

Paper CS-053

## **SAS® Add in to MS Office – A Tutorial**

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### **ABSTRACT**

Business folks use Excel and have no desire to learn SAS Enterprise Guide? MS PowerPoint presentations prevail in displaying charts and summarizing results? SAS® Add in to MS Office is a perfect fit for these scenarios. Users have the ability to open huge datasets in MS Excel and run SAS analytics via a simple interface. From PowerPoint, users can create charts and quickly update them in future meetings with new data.

### **INTRODUCTION**

The purpose of this paper is to provide examples of functionality from within SAS® Add in to MS Office in a manner that is easy to follow and replicate.

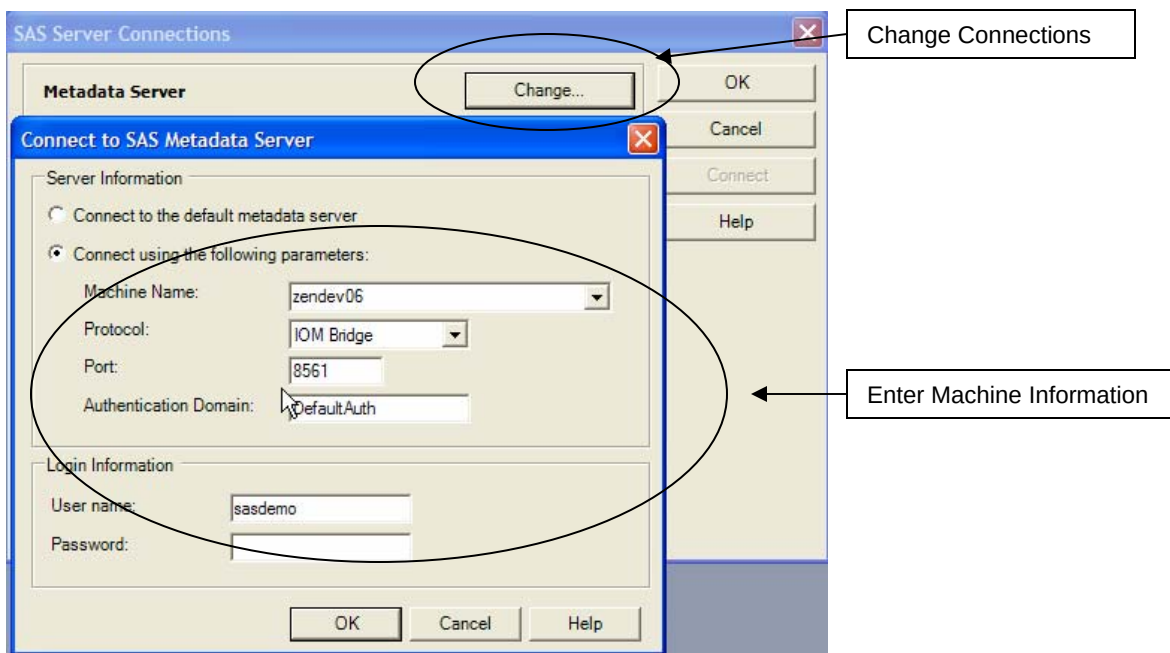
SAS® Add in to MS Office provides the user a very familiar interface to experience the SAS Power to Know. This also provides SAS programmers another avenue to surface SAS Stored Processes to business users.

### **SYSTEM REQUIREMENTS**

The following examples require the use of SAS v9 BI or EBI Server. Clients also are required to download MS .Net Framework, SAS Add in to MS Office and utilize MS Office.

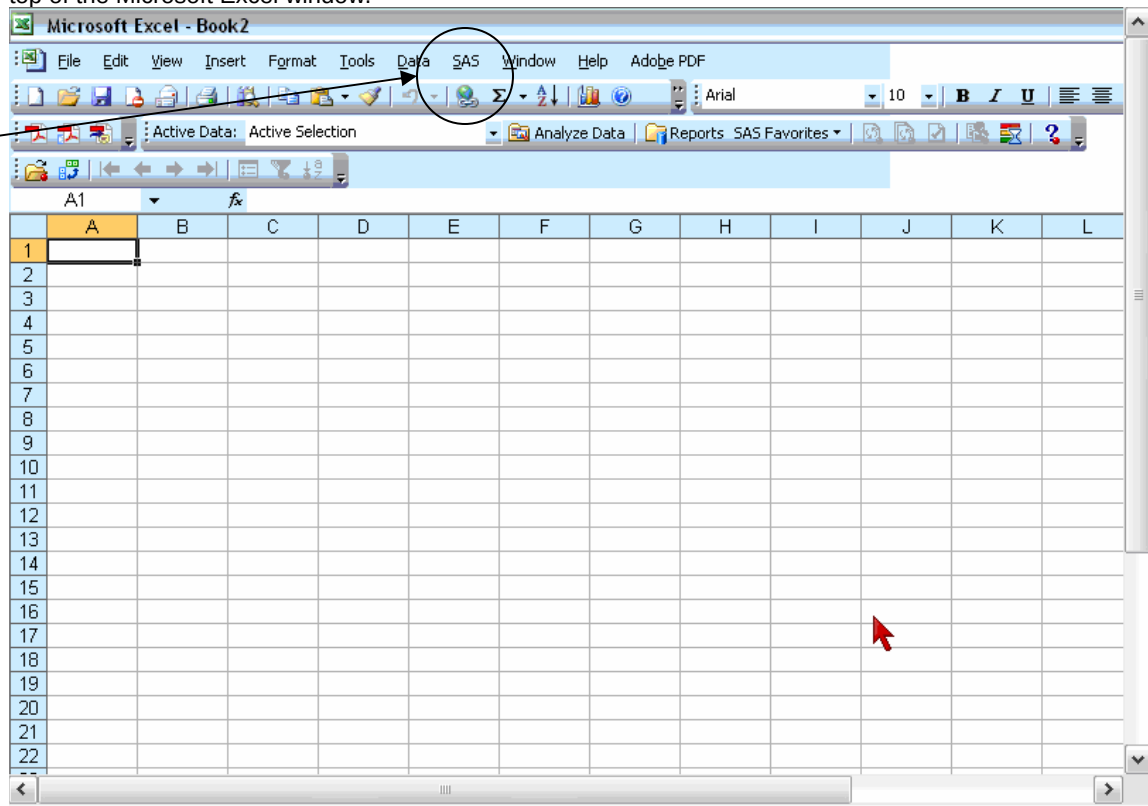
### **SETTING UP ACCESS TO THE SAS BI/EBI SERVER**

From the SAS Menu, Select Tools->Server Connections to set up a direct link to the Metadata Server. The three screen shots below detail this. Note: if the SAS BI/EBI plan file is setup correctly for client deployments, this step should be seamless.



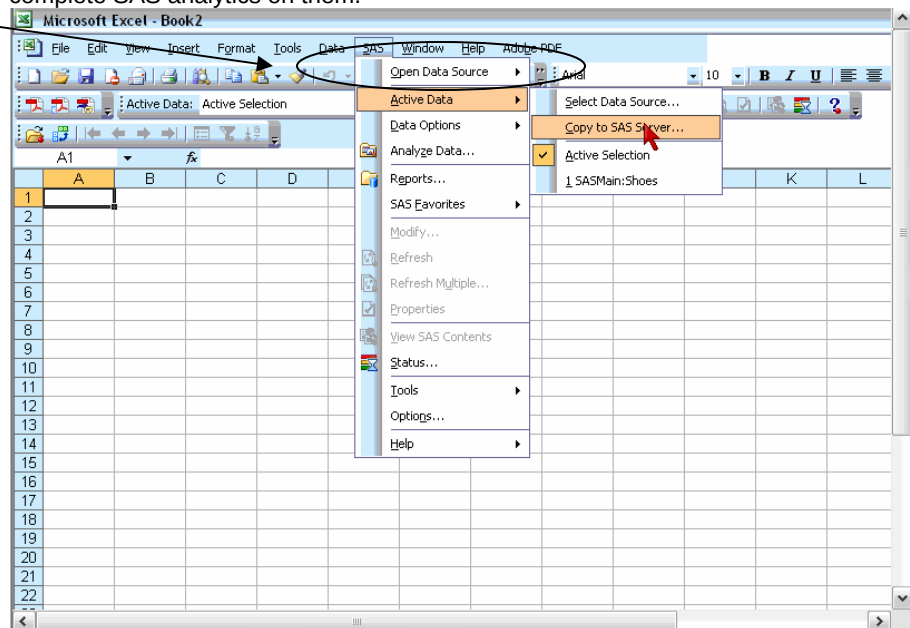
## SAS ADD IN TO MS OFFICE – MS EXCEL INTRODUCTION

Once the SAS Add in has been installed on the desktop, the SAS toolbar (containing buttons for Active Data, Analyze Data, Reports, etc) and the new SAS menu item (between Data and Window) appear at the top of the Microsoft Excel window.



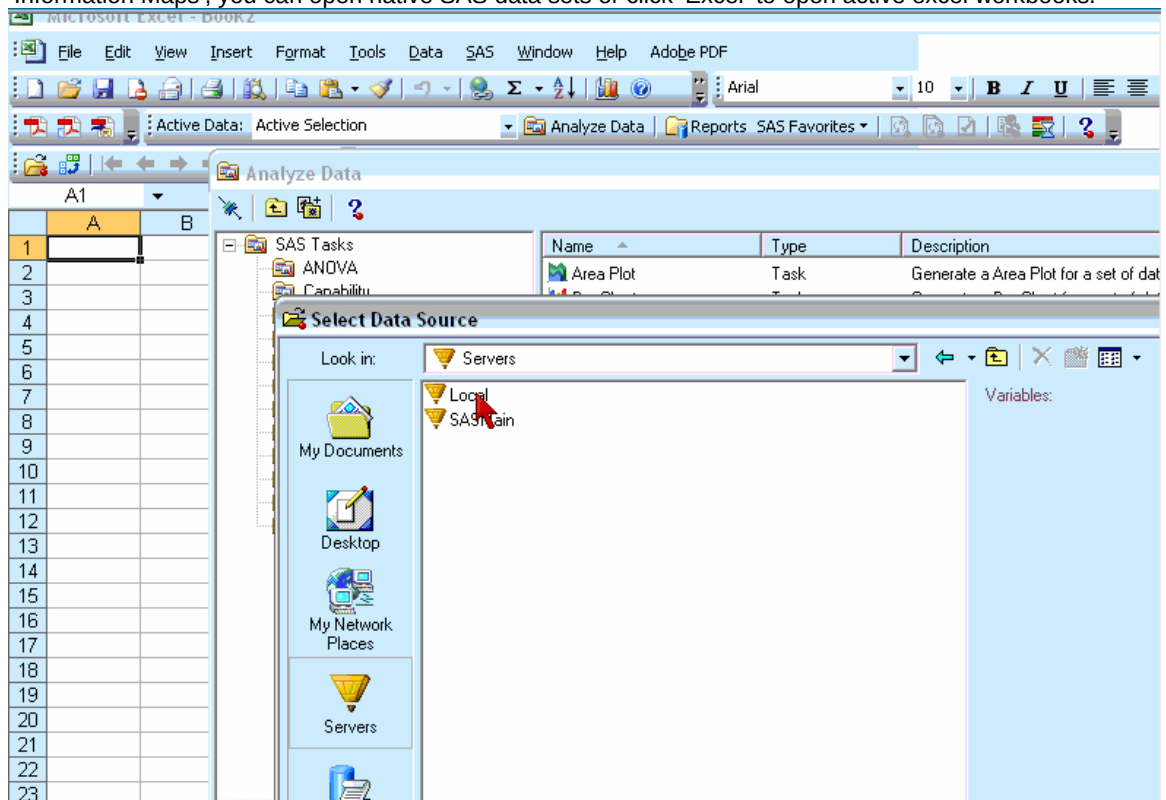
## OPEN SAS DATASETS

SAS allows users to open SAS data sources to view and analyze, or open local Excel workbooks and complete SAS analytics on them.



