

A Lazy Way To Put Charts And Data Together On The Web

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Introduction

Most every SAS user can create reports from SAS using techniques such as PROC SUMMARY, PROC TABULATE or PROC FREQ. And probably also create nice looking charts using PROC CHART or PROC GCHART. What if you have many users who ask for reports on their piece of the business frequently, and most of the reports are similar? You automate somehow... write a program that does the same set of reports for different pieces of the business at the same time. But you usually don't want to distribute the whole lengthy report to everyone, because they don't want all of it. So you put it someplace on your computer network where everyone can go get their piece when they want it.

This is a perfect use for the company Intranet. But if you are like me and don't know anything about HTML, or how to use some of the HTML generating software it could be a problem.

Our Software Situation

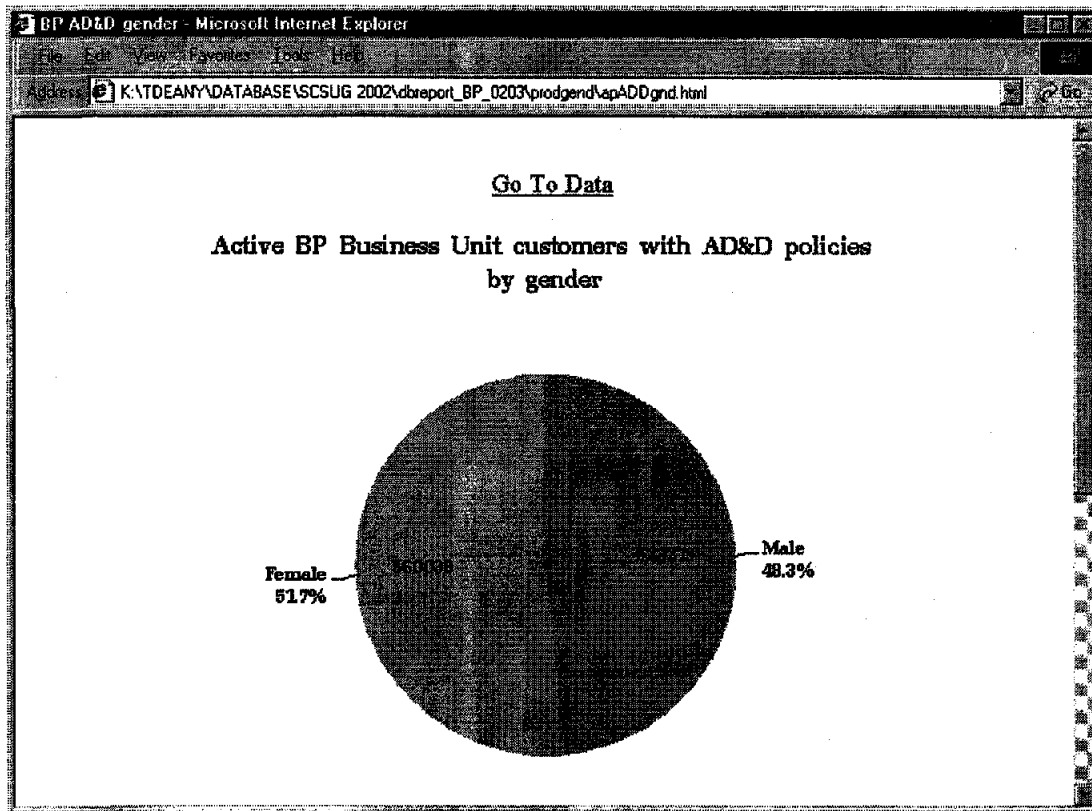
We have a Unix based database that contained our data and produces text reports. Although the database is fast and handles large volumes of data, it isn't fancy so it doesn't do graphics. The text reports are small files and can quickly and easily be transported to a PC or Mainframe. I chose my text reports to be created as comma delimited instead of fixed length, but either format will do.

Our company had a web publishing tool (Front Page) and people who were proficient at it. My initial effort was to use PC SAS to produce charts from the text reports and have the Front Page people use Front Page to create web 'Frames' that brought in both the SAS charts, the text reports and also the links we wanted between them and to our web site. What we didn't like was that they had to create about 3 HTML files for each pair of charts and text reports. It was just a lot of files to create and maintain. So I decided to look into what could be done with Base SAS in terms of minimizing the number of files and automating the creation of those files.

