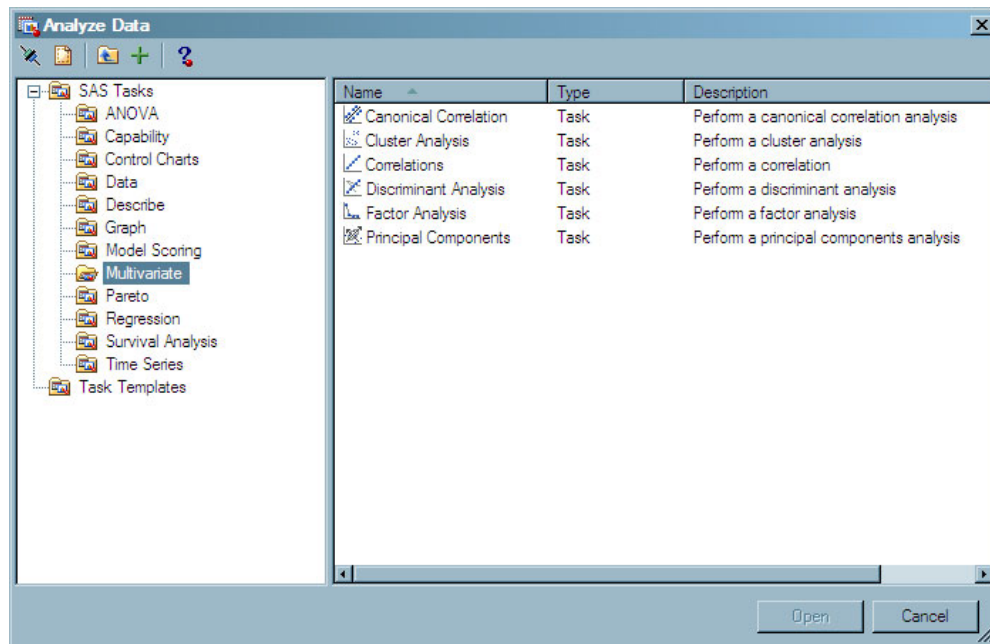
To determine whether there is a correlation between these items, follow these steps:

- 1 From the **Active Data** drop-down list on the **SAS** tab in the Ribbon, verify that **SASHELP.SHOES** is the active data source.



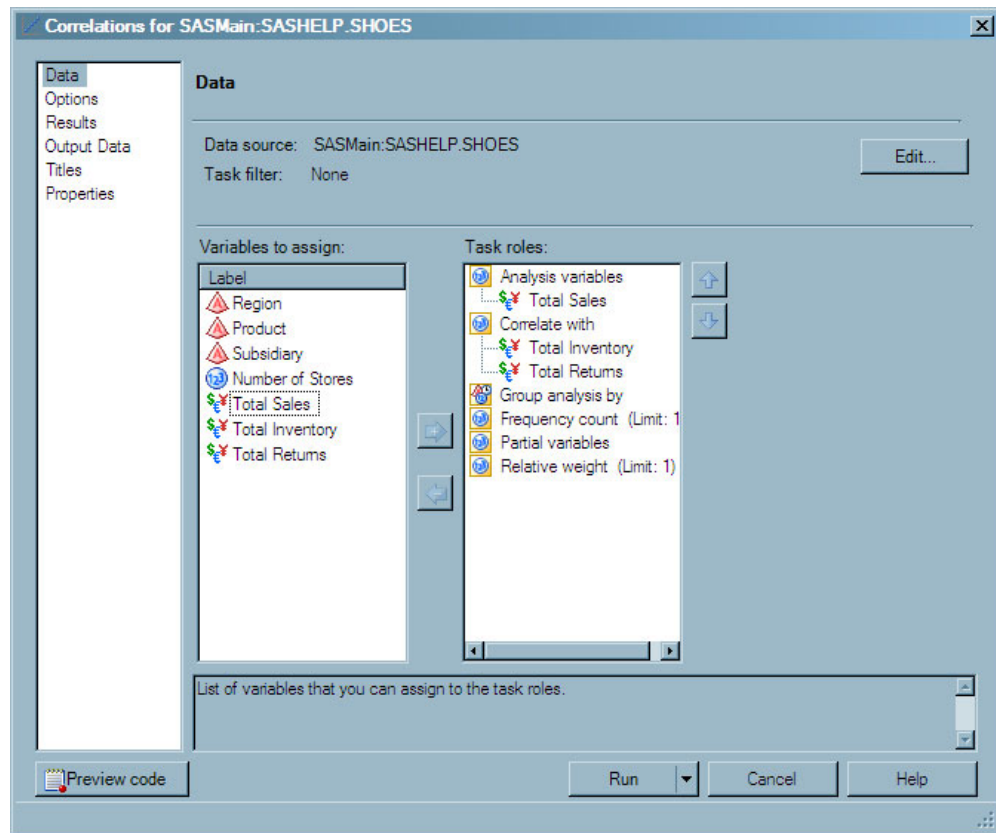
- 2 In the **Analyze Data & Report** group, click **Analyze Data**. The Analyze Data window opens.

- 3 In the left pane, select **Multivariate**. The list of tasks in this category appears in the right pane.



- 4 Select **Correlations** and click **Open**. The Correlations task opens.
- 5 In the Data panel, you can assign variables from the data source to task roles.
Select the following variables in the **Variables to assign** pane and drag and drop them to the following roles:

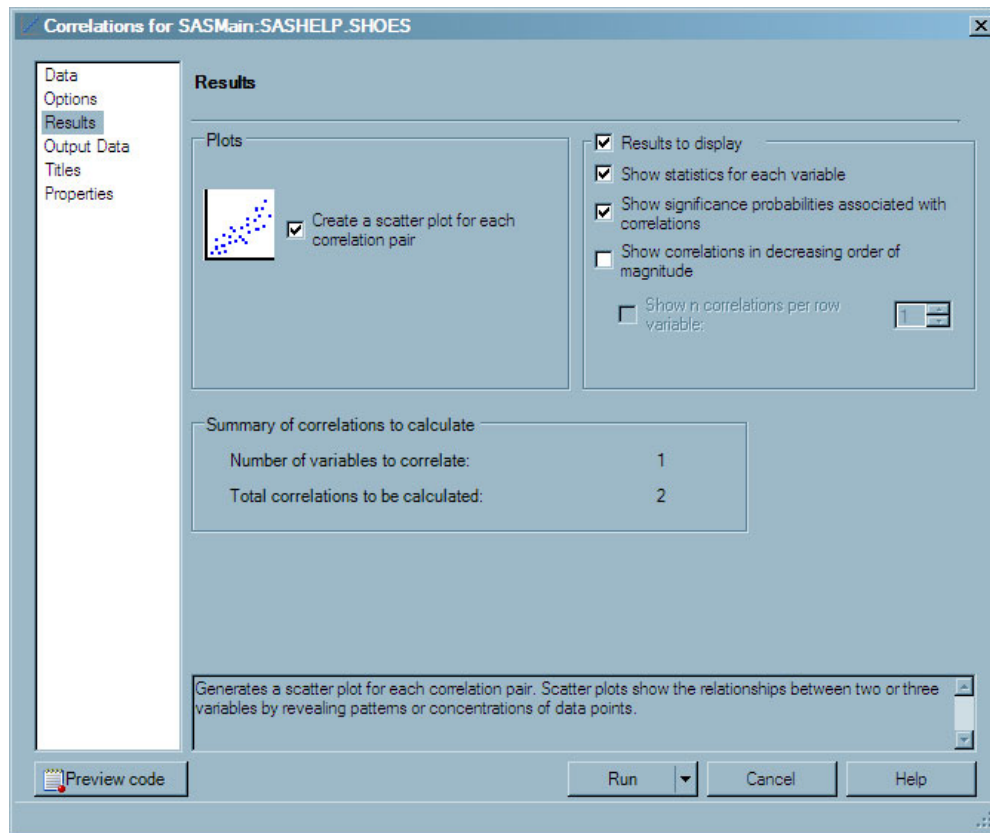
Variables	Role
Total Sales	Analysis variable
Total Inventory, Total Returns	Correlate with



In the selection pane, select **Results** and continue.

- 6 In the Results panel, you can specify whether to include any plots in the output and what statistics to include in the output. You can also view a summary of the correlations for the task.

For this analysis, select the **Create a scatter plot for each correlation pair** check box.

