Paper 264-2012

Quick and Dirty Excel® Workbooks Without DDE or ODS

Andrea Zimmerman, Capital One, Richmond, VA

ABSTRACT

There is a simple trick using the X command in SAS® that allows you to write out your SAS data to an already formatted Excel workbook with graphs and/or pivot tables already built. This paper will describe how to accomplish this, as well as the limitations of this method.

INTRODUCTION

Frequently SAS datasets need to be delivered in Excel so that coworkers without SAS can view the data. PROC EXPORT is great for writing out SAS data and results to Excel. However the results don't look pretty. DDE or ODS can be used to format the workbook tabs just the way you want but there is a learning curve with both of those solutions. The workbook could be manually formatted, but if it needs to be repeated, that gets tedious. However, if you have an already formatted workbook and use PROC EXPORT to write to that workbook, most formatting options will be kept. Graphs and pivot tables can be built once and will adjust to the updated data. This paper will explore the possibilities and explain all that is needed for this very simple technique.

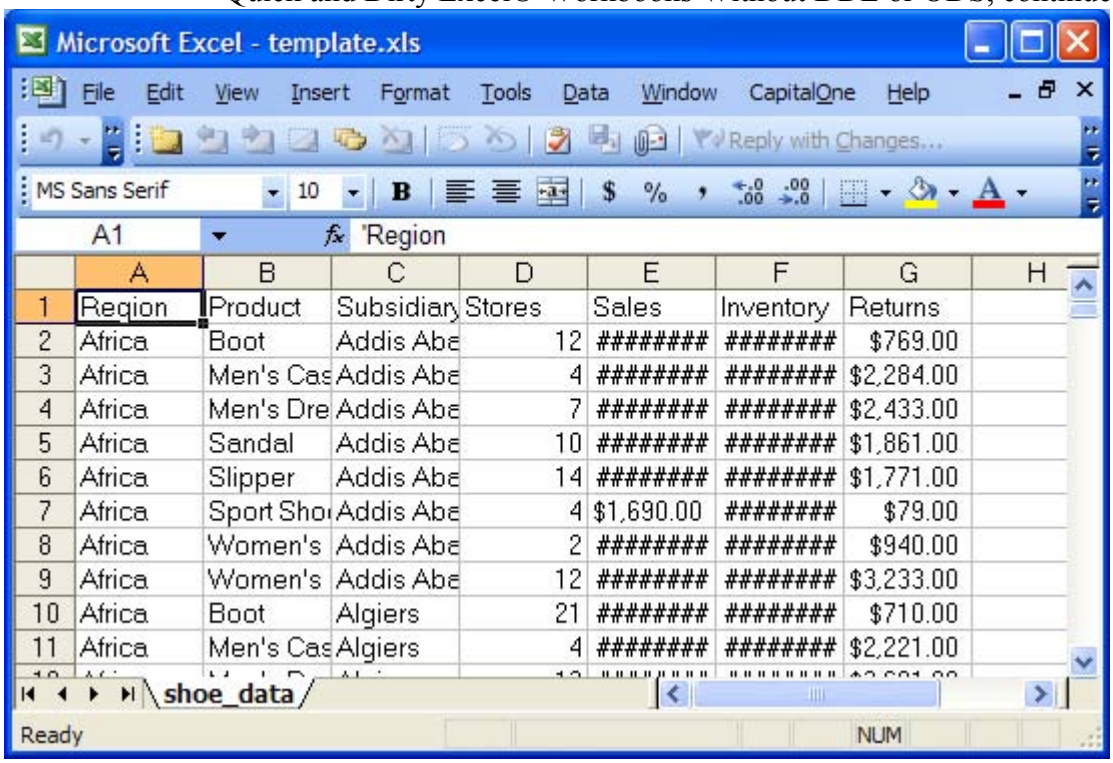
STEP ONE – PROC EXPORT THE DATA

The first thing to do create and run the PROC EXPORT code that you will use.

```
%let dir=C:\My Documents\2011 SAS paper\Excel\;
%let file=template.xls;


proc export data=sashelp.shoes
            outfile= "&dir.&file"
            dbms=excel replace;
            sheet="shoe_data";
run;

options noxsync noxwait;
%sysexec &dir.&file;
```

This will create the initial spreadsheet and the last two lines will open it in Excel.

Quick and Dirty Excel® Workbooks Without DDE or ODS, continued



	A	B	C	D	E	F	G
1	Region	Product	Subsidiary	Stores	Sales	Inventory	Returns
2	Africa	Boot	Addis Abe	12	########	########	$769.00
3	Africa	Men's Cas	Addis Abe	4	########	########	$2,284.00
4	Africa	Men's Dre	Addis Abe	7	########	########	$2,433.00
5	Africa	Sandal	Addis Abe	10	########	########	$1,861.00
6	Africa	Slipper	Addis Abe	14	########	########	$1,771.00
7	Africa	Sport Sho	Addis Abe	4	$1,690.00	########	$79.00
8	Africa	Women's	Addis Abe	2	########	########	$940.00
9	Africa	Women's	Addis Abe	12	########	########	$3,233.00
10	Africa	Boot	Algiers	21	########	########	$710.00
11	Africa	Men's Cas	Algiers	4	########	########	$2,221.00

Not very pretty is it?