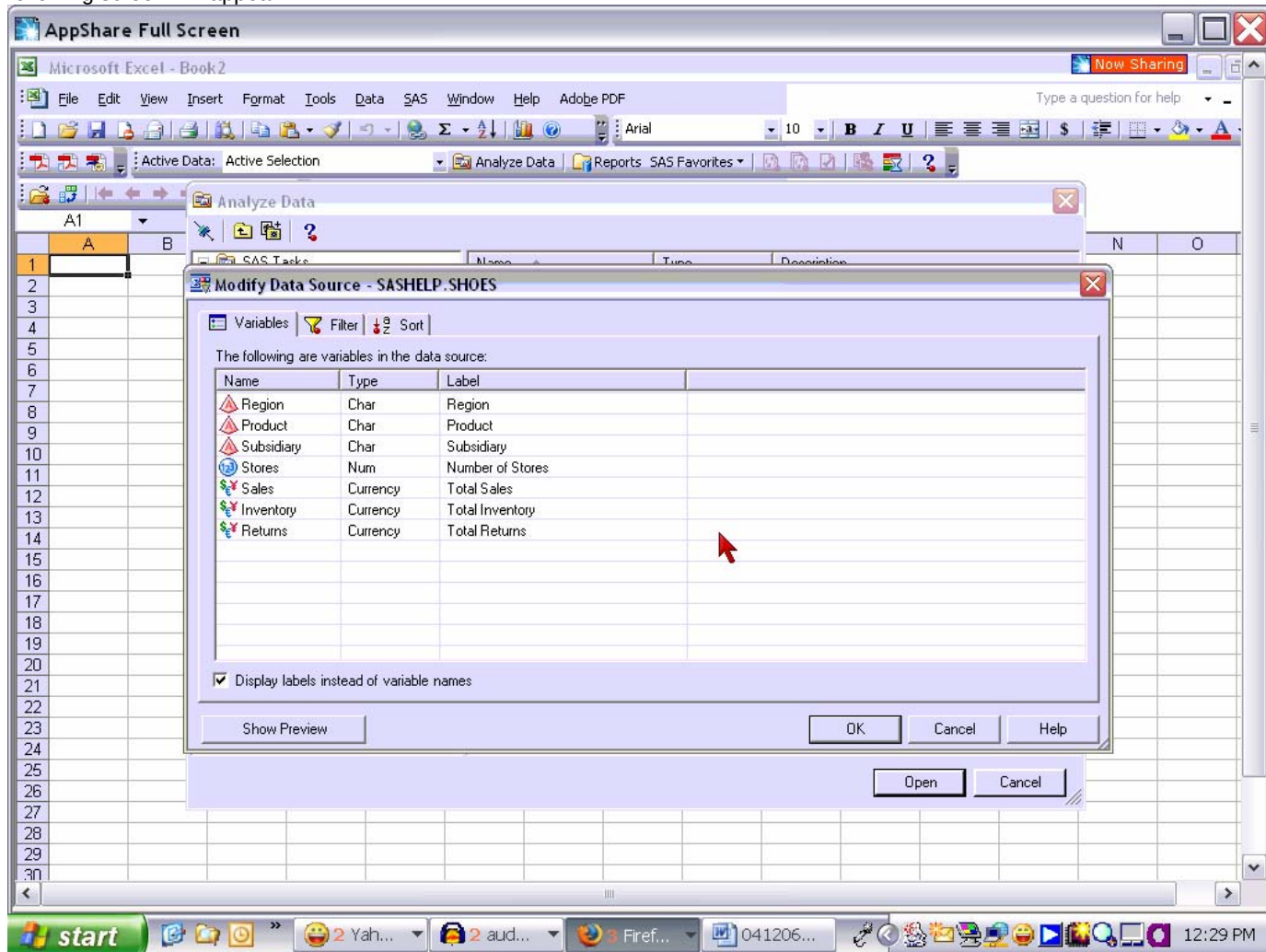
## DATA SOURCE OPTIONS

When Selecting Data Sources either for use during the Analyze Data task or by selecting SAS->Open Data Source, you have the ability to click 'Servers' to connect to the available metadata repository, you can click 'Information Maps', you can open native SAS data sets or click 'Excel' to open active excel workbooks.

