

Release 2.1 of SAS® Add-In for Microsoft Office— Bringing Microsoft PowerPoint into the Mix

Jennifer Clegg, SAS Institute Inc., Cary, NC

Eric Hill, SAS Institute Inc., Cary, NC

ABSTRACT

Release 2.1 of SAS Add-In for Microsoft Office builds on the functionality introduced in release 1.3 of SAS Add-In for Microsoft Office. With release 2.1, Microsoft PowerPoint users can access the power of SAS and create presentations with refreshable SAS content. SAS data access support in Microsoft Excel is greatly expanded in release 2.1; users can open SAS data sources of any size, either directly into worksheets or into Microsoft Excel PivotTables, and users can easily create a SAS data set from Microsoft Excel data. For reporting, release 2.1 facilitates formatting SAS reports using the Microsoft Office application, and intermixing SAS content with other content in Microsoft Excel. For a full list of the features in release 2.1 of SAS Add-In for Microsoft Office, refer to "Appendix A - SAS Add-In for Microsoft Office Feature List by Release." For information about migrating Microsoft Office documents containing SAS content that is created with release 1.3 of SAS Add-In for Microsoft Office, refer to "Appendix B - Migrating Microsoft Office Documents Containing Content Created with Release 1.3 of SAS Add-In for Microsoft Office."

INTRODUCTION

SAS Add-In for Microsoft Office uses Component Object Model (COM) add-in technology to extend Microsoft Excel, Microsoft Word, and Microsoft PowerPoint to give users access to the power of SAS from inside these familiar Microsoft Office applications. This access to the power of SAS takes the following forms.

Data Access

You can open data that is accessible to any SAS server in your organization (including both native SAS data and third-party data sources accessed via SAS/ACCESS® products) directly into Microsoft Excel. You can filter the data if only specific sets of records need to be retrieved. Records are retrieved in "pages" of a size you specify to avoid the Microsoft Excel 65,536-row limit, or you can display all rows from the data source, in which case additional worksheets are created if necessary to accommodate all of the rows. Also new in release 2.1, you can open the data into a Microsoft Excel PivotTable, which is an interactive document that provides more reporting features than a Microsoft Excel worksheet.

Ad Hoc Data Analysis with SAS Tasks

You can use more than 70 SAS task dialogs and wizards to guide you through statistical and graphical analyses of the data source you specify. The results of your analysis are inserted in your Microsoft Excel workbook, Microsoft Word document, or Microsoft PowerPoint presentation.

SAS Stored Processes

You can use SAS stored processes, which are SAS programs (usually created by SAS experts in your organization) that are parameterized and registered on a SAS Metadata Server and available to be run from SAS Add-In for Microsoft Office, SAS Enterprise Guide®, or SAS Web Report Studio. The results of the stored processes are inserted in your Microsoft Excel workbook, Microsoft Word document, or Microsoft PowerPoint presentation.

Refresh and Rerun

You can refresh results at any time. For SAS tasks, you can refresh results with a single click, or reopen the SAS task and make changes before rerunning it. Similarly, SAS stored processes can be refreshed or rerun with different parameter values.

BI Repository Integration

You can publish Microsoft Excel workbooks, Microsoft Word documents, and Microsoft PowerPoint presentations you have created to the BI Repository so that other users can easily access them, and you can open workbooks, documents, and presentations that have been published by other users as well.

DATA ACCESS

If you can open a data source in SAS, then you can also open it directly in Microsoft Excel by using SAS Add-In for Microsoft Office. In the **Open Data Source** dialog box, you can open a data set by using the file system or by navigating the servers and libraries. You can open a data source into either a Microsoft Excel worksheet or PivotTable. The worksheet view allows you to look at the data in a row/column format and perform additional calculations on the data or use the data in a SAS task. The PivotTable view allows you to look at summaries of multiple rows of information to analyze related values in your data. The following data sources are accessible with SAS Add-In for Microsoft Office.

- **Server-based data** – Using the **Servers** node in the left panel of the **Open Data Source** dialog box, you can navigate to data sources that are stored on SAS servers that are installed locally or remotely in your organization. If the SAS server is not installed locally, it must be registered to the SAS Metadata Server to which you are connected. When you select a SAS server, you see the libraries that are defined on it, and when you select a library, you see the available data sources in that library.
- **File system data** – If you can access a SAS data set on your PC or on the network, you can use the **My Documents** and **Desktop** nodes in the left panel of the **Open Data Source** dialog box to navigate the file system and find a data source.
- **Information maps** – Information maps are data sources that are defined in business terms, rather than in technical database schema terms. Information maps enable business users to quickly understand the data and its relationships and to formulate understandable queries about the data. Information maps are created using SAS Information Map Studio.
- **OLAP cubes** – OLAP cubes are multidimensional data sources. OLAP cubes can be opened only into Microsoft Excel PivotTables.

The **Open Data Source** dialog box populates the list of servers based on the metadata that is defined in the SAS Metadata Server. Similarly, the list of libraries that displays for each server is based on the metadata. Each user might see a different view of the servers and libraries that are available, because the security model of the SAS Metadata Server restricts access to individual users based on the authorizations that are defined in the metadata by the administrator. When you are using server-based data, sorting and filtering occur on the server where the data resides. When you are using file system data, sorting and filtering occur on the client.

OPENING SAS DATA SOURCES INTO A MICROSOFT EXCEL WORKSHEET

After selecting a data source to open into a worksheet, you are prompted with the **Modify Data Source** dialog box. This dialog box enables you to select variables, apply an initial sort or filter, or select the output location for the data source. Microsoft Excel limits the number of columns in a single worksheet to 256. If you select more than 256 variables, SAS Add-In for Microsoft Office opens multiple worksheets to display all of the data. The **Modify Data Source** dialog box is shown next (Figure 1).

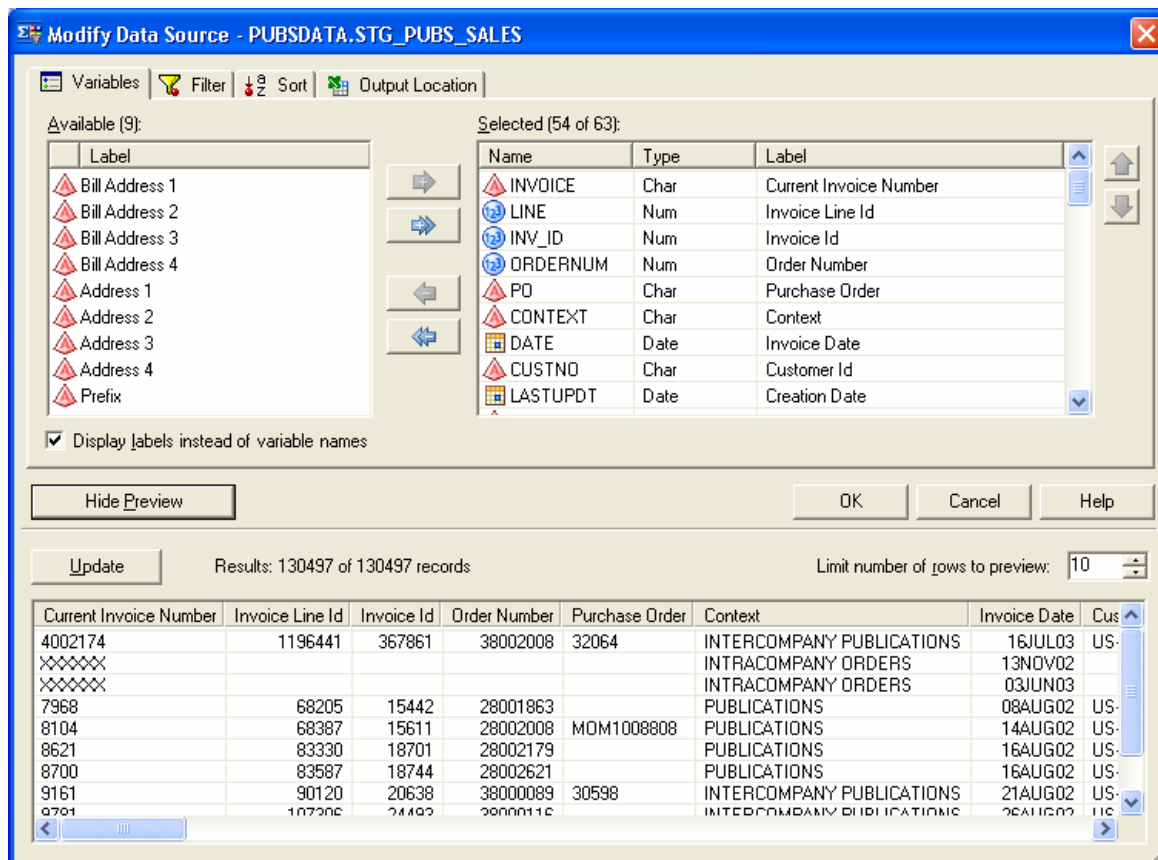


Figure 1. Modify Data Source Dialog Box

One problem when using Microsoft Excel to view SAS data sources is that a Microsoft Excel worksheet has a 65,536-row limit, meaning it can display only 65,536 records. SAS Add-In for Microsoft Office has solved this problem by allowing you to view a subset of the records in a data source, and then navigate through the remaining records. When you open a data source, SAS Add-In for Microsoft Office displays the first 500 records in a worksheet by default. The number of records displayed is configured by using the **Options** dialog box, which is available from the **SAS** menu. Once a data source is open in a worksheet, navigational menu and toolbar items enable you to navigate through the remaining records. You can page through the records, navigate to a particular record, or navigate to the beginning or end of the data source. Paging through the records enables SAS Add-In for Microsoft Office to access many records from within Microsoft Excel while using less memory, because only a subset of records are displayed and loaded into memory at one time. A display of the Microsoft Excel worksheet that shows the **PUBSDATA.STG_PUBS_SALES** data source follows (Figure 2). The navigational toolbar indicates that you are viewing records **1-500**.