STEP TWO – FORMAT AND BUILD THE WORKBOOK

There are many steps you may want to do to each page of data. Probably the first thing will be to adjust the column widths.

1. Click the upper left corner to select the whole workbook.
2. Double click just to the left of any column edge (watch for the cursor to turn into a bar with two arrows going left and right).
3. Manually adjust any columns that are too big, or may not be big enough for future data if you expect to need wider columns in the future.

You can turn on the AutoFilter option, however, you can't preselect a value.

1. Click Data.
2. Select Filter.
3. Select AutoFilter.

Freeze pane can be set wherever needed. For example, let's freeze the top row.

1. Put the cursor in cell A2.
2. Click Window.
3. Click Freeze Panes.

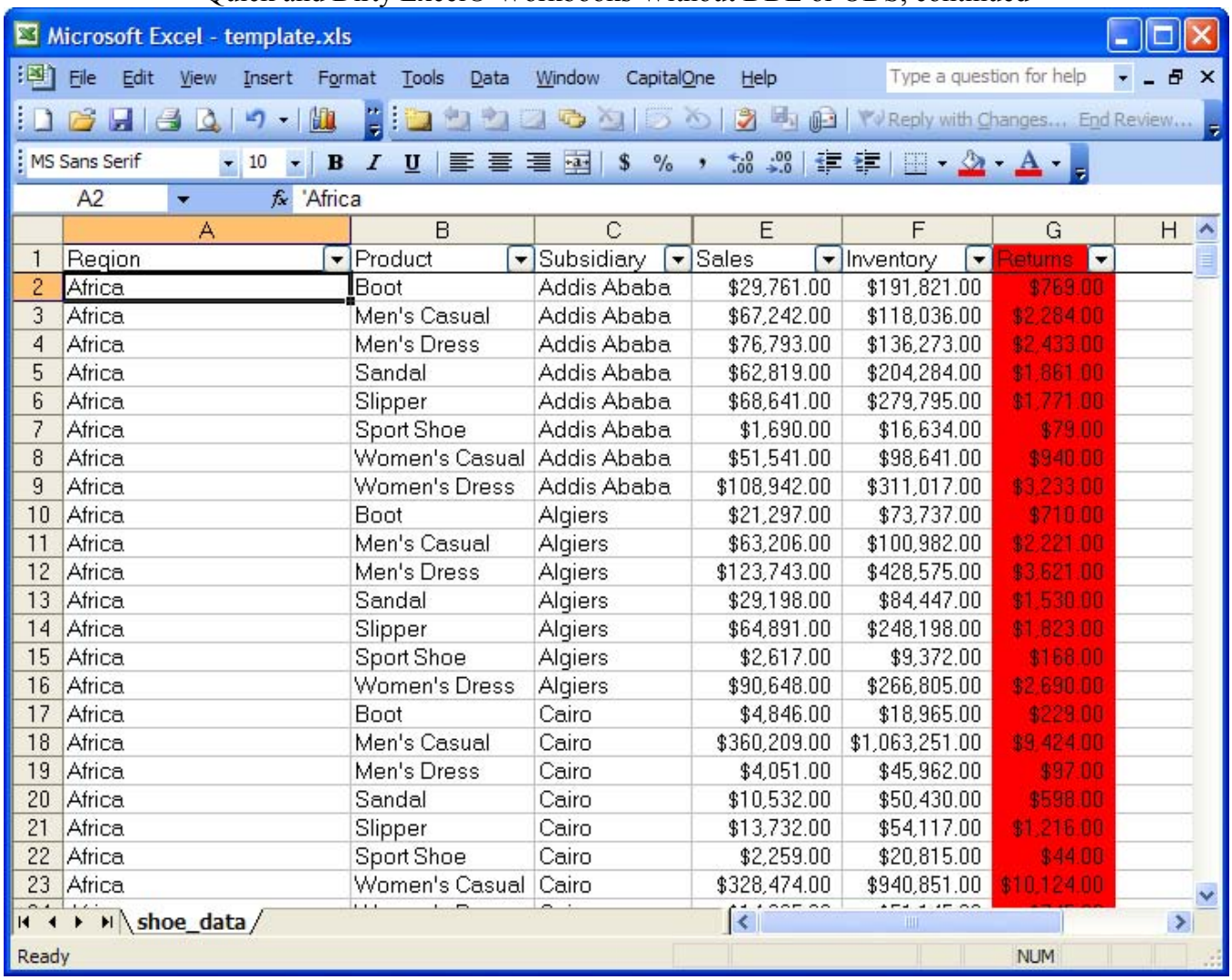
Columns can be hidden, rows cannot. In our example, let's hide the Stores column.