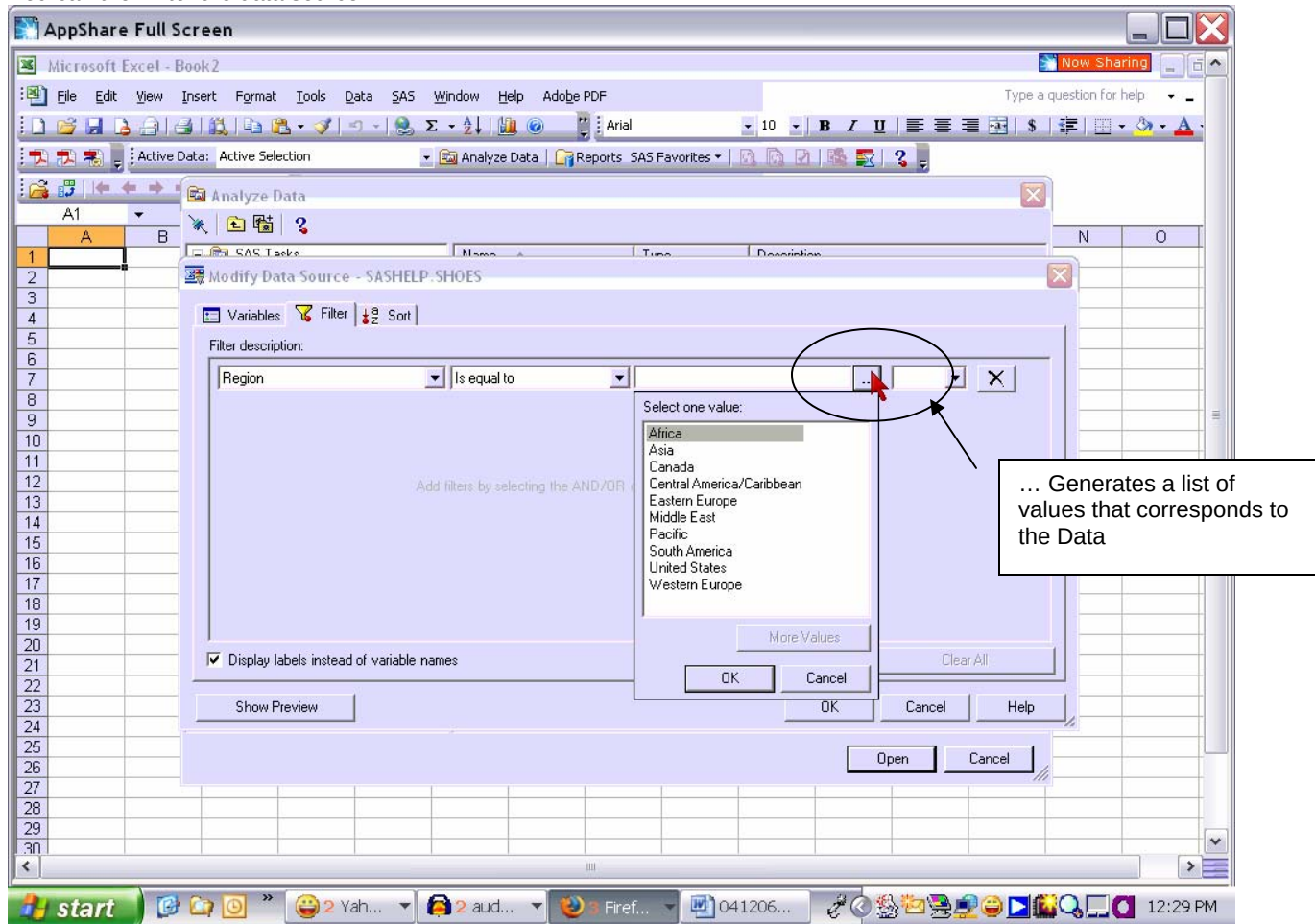


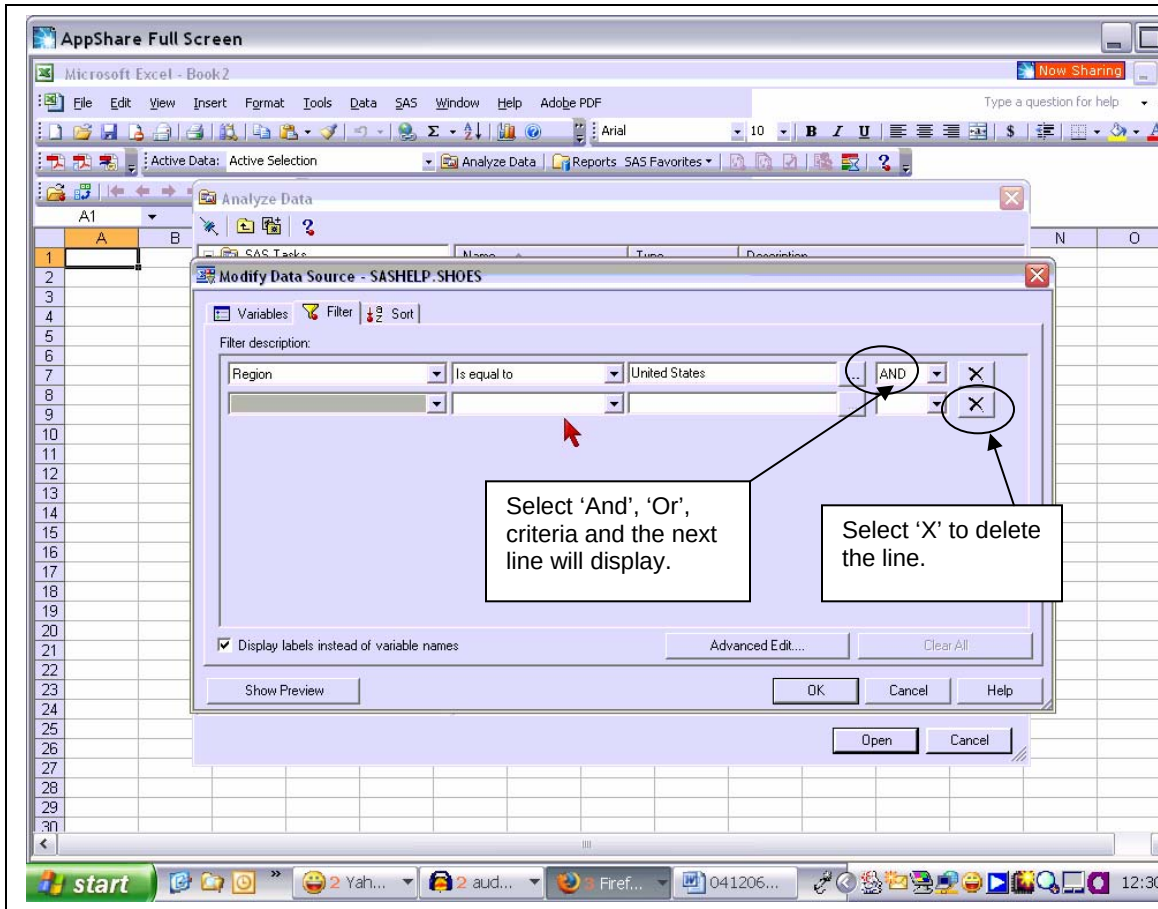
## QUERYING DATA TABLES

As an example, when you open the data source SASHELP.SHOES after choosing Analyze Data, the following screen will appear:

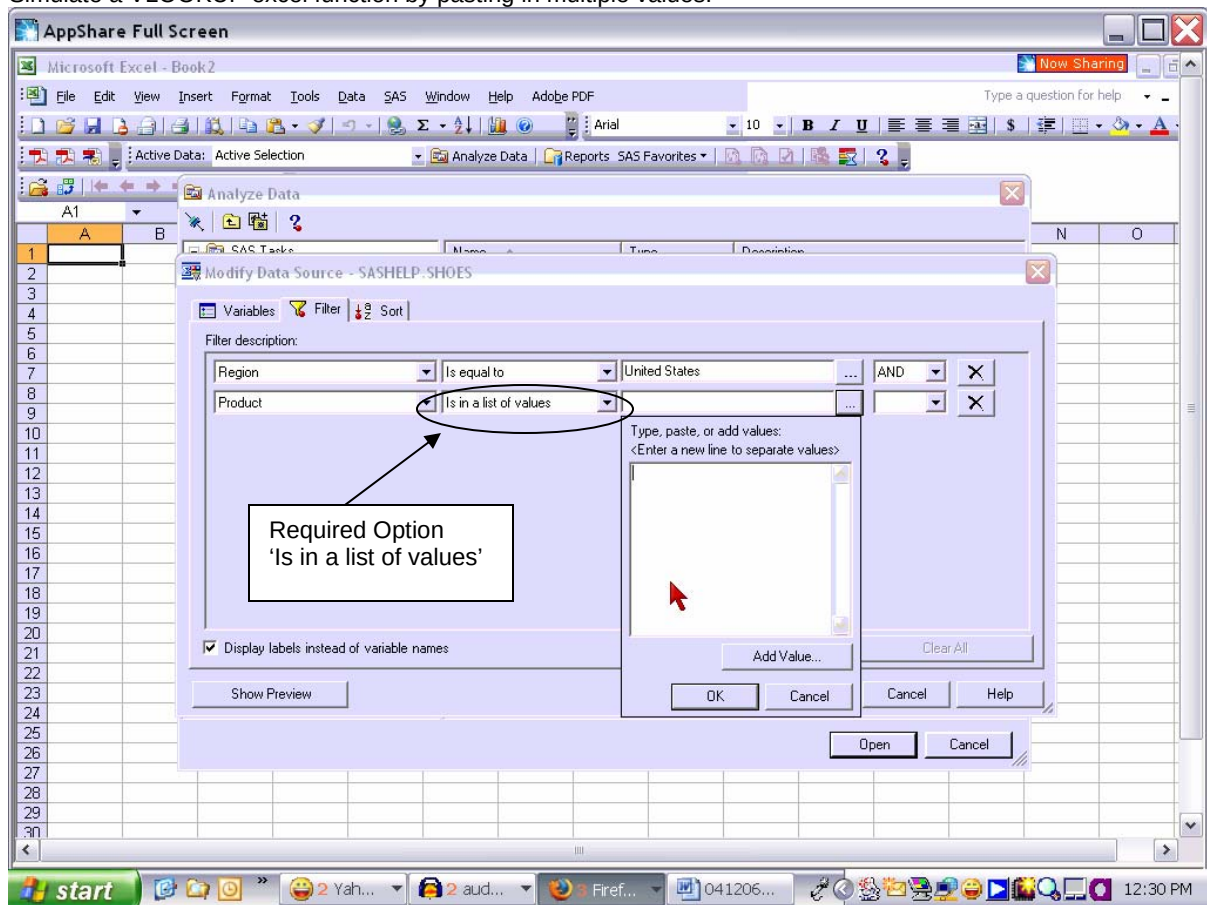


You can then filter the data source:





Simulate a VLOOKUP excel function by pasting in multiple values:

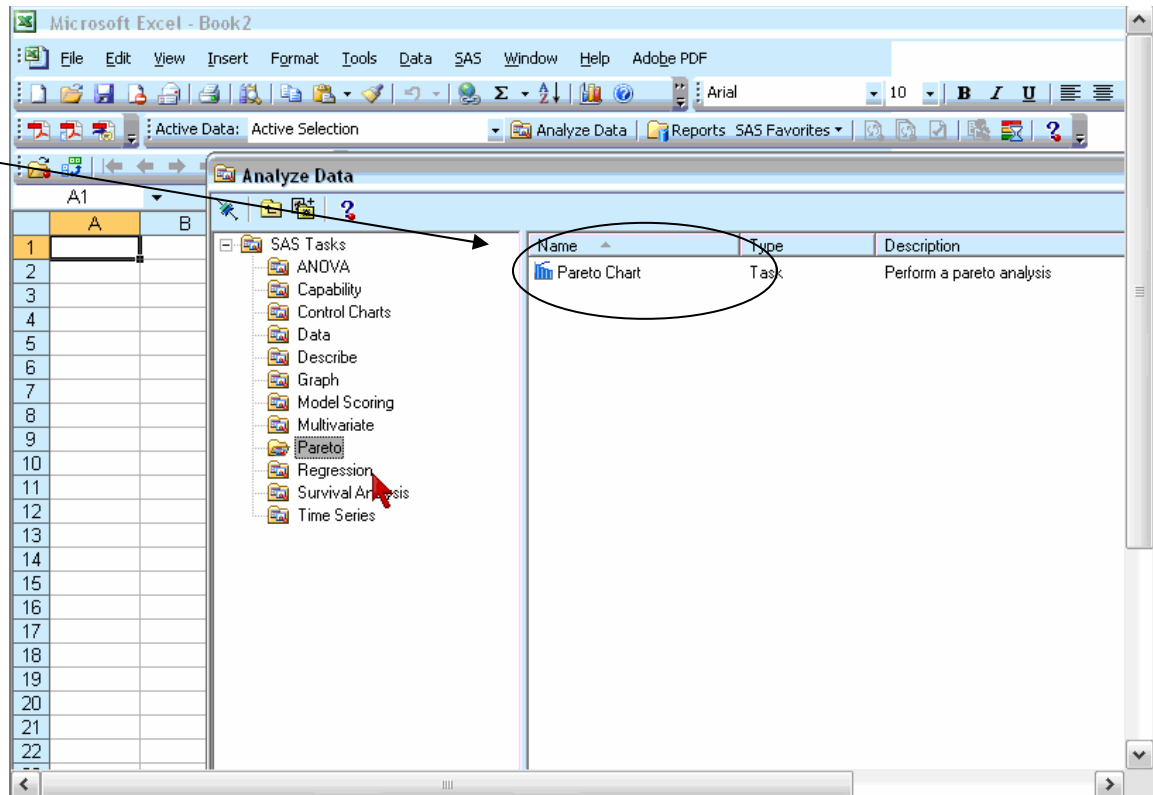


## ANALYZE DATA

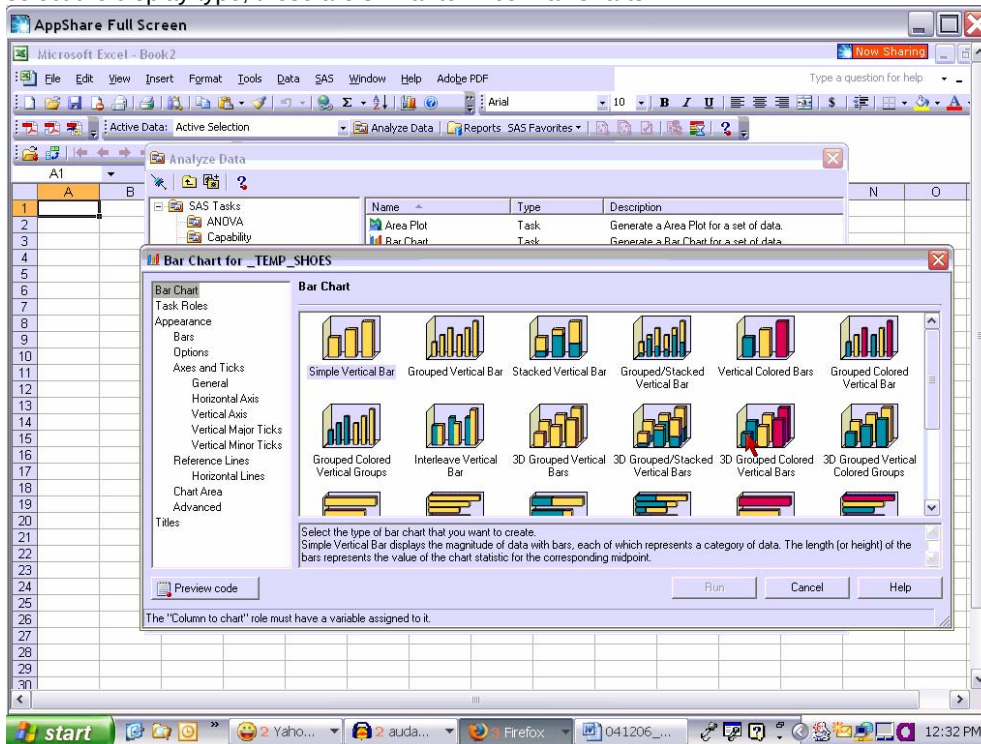
The Analyze Data tab goes to a list of SAS Tasks, similar to SAS Enterprise Guide's Task Menu Bar.

