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.

```sas
%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

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.

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.
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):
   \[ =OFFSET(shoe_data!$A$1,0,0,COUNTA(shoe_data!$A:$A),\text{COUNTA}((shoe\_data!$1:$1))) \]
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.
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.

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:

```sas
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 our output dataset for a smaller report. For example, we could limit our report to just the Women's products with this datastep:

```sas
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.

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

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

![Excel Pivot Table](image)

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

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