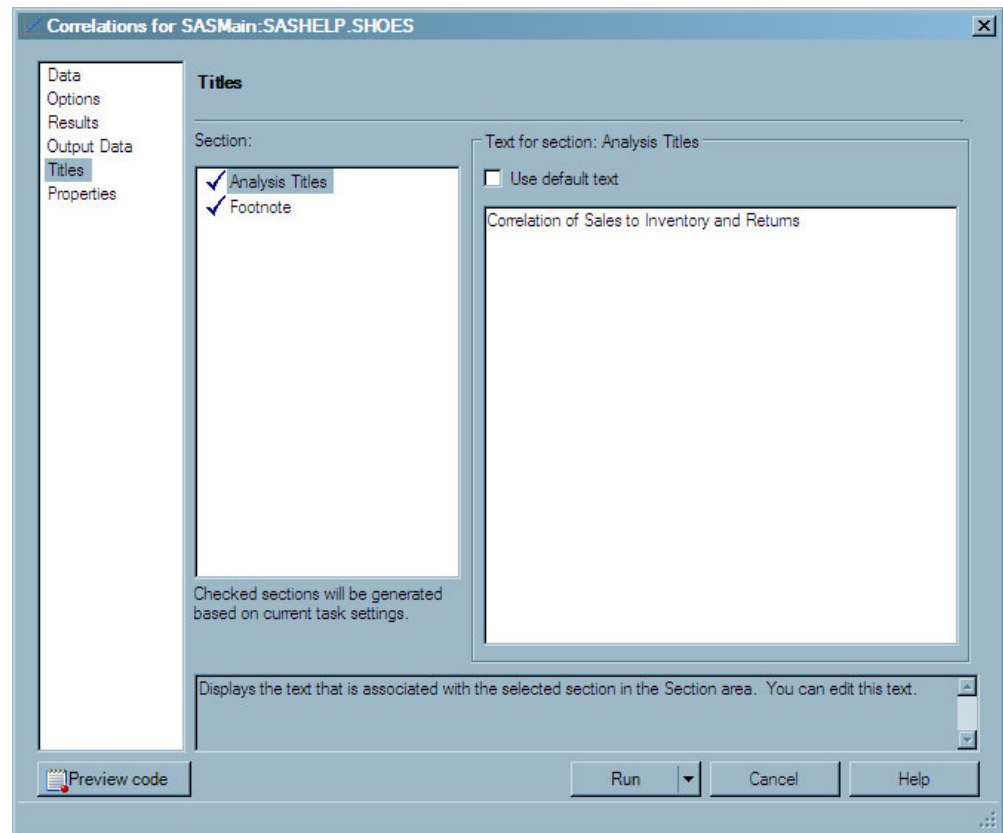


In the selection pane, select **Titles** and continue.

- 7 In the Titles panel, you can customize the title and footnote for the output.

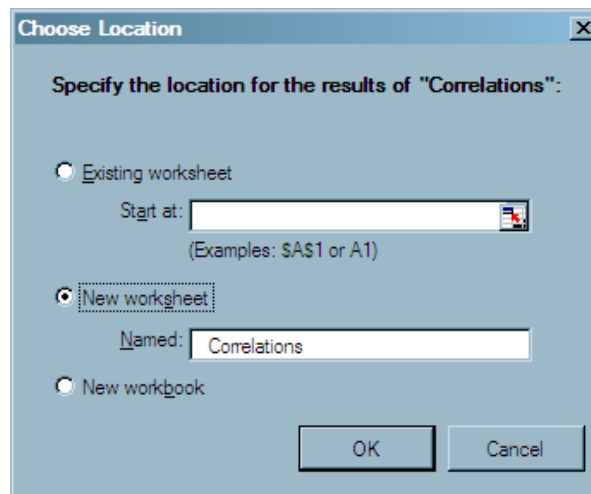
To create a custom title for the analysis, follow these steps:

- a In the Section area, select **Analysis Titles**.
- b In the **Text for section: Analysis Titles** area, clear the **Use default text** check box.
- c Delete the default text and type **Correlation of Sales to Inventory and Returns**.

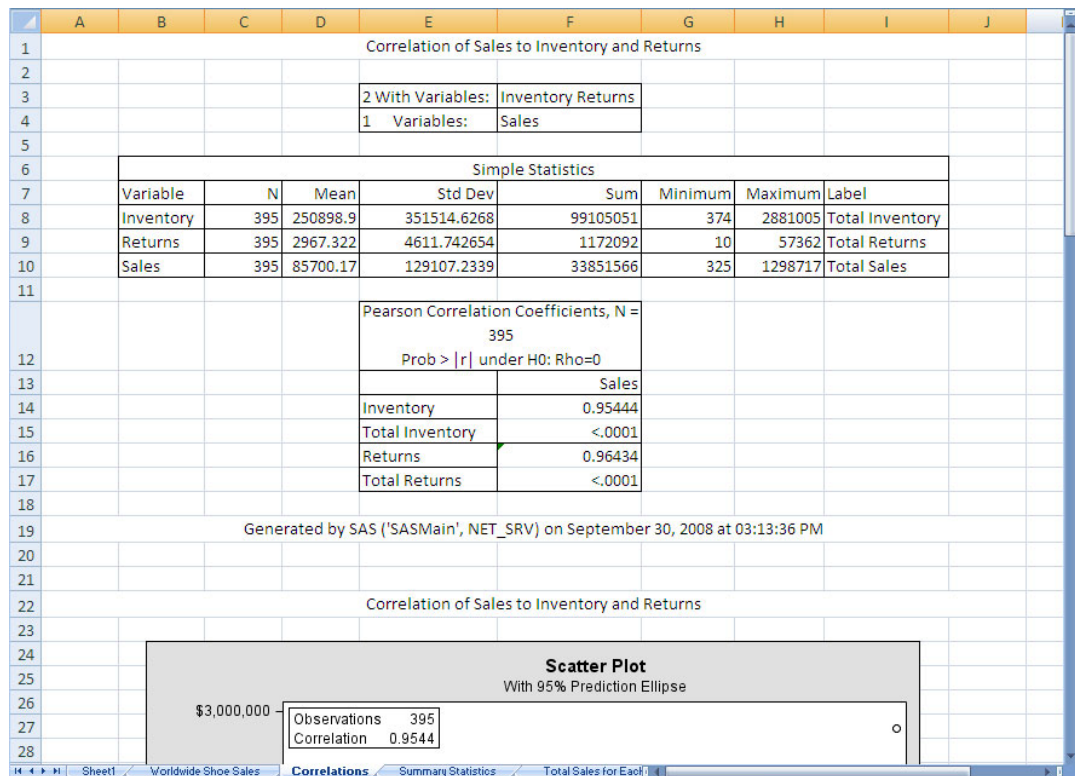


Click **Run**. The Choose Location dialog box opens.

- 8 In the Choose Location dialog box, select **New worksheet**, and click **OK**.



The results open in a new worksheet called Correlations.



The output shows the correlation statistics for the correlation between sales and inventory and sales and returns. An analysis shows the following aspects of the data:

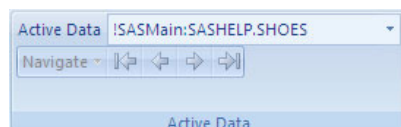
- The correlation between sales and inventory is 0.95444. This implies a strong positive correlation between sales and inventory.
- The correlation between sales and returns is 0.96434. This implies a strong positive correlation between sales and returns.
- The scatter plots also reflect this strong positive correlation. The scatter plots also show that the data contains a few possible outliers.

Perform a Linear Regression Analysis

In the previous analysis, you saw that total inventory and returns were strongly correlated to sales. You now want to perform a linear regression analysis on the data. You want to determine what model you can use to determine total sales for each product.

To run a linear regression analysis, follow these steps:

- 1 From the **Active Data** drop-down list on the **SAS** tab in the Ribbon, verify that **SASHELP.SHOES** is the active data source.



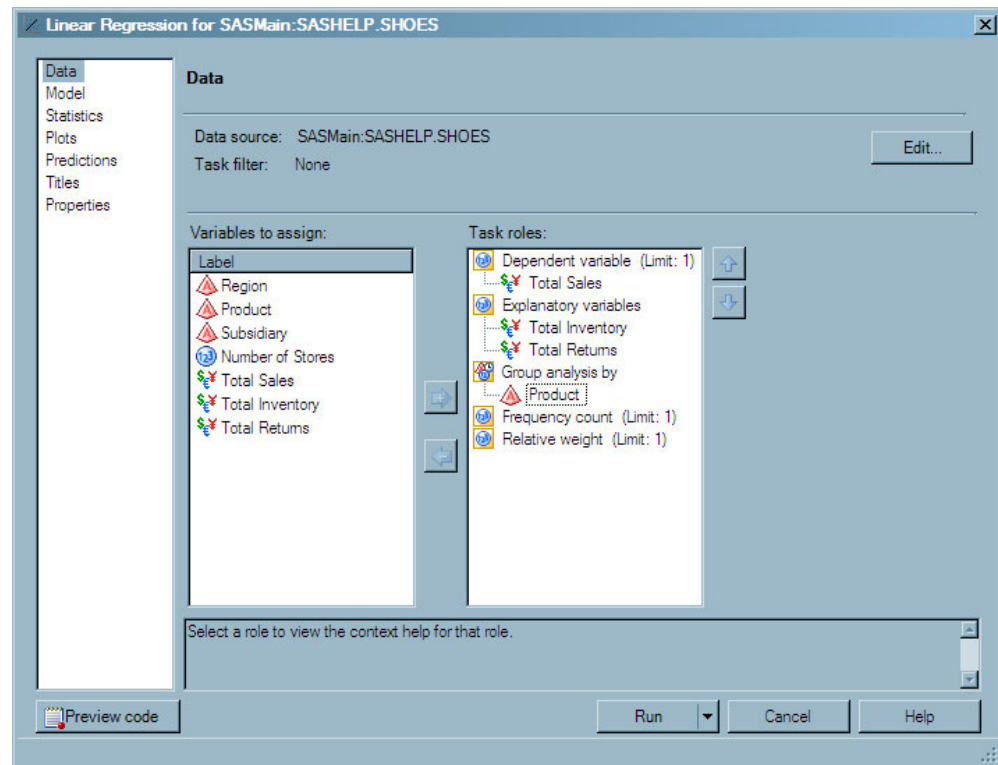
- 2 In the **Analyze Data & Report** group, click **Analyze Data**. The Analyze Data window opens.
- 3 In the left pane, select **Regression**. The list of tasks in this category appears in the right pane.

