

Create Excel TFLs Using the SAS® Add-in

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ABSTRACT

Creating pivot tables, figures, and listings (pivot TFLs) within Microsoft® (MS) Excel using SAS® Add-in is an easy method to rapidly generate some statistical reports. The creation of pivot TFLs is simple and it can save time and programming resources. The contents of pivot TFLs can be easily refreshed after the source data are updated. In addition, custom SAS code also can be added and run using SAS Add-In of MS Office.

This paper will present detailed processes of creating pivot TFLs using SAS Add-in technology.

INTRODUCTION

In the Pharmaceutical and Biotech industry, statistical reports dynamically reflecting the source data are often needed to support ongoing clinical studies, such as safety reports for data monitoring, event tracking for event-driven studies, data quality checking during the study conduct, etc. Creating pivot TFLs using SAS Add-in of MS Office is a simple solution for this kind of dynamic reporting.

There are many benefits using pivot TFLs. SAS Add-In for MS Office can be set up easily. The contents of the pivot TFLs can also be refreshed after the source data are updated. The individual component of the pivot TFLs can be modified. Users can trace the source data for generating the pivot TFLs. Therefore, the pivot TFLs created using SAS Add-in of MS Office can be widely used for many applications.

In this paper, we will use an example of applications and walk through the process the pivot TFL generation. The demo example will cover the following topics:

- Submit SAS code at SAS Add-In in Excel
- Set source data
- Create Pivot Table / Listing
- Create Figure
- Refresh results

SYSTEM/SOFTWARE REQUIREMENT

Software: SAS Add-in 5.1 for MS Office.
Operating system: Microsoft Windows.
SAS version: Metadata server SAS 9.2 or above in Windows or UNIX.
Skill level: All users.

PROCESS FLOW OF AN EXAMPLE

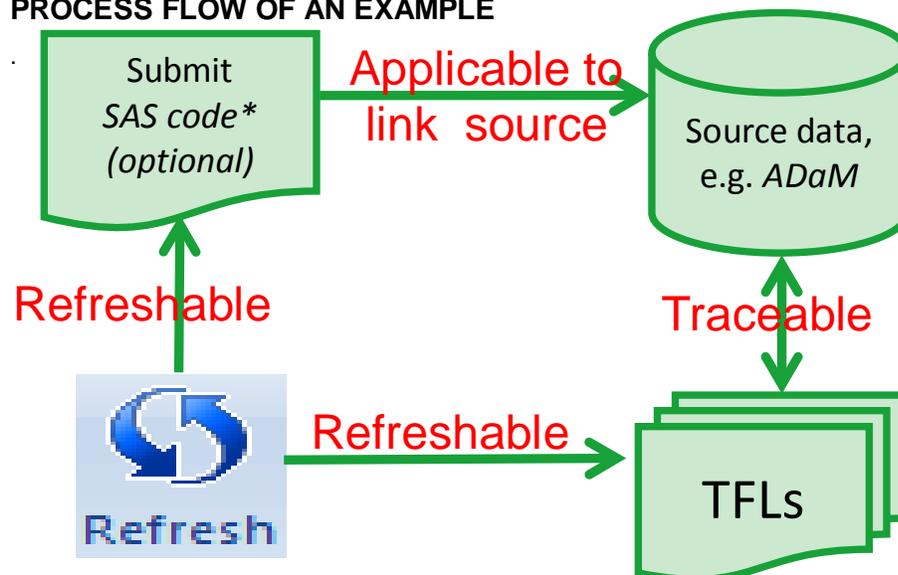


Figure 1. Process Flow of an example

* To activate Simple Code Editor, download the following dll file and save in
SASHome\SASAddinforMicrosoftOffice\5.1\Custom
<http://ftp.sas.com/techsup/download/equide/SAS.Tasks.Examples.SimpleCodeEditor.dll>

The above diagram (Figure 1) illustrates the process flow of the example application that we are using in this paper. Basically, we are using analysis datasets (ADaM) to create tables, figures, and listings (TFLs)