1. Right click the D that is the column header.
2. Select Hide.

We can color fill a particular column. For example we can make the Returns column Red.

1. Click the column header G.
2. Use the Fill Color menu item to select the color red.

Quick and Dirty Excel® Workbooks Without DDE or ODS, continued



	A	B	C	E	F	G	H
1	Region	Product	Subsidiary	Sales	Inventory	Returns	
2	Africa	Boot	Addis Ababa	$29,761.00	$191,821.00	$769.00	
3	Africa	Men's Casual	Addis Ababa	$67,242.00	$118,036.00	$2,284.00	
4	Africa	Men's Dress	Addis Ababa	$76,793.00	$136,273.00	$2,433.00	
5	Africa	Sandal	Addis Ababa	$62,819.00	$204,284.00	$1,861.00	
6	Africa	Slipper	Addis Ababa	$68,641.00	$279,795.00	$1,771.00	
7	Africa	Sport Shoe	Addis Ababa	$1,690.00	$16,634.00	$79.00	
8	Africa	Women's Casual	Addis Ababa	$51,541.00	$98,641.00	$940.00	
9	Africa	Women's Dress	Addis Ababa	$108,942.00	$311,017.00	$3,233.00	
10	Africa	Boot	Algiers	$21,297.00	$73,737.00	$710.00	
11	Africa	Men's Casual	Algiers	$63,206.00	$100,982.00	$2,221.00	
12	Africa	Men's Dress	Algiers	$123,743.00	$428,575.00	$3,621.00	
13	Africa	Sandal	Algiers	$29,198.00	$84,447.00	$1,530.00	
14	Africa	Slipper	Algiers	$64,891.00	$248,198.00	$1,823.00	
15	Africa	Sport Shoe	Algiers	$2,617.00	$9,372.00	$168.00	
16	Africa	Women's Dress	Algiers	$90,648.00	$266,805.00	$2,690.00	
17	Africa	Boot	Cairo	$4,846.00	$18,965.00	$229.00	
18	Africa	Men's Casual	Cairo	$360,209.00	$1,063,251.00	$9,424.00	
19	Africa	Men's Dress	Cairo	$4,051.00	$45,962.00	$97.00	
20	Africa	Sandal	Cairo	$10,532.00	$50,430.00	$598.00	
21	Africa	Slipper	Cairo	$13,732.00	$54,117.00	$1,216.00	
22	Africa	Sport Shoe	Cairo	$2,259.00	$20,815.00	$44.00	
23	Africa	Women's Casual	Cairo	$328,474.00	$940,851.00	$10,124.00	

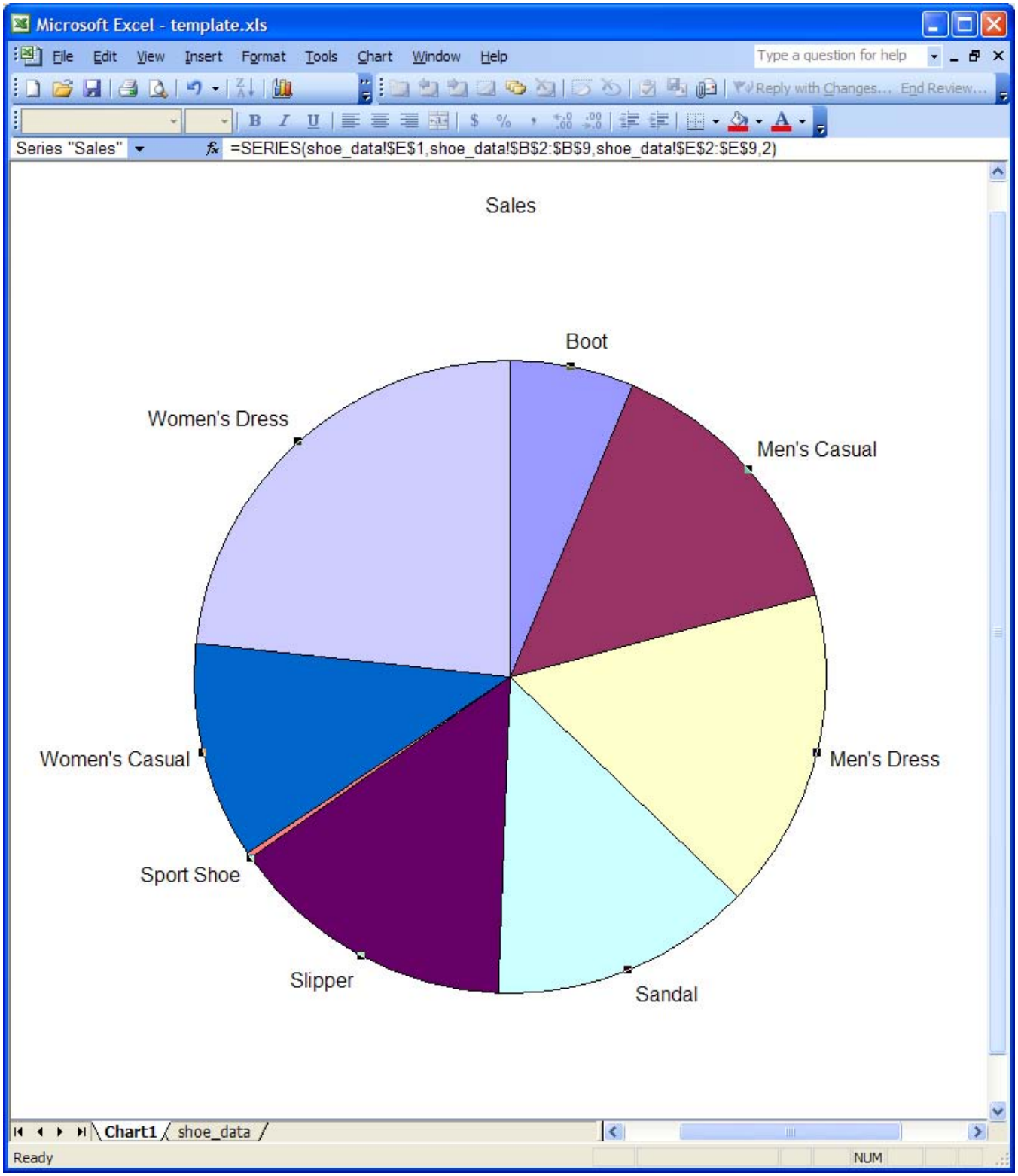
Looks much better already!