	1	2	3	4	5	6	7	8	9	10	11
	Current Invoice Number	Invoice Line Id	Invoice Id	Order Number	Purchase Order	Context	Invoice Date	Customer Id	Creation Date	Line Type	
2	14002174	1196441	367861	38002008	32064	INTERCOMPANY PUBLICATIONS	16Jul2003	US-C-0025560	17Jul2003	LINE	
3	2XXXXXX					INTRACOMPANY ORDERS	13Nov2002			LINE	
4	3XXXXXX					INTRACOMPANY ORDERS	03Jun2003			LINE	
5	47968	68205	15442	28001863		PUBLICATIONS	08Aug2002	US-C-0007721	14Aug2002	LINE	
6	56104	68387	15611	28002008	MOM1008808	PUBLICATIONS	14Aug2002	US-C-0003362	14Aug2002	LINE	
7	66621	83330	18701	28002179		PUBLICATIONS	16Aug2002	US-C-0045916	19Aug2002	LINE	
8	76700	83587	18744	28002621		PUBLICATIONS	16Aug2002	US-C-1003972	19Aug2002	LINE	
9	89161	90120	20638	38000089	30598	INTERCOMPANY PUBLICATIONS	21Aug2002	US-C-0025560	21Aug2002	LINE	
10	99781	107306	24493	38000116		INTERCOMPANY PUBLICATIONS	26Aug2002	US-C-0025573	27Aug2002	LINE	
11	109961	108747	24910	28003568	MOM1012460	PUBLICATIONS	27Aug2002	US-C-0003362	27Aug2002	LINE	
12	1110363	117794	27507	28003878		PUBLICATIONS	29Aug2002	US-C-0006404	30Aug2002	LINE	
13	1211265	153005	34024	38000225	30661	INTERCOMPANY PUBLICATIONS	10Sep2002	US-C-0025560	10Sep2002	LINE	
14	1311537	160591	35510	28004664		PUBLICATIONS	11Sep2002	US-C-0001784	12Sep2002	LINE	
15	1412081	168568	37128	28005109	MOM1027291	PUBLICATIONS	13Sep2002	US-C-0003362	13Sep2002	LINE	
16	1513871	211892	48730	28006299	48703	PUBLICATIONS	30Sep2002	US-C-0022039	30Sep2002	LINE	
17	1614246	240565	50437	28006391		PUBLICATIONS	02Oct2002	US-C-1036248	02Oct2002	LINE	
18	1715435	269839	56729	28007163		PUBLICATIONS	10Oct2002	US-C-1050426	10Oct2002	LINE	

Figure 2. Microsoft Excel Worksheet for the PUBSDATA.STG_PUBS_SALES Data

If you want to view all of the records of a data source in Microsoft Excel, select **Display All Records** from the **SAS ► Data Options** menu. SAS Add-In for Microsoft Office prompts you with the number of worksheets that are required to display all of the records, limited by the currently applied filters. If you select to proceed, additional worksheets are created and populated with the records of the data source. Because the number of worksheets in Microsoft Excel is limited by available memory, attempting to display all of the records could exhaust memory and cause Microsoft Excel to have problems functioning.

Once you have access to a SAS data source in Microsoft Excel, you might want to sort the records. The Microsoft Excel sort feature sorts only the records that are viewable in the worksheet, which might be only a subset of the records in the data source. The SAS Add-In for Microsoft Office sort feature sorts the entire data source by using the processing power of the server. Additionally, unlike Microsoft Excel, SAS Add-In for Microsoft Office has no limit on the number of variables you can sort. You can access the SAS Add-In for Microsoft Office sort feature from the **SAS** menu or toolbar. Once the sort completes on the server, the resulting records display in the worksheet. You can navigate through the sorted data in the same way that you navigate through the original data source.

You can filter records in a data source to segment the data based on certain criteria. Like the sort feature, the Microsoft Excel filter feature filters only the records that are viewable in the worksheet. The SAS Add-In for Microsoft Office filter feature filters the entire data source. Then, you can view the resulting records in Microsoft Excel. SAS Add-In for Microsoft Office provides an intuitive user interface for easy selection of filter criteria. You can apply a filter to a data source and refine the filter repeatedly until you have the data you want. You can navigate through the filtered data in the same way that you navigate through the original data source. An example filter query follows (Figure 3).

Modify Data Source - PUBSDATA.STG_PUBS_SALES

Variables Filter Sort

Filter description:

Invoice Date	Is between values (Incl)	01OCT02 and 31OCT02	...	AND	X
Invoice Amount	Is greater than	20.00	...	AND	X
Group	Is equal to	BOOKS	...	AND	X
Current Invoice Number	Is not equal to	XXXXXX	...		X

☒ Display labels instead of variable names

Advanced Edit... Clear All

Hide Preview OK Cancel Help

Update Results: 2928 of 130497 records Limit number of rows to preview: 10

Current Invoice Number	Invoice Line Id	Invoice Id	Order Number	Purchase Order	Context	Invoice Date	Customer Id	Cre
14246	240565	50437	28006391		PUBLICATIONS	02OCT02	US-C-1036248	
15435	269839	56729	28007163		PUBLICATIONS	10OCT02	US-C-1050426	
15648	275352	57764	28007295	MDM1041132	PUBLICATIONS	11OCT02	US-C-0003362	
17021	299755	65701	28007902		PUBLICATIONS	22OCT02	US-C-0022843	
17231	304263	67012	28008091		PUBLICATIONS	24OCT02	US-C-0080540	
17332	305609	67815	28008120		PUBLICATIONS	24OCT02	US-C-0028646	
17509	308742	69066	28007792		PUBLICATIONS	25OCT02	US-C-1051632	
17961	324254	74159	28008541	P085989	PUBLICATIONS	31OCT02	US-C-0080540	
17327	205560	67027	28008126	TD173202	PUBLICATIONS	24OCT02	US-C-0072560	

Figure 3. Modify Data Source Dialog Box - Example Filter Query

If you prefer to enter Structured Query Language (SQL) to apply filters, you can use the **Advanced Expression Editor** dialog box. Clicking the **Advanced Edit** button from the **Filter** panel invokes a dialog box in which you can enter SQL to apply filters. Using this dialog box requires knowledge and understanding of SQL syntax. A display of the **Advanced Expression Editor** dialog box follows (Figure 4).