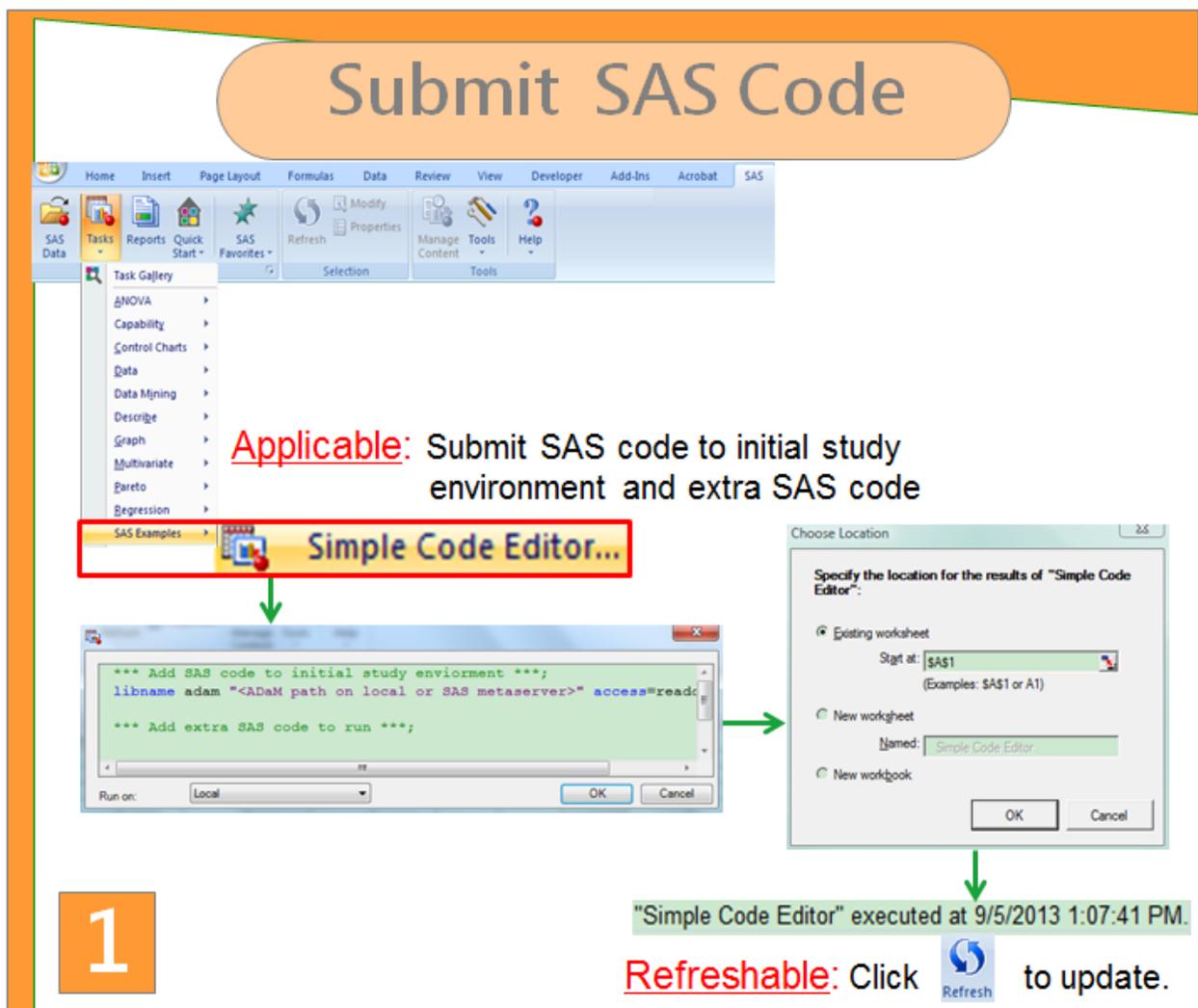
We will use the example in Figure 1 to describe individual steps for creating the pivot TFLs.