Making the first row of data bold does not work. When SAS writes to the page it will pick up that bolding and bold all rows of data.

Quick and Dirty Excel® Workbooks Without DDE or ODS, continued

GRAPHS

Graphs can be built ahead of time. Titles and legends can be either hard coded if they won't change, or they can be based on certain cells if you expect them to change from one run to the next.



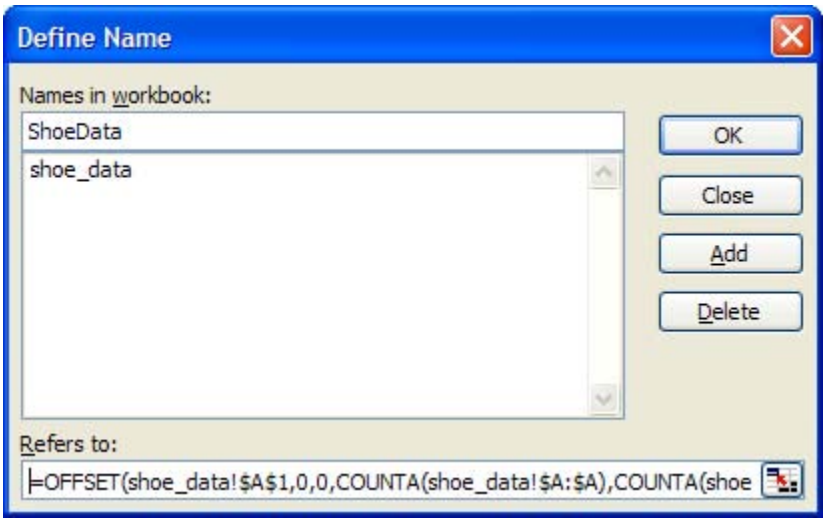
Note in the function that it is referencing data cells. Right now, this shows the sales for the Addis Ababa data since it is in rows 2 through 9.

Quick and Dirty Excel® Workbooks Without DDE or ODS, continued

PIVOT TABLES

Pivot tables can also be prebuilt. If you expect the number of rows to change from one run to the next, you can create a named range using the OFFSET function in Excel that will adjust to the amount of data. First, create a named range.