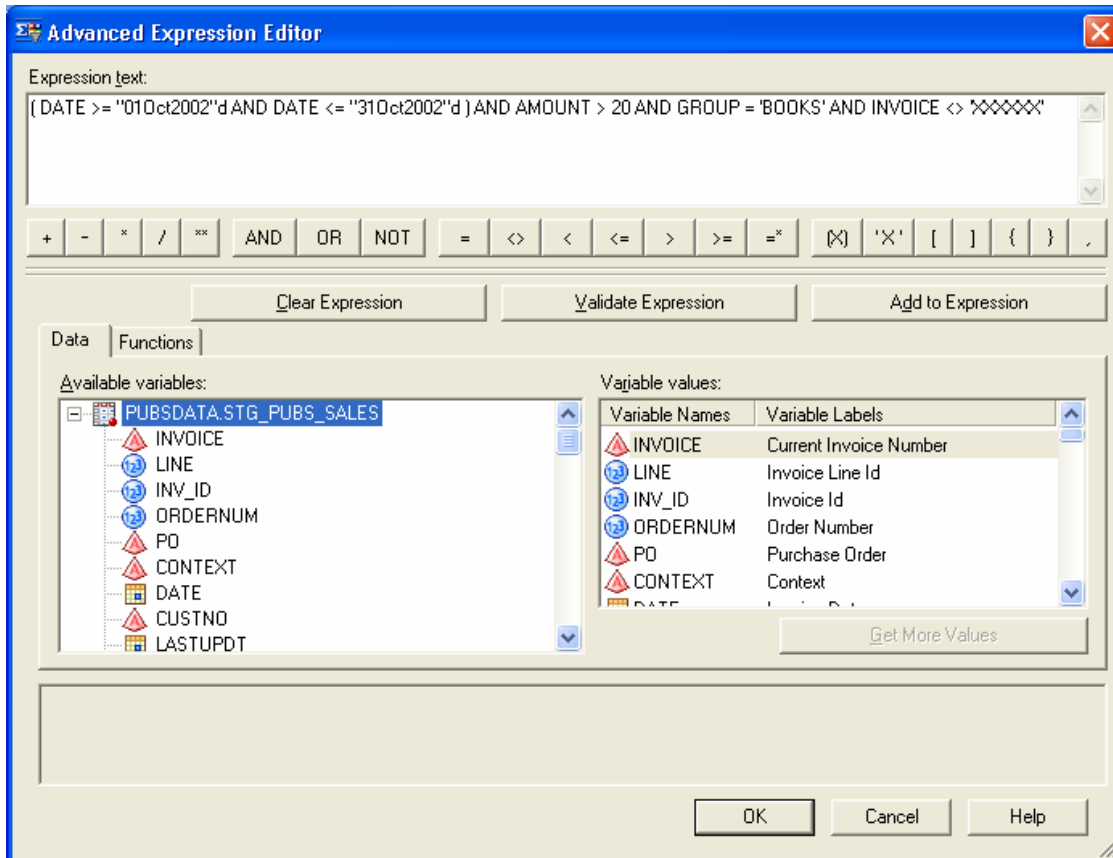


Figure 4. Advanced Expression Editor Dialog Box

Another common task in Microsoft Excel is applying formulas to ranges of cells. With a SAS data source opened in Microsoft Excel, you can use formulas to manipulate the data. The formulas apply to the currently viewable data only. If you refresh the data or navigate to another record, the viewable data changes in Microsoft Excel and the formulas recalculate the new data. Only formulas that exist outside the cells that are occupied by the data are retained.

OPENING SAS DATA SOURCES INTO A MICROSOFT EXCEL PIVOTTABLE

When opening data into a Microsoft Excel PivotTable, you can also select OLAP data as a data source by selecting the **OLAP Servers** node in the **Open Data Source** dialog box. After selecting a data source, the **Modify Data Source** dialog box displays. Depending on the data source, you might be able to limit variables or filter the data. You cannot sort data that is opened into a Microsoft Excel PivotTable. After you click **OK** in the **Modify Data Source** dialog box, the variables are displayed in the field list in the Microsoft Excel PivotTable.

COPYING DATA TO A SAS SERVER

If you want to take your Microsoft Excel data and create a SAS data set from it, you can use the **Copy to SAS Server** dialog box that is available by selecting **SAS ► Active Data**. This dialog box provides the interface to create a SAS data set on a server that is based on the data defined by the **Active Data** source. You can copy Microsoft Excel data or create a new data set from SAS data that is being viewed in Microsoft Excel. The **Copy to SAS Server** dialog box is shown next (Figure 5).

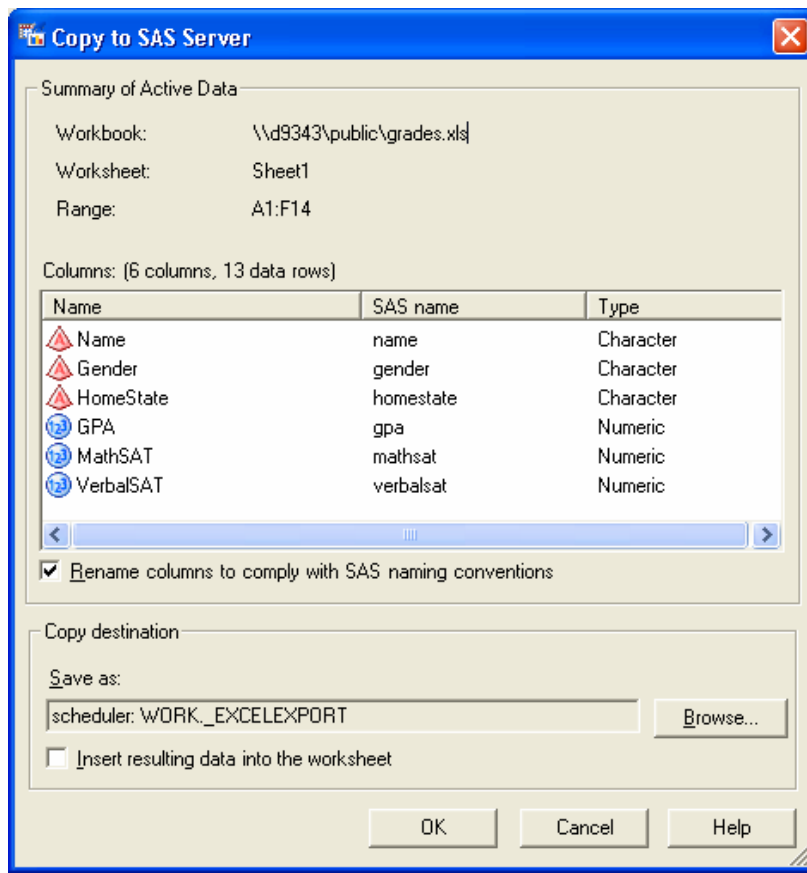


Figure 5. Copy to SAS Server Dialog Box

AD HOC DATA ANALYSIS WITH SAS TASKS

SAS tasks are dialogs and wizards that help you perform statistical and graphical analyses of your data using SAS, but without having to know the SAS programming language. There are approximately 70 tasks available with release 2.1 of SAS Add-In for Microsoft Office and they cover most of the common types of analyses available in SAS. These same SAS tasks are available in SAS Enterprise Guide 4.1.

The first step in using a SAS task to perform an analysis is to identify the data source that you want to analyze. If you are using Microsoft Excel and you have already opened a SAS data source using the **Open Data Source** dialog box, you can simply place the cell pointer in the block of opened data and the **Active Data** field in the toolbar displays the name of the data source. Similarly, if you have Microsoft Excel data that you want to analyze with SAS, simply select one of the cells in the block of data. The **Active Data** field changes to **Active Selection**, which indicates that SAS Add-In for Microsoft Office will attempt to use that block of cells as the data source for the task. To remove ambiguity or to analyze a portion of a block of data, you can select the block of cells that contains the data that you want to analyze.

If you want to analyze SAS data without having to first open it into Microsoft Excel, or if you are using Microsoft Word or Microsoft PowerPoint, you identify the data source using the **Active Data** drop-down list in the SAS Add-In for Microsoft Office toolbar (or select it from the **SAS** menu). Select **Select Data Source** and a dialog box is displayed that provides access to the types of data sources described in the "Data Access" section: server-based data, file system data, and information maps. Once you select a data source and click **Open**, you are presented with the **Modify Data Source** dialog box, which enables you to filter the data source.

The full name of the data source you select in the **Select Data Source** dialog box is displayed in the **Active Data** field in the toolbar. The **Active Data** drop-down list maintains a list of recently used data sources. If you analyze the same data source frequently, you can often select it from the drop-down list, rather than navigating to it.

Once you have identified the data source that you want to analyze, you can click **Analyze Data** on the SAS Add-In for Microsoft Office toolbar (or select it from the **SAS** menu). The **Analyze Data** dialog box is displayed from which you can select the SAS task or wizard that you would like to run (Figure 6). SAS tasks are dialog boxes that provide an advanced view of the choices available for creating an analysis. Wizards are new with release 2.1 of SAS Add-In for Microsoft Office and SAS Enterprise Guide 4.1. Wizards provide an easier, step-by-step approach to creating an analysis, often hiding infrequently used options to avoid confusion. Some analysis types offer both a SAS task and a wizard for creating an analysis.

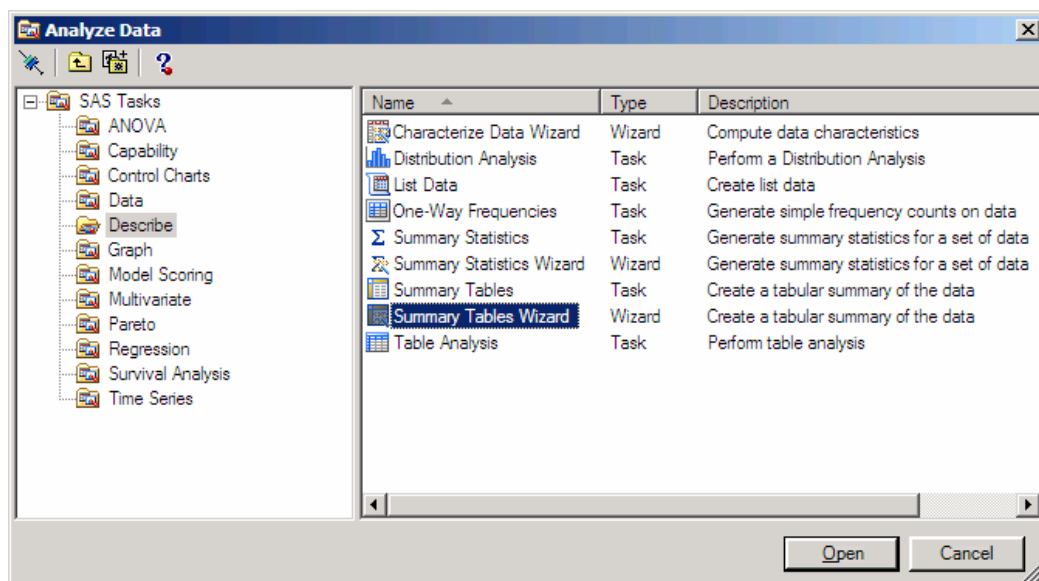


Figure 6. Analyze Data Dialog Box

Figure 7 shows a page from the **Summary Tables Wizard**. The wizard is being used to generate cross-tabulations in this example.