Some items will not run if the connecting BI Server doesn't have the appropriate license (such as the Pareto Task, as this requires SAS/QC). These tasks can be removed by manually removing the associated .dll from the installation.

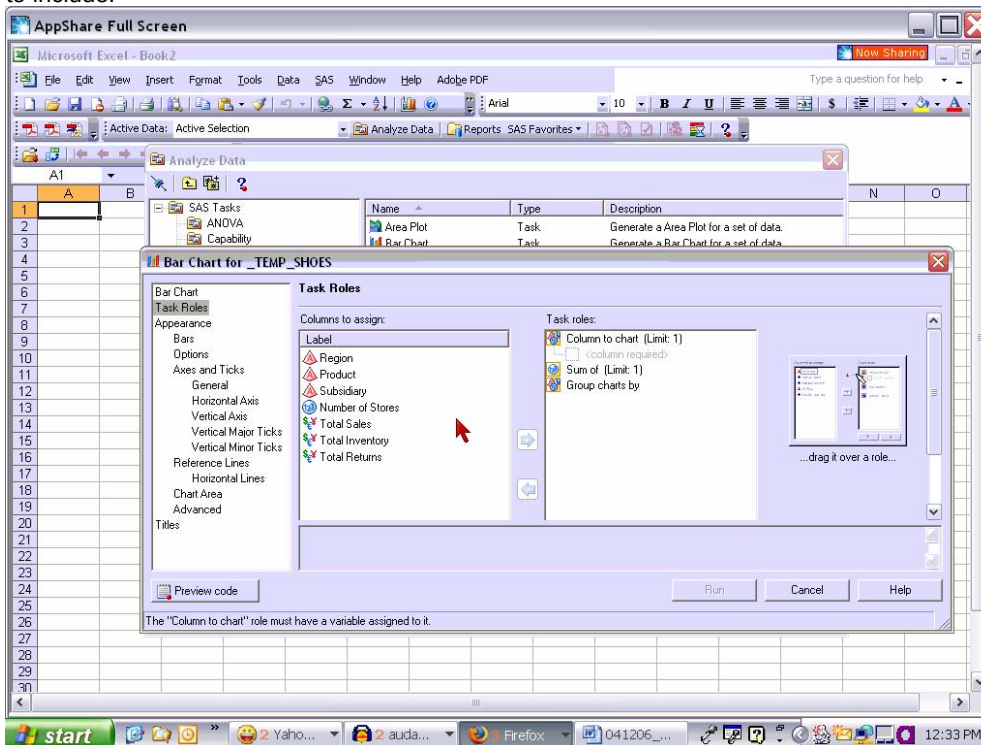
Additional Custom Tasks can be added, this is discussed in more detail in the Advanced Topics section.



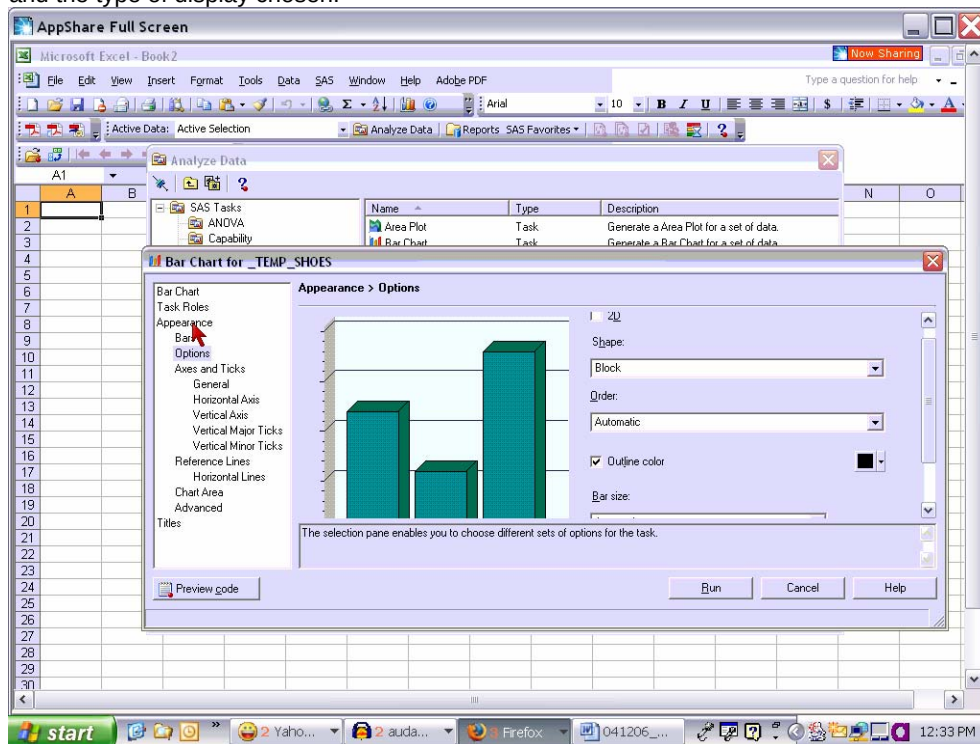
Analyze data tasks are very easy to use, included is an example for generating a BAR Chart. First you select the display type, these are similar to Excel Bar Charts.



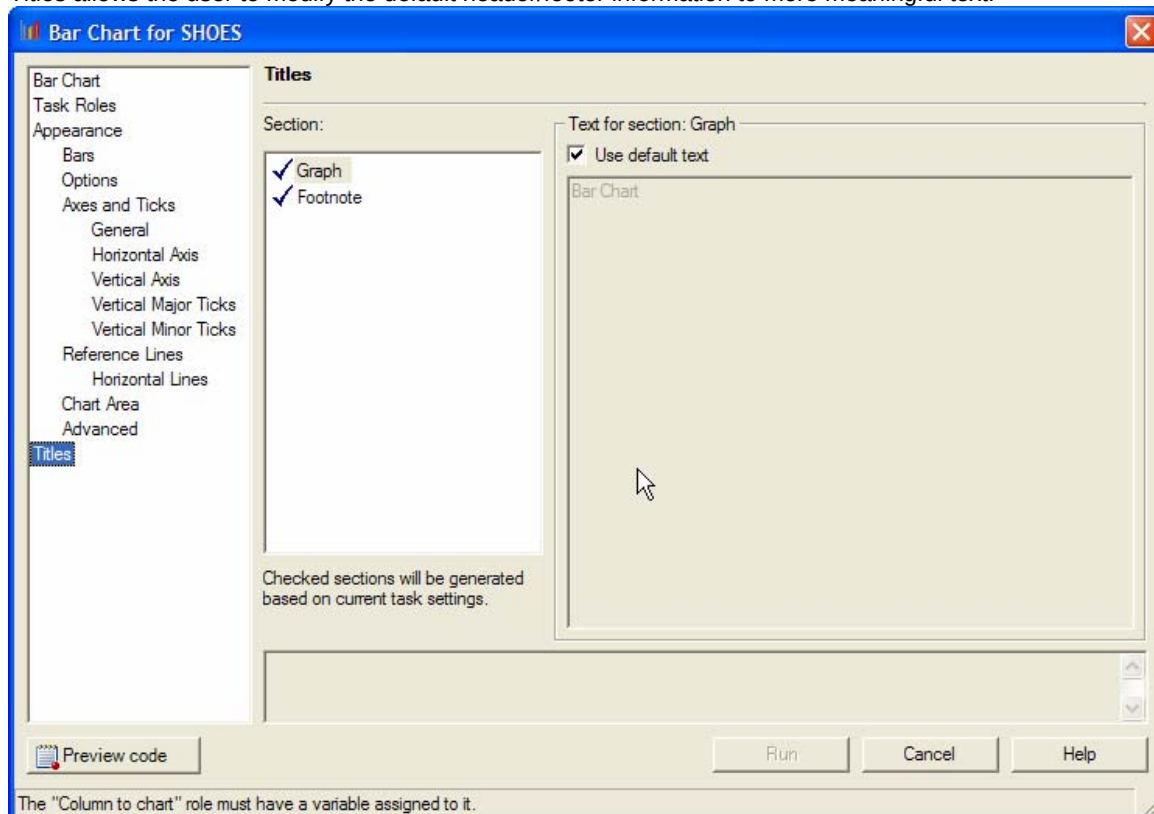
Next, you move to 'Task Roles' and select the required columns to produce the chart and the optional values to include.



The appearance tab allows users to specify display options. These are specific to the SAS Task selected and the type of display chosen.