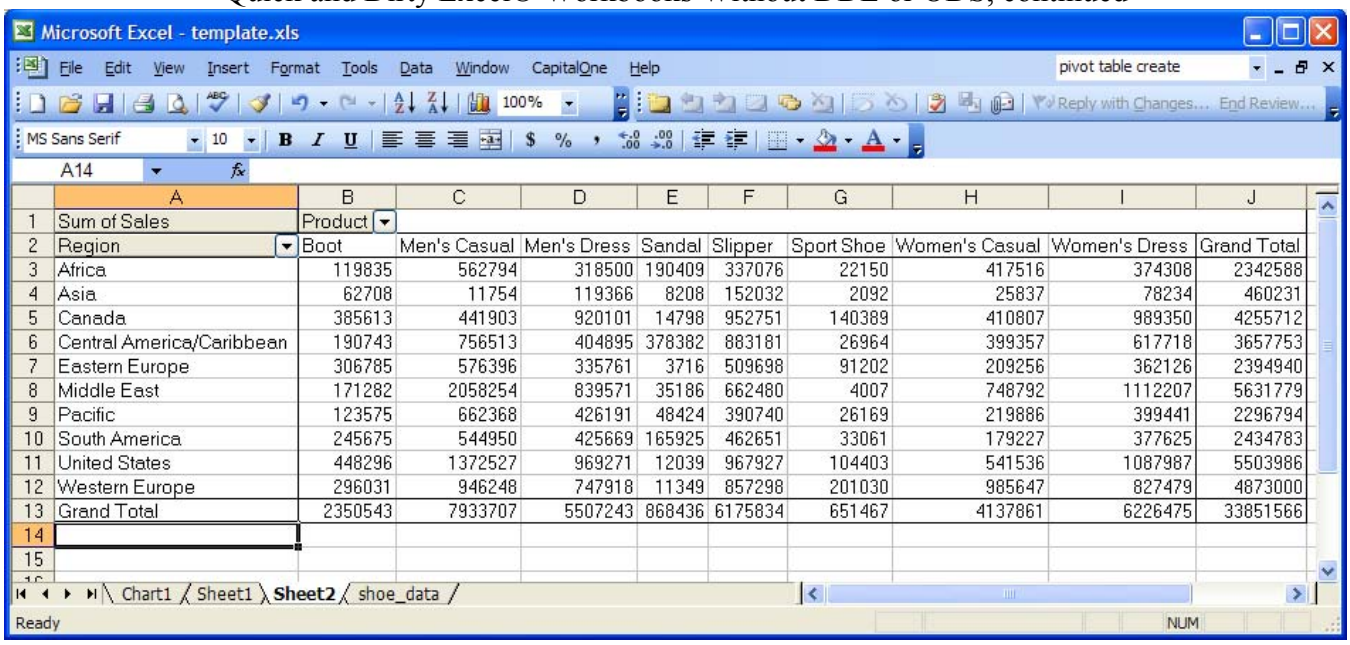
1. Click Insert.
2. Highlight Name.
3. Select Define…
4. Name the range whatever you want (For example ShoeData).
5. Type this formula in the bottom text box (assumes shoe_data is the name of the tab):
   =OFFSET(shoe_data!A1,0,0,COUNTA(shoe_data!$A:$A),COUNTA(shoe_data!$1:$1))
6. Click OK.



Now we create a pivot table using this named range.

1. Click Data.
2. Select PivotTable and PivotChart Wizard.
3. Click Next.
4. Replace the value of Range with the named range created earlier.
5. Click Next.
6. Click Finish.
7. Drag Region to be a Row Field.
8. Drag Product to be a Column Field.
9. Drag Sales to be a Data Item.

Quick and Dirty Excel® Workbooks Without DDE or ODS, continued



Microsoft Excel - template.xls

File Edit View Insert Format Tools Data Window CapitalOne Help pivot table create

MS Sans Serif 10 A14

	A	B	C	D	E	F	G	H	I	J
1	Sum of Sales	Product								
2	Region	Boot	Men's Casual	Men's Dress	Sandal	Slipper	Sport Shoe	Women's Casual	Women's Dress	Grand Total
3	Africa	119835	562794	318500	190409	337076	22150	417516	374308	2342588
4	Asia	62708	11754	119366	8208	152032	2092	25837	78234	460231
5	Canada	385613	441903	920101	14798	952751	140389	410807	989350	4255712
6	Central America/Caribbean	190743	756513	404895	378382	883181	26964	399357	617718	3657753
7	Eastern Europe	306785	576396	335761	3716	509698	91202	209256	362126	2394940
8	Middle East	171282	2058254	839571	35186	662480	4007	748792	1112207	5631779
9	Pacific	123575	662368	426191	48424	390740	26169	219886	399441	2296794
10	South America	245675	544950	425669	165925	462651	33061	179227	377625	2434783
11	United States	448296	1372527	969271	12039	967927	104403	541536	1087987	5503986
12	Western Europe	296031	946248	747918	11349	857298	201030	985647	827479	4873000
13	Grand Total	2350543	7933707	5507243	868436	6175834	651467	4137861	6226475	33851566
14										
15										