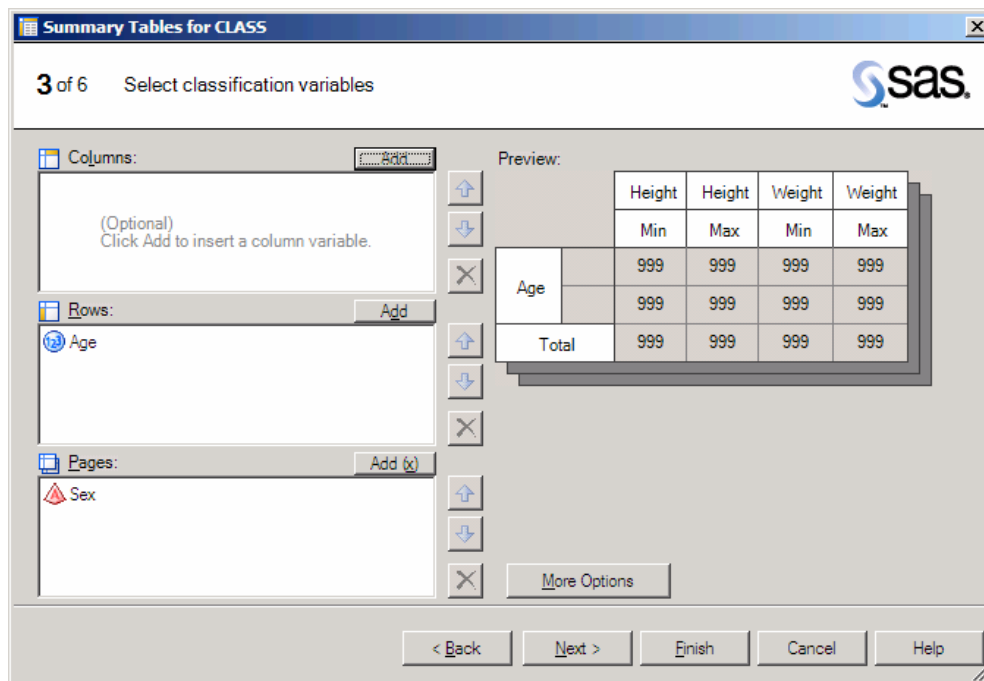


Figure 7. Summary Tables for Class Dialog Box

After setting the analysis options and clicking **Run**, the SAS task generates SAS programming language code. The code is submitted to the appropriate SAS server by SAS Add-In for Microsoft Office, and the generated results are inserted into your Microsoft Office document. The next example shows the results from the **Summary Tables Wizard** in a Microsoft PowerPoint slide (Figure 8).

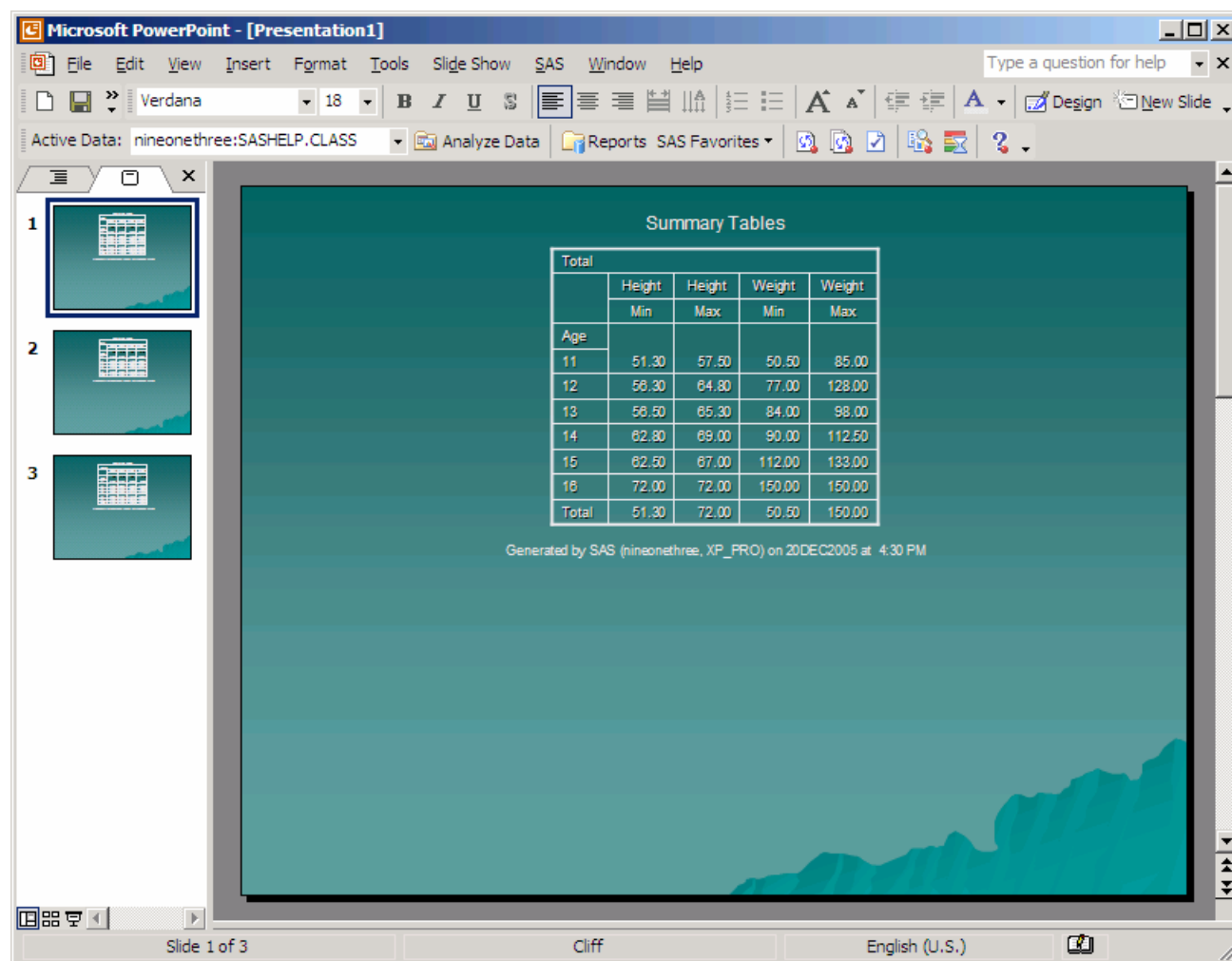


Figure 8. Summary Tables Results in Microsoft PowerPoint

SAS STORED PROCESSES

Whereas SAS tasks enable users to perform ad hoc analyses on their data without having to know the SAS programming language, stored processes enable users to leverage the SAS programming prowess of SAS experts in their organization to create reports that can be viewed in not only SAS Add-In for Microsoft Office, but also in SAS Enterprise Guide, SAS Web Report Studio, and SAS Information Delivery Portal. Stored processes are the reporting backbone of the SAS Business Intelligence architecture. By registering parameters for a stored process, the stored process author can allow many different users to run the same stored process, while generating reports that are customized to their specific needs.

From SAS Add-In for Microsoft Office, click **Reports** on the toolbar (or select it from the **SAS** menu) to display the **Reports** dialog box (Figure 9). The **Reports** dialog box displays the SAS folders that contain all of the stored processes that have been registered (and that you have permission to see) in the SAS Metadata Repository to which you are connected.