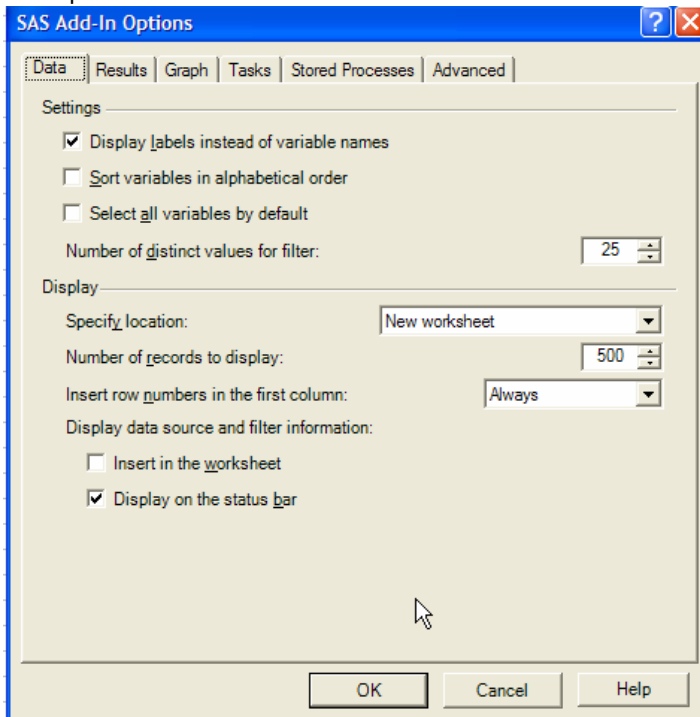
Titles allows the user to modify the default header/footer information to more meaningful text.



## OUTPUT OPTIONS

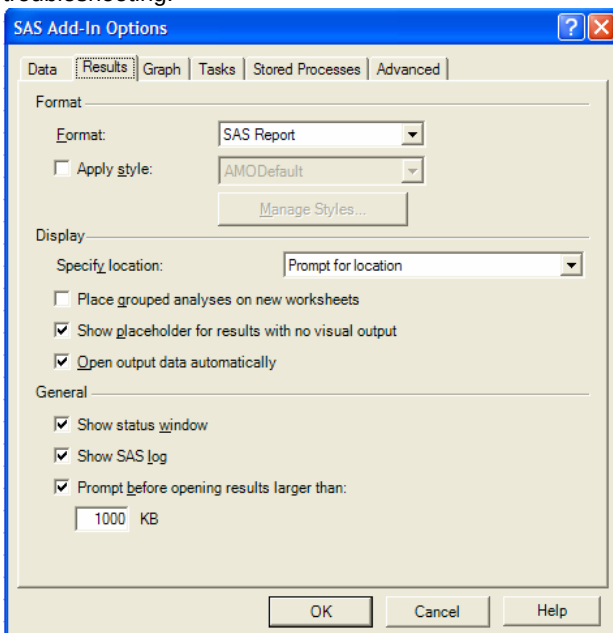
From the SAS Menu Bar, Select Options. This GUI provides users with the ability to customize items such as how the data table is displayed, the sas style sheets for output formats, and how the worksheet behaves such as whether the results refresh on opening or require manual refresh. Users can also declare whether the SAS log should automatically display, a default Footnote.

### 1. Options – Data Tab:



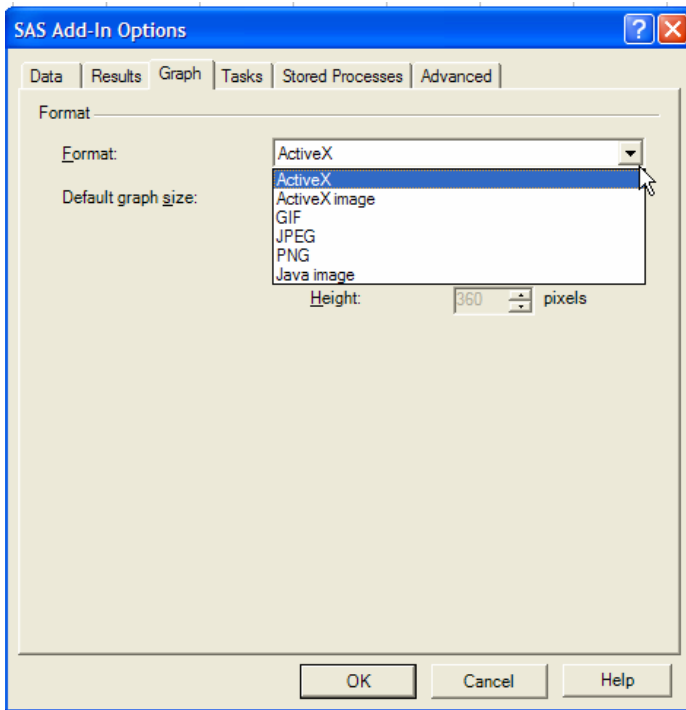
### 2. Options – Results Tab:

Select the ODS style and specify result processing options to improve performance and troubleshooting.



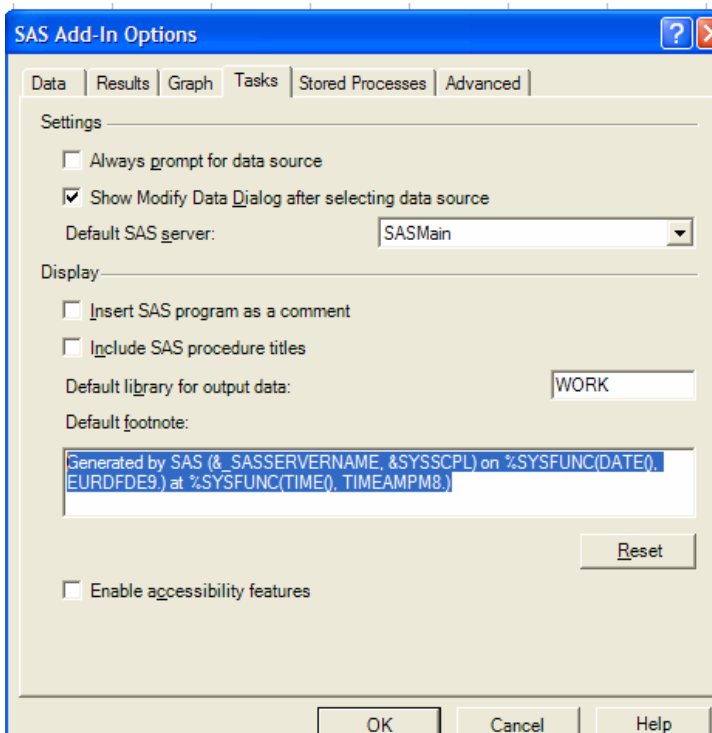
### 3. Options – Graph Tab

Choose the type and size of display image produced.



### 4. Options – Task Tab

Modify the default footnote.



## 5. Options – Stored Process Tab

The screenshot shows the 'SAS Add-In Options' dialog box with the 'Stored Processes' tab selected. The 'Parameters' section has an unchecked checkbox for 'Include expert parameters'. The 'Parameter display type' section has two radio buttons: 'Tab View' (selected) and 'Compact View'. The 'Advanced' section has a text label 'For stored processes configured to update results on the server, results should be:' followed by three radio buttons: 'Inserted into Office', 'Updated on Server', and 'Prompt' (selected). The dialog has 'OK', 'Cancel', and 'Help' buttons at the bottom.

SAS Add-In Options

Data Results Graph Tasks **Stored Processes** Advanced

Parameters

☐ Include expert parameters

Parameter display type:

☒ Tab View

☐ Compact View

Advanced

For stored processes configured to update results on the server, results should be:

☐ Inserted into Office

☐ Updated on Server

☒ Prompt

OK Cancel Help

## 6. Options – Advanced Tab

The Advanced Options Tab also offers Email settings.

The screenshot shows the 'SAS Add-In Options' dialog box with the 'Advanced' tab selected. The 'Email settings for scheduling' section has three text input fields: 'Your name:', 'Email address:', and 'Outgoing server (SMTP):'. Below these is an unchecked checkbox for 'This server requires me to log on', followed by 'User name:' and 'Password:' text input fields. There is also an unchecked checkbox for 'Use Secure Password Authentication (SPA)'. The 'Impact Analysis' section has a checked checkbox for 'Prompt for untracked data sources when publishing documents'. The dialog has 'OK', 'Cancel', and 'Help' buttons at the bottom.

SAS Add-In Options

Data Results Graph Tasks Stored Processes **Advanced**

Email settings for scheduling

Your name:

Email address:

Outgoing server (SMTP):

☐ This server requires me to log on

User name:

Password:

☐ Use Secure Password Authentication (SPA)

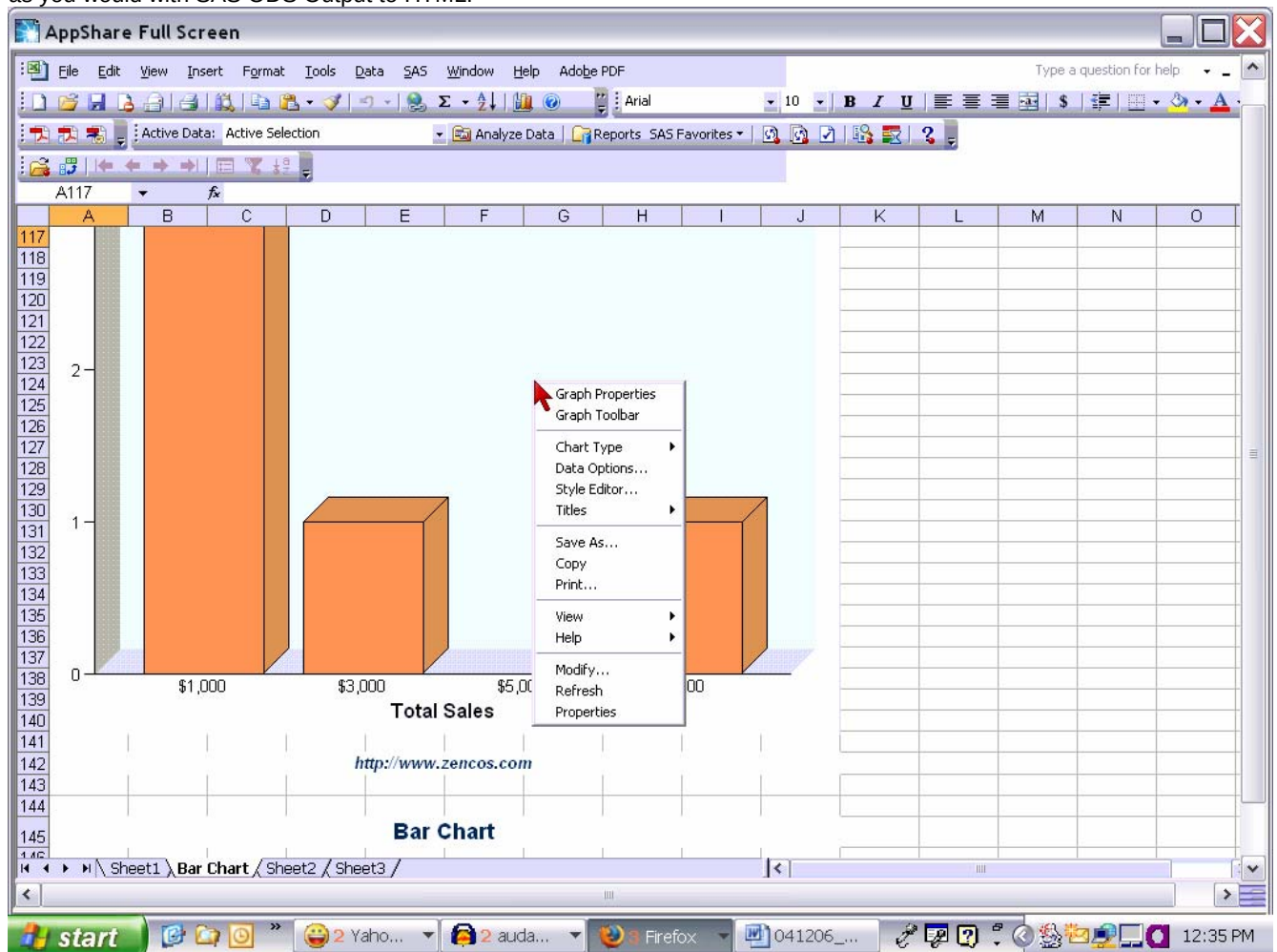
Impact Analysis

☒ Prompt for untracked data sources when publishing documents

OK Cancel Help

## INTERACTING WITH OUTPUT

By right-clicking on the graph, you can (if using ActiveX or JAVA graphics device driver) do the same tasks as you would with SAS ODS Output to HTML.