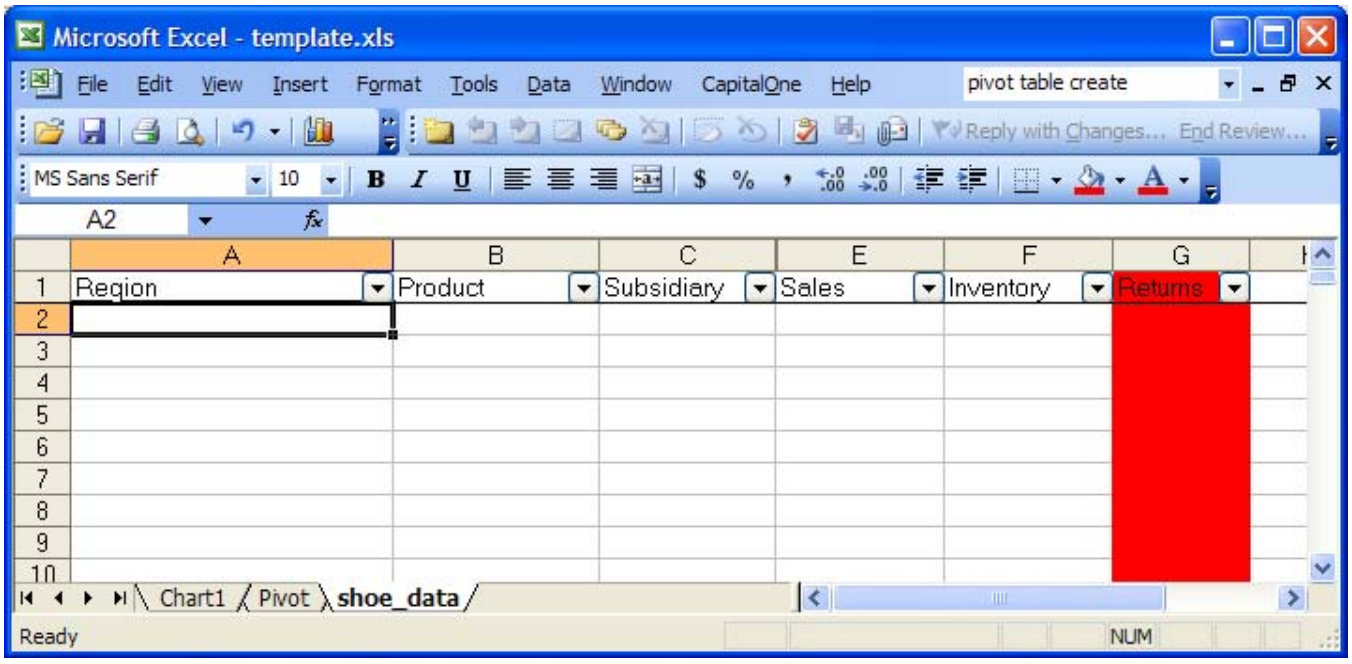
Chart1 Sheet1 Sheet2 shoe_data

Ready NUM

Our pivot table is complete.

When the data is loaded, the pivot table will need to be updated. This is done by right clicking anywhere on the pivot table and selecting “Refresh Data”.

Once you have everything formatted and built the way you want it, delete all the data in the data tab (especially if you may have fewer rows of data in the future) and save it. I recommend including ‘TEMPLATE’ in the name so you remember the purpose. Whatever tab and cell you have active when you save, is the tab that will be active when it is opened. This can be handy if you have a pivot table that will need to be refreshed. You can also include a tab in the template that provides information or instructions and make sure that anyone who opens the workbook sees that tab.



Microsoft Excel - template.xls

File Edit View Insert Format Tools Data Window CapitalOne Help pivot table create

MS Sans Serif 10 A2

	A	B	C	E	F	G
1	Region	Product	Subsidiary	Sales	Inventory	Returns
2						
3						
4						
5						
6						
7						
8						
9						
10						

Chart1 Pivot shoe_data

Ready NUM

Empty sheet. Still formatted.

Quick and Dirty Excel® Workbooks Without DDE or ODS, continued

STEP THREE – X COMMAND

In your SAS code, before the PROC EXPORT, add the following lines of code:

```
data _null_;
   call symputx("year",put(year(today()),4.));
   call symputx("month",put(month(today()),Z2.));
   call symputx("day",put(day(today()),Z2.));
run;
%let today=&year._&month._&day.;

options noxwait xsync;
x copy "&dir.&file" "&dir.shoe_data_&today..xls";
```

This will create a macro variable of today's date in the format YYYY_MM_DD and then create a copy of your template with today's date as part of the name. Then the PROC EXPORT will write out the data with your formatting already set.