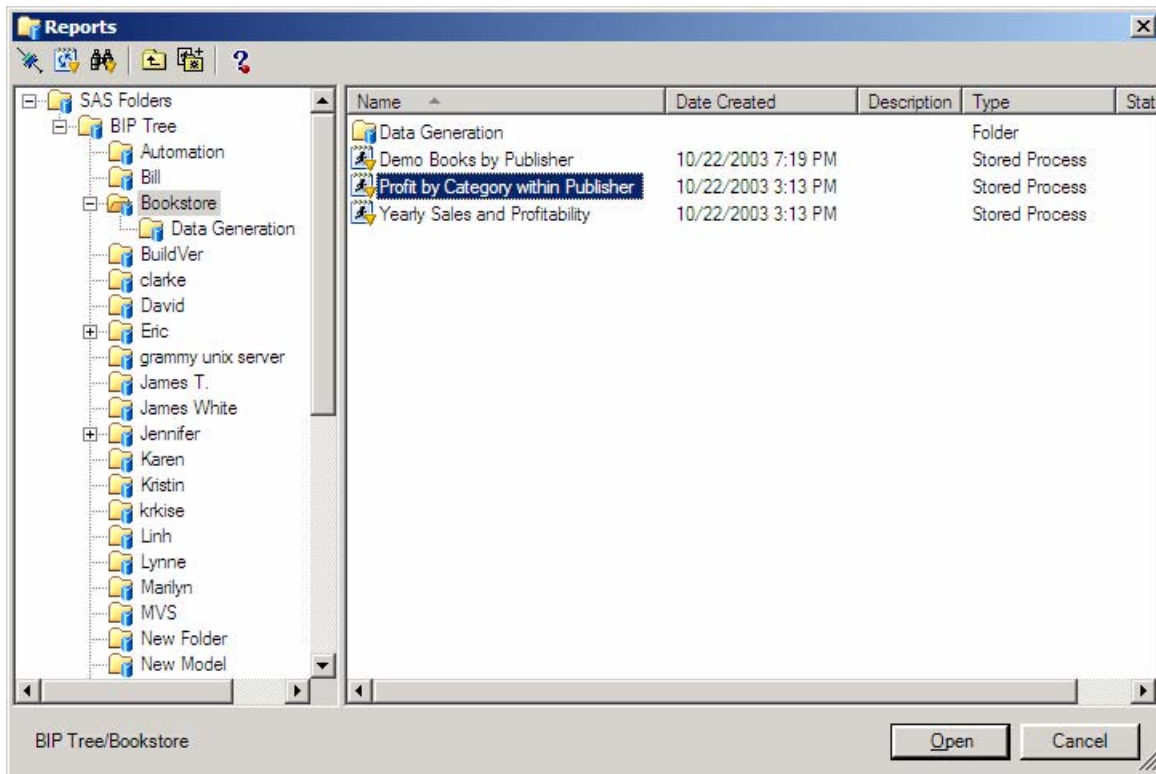


Figure 9. Reports Dialog Box

Select the stored process that you want to run and click **Open**. The stored process that is selected in the previous dialog box (**Profit by Category within Publisher**) has several parameters defined, so when you run it, a dialog box is displayed that enables you to define parameters (Figure 10).

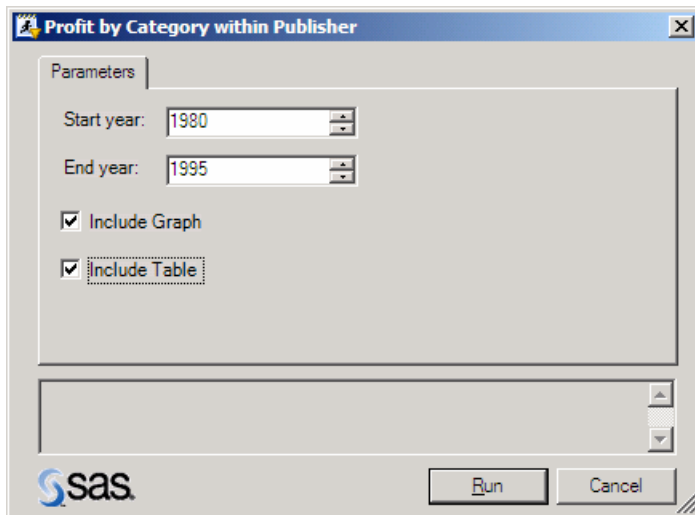


Figure 10. Profit by Category within Publisher Parameters Dialog Box

After defining the parameters, click **Run**. The SAS program associated with the stored process is executed on the appropriate SAS server using the defined parameters. The results are retrieved from the server and inserted into the Microsoft Office document, shown next in a Microsoft PowerPoint slide (Figure 11).

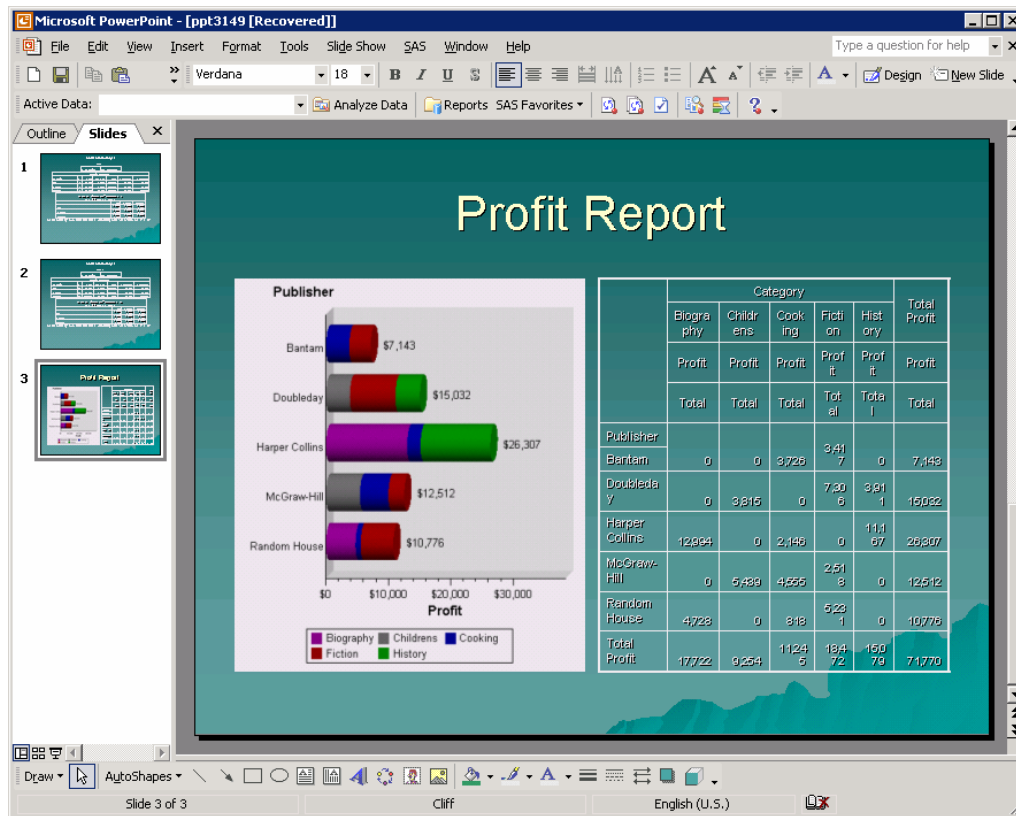


Figure 11. Profit Report Results in Microsoft PowerPoint

SEARCHING FOR A STORED PROCESS

Over time, it is easy for a large number of stored processes to get created and registered on a company-wide or departmental metadata server, which could make it difficult to find a stored process that does what you need. To help with this problem, the **Reports** dialog box enables searching for stored processes by name, description, keywords, and when the stored process was created or last modified. Click the search tool (binoculars) in the **Reports** dialog box toolbar to initiate a search.

MANAGING ANALYTIC RESULTS

You can run SAS tasks and stored processes to generate results from SAS and then place them in your Microsoft Excel workbook, Microsoft Word document, or Microsoft PowerPoint presentation. Release 2.1 of SAS Add-In for Microsoft Office lets you control certain aspects of the generated results, such as where the results are inserted in your Microsoft Office document and whether or not the formatting from SAS is applied to them. Once you have the results in a Microsoft Office document, the underlying data may change (which means the results need to be refreshed) or you might want to rerun the analysis using different settings. You might want to find all of the content in your document that was generated by SAS, or you might need to delete some of the content. Release 2.1 of SAS Add-In for Microsoft Office provides all of these capabilities.

RESULTS FORMAT AND STYLE

In previous releases of SAS Add-In for Microsoft Office, the default format for generated results was HTML. The HTML was then inserted in Microsoft Excel or Microsoft Word. HTML limited the options that SAS Add-In for Microsoft Office could offer, such as whether formatting from SAS was applied to the results or whether multiple sets of results could be inserted in the same Microsoft Excel worksheet. To move beyond these limitations, release 2.1 of SAS Add-In for Microsoft Office generates results on the SAS server in a format named **SAS Report** by default. SAS Report is an XML report format that is used by all of the client applications in the SAS Business Intelligence suite. While release 2.1 of SAS Add-In for Microsoft Office enables you to change the results format back to HTML for Microsoft Excel and Microsoft Word, this change causes a loss of functionality. The **SAS Report** format is the only format available when using release 2.1 of SAS Add-In for Microsoft Office in Microsoft PowerPoint.

The next example (Figure 12) shows what the **Results** tab of the **SAS Add-In Options** dialog box looks like in Microsoft Excel by default.