4 Select **Linear Regression** and click **Open**. The Linear Regression task opens.

5 In the Data panel, you can assign variables from the data source to task roles.

Select the following variables in the **Variables to assign** pane and drag and drop them to the following roles:

Variables	Role
Total Sales	Dependent variable
Total Inventory, Total Returns	Explanatory variables
Product	Group analysis by

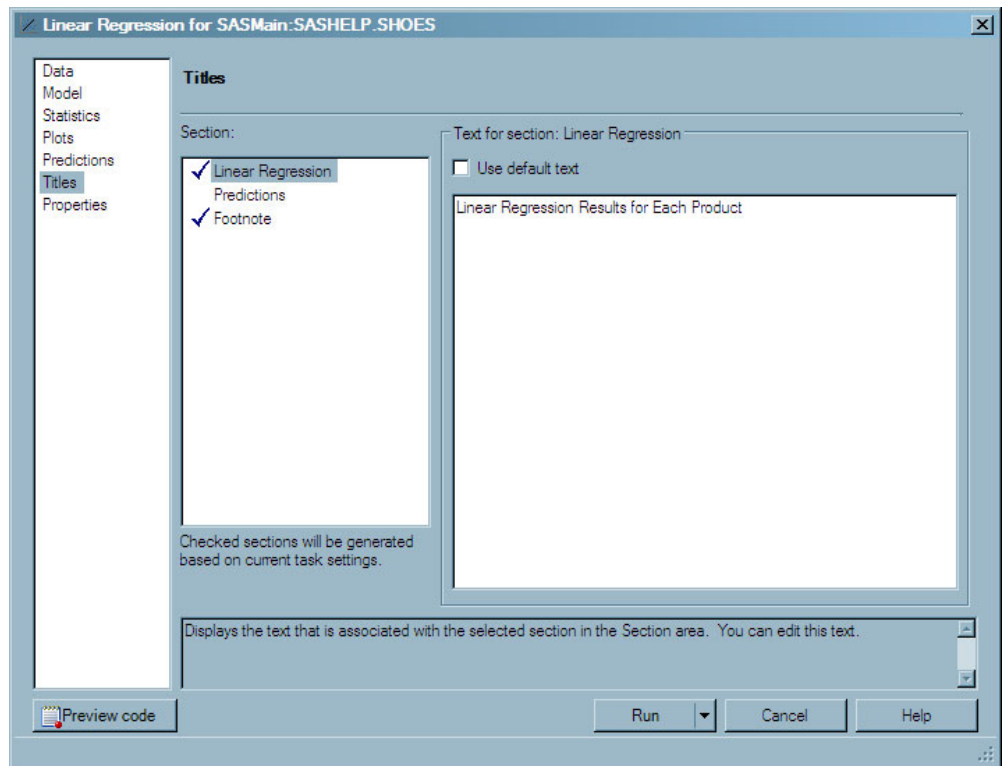


In the selection pane, select **Titles** and continue.

6 In the Titles panel, you can customize the title and footnote for the output.

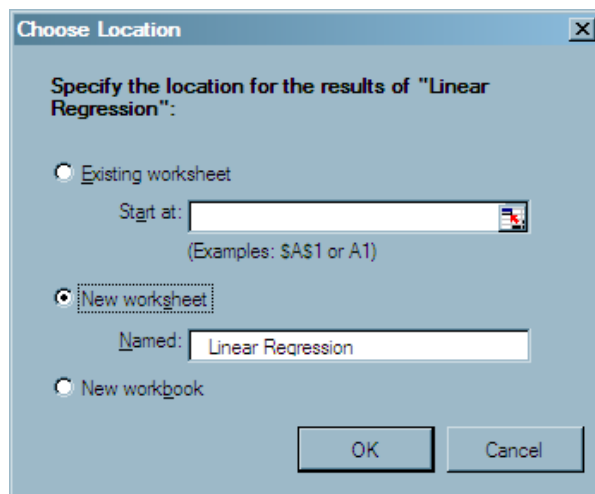
To create a custom title for the analysis, follow these steps:

- a In the Section area, select **Linear Regression**.
- b In the **Text for section: Linear Regression** area, clear the **Use default text** check box.
- c Delete the default text and type **Linear Regression Results for Each Product**.



Click **Run**. The Choose Location dialog box opens.

- 7 In the Choose Location dialog box, select **New worksheet** and click **OK**.



The results open in a new worksheet called Linear Regression.

	A	B	C	D	E	F	G	H	I
1	Linear Regression Results for Each Product								
2									
3					Model: Linear_Regression_Model				
4					Dependent Variable: Sales Total Sales				
5									
6									
7									
8					Product=Boot				
9									
10					Number of Observations Read	52			
11					Number of Observations Used	52			
12									
13					Analysis of Variance				
14					Source	DF	Sum of Squares	Mean Square	F Value
15					Model	2	1.00892E+11	50445914088	437.82
16					Error	49	5645789755	115220199.1	5.54E-32
17					Corrected Total	51	1.06538E+11		
18									
19					Root MSE		10734	R-Square	0.9470
20					Dependent Mean		45203	Adj R-Sq	0.9448
21					Coeff Var		23.74649		
22									
23					Parameter Estimates				
24					Variable	Label	DF	Parameter Estimate	Standard Error
25					Intercept	Intercept	1	-5581.097245	2278.804854
26					Inventory	Total Inventory	1	0.098486978	0.024650315
27					Returns	Total Returns	1	17.06522479	2.568184856
28									

Before running this analysis, you assumed a significance level of 0.05. Therefore, any parameter estimates that have a p -value less than 0.05 should be included in the model. Any parameter estimates that have a p -value greater than 0.05 should not be included in the model.

The following analysis of the Boot product shows you how to analyze the results for each product.

- You can use the $\text{Pr} > |t|$ column in the Parameter Estimates table to determine whether an input is statistically significant and should be included in the model.

The total inventory and total returns have a p -value less than 0.05, so these inputs can be included in the model.

	A	B	C	D	E	F	G	H	I
3	Model: Linear_Regression_Model								
4	Dependent Variable: Sales Total Sales								
5									
6									
7									
8	Product=Boot								
9									
10					Number of Observations Read	52			
11					Number of Observations Used	52			
12									
13					Analysis of Variance				
14				Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
15				Model	2	1.00892E+11	50445914088	437.82	5.54E-32
16				Error	49	5645789755	115220199.1		
17				Corrected Total	51	1.06538E+11			
18									
19				Root MSE		10734	R-Square	0.9470	
20				Dependent Mean		45203	Adj R-Sq	0.9448	
21				Coeff Var		23.74649			
22									
23				Parameter Estimates					
24				Variable	Label	DF	Parameter Estimate	Standard Error	t Value Pr > t
25				Intercept	Intercept	1	-5581.097245	2278.804854	-2.45 0.017943
26				Inventory	Total Inventory	1	0.098486978	0.024650315	4.00 0.000217
27				Returns	Total Returns	1	17.06522479	2.568184856	6.64 2.36E-08
28									
29				Generated by SAS ('SASMain', NET_SRV) on September 30, 2008 at 03:37:18 PM					
30									

- After you have determined that an input is statistically significant, you can use the value in the Parameter Estimate column to determine the impact that these inputs have.

The impact that each of these inputs have on total sales is as follows:

- For each \$1.00 spent on inventory, total sales increase by \$0.10.
- For each \$1.00 of returns, total sales increase by \$17.07. While at first this result was confusing, you remembered that some of your stores charge a 20% re-stocking fee on all returns. This means that your company still makes some money off of returned items.