1. SUBMIT SAS CODE

If you cannot access data directly, the SAS code can be submitted into Excel via Simple Code Editor. For example, the data is located in UNIX and cannot be directly loaded to the Excel file.

If you can access data directly, for example, the data is located in your local or accessible network drive, you can skip this step and go to the next step.

From the Excel menu select **SAS** tab → **Tasks** → **SAS Examples** → **Simple Code Editor...** to write the SAS Code, click **OK** to popup a window to specify the Simple Code Editor result location, click **OK**. See Display 1

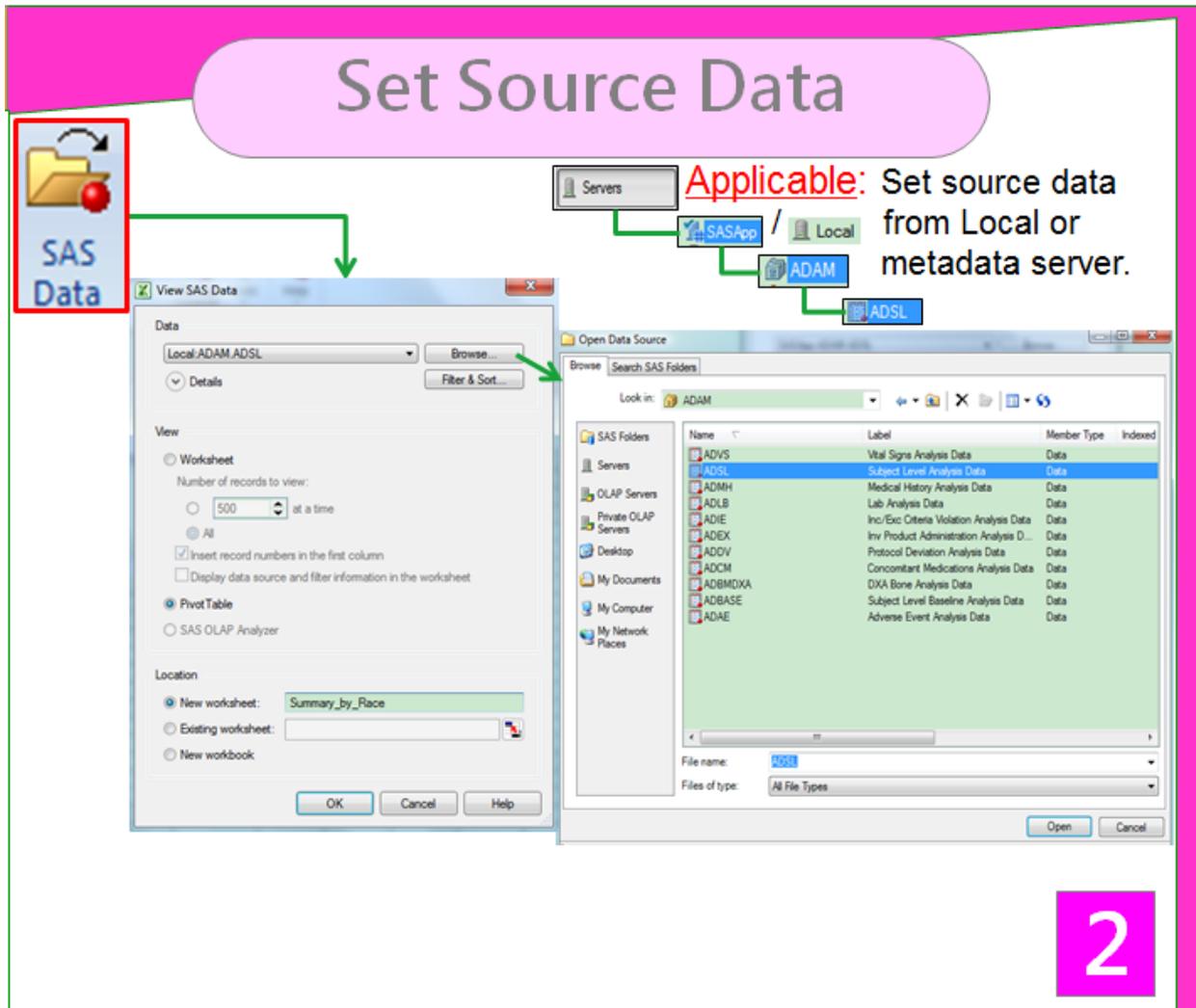


Display 1. Submit SAS Code from Simple Code Editor

2. SET SOURCE DATA

A listing worksheet or a traceable Pivot table can be created, use the interactive popup window. If you want to create a data listing, mark Worksheet instead of PivotTable in the popup window. In this example, we are creating a Pivot table.

From the Excel menu select **SAS** tab, select **Tasks** → **SAS Data**, to popup a window to select SAS data, select **Servers** → **Local** → **ADAM** → **ADSL**, Click **Open** and **OK**, See Display 2



Display 2. Select source data

3. PIVOT TABLE / LISTING

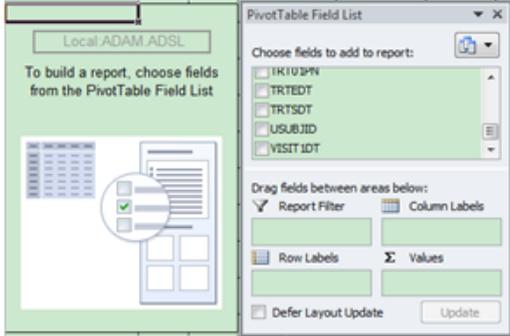