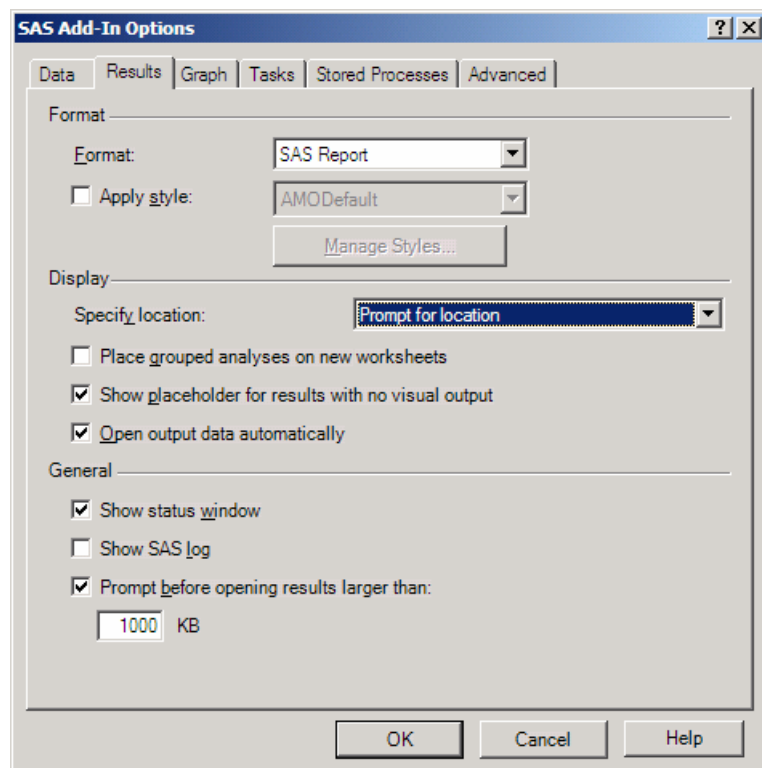


Figure 12. Results Tab in the SAS Add-In Options Dialog Box

SAS Report is selected as the results format, and the **Apply style** check box is unchecked. A key decision that each user of release 2.1 of SAS Add-In for Microsoft Office must make is whether to check the **Apply style** check box. If you do not check **Apply style**, style information (such as colors and fonts) from SAS will not be applied when the results are inserted into your Microsoft Office document. In this case, the SAS results blend as much as possible with the style in the Microsoft Office document (which is particularly valuable in Microsoft PowerPoint). And, you can use the formatting capabilities of the Microsoft Office application to format the results. If you check **Apply style**, style information from SAS will be applied when the results are inserted into your Microsoft Office document. You need to select the SAS style from the **Apply style** drop-down list.

If you have stored processes that use PROC REPORT or PROC TEMPLATE to specify conditional formatting (also known as traffic highlighting), and the **Apply style** check box is unchecked, those conditional formats will not be applied when the results are inserted into your Microsoft Office document. After you generate results, if you realize that the conditional formatting is missing, open the **Properties** dialog box for those results, check the **Apply style** box on the **Appearance** tab, and refresh the results. For more information on the **Properties** dialog box and refreshing results, see the "Refreshing Results" section.

In Microsoft PowerPoint, the **Results** tab of the **SAS Add-In Options** dialog box is different. Instead of an **Apply style** check box, there is a **When inserting content, restrict style to font name and size** check box. Checking this option in Microsoft PowerPoint is almost the same as not checking the **Apply style** check box in Microsoft Excel and Microsoft Word, except that the font name and font size specified in the SAS results are applied when the results are inserted into Microsoft PowerPoint. Not checking this option in Microsoft PowerPoint is the same as checking the **Apply style** check box in Microsoft Excel and Microsoft Word.

SPECIFYING THE LOCATION FOR RESULTS

You need to specify the location in your Microsoft Office document where the generated results are to be inserted. The available options vary depending on the Microsoft Office application you are using.

In Microsoft Word, generated results are inserted at the cursor in the current document by default. If you want a new Microsoft Word document to be created for each set of SAS results that you generate, you can uncheck the **Insert results into current document** box on the **Results** tab of the **SAS Add-In Options** dialog box.

In Microsoft PowerPoint, generated results are inserted in the current slide by default, unless **Place result on a new slide** is checked on the **Results** tab of the **SAS Add-In Options** dialog box. Another option on the **Results** tab, **Honor placeholders in slide layout**, determines whether SAS Add-In for Microsoft Office sets the size and position of titles, tables, and graphs in the generated results to fit the placeholders in the slide layout that you have chosen for the slide. If the generated results contain multiple sections, each section after the first section is placed on a new slide and uses the same slide layout as the first slide.

In Microsoft Excel, each time you generate results, you are prompted to specify where you want the results to be inserted. You can specify a location on an existing worksheet, or you can specify that a new worksheet or a new workbook be created for the results. In release 2.1 of SAS Add-In for Microsoft Office, if you want generated results to always be inserted in a new worksheet or in a new workbook, you can set one of those options on the **Results** tab of the **SAS Add-In Options** dialog box, instead of having to respond to a prompt each time.

REFRESHING RESULTS

At some point after you have generated results, the underlying data may change, which means the results need to be refreshed. When the cursor is inside a set of SAS results, the refresh tool is enabled on the toolbar (and the **Refresh** item is enabled on the **SAS** menu). When you refresh, the analysis you ran previously is rerun using the same settings, and the results in the Microsoft Office document from the previous run are replaced with the new results. **Refresh** is also available from the context menu when you right-click on a set of SAS results.

You might want to modify the settings (for a SAS task) or parameter values (for a stored process) when you rerun an analysis. In this case, select **Modify** from the **SAS** menu or from the context menu when you right-click on a set of SAS results. Selecting **Modify** causes the SAS task dialog box or stored process parameter dialog box for the analysis to be redisplayed. In the dialog box, the settings that were specified in the initial run of the analysis are shown and you are allowed to change them for the new run. When you dismiss the dialog box, the analysis is rerun using the new settings, and the results from the initial run in the Microsoft Office document are replaced with the new results.

Keep in mind that if you choose to modify settings, some changes to settings can cause tables or graphs that were generated in the initial run not to be generated in the new run. If that occurs, tables or graphs that were generated in the initial run, but not in the new run, are deleted from the Microsoft Office document.

If you have more than one set of SAS results in a Microsoft Office document, you might want to refresh more than one of your SAS results at the same time. The **Refresh Multiple** dialog box (Figure 13), available from the toolbar or the **SAS** menu, lists all of the SAS results in the current document and enables you to refresh as many of the results as you want. If you check **Modify items before refreshing**, you will be prompted with the SAS task dialog box or stored process parameter dialog box for each analysis so that you can change settings if you want.

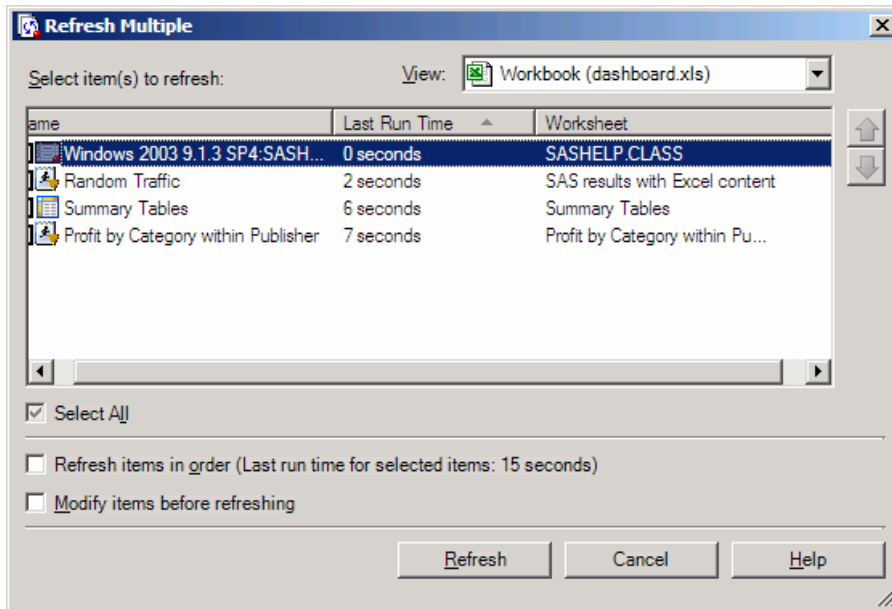


Figure 13. Refresh Multiple Dialog Box

PRESERVING FORMATTING ON REFRESH

In the “Results Format and Style” section, the **Apply style** check box on the **Results** tab of the **SAS Add-In Options** dialog box was discussed. If **Apply style** is unchecked (or if in Microsoft PowerPoint **When inserting content, restrict style to font name and size** is checked) when results are generated, then when the results are refreshed, any formatting changes that have been made to the results using the formatting tools of the Microsoft Office application are preserved, if possible.

However, there are limitations when SAS Add-In for Microsoft Office tries to preserve formatting on a refresh, especially in Microsoft Word and Microsoft PowerPoint. In those applications, any significant changes in table structure often requires that the table be deleted and recreated on a refresh, which means that formatting in the Microsoft Office application will not be preserved.