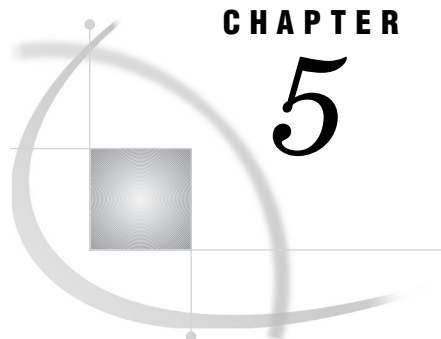
	A	B	C	D	E	F	G	H	I
3	Model: Linear_Regression_Model								
4	Dependent Variable: Sales Total Sales								
5									
6									
7									
8	Product=Boot								
9									
10					Number of Observations Read	52			
11					Number of Observations Used	52			
12									
13	Analysis of Variance								
14				Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
15				Model	2	1.00892E+11	50445914088	437.82	5.54E-32
16				Error	49	5645789755	115220199.1		
17				Corrected Total	51	1.06538E+11			
18									
19				Root MSE		10734	R-Square	0.9470	
20				Dependent Mean		45203	Adj R-Sq	0.9448	
21				Coeff Var		23.74649			
22									
23	Parameter Estimates								
24	Variable	Label		DF	Parameter Estimate	Standard Error	t Value	Pr > t	
25	Intercept	Intercept		1	-5581.097245	2278.804854	-2.45	0.017943	
26	Inventory	Total Inventory		1	0.098486978	0.024650315	4.00	0.000217	
27	Returns	Total Returns		1	17.06522479	2.568184856	6.64	2.36E-08	
28									
29	Generated by SAS ('SASMain', NET_SRV) on September 30, 2008 at 03:37:18 PM								
30									

You can perform the same analysis on the other products.

Save the Workbook

To save the workbook, click  in the Quick Access Toolbar.

You have now finished your initial analysis of your company's 2008 sales data. You can now use a PivotTable report to analyze a specific product line. For more information, see Chapter 5, "Analyzing a SAS Data Source in a PivotTable Report," on page 33.



CHAPTER

5

Analyzing a SAS Data Source in a PivotTable Report

<i>About the Tasks That You Will Perform</i>	33
<i>Open the Sales Data into a PivotTable Report</i>	33
<i>Create a PivotTable Report for the Sport Shoe Product Line</i>	36
<i>Drilling Down on the Data for Asia in the PivotTable Report</i>	38
<i>Save the Workbook</i>	40

About the Tasks That You Will Perform

During the first part of the scenario, you saw that sports shoes had the lowest sales. After your initial report, your managers asked you to identify the regions that had sport shoe sales less than \$10,000, and to perform a more in-depth analysis into the region with the lowest sales. Because you are in Microsoft Excel, you can perform this analysis using a PivotTable report.

To analyze the Sport Shoe product line, you will perform the following main tasks:

- 1 Select the data source to open.

Note: In this scenario, you are accessing a SAS data source from the SAS server. However, you can use the SAS add-in to access data from a database, such as Oracle, Teradata, and DB2. In Excel, you can also use Excel worksheets as the data source. △


- 2 For the data source, select the following:
 - ☐ the variables to include in the output
 - ☐ a filter to subset the data
 - ☐ the output location for the PivotTable report

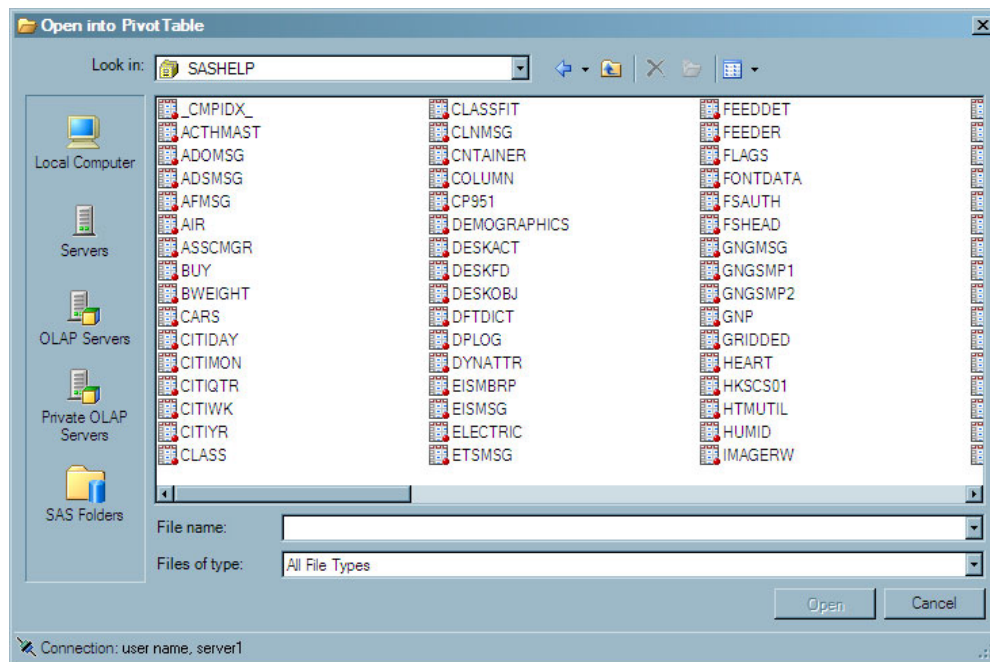
Open the Sales Data into a PivotTable Report

To open the SHOES data source (which is available from the SASHELP library) into a PivotTable report, follow these steps:

- 1 In the Ribbon, select the **SAS** tab. In the **Data Options** group, click **Open Data** and select **Into PivotTable**. The Open into PivotTable window opens.




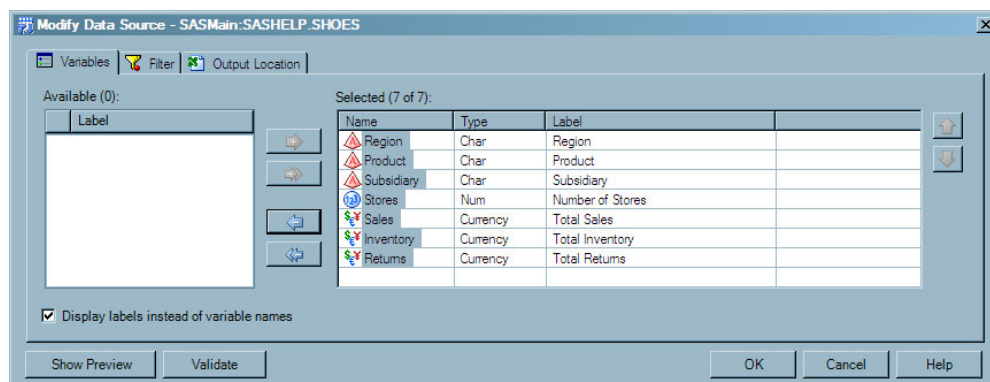
- 2 Click  to select the SAS server that you want to use. The Open Data Source window now displays the libraries on the selected server.
- 3 Select **SASHELP** and click **Open**. The Open Data Source window now displays the contents of the SASHELP library.



Note: The location of the SASHELP library is dependent on how SAS was installed at your site. If you cannot find the SASHELP library, contact the SAS support personnel at your site. △

- 4 In the SASHELP library, select the **SHOES** data source, and click **Open**. The Modify Data Source window opens.
- 5 On the **Variables** tab, you select the variables that you want to include in the final output. You can also specify the order of the variables.

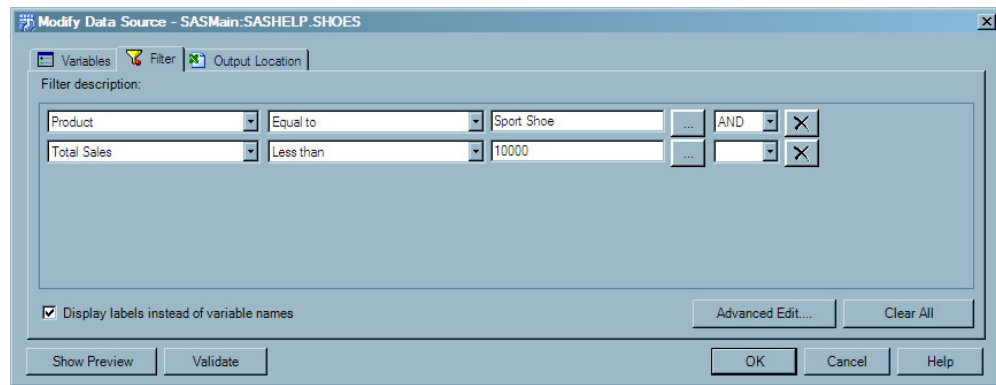
Click  to move all the variables from the **Available** list box to the **Selected** list box. Select the variables so they appear in the following order:



Click the **Filter** tab and continue.

- 6 On the **Filter** tab, you can specify the condition that you want to use to subset the data. On this tab, you will specify two conditions and join them by an AND operator to create a filter.