How I Got This To Work

I'm pretty good at teaching myself new SAS techniques by following examples in the manuals, but the ODS HTML statement was just too different for me to pick up cold. I made a few stabs at it, but couldn't even diagnose what I was doing wrong. So I went to plan B, which was to ask around to see if anyone else knew anything about the ODS statement. Most of the other SAS users in the company didn't need to create HTML, but we were fortunate enough to have a SAS contractor working with us at the time who had been generating some HTML reports using mainframe SAS. He gave me a working program. I'd hit paydirt! (Many thanks to Paul Morton)

So I modified his program to work with my data and once I got that working I modified it again to work from PC SAS instead of the Mainframe. Mainframe costs are high and I didn't want to have to transfer files to and from the mainframe. (What can I say? I'm lazy.) Being even more lazy, I decided I wanted to have one HTML file for each report that would show both the chart and the data, with links that jump between the chart and data and also links that jump to other places on our web site. The following example is one such file.



BP AD&D gender - Microsoft Internet Explorer

Address: file:///K:/TDEANY/DATABASE/SCSUG%202002/dbreport_BP_0203/prodgend/apADDgnd.html#data

[Go To Chart](#)

Active BP Business Unit customers with AD&D policies
by gender

Gender	Count	Percent
Female	560,038	51.7
Male	523,219	48.3
Unknown	0	0.0
TOTAL	1,083,257	100.0

- Using March 2002 Month end Data

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[Pagemaster](#)

The Front Page user showed me how to see the source code for the web page and interpreted what the HTML tags were doing. I bought a book about creating Web pages at a book fair to help decipher some of the HTML I saw. The book is "Creating Cool Web Pages, An HTML Guide for Kids". The author is Lynda Tourloukis and it is published by Publications International, Ltd. Any basic HTML guide that is easy to understand would be a good reference. Figuring I knew just enough to be dangerous now, I signed up for the ODS class through the SAS institute. It really helped me understand what I was doing.

How The Web Page Is Put Together

First the chart of the data is stored as a '.gif' file. Then, the text report of the data is the basis for the HTML page in my SAS program. The links to the other department web pages are put in as a footnotes to the text report. The top and middle links and also the '.gif' file are embedded in titles to the text report.

What You Really Want To See - The SAS Program

I set up the bulk of the program as a Macro to be able to re-run the same code for each different product. For the report of product by age the macro is called PRODAGE.

You'll see the products listed at the bottom with a 3 character code that stands for the product and some text that gets put in the title. The 3 character code is used to point to the file with the data and also create the '.gif' file name and the '.html' file name.

The macro calls look like this:

```
%PRODAGE (ADD,AD&D) ;
%PRODAGE (AHP,AHIP) ;
%PRODAGE (CAN,Cancer) ;
%PRODAGE (CI,Credit Insurance) ;
%PRODAGE (DIS,Disability) ;
%PRODAGE (GBL,GBL) ;
%PRODAGE (HPP,Health Protection Plus) ;
%PRODAGE (HLX,Health Extras) ;
%PRODAGE (LPL,Leisure Plus) ;
%PRODAGE (MPL,Motor Plus) ;
%PRODAGE (PET,Pet Club) ;
%PRODAGE (PPL,Plan Plus) ;
%PRODAGE (QST,Quest Products/Services) ;
%PRODAGE (TRM,Term) ;
%PRODAGE (UWT,Underwritten Term) ;
%PRODAGE (WHL,Whole Life) ;
%PRODAGE (ING,All Insurance) ;
%PRODAGE (NIC,All Membership Services) ;
```

Here is the SAS program that created the age reports by product.

```
* PRODAGE.SAS FOR BP ;
*-----;
* SET PROGRAM OPTIONS AND GRAPH OPTIONS. ;
*-----;
%include 'k:\tdeany\Webchart SAS programs\BP\params.sas';

%let readdirect=k:\tdeany\Data&YYMM.\ADMS BP\by product\;
%let writepath=k:\tdeany\dbreport_BP_&YYMM.\prodage;

options mprint errors=1 ;
```

```

goptions reset=global    device=gif
      htitle=4 pct    htext=3 pct
      hsize=7.00 in   vsize=4.50 in
      ftitle=zapfb    ftext=zapfb
      border          cback=white
      ;
run;

*-----;
%MACRO PRODAGE(product,prodname);

* ---- read in data -----;
DATA FROM ;
INFILE "&readdirect.ERBP_product_&product._ageband.data" DSD FIRSTOBS=2 end=eof;
LENGTH ageband $20;
retain totalsub totalall;
INPUT ageband $ count pct;
IF ageband ne ' ' ;
if ageband ne '00: unknown ' then totalsub+count;
totalall+count;
if eof then lastrec=1;
match=1;
if count=0 then gcount=1;
      else gcount=count;
RUN;

* ---- get total fields -----;
data SUMM (drop=ageband count gcount pct lastrec);
Set from;
match=1;
if lastrec=1;
run;

Data FROM (drop=totalsub totalall);
Set FROM;
Run;

* ---- create rows with the totals -----;
proc sort data=FROM; by match; run;
proc sort data=SUMM; by match; run;

data FROM2;
merge FROM SUMM;
by match;
pctnew=count/totalsub*100;
if ageband eq '00: unknown ' then pctnew=.;
run;

* ---- create data for chart (w/o unknowns and totals) ---- ;
DATA FINALCHT;
set FROM2;
if ageband ne '00: unknown ' ;
run;

data range (keep=match count);
set finalcht;
run;

proc sort data=range; by count; run;

data rangemax ;
set range end=eof;
if eof;
rename count=maxcount;
run;

data finalcht;
merge finalcht rangemax;
by match;
run;

* ---- create data for table (append totals) ----- ;