By clicking on the last item 'Properties' of the above menu, you will then get to the following screenshot. This details the SAS Object properties.

1. Properties – General Tab

Provides a general summary of when, who, how, and what.

The screenshot shows the 'Properties' dialog box with the 'General' tab selected. The dialog has a blue title bar with a question mark and a close button. Below the title bar are five tabs: 'General', 'Data', 'Execution', 'Appearance', and 'Advanced'. The 'General' tab is active, displaying the following information:

|                |                   |
|----------------|-------------------|
| Name:          | Bar Chart         |
| Object name:   | Bar_Chart         |
| Created:       | 3:01 PM 7/14/2008 |
| Last modified: | 3:01 PM 7/14/2008 |
| Modified by:   | Angela M Hall     |
| Last run time: | 6 seconds         |

At the bottom of the dialog, there is a checkbox labeled 'Refresh on OK' which is unchecked. To the right of the checkbox are three buttons: 'OK', 'Cancel', and 'Help'.

2. Properties – Data Tab

Gives users the ability to understand which data was used and how it was filters. Users can immediately modify the filter criteria if desired, by clicking the 'Modify' button.

The screenshot shows the 'Properties' dialog box with the 'Data' tab selected. The dialog has a blue title bar with a question mark and a close button. Below the title bar are five tabs: 'General', 'Data', 'Execution', 'Appearance', and 'Advanced'. The 'Data' tab is active, displaying the following information:

SAS data source:  
SASMain:SASHELP.SHOES

Filter description:  
<no filter> Modify...

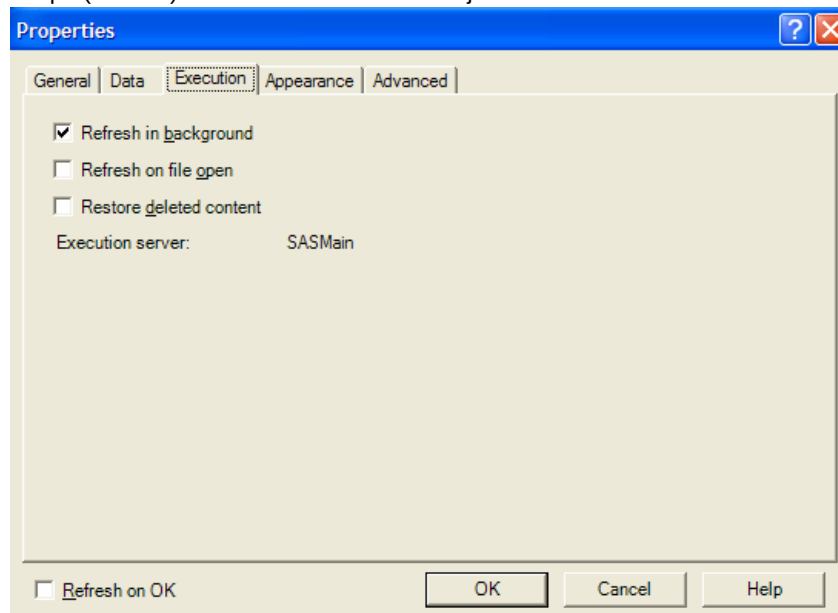
☐ Data constraints

Number of rows to use: 0

At the bottom of the dialog, there is a checkbox labeled 'Refresh on OK' which is unchecked. To the right of the checkbox are three buttons: 'OK', 'Cancel', and 'Help'.

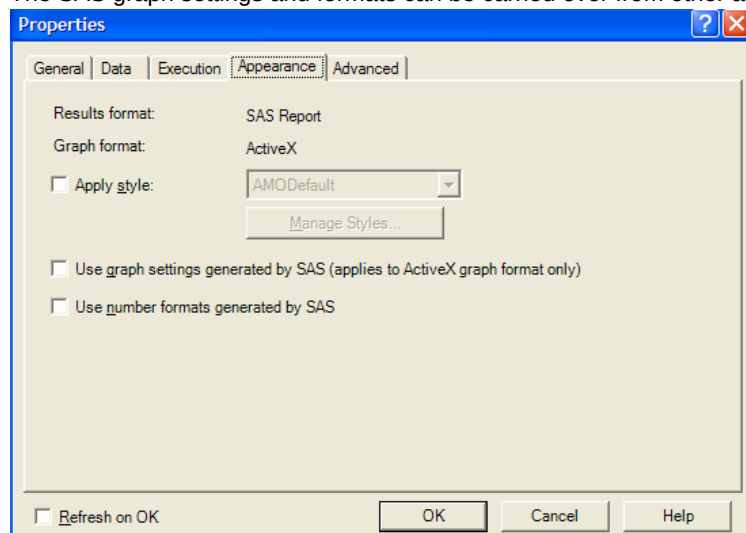
### 3. Properties – Execution Tab

Graph (or Data) Refresh defaults for the object.



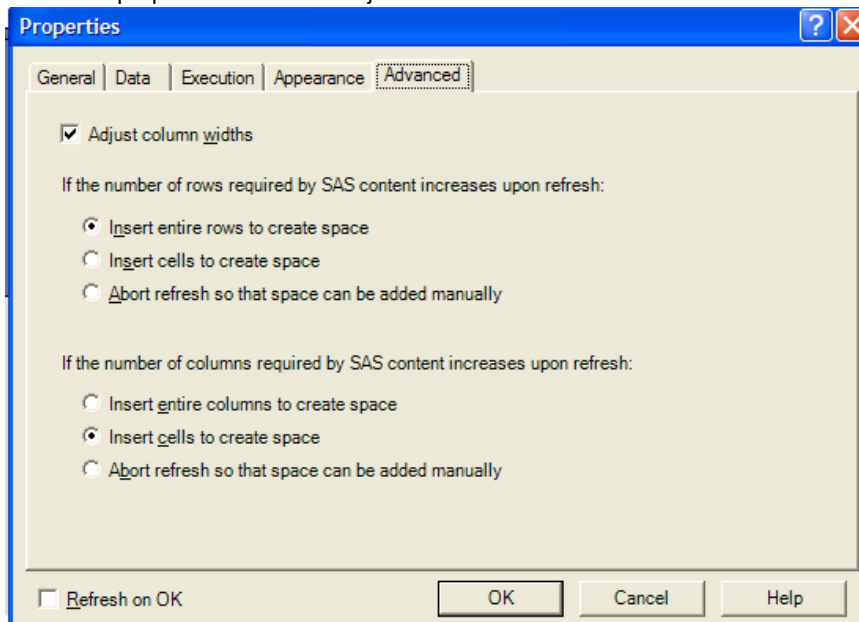
### 4. Properties – Appearance Tab

The SAS graph settings and formats can be carried over from other applications.