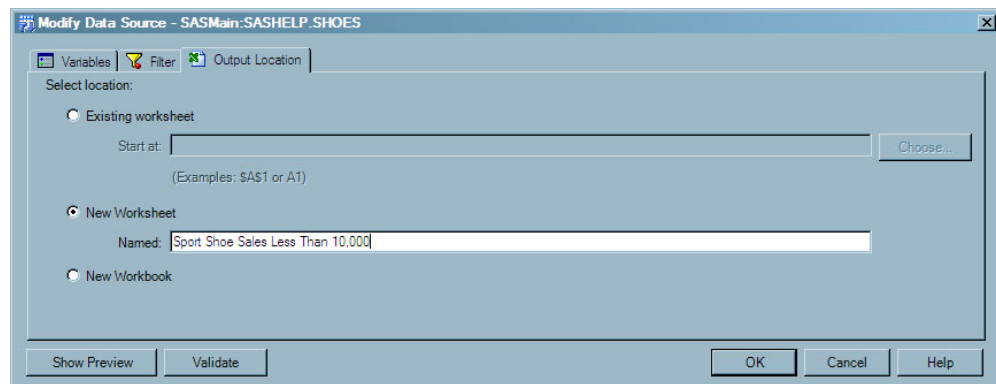
Use the drop-down lists and the text box to create the following filter:



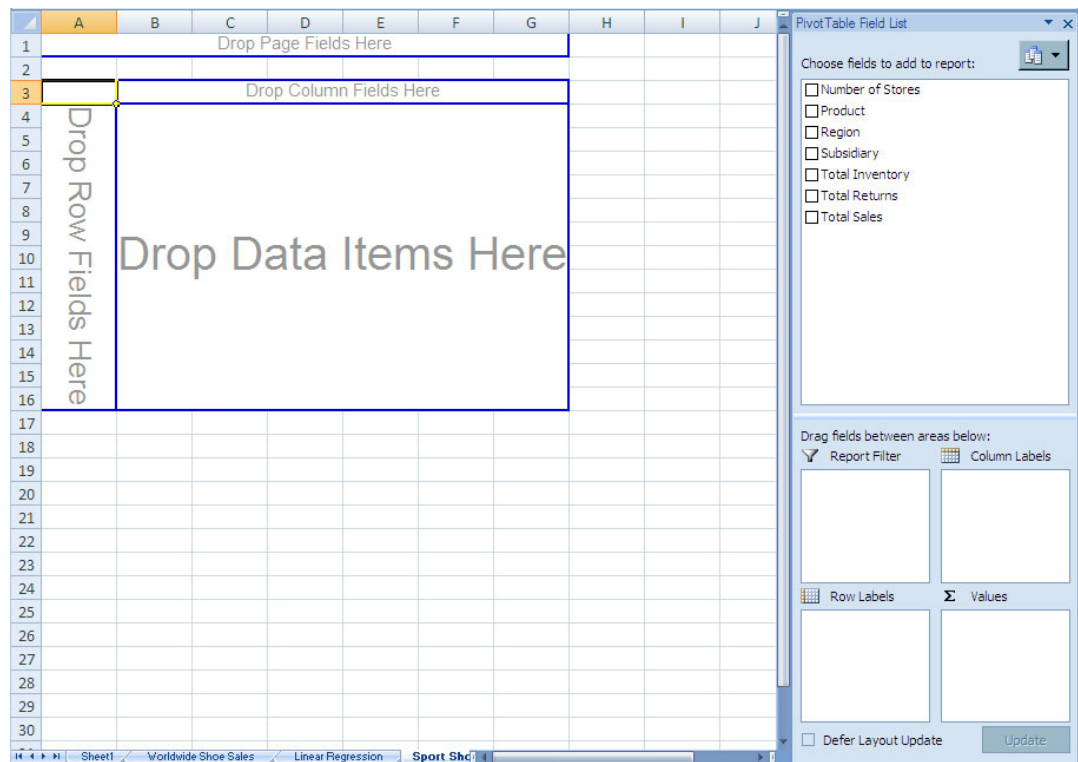
Click the **Output Location** tab and continue.

- 7 On the **Output Location** tab, you can select the location for the final output.

By default, the SAS add-in opens the PivotTable report in a new worksheet. In the **Named** box, delete **SASHELP.SHOES** and type **Sport Shoe Sales Less Than 10,000**.



Click **OK**. The PivotTable report opens in a new worksheet called Sport Shoe Sales Less Than 10,000.



Create a PivotTable Report for the Sport Shoe Product Line

To create a PivotTable report that analyzes the actual and predicted sales for the Sport Shoe product line, follow these steps:

- 1 From the PivotTable Field List, drag and drop **Region** to the area marked **Drop Row Fields Here**.

The screenshot shows a SAS PivotTable report for 'Sport Shoe' data. The PivotTable is structured with 'Region' as the Row Label and 'Grand Total' as the Column Label. The PivotTable Field List on the right shows 'Region' selected for Row Labels and 'Grand Total' for Column Labels. The data area is empty, with a large 'Drop Data Items Here' watermark.

- 2 From the PivotTable Field List, drag and drop **Product** to the area marked **Drop Column Fields Here**.

The screenshot shows a SAS PivotTable report for 'Sport Shoe' data. The PivotTable is structured with 'Region' as the Row Label and 'Product' as the Column Label. The PivotTable Field List on the right shows 'Product' selected for Column Labels and 'Grand Total' for Row Labels. The data area is empty, with a large 'Drop Data Items Here' watermark.

- 3 From the PivotTable Field List, drag and drop **Total Sales** in the area marked **Drop Data Items Here**.

Sum of Total Sales	Product	Grand Total
Africa	\$22,150	\$22,150
Asia	\$2,092	\$2,092
Canada	\$12,343	\$12,343
Central America/Caribbean	\$8,787	\$8,787
Middle East	\$4,007	\$4,007
Pacific	\$13,958	\$13,958
South America	\$33,061	\$33,061
Western Europe	\$24,510	\$24,510
Grand Total	\$120,908	\$120,908

PivotTable Field List

Choose fields to add to report:

- ☐ Number of Stores
- ☒ **Product**
- ☒ **Region**
- ☐ Subsidiary
- ☐ Total Inventory
- ☐ Total Returns
- ☒ **Total Sales**

Drag fields between areas below:

Report Filter: **Region**

Column Labels: **Product**

Row Labels: **Region**

Σ Values: **Sum of Total ...**

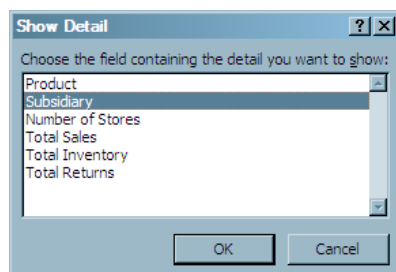
☐ Defer Layout Update Update

The results show that three regions (Asia, Middle East, and Central America/Caribbean) have total sport shoe sales under \$10,000. Asia has the lowest sales, so you want to drill-down on the data in the Asia region to investigate further.

Drilling Down on the Data for Asia in the PivotTable Report

To drill-down on the data for the Asia region, follow these steps:

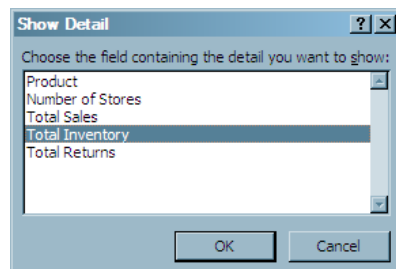
- 1 In the Region column, right-click in the **Asia** cell. From the pop-up menu, select **Expand/Collapse ► Expand**. The Show Detail dialog box opens.
- 2 Select **Subsidiary** and click **OK**.



The Asia row now shows the sales for the Seoul and Tokyo subsidiaries.

Region	Subsidiary	Product	Grand Total
Africa			
Asia	Seoul	Sport Shoe	\$22,150
Asia	Tokyo	Sport Shoe	\$937
Asia			\$1,155
Asia Total			\$2,092
Canada			\$12,343
Central America/Caribbean			\$8,787
Middle East			\$4,007
Pacific			\$13,958
South America			\$33,061
Western Europe			\$24,510
Grand Total			\$120,908

- 3 In the Subsidiary column, right-click on the **Seoul** cell. From the pop-up menu, select **Expand/Collapse ► Expand**. The Show Detail dialog box opens.
- 4 Select **Total Inventory** and click **OK**.



The Seoul row now shows the inventory cost for the Seoul subsidiary.

- 5 Right-click on the **Tokyo** cell. From the pop-up menu, select **Expand/Collapse ► Expand**.

The Tokyo row now shows the inventory cost for the Tokyo subsidiary.

	A	B	C	D	E	F
1	Drop Page Fields Here					
2						
3	Sum of Total Sales			Product		
4	Region	Subsidiary	Total Inventory	Sport Shoe	Grand Total	
5	Africa			\$22,150	\$22,150	
6	Asia	Seoul	\$455	\$937	\$937	
7		Seoul Total		\$937	\$937	
8		Tokyo	\$15,602	\$1,155	\$1,155	
9		Tokyo Total		\$1,155	\$1,155	
10	Asia Total			\$2,092	\$2,092	
11	Canada			\$12,343	\$12,343	
12	Central America/Caribbean			\$8,787	\$8,787	
13	Middle East			\$4,007	\$4,007	
14	Pacific			\$13,958	\$13,958	
15	South America			\$33,061	\$33,061	
16	Western Europe			\$24,510	\$24,510	
17	Grand Total			\$120,908	\$120,908	
18						
19						
20						
21						
22						
23						
24						
25						
26						
27						
28						
29						
30						

PivotTable Field List

Choose fields to add to report:

- ☐ Number of Stores
- ☒ Product
- ☒ Region
- ☒ Subsidiary
- ☒ Total Inventory
- ☐ Total Returns
- ☒ Total Sales

Drag fields between areas below:

Report Filter

Column Labels

- Product

Row Labels

- Region
- Subsidiary
- Total Inventory

Values

- Sum of Total ...