```

```

data SUMMall;
set SUMM;
ageband='TOTALS with unknowns';
count=totalall;
run;

data SUMMsub;
set SUMM;
ageband='TOTALS w/o unknowns ';
count=totalsub;
run;

data FINALTBL;
set FROM2 SUMMsub SUMMall;
run;

* ---- create percent label on bars, color=black ----- ;
data anno;
length function color style $ 8;
retain function 'label'
      color    'cyan'
      when     'a'
      style    'zapfb'
      xsys ysys '2'
      position '5'
      size     3
      hsys     '3';
set FINALCHT;
midpoint=ageband;
text=left(put(pctnew,5.1)||'&');
if text='. %' then text='0%';
if count=0 and maxcount=0 then y=1;
else if count<=maxcount/20 then y=maxcount/20;
      else y=gcount;
RUN;

* ---- OPEN HTML DESTINATION FOR ODS OUTPUT ----- ;
ods html body='body'      (url=none)
      path="&writepath." (url=none)
      style=Styles.beige
      rs=none;

* ----- ;
* CREATE BAR CHARTS. ;
* ----- ;

* ---- create the chart ----- ;
* ---- frame color=vlib (very light green) ----- ;
* ---- axis color=black, bar color=vlib(very light blue) ---- ;
axis1 label=NONE value=(height = 3 pct angle=-70 rotate=0 color=black);
axis2 label=NONE value=(height = 3 pct color=black);
pattern1 value=solid color=vlib;

* ---- title color=black ----- ;
title1 color=black height=4 pct "Active BP Business Unit customers with &prodname. policies";
title2 color=black height=4 pct 'by ageband';
title3 color=black height=3 pct '(not including unknowns)';
title4 ;
footnote1 ;
footnote2 ;
footnote3 ;
footnote4 ;
footnote5 ;

proc gchart data=FINALCHT;
vbar ageband/ freq=gcount
      cframe=vlib
      annotate=anno
      maxis=axis1
      raxis=axis2
      name="ap&product.age";

```

```

;
run;
ods html close;

*-----;
* CREATE TABLES. ;
*-----;

ods html body="ap&product.age.html"
(title="BP &prodname agebands" url=none)
path="%writepath." (url=none)
style=Styles.minimal;

* ---- title color=vigb (vivid greenish blue) -----;
title1 "<a name='chart'>&nbsp;</a> <a href='#data'>Go To Data</a>"
      "<p align='center'><IMG SRC=ap&product.age.gif></p>";
title2 "<p></p><a name='data'>&nbsp;</a><a href='#chart'>Go To Chart</a>" ;
title3 color=vigb height=4 pct "Active BP Business Unit customers with &prodname. policies";
title4 color=vigb height=4 pct "by ageband";

footnote1 color=vigb height=2 pct justify=left "Using &edate month end data ";
footnote2 color=vigb height=2 pct justify=left "Using current age";
footnote3 color=vigb height=2 pct justify=left "Date of birth obtained from Member Master";
footnote4

'<p align="center">
| <A HREF="http://starnet/departme/mktgsvcs/default.htm">Marketing Services Home</A>
| <A HREF="http://starnet/departme/mktgsvcs/Reports/reports.htm">Database Reports</A>
| <A HREF="http://starnet/departme/mktgsvcs/Reports/reports_BP.htm">BP Business Unit Reports</A>
| <A HREF="http://starnet">StarNet</A>|</p>';
footnote5
'<p>|<A HREF="mailto:yourname@AegonUSA.com">Pagemaster</A>|</p>';

data FINALTBL;
set FINALTBL;
file print ods=(variables=(ageband count pct pctnew ));
put _ods_;
format count comma10. pct pctnew 5.1;
label pct='Percent';
label pctnew='Percent w/o unknowns';
label count='Count';
label ageband='Age Ranges';
run;

* close the html destination ;
ods html close;

%MEND PRODAGE;
*-----;
* -----;
* call the macro program for each product ;
* -----;

%PRODAGE(ADD,AD&D);
%PRODAGE(AHP,AHIP);
%PRODAGE(CAN,Cancer);
%PRODAGE(CI,Credit Insurance);
%PRODAGE(DIS,Disability);
%PRODAGE(GBL,GBL);
%PRODAGE(HPP,Health Protection Plus);
%PRODAGE(HLX,Health Extras);
%PRODAGE(LPL,Leisure Plus);
%PRODAGE(MPL,Motor Plus);
%PRODAGE(PET,Pet Club);
%PRODAGE(PPL,Plan Plus);
%PRODAGE(QST,Quest Products/Services);
%PRODAGE(TRM,Term);
%PRODAGE(UWT,Underwritten Term);
%PRODAGE(WHL,Whole Life);
%prodage(ING,All Insurance);
%prodage(NIC,All Membership Services);

*-----;