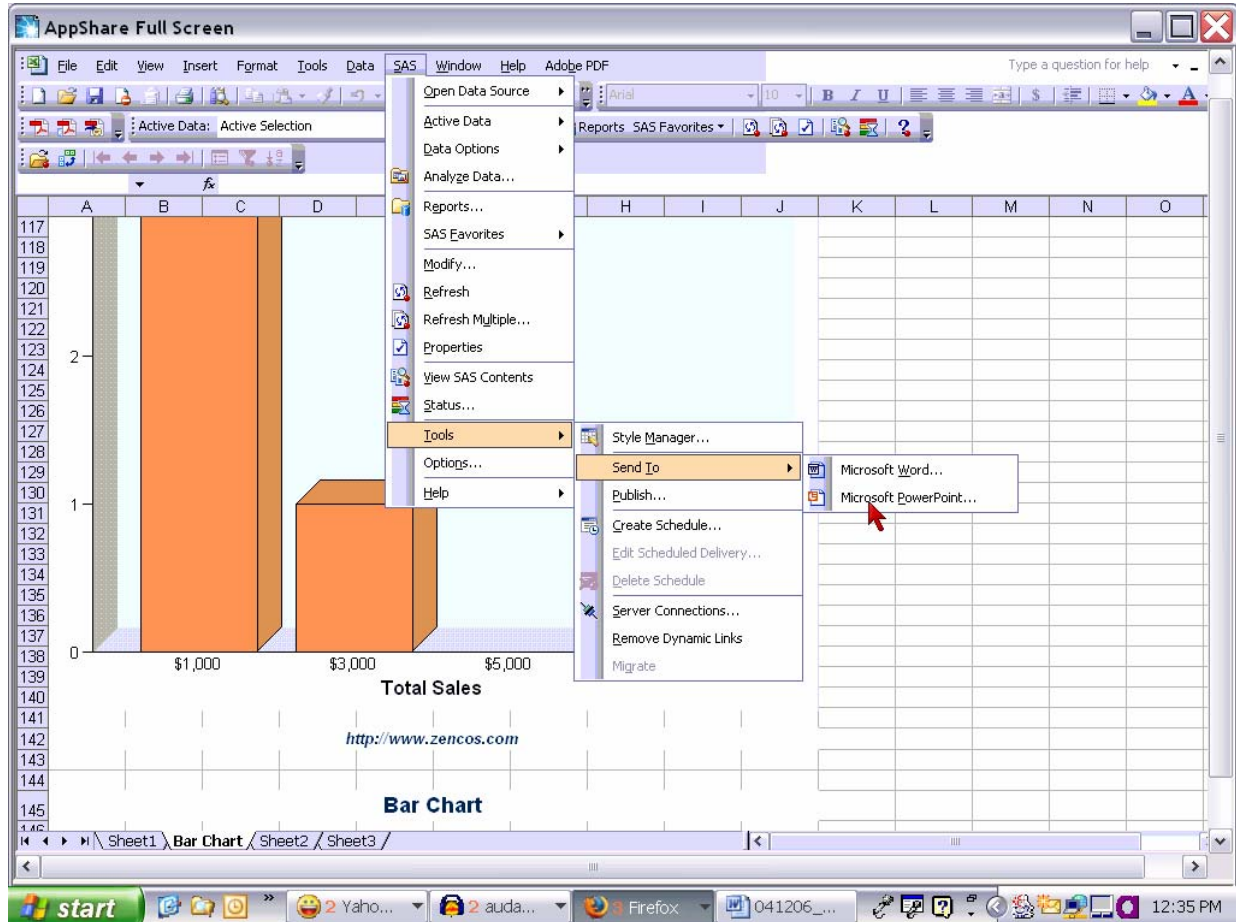
## 5. Properties – Advanced Tab

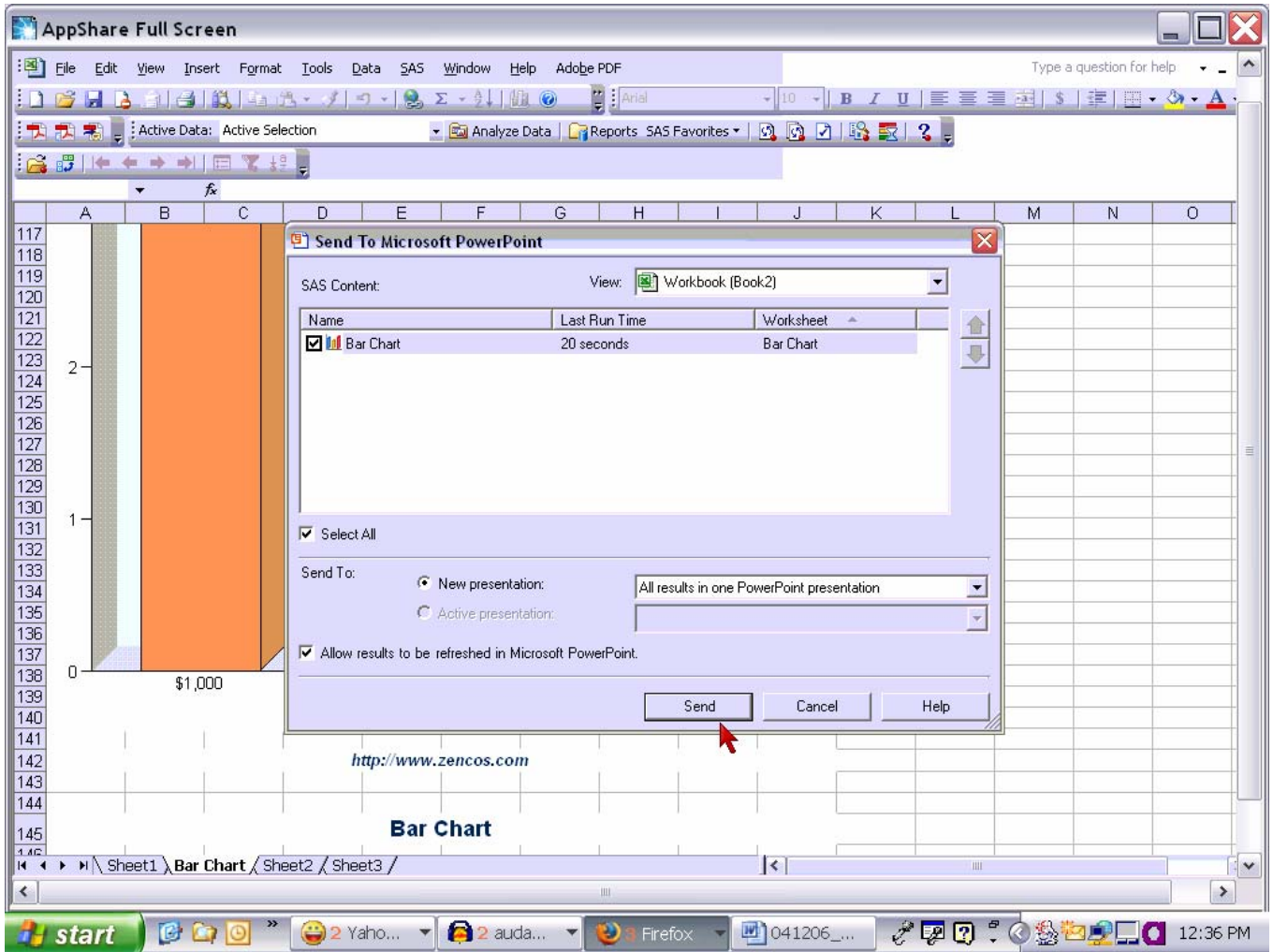
Additional properties users can adjust.



## FORWARDING RESULTS TO OTHER OFFICE PRODUCTS

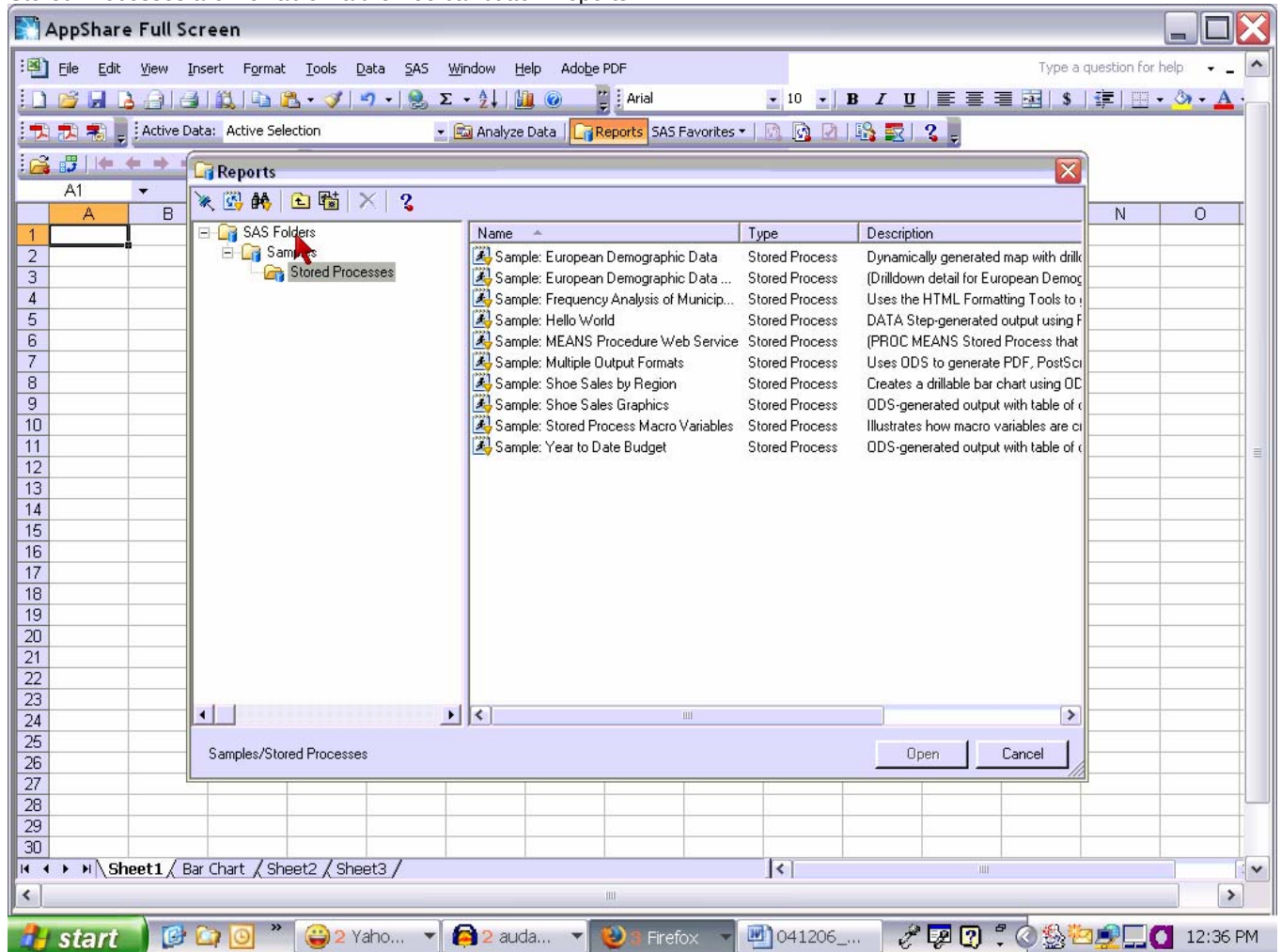
SAS -> Tools -> Send To -> Word/Powerpoint is a option for a SAS Object built through the SAS Analyze Data Tools.





## STORED PROCESSES

Stored Processes are viewable via the Toolbar button Reports:



## REFRESHING REPORTS

By clicking the Refresh Multiple Button, all the SAS Objects in the Excel Workbook can be refreshed, or you can pick and choose.