When you refresh SAS results, you might want to change whether to apply the style from SAS or to preserve the formatting from the Microsoft Office application. You can change these options from the **Properties** dialog box of the results. You can open the **Properties** dialog box several ways. If you move the cursor into the SAS results that you are interested in, you can click the **Properties** tool on the toolbar or select **Properties** on the **SAS** menu. You can right-click in the SAS results and select **Properties** from the context menu. In the **Appearance** tab of the **Properties** dialog box, there is an **Apply style** check box. Changing the **Apply style** setting affects what SAS Add-In for Microsoft Office does the next time you refresh or modify the results. This setting applies to all tables and graphs that were generated in these SAS results, not just to the specific table or graph that was active at the time the setting was changed. Figure 14 shows the **Appearance** tab of the **Properties** dialog box for Microsoft Excel. The **Appearance** tab is different in Microsoft Word and Microsoft PowerPoint.

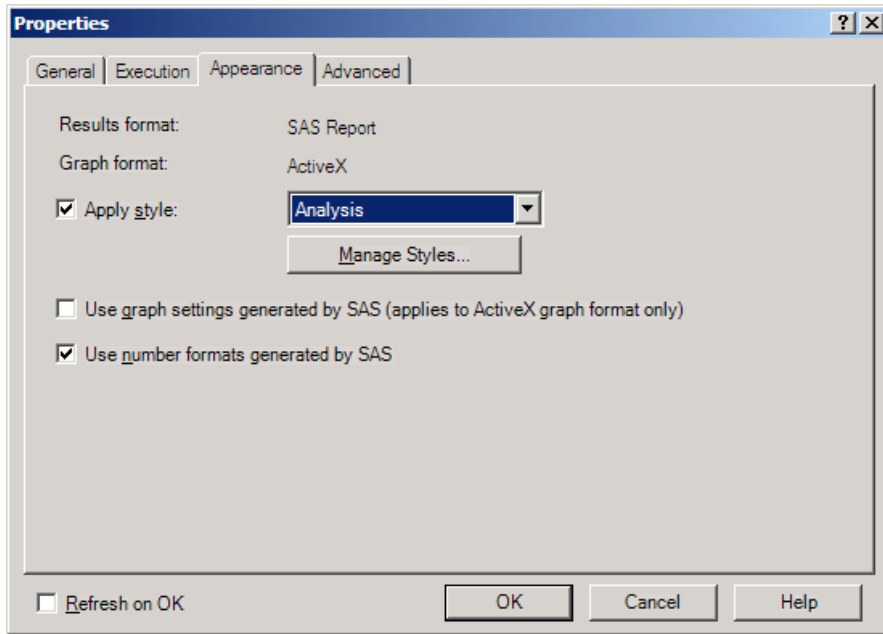


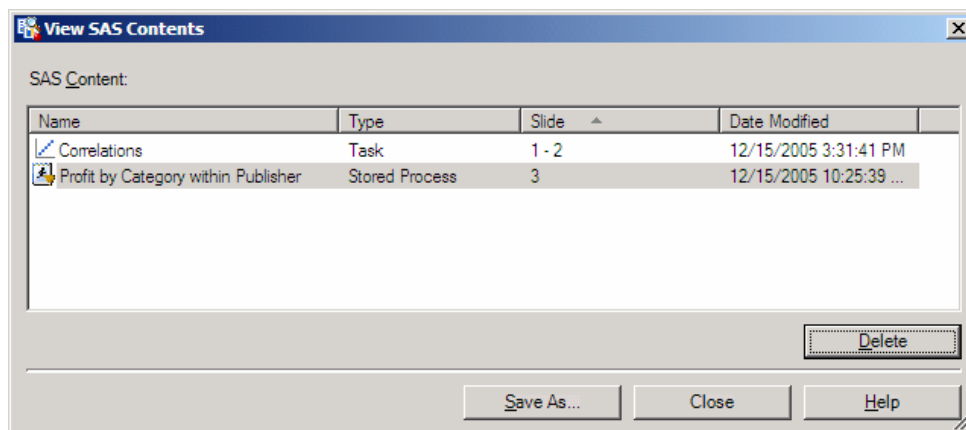
Figure 14. The Appearance Tab in the Properties Dialog Box

In addition to **Apply style** in the **Appearance** tab, there are two other options that affect whether formatting changes that were made in the Microsoft Office application are preserved when results are refreshed. If your results include ActiveX graphs, you can use the context menu of the graph to make formatting changes to the graph. If **Use graph settings generated by SAS (applies to ActiveX graph format only)** is checked, formatting changes that are made via the context menu will not be preserved when the graph is refreshed. Instead, formatting from the newly generated results will be applied.

Similarly, if you are using Microsoft Excel and you do not like the number formats in the generated results from SAS, you can use the number formatting options in Microsoft Excel to change the formats. If you want the format changes in Microsoft Excel to be preserved when you refresh the results, make sure that **Use number formats generated by SAS** is unchecked for those results.

VIEW SAS CONTENTS

To see a summary of all of the SAS content in the current Microsoft Office document, select **View SAS Contents** from the **SAS** menu. A dialog box lists all SAS task and stored process results in the current document. In Microsoft Excel, the list includes SAS data sources that have been opened into worksheets or PivotTables in the workbook. If you double-click on a set of results, SAS Add-In for Microsoft Office navigates to the location of those results in the document. You can click **Delete** to delete all of the content associated with the selection from the Microsoft Office document. Using the **Delete** button in the **View SAS Contents** dialog box (Figure 15) to delete content is the recommended way to delete SAS content from Microsoft Office documents because this way assures that all of the information about how the content was created is deleted from the Microsoft Office document, along with the visual content. Deleting content this way is not undoable.



INTERMIXING SAS CONTENT AND MICROSOFT EXCEL CONTENT

When using release 1.3 of SAS Add-In for Microsoft Office in Microsoft Excel, you could not intermix SAS analytic results with other content on the same worksheet. With release 2.1 of SAS Add-In for Microsoft Office, you can. When you refresh results, only the exact ranges that contain content from the previous run are modified. Therefore, you can surround generated SAS results in a worksheet with Microsoft Excel formulas that refer to the SAS results. When you refresh the SAS content, the Microsoft Excel formulas update as well. In the following Microsoft Excel worksheet (Figure 16), the “Wheat, Rice and Corn Production” analysis in columns A through D is a SAS stored process result. The range F3:G9 contains Microsoft Excel formulas that refer to cells in the stored process result, and the range F11:G22 is a native Microsoft Excel chart that is based on the data in the F3:G9 range. When the SAS stored process result in columns A through D is refreshed, the Microsoft Excel formulas in F3:G9 and the chart in F11:G22 update to reflect any changes in the SAS stored process result.

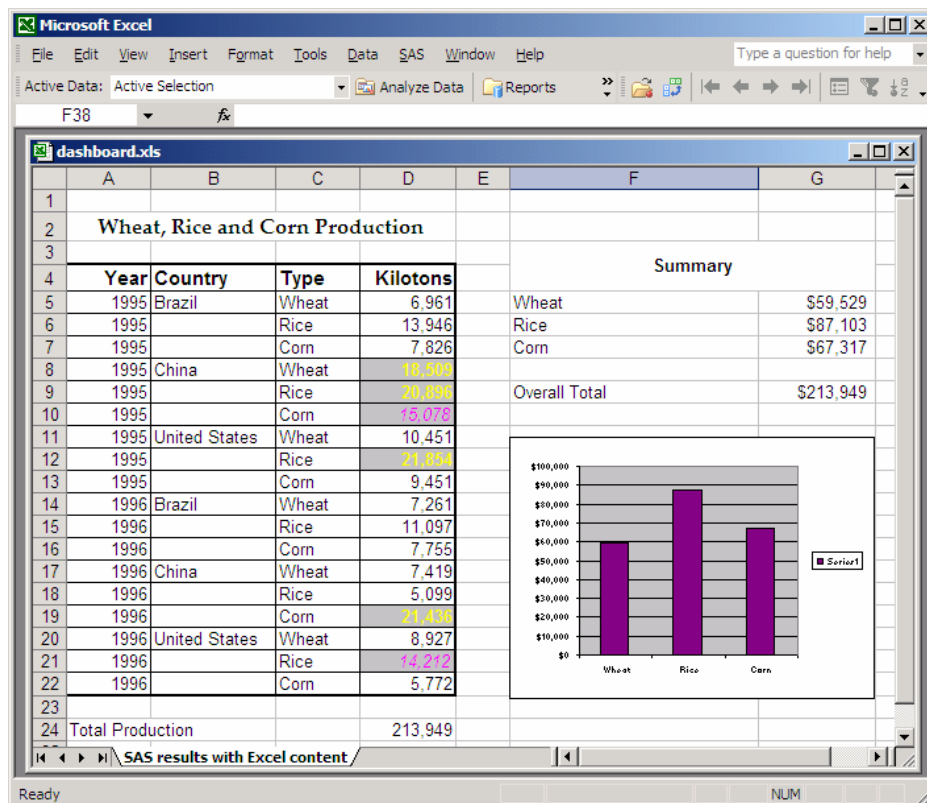


Figure 16. Microsoft Excel Worksheet for Wheat, Rice and Corn Production

BI REPOSITORY INTEGRATION

Once you have used SAS Add-In for Microsoft Office to enhance your Microsoft Office documents, you might want to share these documents with other users. You can publish Microsoft Office documents to the BI Repository. Select **Publish** from **SAS ► Tools**. You will be prompted for the **SAS Folder** location where you want to store the documents. After selecting the location, you will be prompted for the security settings that you want applied to the documents. Access to the documents will be managed through the SAS Metadata Server, allowing only authorized users to have access to the documents. The documents are stored in WebDAV, and the appropriate information is stored in the metadata. Using the publish capability provides an easy way to share documents in your organization.