```

I'm So Lazy I Don't Even Want To Submit All The Programs Separately

Usually I run ad-hoc programs, one time only. But these programs were to run on a monthly basis and there were 11 programs per business partner. I initially set up 5 business partners and then added 5 more one by one. I got really bored running all the programs so I looked into setting up batch processing on the PC for each business partner. For this example generic business partner I set up a plain ascii text file on the PC called allbp.bat that contained the following statements. To run all I do is double click on the file icon.

```
"C:\PROGRAM FILES\SAS INSTITUTE\SAS\V8\SAS.EXE" -SYSIN "K:\TDEANY\DATABASE\Executive Reports\Webchart
SAS programs\BP\prodage.sas" -NOSPLASH -ICON
"C:\PROGRAM FILES\SAS INSTITUTE\SAS\V8\SAS.EXE" -SYSIN "K:\TDEANY\DATABASE\Executive Reports\Webchart
SAS programs\BP\prodclus.sas" -NOSPLASH -ICON
"C:\PROGRAM FILES\SAS INSTITUTE\SAS\V8\SAS.EXE" -SYSIN "K:\TDEANY\DATABASE\Executive Reports\Webchart
SAS programs\BP\prodgend.sas" -NOSPLASH -ICON
"C:\PROGRAM FILES\SAS INSTITUTE\SAS\V8\SAS.EXE" -SYSIN "K:\TDEANY\DATABASE\Executive Reports\Webchart
SAS programs\BP\prodinc.sas" -NOSPLASH -ICON
"C:\PROGRAM FILES\SAS INSTITUTE\SAS\V8\SAS.EXE" -SYSIN "K:\TDEANY\DATABASE\Executive Reports\Webchart
SAS programs\BP\prodltv.sas" -NOSPLASH -ICON
"C:\PROGRAM FILES\SAS INSTITUTE\SAS\V8\SAS.EXE" -SYSIN "K:\TDEANY\DATABASE\Executive Reports\Webchart
SAS programs\BP\prodmopr.sas" -NOSPLASH -ICON
"C:\PROGRAM FILES\SAS INSTITUTE\SAS\V8\SAS.EXE" -SYSIN "K:\TDEANY\DATABASE\Executive Reports\Webchart
SAS programs\BP\prodnpay.sas" -NOSPLASH -ICON
"C:\PROGRAM FILES\SAS INSTITUTE\SAS\V8\SAS.EXE" -SYSIN "K:\TDEANY\DATABASE\Executive Reports\Webchart
SAS programs\BP\prodnprd.sas" -NOSPLASH -ICON
"C:\PROGRAM FILES\SAS INSTITUTE\SAS\V8\SAS.EXE" -SYSIN "K:\TDEANY\DATABASE\Executive Reports\Webchart
SAS programs\BP\prodseg.sas" -NOSPLASH -ICON
"C:\PROGRAM FILES\SAS INSTITUTE\SAS\V8\SAS.EXE" -SYSIN "K:\TDEANY\DATABASE\Executive Reports\Webchart
SAS programs\BP\prodstat.sas" -NOSPLASH -ICON
"C:\PROGRAM FILES\SAS INSTITUTE\SAS\V8\SAS.EXE" -SYSIN "K:\TDEANY\DATABASE\Executive Reports\Webchart
SAS programs\BP\Total.sas" -NOSPLASH -ICON
```

Conclusion

Taking a little time to learn about the Output Delivery System (ODS) in Base SAS can help you quickly generate reports that can be published to the web. In this case it saved a lot of work for our Front Page people because they didn't have to set up and maintain so many files/frames. Running the SAS programs in batch saves me time; I can create these files in a few hours instead of babysitting the programs over a couple of days.

These reports provide basic demographic information about various pieces of our markets. It's useful to market managers who are looking to understand their customers and grow their business. It's useful to our operations people who may want to know what size population to expect for certain campaigns. We also find that, with good publicity of our web site, more people use the reports than just the original requestors and it cuts down on our ad-hoc work.

Contact Information

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