A Pivot Table report can be built by drag and drop the variables from the PivotTable Field List to the analysis areas. The following functions can be performed in the Pivot Table report:

- Use interactive settings and change table fields on the report
- Filter variables from dropdown list
- Trace the source data behind the numbers of pivot table by double clicking on the numbers

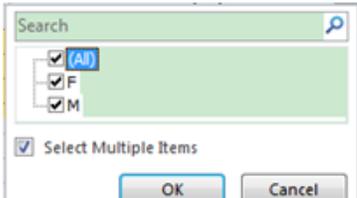
See Display 3.

3

Flexible: Set or Adjust content.



Variables are filterable by click



Drag & drop the variables



Double click to trace back

SEX	(All)				
Count of USUBJID	Column Labels				
Row Labels	SCREEN FAILURE	TRT A	TRT B	TRT C	Grand Total
ASIAN		4	4	1	
BLACK		2	6	4	
CAUCASIAN	2	9	9	11	
HISPANIC	1	2	4	5	
OTHER	1	4		1	
Grand Total	4	21	23	22	7

Traceable: List the source data.

STUDYID	USUBJID	SUBJID	RFSTDTG	RFENDTC	SITEID	AGE	AGEU	SEX	RACE	ARMCD	ARM	VISIT1DT
SASCSTDEMODATA	S003P008	P008	2008-05-13	2008-06-24	S003	33.0	YEARS	M	OTHER	A	TRT A	2008-05-13
SASCSTDEMODATA	S003P006	P006	2008-05-01T1	2008-06-11	S003	24.0	YEARS	F	OTHER	A	TRT A	2008-05-01
SASCSTDEMODATA	S002P018	P018	2008-03-27T0	2008-05-08	S002	21.0	YEARS	F	OTHER	A	TRT A	2008-03-27
SASCSTDEMODATA	S001P004	P004	2008-02-15T1	2008-03-28	S001	41.0	YEARS	F	OTHER	A	TRT A	2008-02-15

Pivot Table/Listing

Display 3. Setting Pivot table in SAS® Add-in

4. FIGURE

A figure also can be easily created in Excel file via SAS Add-in.