☐ Defer Layout Update
Update

The results suggest the following:

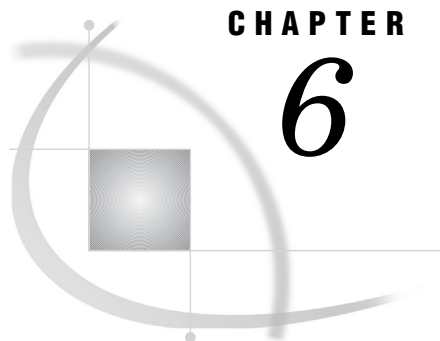
- While the sales for the Seoul subsidiary were \$937, the cost of inventory was only \$455. This suggests that the profit for sport shoes was good. It could also suggest that demand for sport shoes exceeded the inventory that the Seoul subsidiary had in the warehouse.
- While the sport shoe sales for the Tokyo subsidiary were \$1,155, the cost of inventory was \$15,602. This suggests that the Tokyo subsidiary was not profitable in selling sport shoes. Then you remember that a low-price competitor recently entered the Tokyo market. The demand for sport shoes declined unexpectedly, and consequently, the Tokyo subsidiary has leftover inventory in the warehouse.

Before ordering sport shoes for either of these subsidiaries, your company will probably want to perform an in-depth market analysis into the trends in each of these markets.

Save the Workbook

To save the workbook, click  in the Quick Access Toolbar.

You have now finished analyzing the sports shoe sales in a PivotTable report. This completes the second part of the scenario.



CHAPTER

6

Next Steps: A Quick Look at Additional Features

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Working with Published Documents

What Is a Published Document?

After you have completed an analysis, you might want to share the results with others at your site. Published documents are Excel, Word, or PowerPoint documents that are saved to a common repository.

Publishing your documents to a common repository has the following benefits:

- The workbooks, documents, and presentations in this repository can be opened by others at your site.
- When you publish the workbook, document, or presentation to the metadata repository, information about all the data sources is saved to the repository. Storing this metadata in the repository enables you to perform an impact analysis on a document. Impact analysis enables you to see where a data source came from and the items that depend on this source. This analysis enables you to know how changing a data source might affect other documents.

Note: To publish a document, the SAS support personnel at your site must have installed SAS Web Report Studio on the same metadata server. If you cannot publish documents, contact the SAS support personnel at your site. △

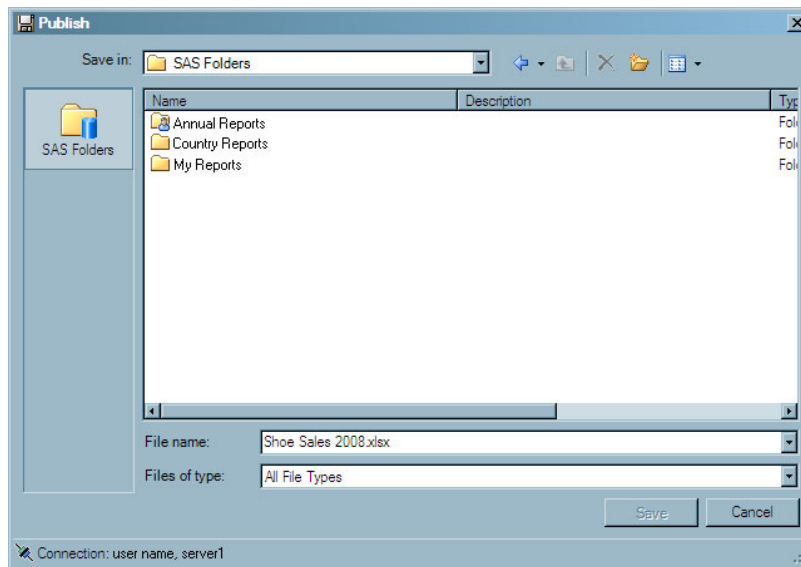
Publish the Sales Workbook

To publish the Shoe Sales 2008 workbook, follow these steps:

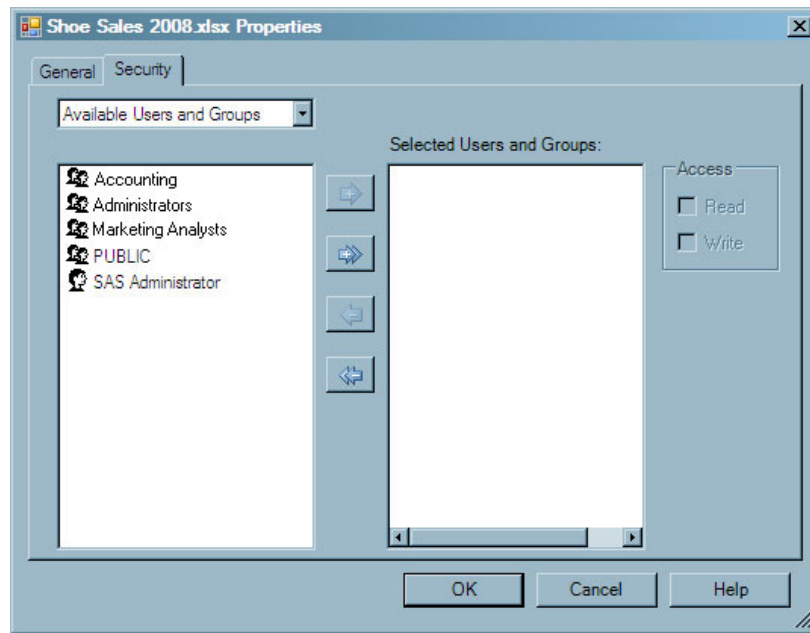
- 1 In the Ribbon, select the **SAS** tab. In the **Manage** group, click **Tools** and select **Publish**.

Note: If you have any data sources that cannot be tracked in your document, then the Verify Document for Impact Analysis dialog box opens. Click **OK** to continue. △

The Publish window opens.



- 2 Select the location where you want to publish your document and click **Save**. The Properties dialog box for the published document opens.
- 3 On the **Security** tab, specify the security settings for the published document. For more information about how to set the security settings for a document or folder, click **Help** in this window.



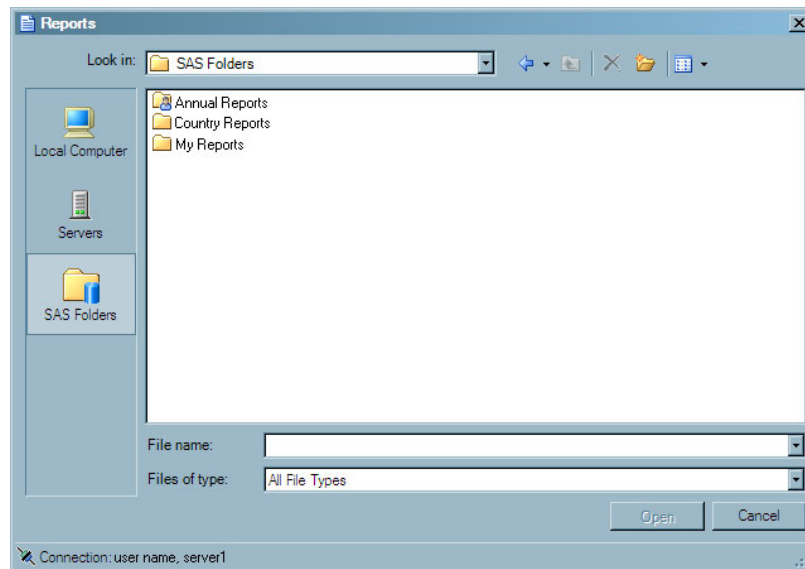
- 4 Click **OK** to publish the document.

Open the Published Workbook

After a document has been published to a metadata repository, others at your site can view this document.

For example, to open the Shoe Sales 2008 workbook, follow these steps:

- 1 In the Ribbon, select the **SAS** tab. In the **Analyze Data & Report** group, click **Reports**. The Reports window opens.



- 2 In the location where this report is saved, select **Shoe Sales 2008.xlsx**.
- 3 Click **Open**.

The document opens in Microsoft Excel.

Working with Favorites

What Is a Favorite?