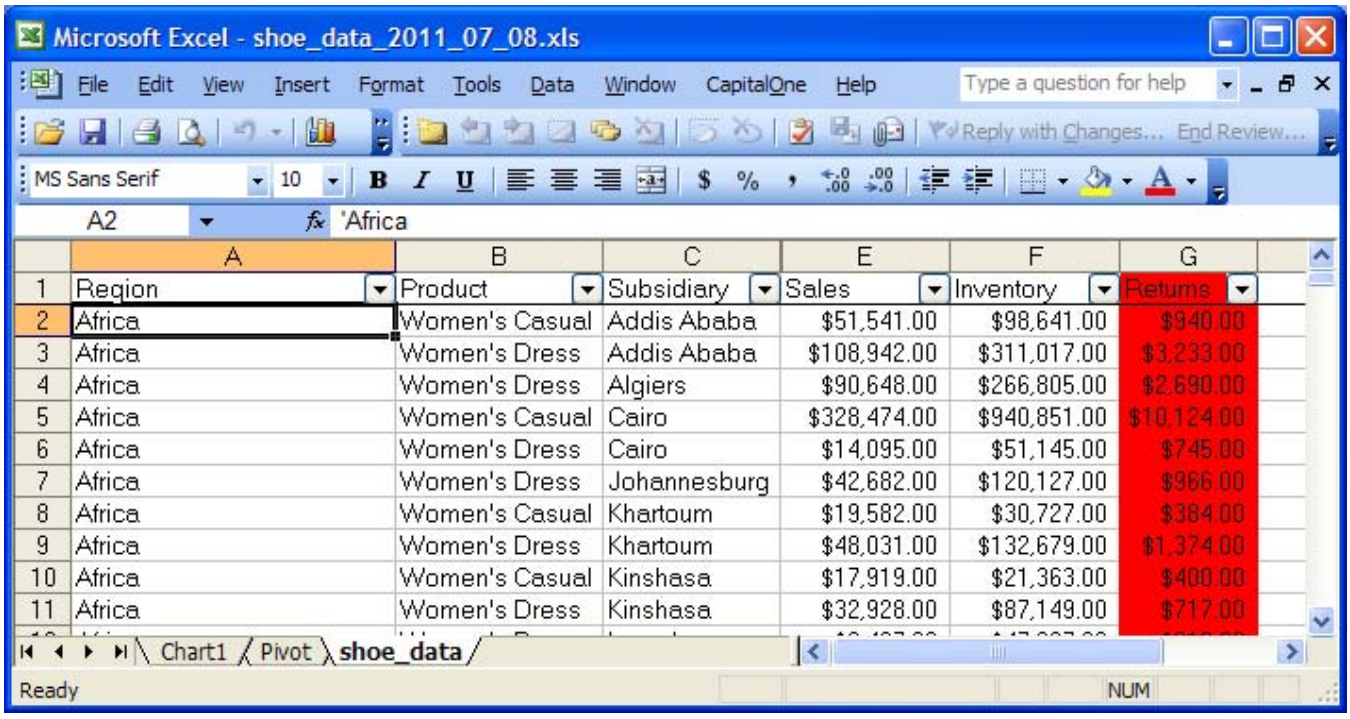
We can then limit what data is in out output dataset for a smaller report. For example we could limit our report to just the Women's products with this datastep:

```
data womens;
set sashelp.shoes;
if Product=:"Women's";
run;
```

Then we can submit these lines to create a copy of our template and write just this data to it.

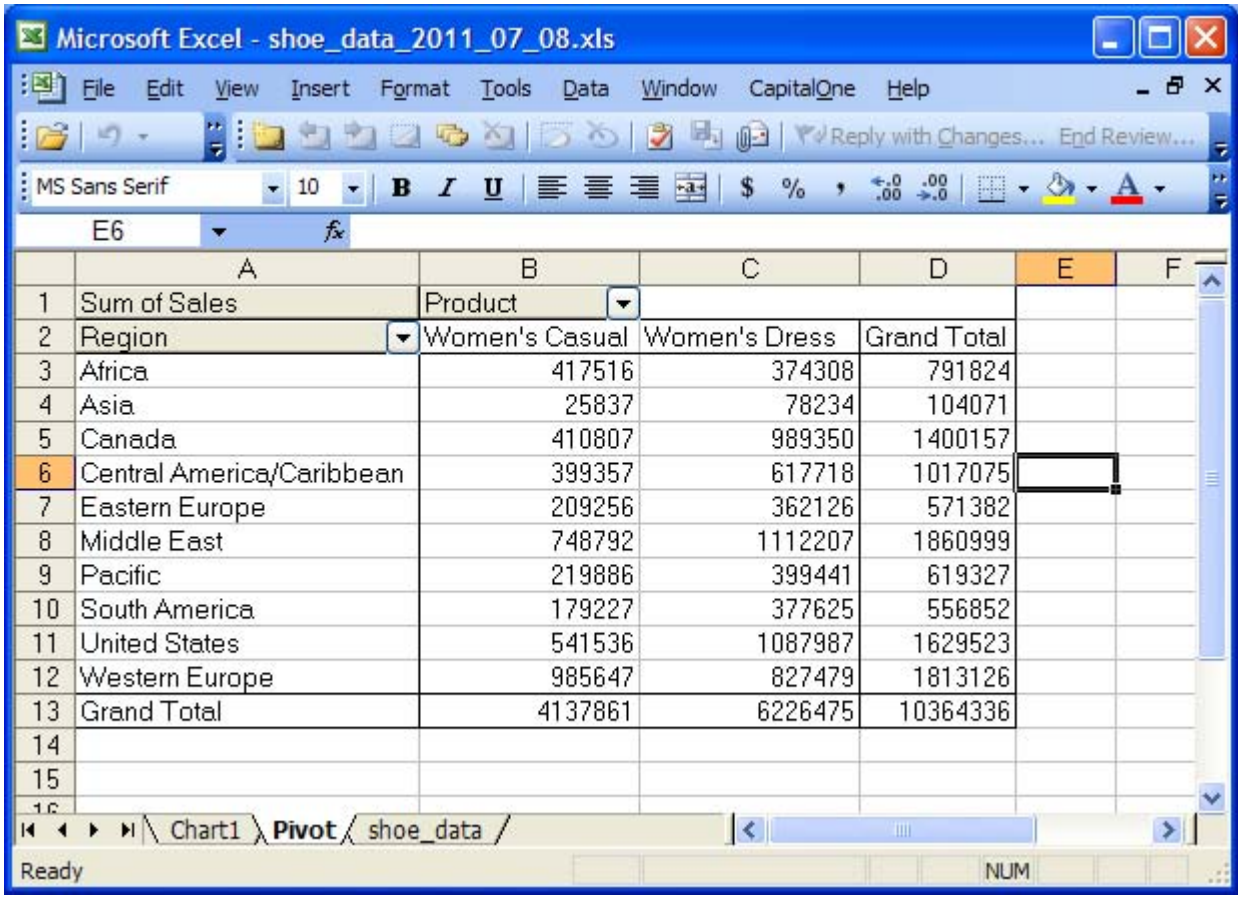
```
options noxwait xsync;
x copy "&dir.&file" "&dir.shoe_data_&today..xls";

proc export data=womens
            outfile="&dir.shoe_data_&today..xls"
            dbms=excel replace;
            sheet="shoe_data";
run;
```