CONCLUSION

SAS Add-In for Microsoft Office leverages the knowledge of many users by bringing the power of the SAS BI Server to the applications with which users are familiar. The ability to execute analytics directly from Microsoft Excel, Microsoft Word, and Microsoft PowerPoint brings new capabilities to the Microsoft Office environment and enables a familiar user experience. In the past, SAS has provided ways to integrate with Microsoft Office applications. Most of these ways required using SAS to export data or results to Microsoft Office applications. SAS Add-In for Microsoft Office takes a different approach by leveraging your knowledge of Microsoft Office and bringing the capabilities of SAS directly to a familiar environment. SAS Add-In for Microsoft Office gives Microsoft Office users *The Power to Know*[®].

APPENDIX A – SAS ADD-IN FOR MICROSOFT OFFICE FEATURE LIST BY RELEASE

The following table lists the major features and the release in which they were added. These features apply to Microsoft Excel, Microsoft Word, and Microsoft PowerPoint, unless explicitly specified.

Release	Feature
1.3	Open any size SAS data source in Microsoft Excel
	Filter SAS data source using SQL syntax in Microsoft Excel
	Sort SAS data source in Microsoft Excel
	Refresh SAS data source in Microsoft Excel
	Execute SAS stored processes and view results in Microsoft Office applications
	Execute large selection of production SAS tasks
	Refresh results
	Provide estimate of time to refresh each analysis or multiple analyses
	Send results from Microsoft Excel to Microsoft Word
	Provide Favorites support, which are shortcuts to commonly used SAS stored processes or SAS tasks
	Filter SAS data source using an intuitive user interface in Microsoft Excel
	Filter SAS data source using an advanced SQL function builder in Microsoft Excel
	Sort SAS data source by unlimited number of variables in Microsoft Excel
	Sort, filter, and order columns when opening SAS data source in Microsoft Excel
	Retain Microsoft Excel formulas that surround SAS data source when you refresh
	Search for SAS stored processes by name, date, or keyword
	Create custom style sheets for results
2.1	Support Microsoft PowerPoint as a client
	Ability to place multiple results or data sources on same worksheet in Microsoft Excel
	Support for wizards and new tasks
	Ability to retain changes to results after a refresh (through SAS Report support)
	Ability to open data sources into PivotTables in Microsoft Excel
	Support for SAS Information Maps and SAS OLAP Servers
	Ability to view more than 256 variables from a data source in Microsoft Excel
	Ability to view all records in a data source (more than 65,536) in Microsoft Excel
	Ability to publish Microsoft Office documents to a BI Repository
	Ability to create a SAS data set using Copy to SAS Server dialog box in Microsoft Excel
	Ability to view SAS content in a Microsoft Office document using View SAS Contents dialog box
	Send results from Microsoft Excel to Microsoft PowerPoint
	Ability to have grouped analyses placed on different worksheets in Microsoft Excel
	Ability to schedule Microsoft Office documents for refresh
	Support for compact view for report parameters

APPENDIX B – MIGRATING MICROSOFT OFFICE DOCUMENTS CONTAINING CONTENT CREATED WITH RELEASE 1.3 OF SAS ADD-IN FOR MICROSOFT OFFICE

After you install release 2.1 of SAS Add-In for Microsoft Office, when you open a document that contains release 1.3 content, you will be prompted with the **Migrate SAS Content** dialog box (Figure 17). In this dialog box, you can make selections about how the document should be migrated, or whether to migrate the document at all. Once the document is migrated to release 2.1, the SAS content will not be refreshable by anyone using release 1.3. In the **Migrate SAS Content** dialog box, you can control two aspects of the migration. First, SAS Add-In for Microsoft Office no longer provides a mechanism for automatically protecting worksheets in Microsoft Excel when you open data or generate results. For compatibility purposes, worksheet protection is removed when a worksheet is migrated. If you want to keep the worksheet protection settings, make sure you uncheck **Unprotect worksheets containing SAS content**. Second, you can select what results format you want for each result. With 2.1, the default format is **SAS Report**, not HTML. By default, migrated results are changed to use the new **SAS Report** format. The **SAS Report** format provides many advantages over HTML, including the ability to retain formatting changes made in the Microsoft Office client when refreshing results. When you refresh results for the first time, you might notice some appearance differences.

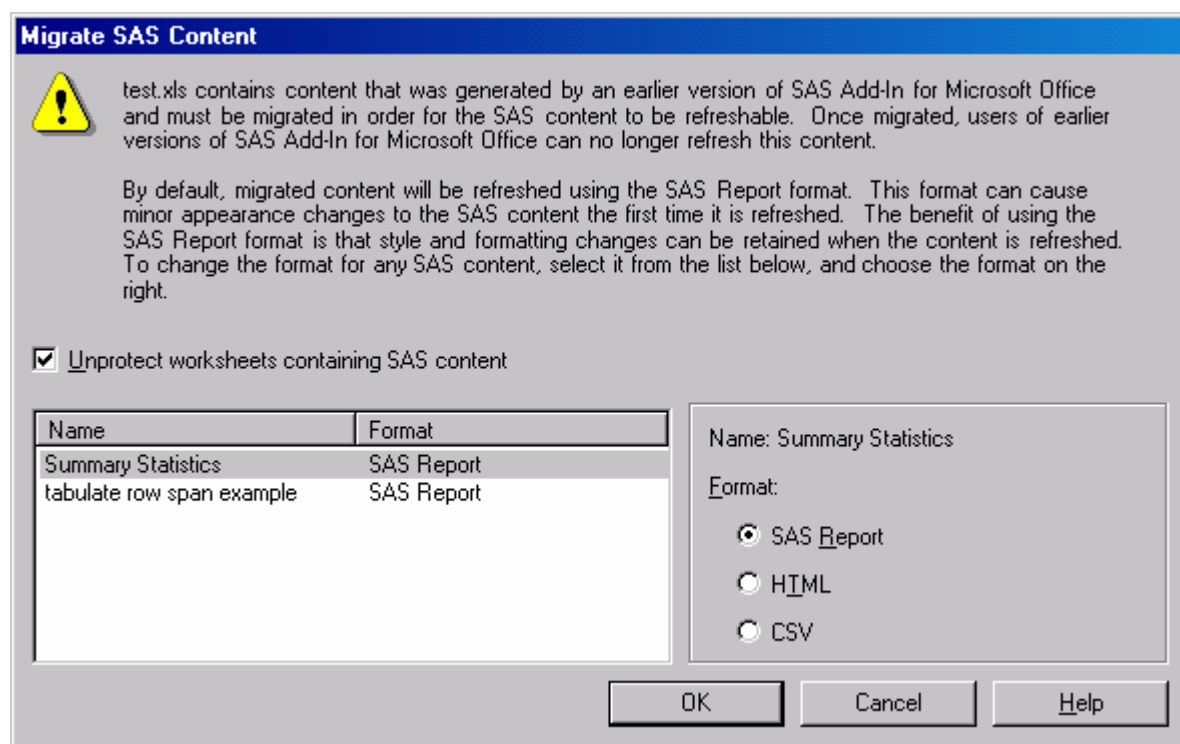


Figure 17. Migrate SAS Content Dialog Box

One additional difference to be aware of is that **Options** changes are no longer propagated when results are refreshed. In release 1.3, any changes to results format or style settings in the **Options** dialog box were applied to existing results whenever you refreshed. With release 2.1, **Options** settings are applied only when you initially create the content. If you want to modify the settings of existing results, you use the **Properties** dialog box for those results. You cannot change the results format once the results have been created.

CONTACT INFORMATION

Your comments and questions are valued and encouraged. Contact the authors:

Jennifer Clegg
Systems Developer
SAS Institute Inc.
Cary, NC 27513
Work Phone: 919-531-6711
Fax: 919-677-4444
E-mail: Jennifer.Clegg@sas.com

Eric Hill
Systems Developer
SAS Institute Inc.
Cary, NC 27513
Work Phone: 919-531-7339
Fax: 919-677-4444
E-mail: Eric.Hill@sas.com

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