From the Excel menu select **SAS** tab, select **Tasks** → **Graph** → **Bar Chart Wizard**, and follow the step to setting the graph. See Display 4

The screenshot displays the SAS Bar Chart Wizard interface with four steps:

- 1 of 4 Verify Data:** Shows the data source as Local ADAM ADSL.
- 2 of 4 Assign variables to roles:** Shows 'RACE' assigned to the 'Bars' role and '(Frequency)' to the 'Bar length' role.
- 3 of 4 Specify appearance:** Shows '3D chart' checked and 'Bar category' selected for color.
- 4 of 4 Provide a title and footnote:** Shows the chart title as 'Bar Chart Wizard by Race'.

The 'Choose Data' dialog shows 'External SAS Data' selected with 'Local ADAM ADSL' as the data set. The 'Location for Results' is set to 'New worksheet: Bar Chart Wizard by Race'.

The resulting horizontal bar chart, titled 'Race', shows the frequency of different racial groups across three treatment arms:

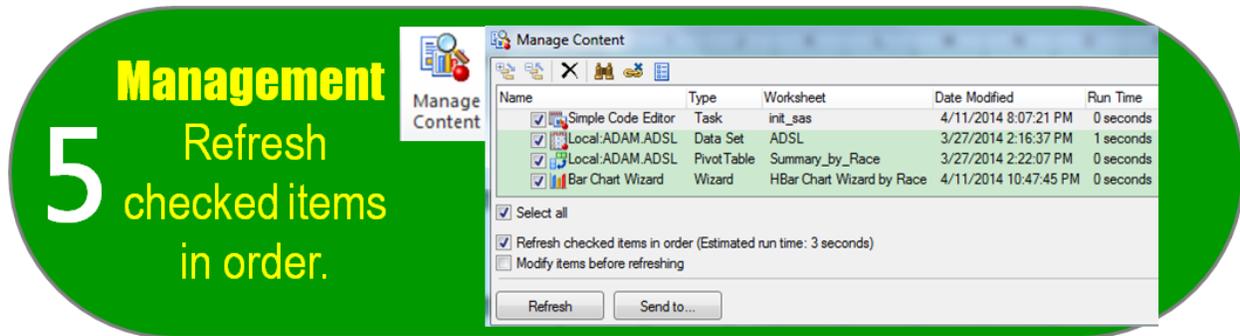
Treatment Arm	Race	Frequency
TRT A (SCREEN/FULLRE)	ASIAN	2
	BLACK	1
	CAUCASIAN	1
	HISPANIC	1
TRT B	ASIAN	4
	BLACK	2
	CAUCASIAN	9
	HISPANIC	2
TRT C	ASIAN	4
	BLACK	6
	CAUCASIAN	9
	HISPANIC	4

Display 4. Create Figure in SAS® Add-in

5. CONTENT MANAGEMENT

The contents in the Pivot TFLs can be refreshed using “Manage Content”. This is very useful feature for any statistical report that needs to be refreshed after the source data are updated. It can save programming time and resource.

From the Excel menu select **SAS** tab, select **Manage Content** to popup a Manage Content window, mark ‘Select all’ and ‘Refresh checked items in order’ and click **Refresh** to refresh them, See Display 5



Display 5. Refresh items from Manage Content

CONCLUSION

SAS® Add-in within MS Excel is an easy tool for creating TFLs for statistical reporting. There are many benefits of the Pivot TFLs created using SAS® Add-in:

- Refreshable – one time setup, the TFLs can be refreshed easily.
- Flexible – pivot content can be easily adjusted at any time.
- Traceable – the source data used in the Pivot TFLs can be easily traced.
- Useful – the technique can be used for many purposes, e.g. data monitoring, statistics verification, data quality checking, progress reporting, etc.

REFERENCES

- Josée Ranger-Lacroix. 2012. “Let SAS Play a Pivotal Role in Your Life” Ottawa Area SAS Users Society. www.oasus.ca/SAS_and_Excel_Pivot_Tables_Final.pdf
- Peter Eberhardt. 2013. “Write SAS® Code for the Perfect Pivot (Table, That Is)” PharmaSUG 2013 Conference. www.lexjansen.com/phamasug/2013/HT/PharmaSUG-2013-HT05.pdf

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