And here is what we see when we first open the new workbook:



	A	B	C	E	F	G
1	Region	Product	Subsidiary	Sales	Inventory	Returns
2	Africa	Women's Casual	Addis Ababa	$51,541.00	$98,641.00	$940.00
3	Africa	Women's Dress	Addis Ababa	$108,942.00	$311,017.00	$3,233.00
4	Africa	Women's Dress	Algiers	$90,648.00	$266,805.00	$2,690.00
5	Africa	Women's Casual	Cairo	$328,474.00	$940,851.00	$10,124.00
6	Africa	Women's Dress	Cairo	$14,095.00	$51,145.00	$745.00
7	Africa	Women's Dress	Johannesburg	$42,682.00	$120,127.00	$966.00
8	Africa	Women's Casual	Khartoum	$19,582.00	$30,727.00	$384.00
9	Africa	Women's Dress	Khartoum	$48,031.00	$132,679.00	$1,374.00
10	Africa	Women's Casual	Kinshasa	$17,919.00	$21,363.00	$400.00
11	Africa	Women's Dress	Kinshasa	$32,928.00	$87,149.00	$717.00

And after refreshing the pivot table it now looks like this:



	A	B	C	D	E	F
1	Sum of Sales	Product				
2	Region	Women's Casual	Women's Dress	Grand Total		
3	Africa	417516	374308	791824		
4	Asia	25837	78234	104071		
5	Canada	410807	989350	1400157		
6	Central America/Caribbean	399357	617718	1017075		
7	Eastern Europe	209256	362126	571382		
8	Middle East	748792	1112207	1860999		
9	Pacific	219886	399441	619327		
10	South America	179227	377625	556852		
11	United States	541536	1087987	1629523		
12	Western Europe	985647	827479	1813126		
13	Grand Total	4137861	6226475	10364336		
14						
15						

LIMITATIONS

Coloring of cells can be hit and miss. When coloring a whole column, there can be issues with cells below blank cells. You can't use SAS to do traffic lighting, but you can create conditional formats in Excel to accomplish the same thing. Just make sure to apply them to all the cells you might want.

Borders can also be troublesome, especially if future runs will have more rows or columns. VBA macros can overcome this.

Bold causes issues as well. SAS will carry the bold down the whole column if there are blanks at the top which is likely not what you want.

Charts will reflect new data immediately, but pivot tables will have to be refreshed. It is possible to write a VBA macro that will refresh the pivot table any time the workbook is opened. Then you don't have to worry about anyone forgetting to refresh the pivot table. But, this does bring along some overhead since it will refresh every time it is opened even if it doesn't need to be refreshed again.

CONCLUSIONS

This method doesn't have all the grace and finesse of DDE or ODS and it does have some limitations. But it's very fast to learn and master. I find that for the majority of my reporting needs it is more than sufficient. With a little VBA programming or conditional formatting I can overcome any limitations that I've discovered. If those are tools you already know, then this is a real time saver.

ACKNOWLEDGMENTS

SAS and all other SAS Institute Inc. product or service names are registered trademarks or trademarks of SAS Institute Inc. in the USA and other countries. ® indicates USA registration.

Other brand and product names are registered trademarks or trademarks of their respective companies.

I'd like to thank the VASUG members and officers for their support as well as my team and manager at Capital One for allowing me the opportunity to share my knowledge.

CONTACT INFORMATION

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

Andrea Zimmerman
Capital One, Inc.
15000 Capital One Drive
Richmond, VA 23228
Work Phone: 804-284-7681
Email: andrea.zimmerman@capitalone.com
Twitter: ANWZimmerman