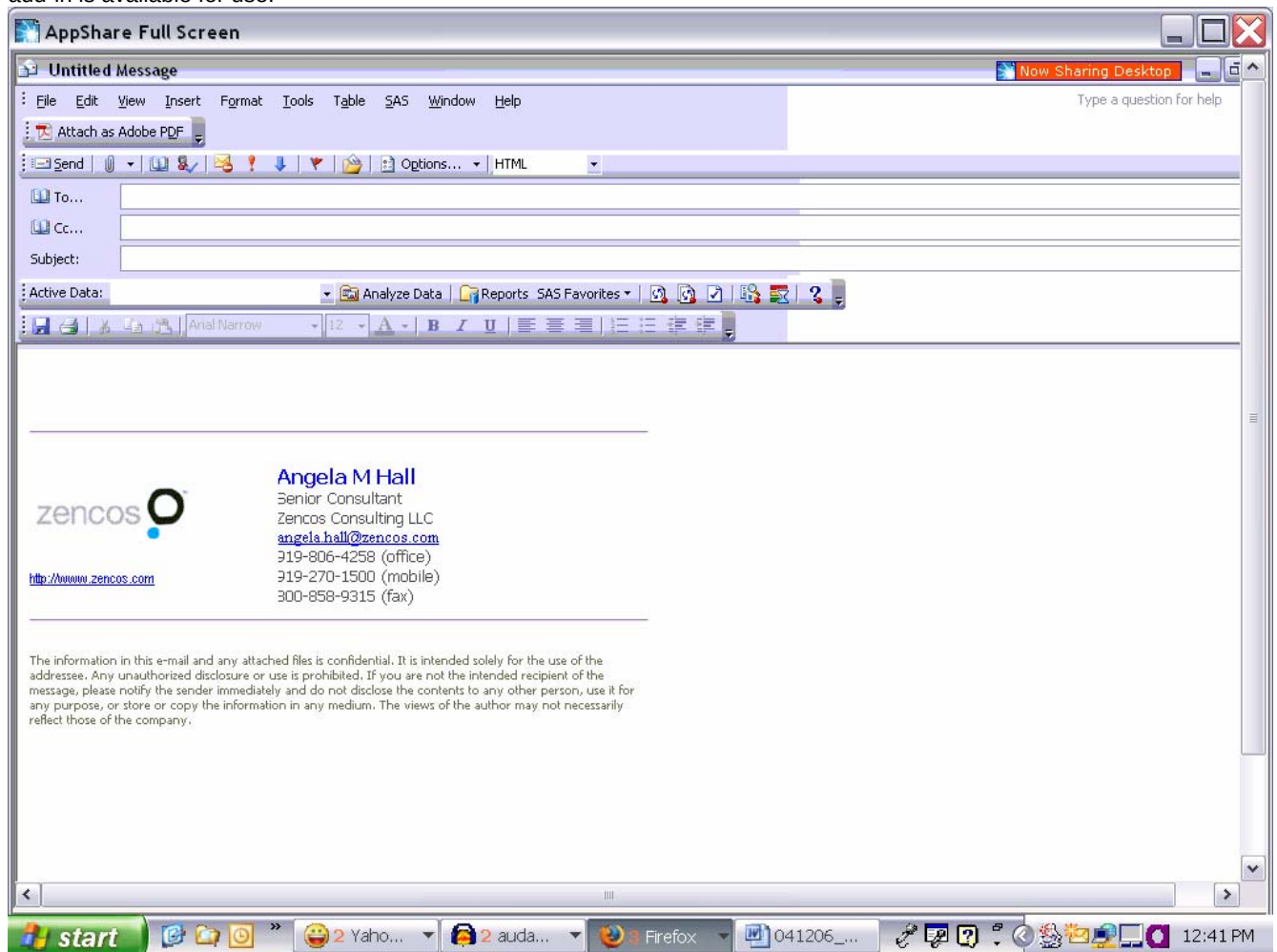
The screenshot shows the AppShare Full Screen application window. The main window displays an Excel workbook titled 'Workbook (Book2)'. The worksheet contains a bar chart titled 'Total Sales' with four bars representing sales values: \$72,000, \$84,000, \$96,000, and \$108,000. A 'Refresh Multiple' dialog box is open in the center of the screen, allowing the user to select items to refresh. The dialog box has a 'View' dropdown set to 'Workbook (Book2)'. It contains a table with the following data:

| Name                                          | Last Run Time | Worksheet           |
|-----------------------------------------------|---------------|---------------------|
| <input type="checkbox"/> Sample: Hello World  | 8 seconds     | Sample: Hello World |
| <input checked="" type="checkbox"/> Bar Chart | 20 seconds    | Bar Chart           |

Below the table, there are three checkboxes: 'Select All' (checked), 'Refresh items in order (Last run time for selected items: 20 seconds)', and 'Modify items before refreshing'. At the bottom of the dialog box are three buttons: 'Refresh', 'Cancel', and 'Help'. The Excel window's status bar shows the current selection as 'Sheet1 / Sample: Hello World / Bar Chart / Sheet2 / Sheet3 /'. The taskbar at the bottom shows the Windows start button and several open applications: Yahoo, audeo, Firefox, and a file named '041206\_...'. The system clock indicates 12:38 PM.

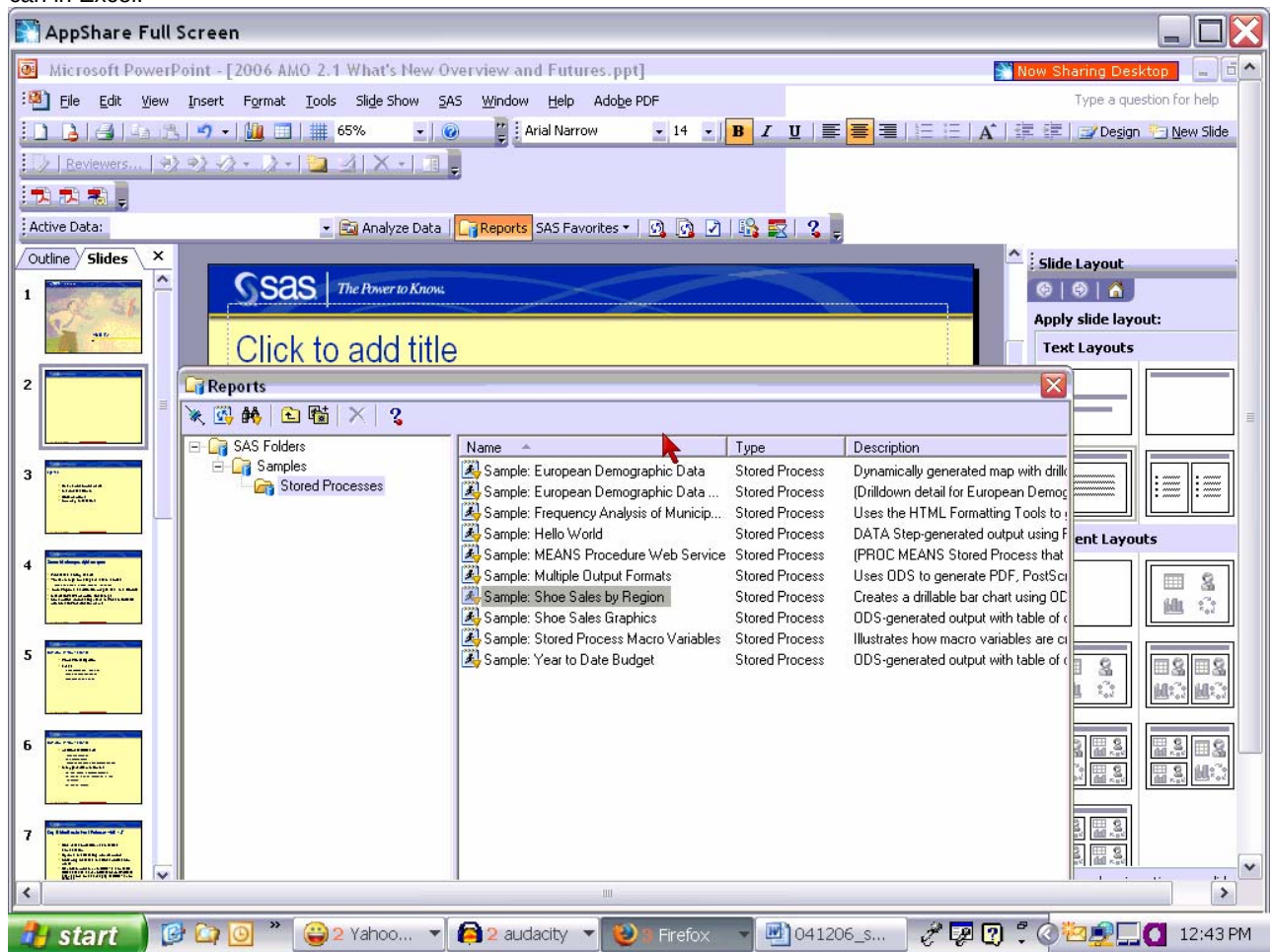
## OUTLOOK INTEGRATION

An 'unsupported' SAS Feature is that by using Outlook with the Word Editor on for New Messages, the AMO add-in is available for use.



## MS POWERPOINT

The same functionality is now available in PowerPoint – HOWEVER, users cannot open datasets as they can in Excel.



## ADVANCED TOPICS

An extension to SAS Stored Process Tasks, Visual Basic programmers can add custom tasks to the Analyze Data Screen. These custom tasks are interfaces that are not limited by the SAS Stored Process interfaces. Visual Basic programmers can create dynamic drop down boxes, customize the layout of the UI and then kickoff the stored process.

An example of a custom interface is below. This initially appears as an listed option in the SAS Task (or Analyze Data) interface.

(Note: Each of these boxes is populated from SAS datasets. Some options are cascading – meaning they are dependant on selections from other boxes listed.)

The screenshot shows a custom SAS interface with the following components:

- Client:** A dropdown menu.
- Study:** A dropdown menu.
- Survey:** A dropdown menu.
- Added Surveys:** A list box with a "Delete Survey" button below it.
- Load Fields >>** A button.
- Available Questions and Nets:** A large central list box with "Delete Net" and "Get Quest Values >>" buttons below it.
- Columns / Top:** A list box with ">>" and "<<" buttons.
- Rows / Side:** A list box with ">>" and "<<" buttons.
- Statistics:** A list box with "Counts", "Freq", and "STDDEV" options.
- Question Values:** A list box.
- Nets:** Fields for "<Name>", "<Logic>", and "<Type>" with an "Add Net" button.
- Filter:** A text input field.
- T-Test Section:**
  - ☒ T-Test
  - Output Columns:** A list box.
  - Test Columns:** A list box with a ">>" button.
  - Confidence Interval:** A text input field with "90".
  - ☒ Mutually Exclusive
  - Add Test** button
  - TTest Columns:** A list box.
  - Delete Test** button
- OK** and **Cancel** buttons at the bottom.
- Status:** A label at the bottom left.

Visual Basic Studio or some other VB/C# compiler is required to develop a custom add in. Moderate experience in Visual Basic is also a requirement of the developer. Additional information on how to accomplish this is available from SAS at:

<http://support.sas.com/documentation/onlinedoc/guide/release30/addins/index.htm>

**CONTACT INFORMATION**

Your comments and questions are valued and encouraged. Contact the author at:

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