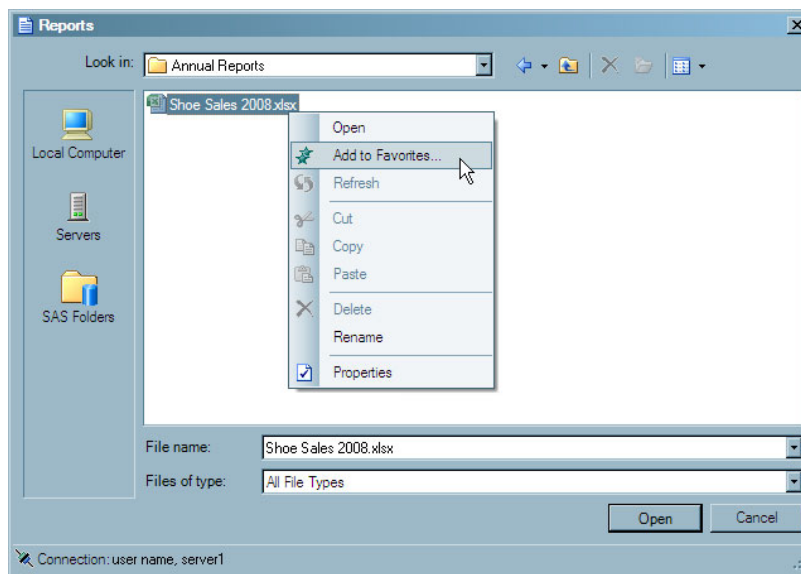
Favorites in the SAS add-in enable you to quickly access your most commonly used reports and analyses. You can add published documents, reports, SAS tasks, and stored processes to your list of favorites.

Add a Favorite for the Shoe Sales 2008 Workbook

If you want to analyze the data in the Shoe Sales 2008 workbook frequently, you might want to add this published document to your list of favorites.

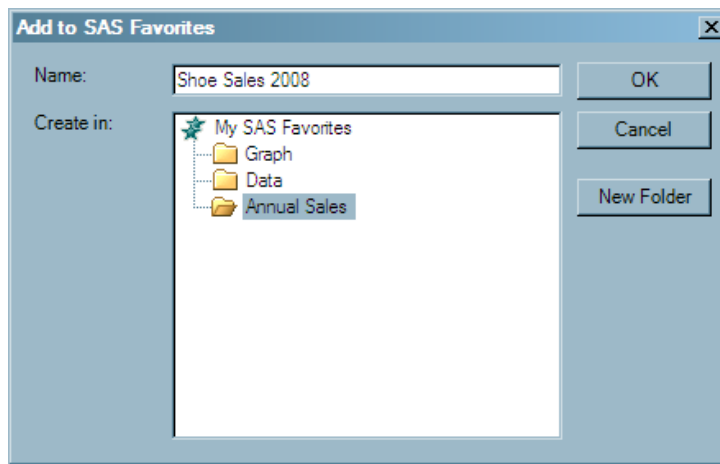
To add the Shoe Sales 2008 workbook to your list of favorites, follow these steps:

- 1 In the Ribbon, select the **SAS** tab. In the **Analyze Data & Report** group, click **Reports**. The Reports window opens.
- 2 Right-click the **Shoe Sales 2008.xlsx** workbook and select **Add to Favorites**.



The Add to SAS Favorites window opens.

- 3 Select the folder where you want to save this workbook and click **OK**.



Run the Favorite for the Shoe Sales 2008 Workbook

To open the Shoe Sales 2008 workbook that you added to your list of favorites, follow these steps:

- 1 In the **Analyze Data & Report** group, click **SAS Favorites**.
- 2 Select **Shoe Sales 2008**.

The Shoe Sales 2008 workbook opens in Excel.

Sending Results to Microsoft Word or Microsoft PowerPoint

About Sending Results from Excel

After you performed your initial analysis of the company's 2008 sales data in Excel, your managers asked you to create a short presentation for the yearly sales meeting. This presentation should include the following data:

- ☐ the total sales for each product
- ☐ the average sales, inventory, and returns for each product

From Excel, you can select the results from the Shoe Sales 2008 workbook to send to Word or to PowerPoint. When you select the SAS content to send, the current results for that analysis are automatically displayed in Word or PowerPoint. To make sure that the most up-to-date results are displayed in Word or PowerPoint, you should refresh the analysis after the results are sent to these applications.

Note: You can send only SAS content from Excel to Word or PowerPoint. Any formatting or text changes that you made to the SAS content are not sent. Only the results are re-opened in Word or PowerPoint.

You cannot send a SAS data source or data in an Excel worksheet. Word and PowerPoint are unable to open and read an Excel data source. Additionally, you cannot send a PivotTable report to Word or PowerPoint. △

Send Results from the Sales Workbook to Microsoft PowerPoint

To send SAS content from the Shoe Sales 2008 workbook to Microsoft PowerPoint, follow these steps:

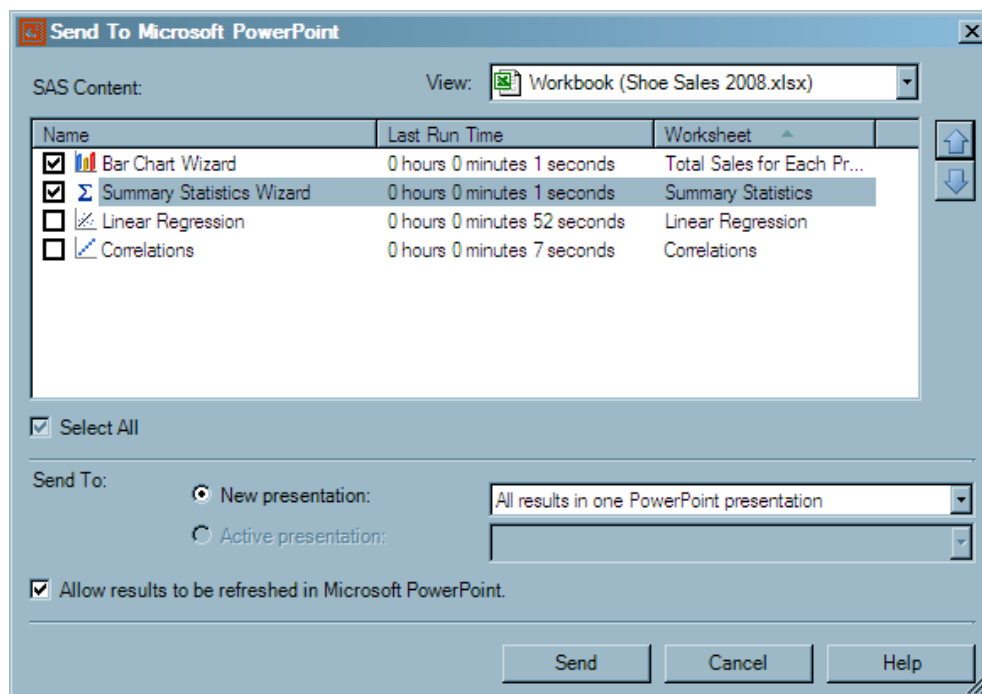
- 1 In the Ribbon, select the **SAS** tab. In the **Manage** group, click **Tools**, and select **Send To ► Microsoft PowerPoint**. The Send to Microsoft PowerPoint window opens and displays all the analyses in the Shoe Sales 2008 workbook.



Tip: The **SAS Content** box lists the analyses in a workbook or worksheet. You can select a different workbook or worksheet from the **View** drop-down list.

For each analysis, you can see the estimated time it will take to send each analysis to Word or PowerPoint. By default, all of the analyses are sent to Word or PowerPoint.

- 2 In the **SAS Content** box, clear the **Correlations** and **Linear Regression** check boxes.

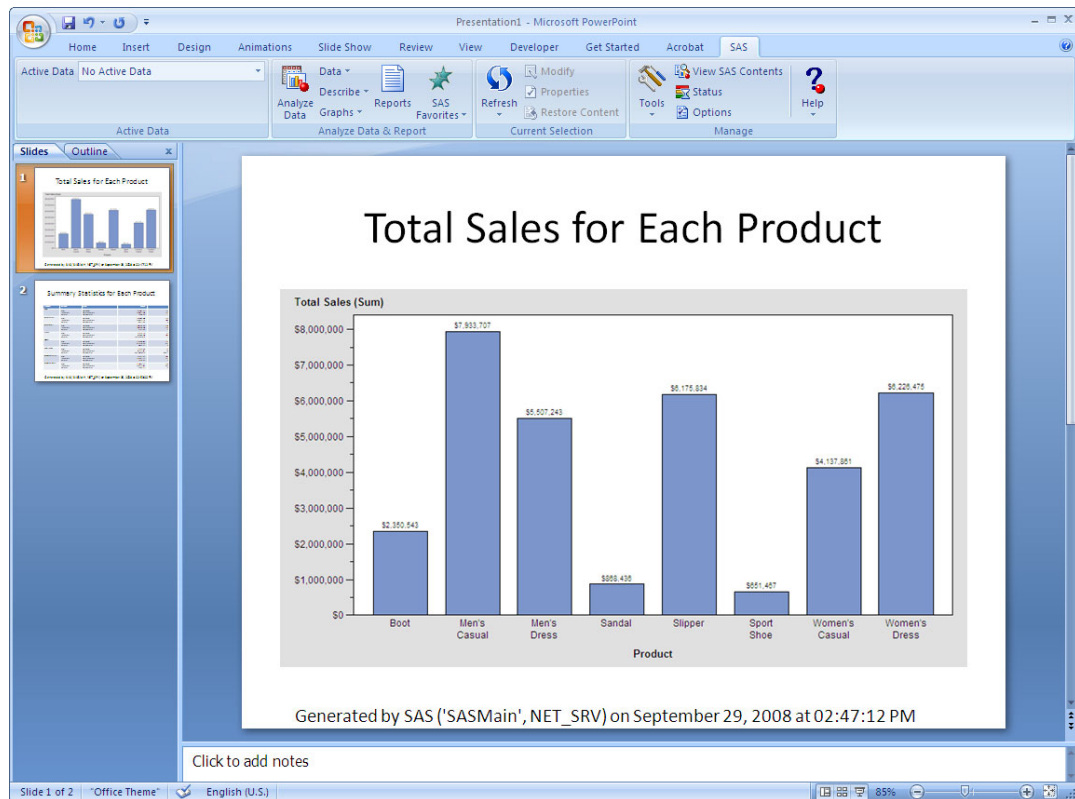
A Send to Microsoft PowerPoint window should appear that is similar to the following:



Tip: You can change the order of the results by clicking  or . The order of the results in this dialog box is the order that the results will appear in Word or PowerPoint.

- 3 Click **Send**.

The current results automatically open in PowerPoint. You can now use the functionality in PowerPoint to customize these slides and create your presentation.

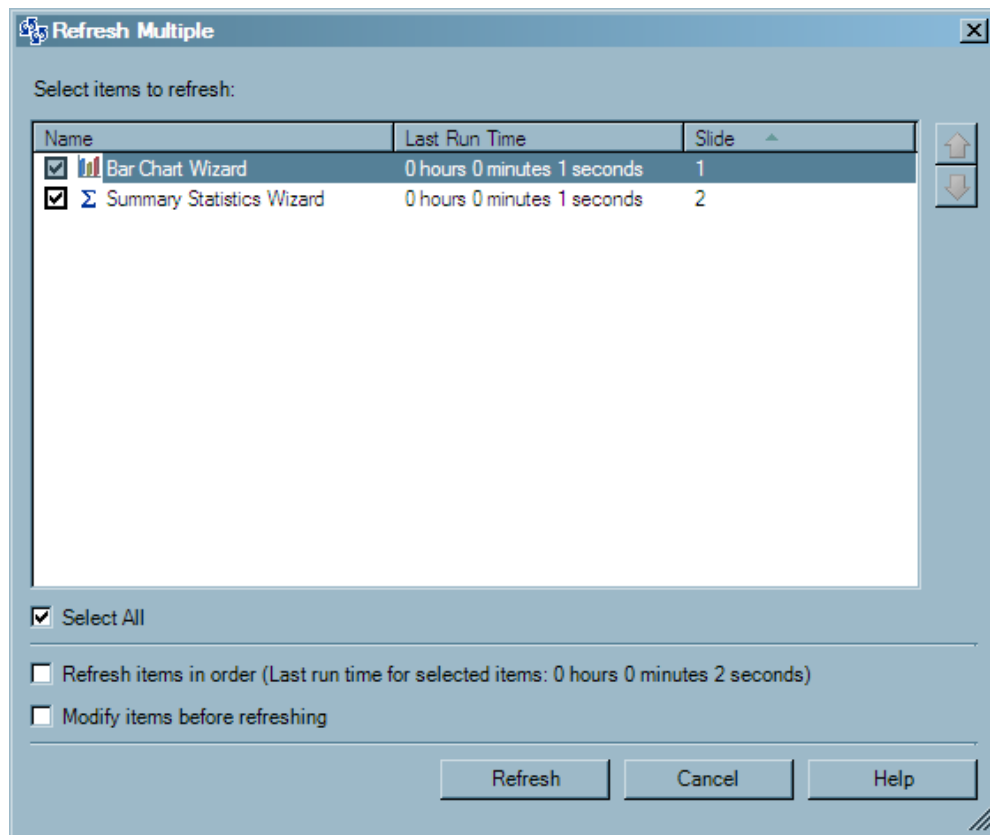


Refresh Your Results in Word or PowerPoint

To make sure that the most up-to-date results are displayed in Word or PowerPoint, you should refresh the analysis after the results are opened in Word or PowerPoint. You also might want to refresh your results if the data source for the analysis has been updated or modified since you last opened the results.

To refresh your results in PowerPoint, follow these steps:

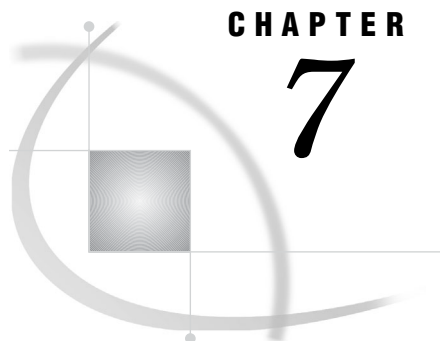
- 1 In the Ribbon, click the **SAS** tab. In the **Current Selection** group, click **Refresh** and select **Refresh Multiple**. The Refresh Multiple Window Opens.



2 Click **Refresh**.

The SAS add-in refreshes all of the analyses in your presentation.

Tip: You can also use the Refresh Multiple window to select which analysis to refresh. For each analysis, the estimated time to run this analysis and the slide number of this content is listed. By default, all of the analyses are refreshed.



CHAPTER

7

Recommended Reading

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Recommended Reading

Here is the recommended reading list for this title:

- the online Help for the SAS Add-In 4.2 for Microsoft Office
- SAS offers instructor-led training and self-paced e-learning courses to help you get started with the SAS add-in, learn how the SAS add-in works with the other products in the SAS Enterprise Intelligence Platform, and learn how to run stored processes in the SAS add-in. For more information about the courses available, see **support.sas.com/training**.

For a complete list of SAS publications, go to **support.sas.com/bookstore**. If you have questions about which titles you need, please contact a SAS Publishing Sales Representative at:

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Web address: **support.sas.com/bookstore**

Customers outside the United States and Canada, please contact your local SAS office for assistance.

Glossary

active data source

an Excel data source or a SAS data source that you specify to run all tasks on. Specifying an active data source enables you to perform multiple analyses on the same data source without having to specify that data source each time you run a task. See also SAS data source and task.

analysis

a statistical calculation that is generated by either a task or a stored process. See also task and stored process.

default metadata server

the metadata server that you are automatically connected to when you start Microsoft Word, Microsoft Excel, or Microsoft PowerPoint. See also metadata and metadata server.

default server

the SAS server that is automatically used to execute any tasks that use a Microsoft Excel worksheet or local data as the data source, unless an active data source that exists on a different server has been specified. See also active data source.

execution server

the server where the data is refreshed or the analysis is run.

favorite

in the SAS Add-In for Microsoft Office, a report, SAS task, stored process, or published document that you can quickly access.

filter

a program or section of a program that processes or forwards only the subset of a data source that meets specific criteria.

impact analysis

a search that enables you to track data sources and stored processes to see where they are used. For example, you can use a tool like SAS Data Integration Studio to determine what Microsoft Office documents are using a particular data source. This helps you to understand what items will be impacted if you delete or rename that data source.

metadata

a description or definition of data or information.

metadata configuration file

a file that enables users to specify which SAS metadata server they want to connect to by default. The connection to the metadata server enables users to access and run stored processes and to access SAS data sources on remote computers.

metadata repository

a collection of related metadata objects, such as the metadata for a set of tables and columns that are maintained by an application.

metadata server

a server that stores information about servers, users, and stored processes and that provides this information to one or more client applications.

observation

a row in a SAS data set. All of the data values in an observation are associated with a single entity such as a customer or a state. Each observation contains either one data value or a missing-value indicator for each variable.

PivotTable

an interactive table that analyzes and summarizes data in Microsoft Excel. You can rotate the rows and columns in the table to see different views of the data.

published document

a Microsoft Office document that is saved to a central repository. This workbook, document, or presentation can be opened with the appropriate Microsoft Office application.

SAS data source

a data file that contains SAS data. See also active data source.

SAS library

a collection of one or more files that are recognized by SAS and that are referenced and stored as a unit. Each file is a member of the library.

stored process

a SAS program that is stored on a server and which can be executed as requested by client applications. Stored processes are often used to create reports.

task

a program that generates and executes SAS programming code that performs a particular type of statistical analysis on the active data source that you have specified. A wizard prompts you for the information that is required in order to execute the task. See also analysis and active data source.

variable

a column in a SAS data set or in a SAS data view. The data values for each variable describe a single characteristic for all observations.

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Your Turn

We welcome your feedback.

- ☐ If you have comments about this book, please send them to **`yourturn@sas.com`**. Include the full title and page numbers (if applicable).
- ☐ If you have comments about the software, please send them to **`suggest@sas.com`**.

