

The Beauty of OUT2HTML with Proc Report

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ABSTRACT

Using Proc Reports to Create HTML pages via % OUT2HTML is very easy. This paper describes how Suntrust Bank utilizes this SAS tool to provide its internal customers from over 3600 Bank Branches with product information via the WEB.

INTRODUCTION

The use of Proc Reports is widely accepted as an excellent report generator. Many SAS programmers have wanted to create these reports out on the WEB. The publication of these reports on the Intranet has enabled the business analysts to quickly review the results.

Suntrust Bank developed the weekly open/closed report to closely monitor its growing deposits. The report provides information on deposit account activity from a holding company view at its highest level to a branch view at its lowest level. This type of information will help management understand the weekly trends and performance in deposit product balances. Branch managers can review the state of deposits for their holding company, state, region, division, state, and branches.

Version 8 of SAS has an HTML formatting macro called %OUT2HTML to produce these Reports out to the WEB without having to know a large amount of HTML(Hypertext Markup Language). This paper focuses on how Suntrust Bank created over 3600 branch reports on the Intranet, as well as, little HTML tidbits that can make the report more attractive.

HTML FORMATING TOOLS

C:\temp\PRE105182001\DepMA0046.html - Microsoft Internet Explorer

FileEditViewFavoritesToolsHelp

BackForwardStopRefreshHomeSearchFavoritesHistoryMailPrintEditDiscussGoLinks

AddressC:\temp\PRE105182001\DepMA0046.html

SUNTRUST - Bank - Miami
Branch - 0046 "CUTLER RIDGE"
Personal Deposits Open/Close Weekly Report
Week Ending: 05/18/2001
Note: All balances are in 000's

Total Accounts

1 Change

Week

PRIME

Balance

2 Change

Week

PRIME

Balance

3 Change in

Week

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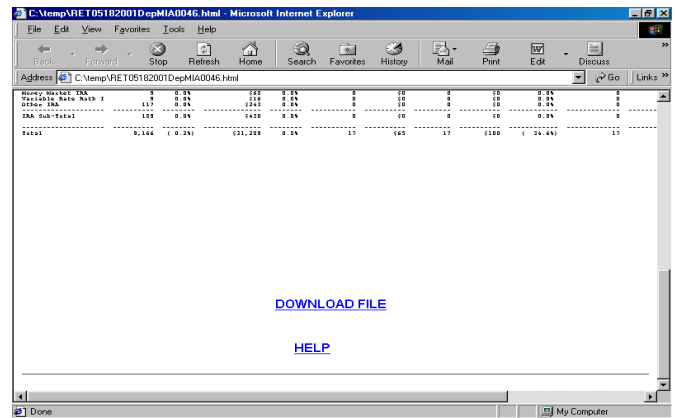
PRIME

Balance

Done

My Computer

PICTURE 1



PICTURE 2

HTML Formatting Tools are a group of SAS macros that consist of (%OUT2HTML, %DS2HTML, and %TAB2HTML). The collection of macros enable the programmer to format and save SAS output for viewing in a WEB browser. The macros assign valid HTML tags creating HTML files. The HTML files that are created are static pages which can be pushed to the Intranet Server. Once on the Intranet server the SAS output can be viewed. The macro %OUT2HTML is a great formatting tool to get started in creating HTML pages. PICTURES 1 and 2 are HTML examples using %OUT2HTML.

SOURCE CODE FOR PICTURES 1 and 2:

```
/* use FORMCHAR='|----|+|---+|=|<>*' otherwise
characters that you use may look unusual depending on
your browser and the operating system used */
```

```
options ls=195 missing = '0' ps=100 nodate nonumber
FORMCHAR='|----|+|---+|=|<>*';
```

```
data bccom;
set wext.bc wext.cdabc;
format nord 8.;
nord = prodord;
run;
```

```
data accom;
set wext.ac wext.cdac;
format nord 8.;
nord = prodord;
run;
```

```
proc sort data=bccom;
by acctbank grprod nord ;
run;
```

```
proc sort data=accom;
by acctbr grprod nord ;
run;
```

```
/* used for date in the title of the proc
report */
data _null_;
x=&lastfri.;
```

```

call symput('dttitle',put(x,mmdyy10.));
run;

/* create proc format bank name commercial
data bktabl(keep = acctbank bankname);
set bccom(keep=acctbank bknam);
bkn = substr(bknam,1,3);

if bkn in ('STB') then do;
bankname = substr(bknam,5,40);
end;
else do;
bankname = bknam;
end;

run;

proc sort data=bktabl nodupkey;
by acctbank bankname;run;

/* creates format for Bank names */

data bankc;
set bktabl(rename=(acctbank=start
bankname=label));
fmtname='bankcom';
type='C';
keep fmtname label start type;
run;

proc format cntlin=bankc;run;

***** branch section *****;
***** branch retail *****;

data branch(keep=acctbank acctbr brnam );
set accom;
run;

proc sort data=branch nodupkey;
by acctbank acctbr brnam;run;

/* very important step because it creates the
count needed for how many times the proc report
has to run - note the count and places names
for banks and branches */

data _null_;
set branch end=no_more;
call symput('ab'||left(_n_),acctbank);
call symput('abn'||left(_n_),
put(acctbank, $bankcom.));
call symput('br'||left(_n_),acctbr);
call symput('brn'||left(_n_),brnam);
if no_more then call symput('count',_n_);
run;

/* macro needed for the 3600 branches that
Suntrust Banks have */

%macro putloop;
%local i;
%do i=1 %to &count;

%macro
Branches(fdata,fname,brnam,hf,dxls,namxls);

```

```

/* beginning of %OUT2HTM starts capturing
data */
%out2htm(capture=on);

/* note beginning proc report options
1. ls=195 the linesize max a report can
take for the web
2. nowindows is used so that the display
window for the proc report will not
produce an error during the running of
report */

proc report data=&fdata. split='*' ls=195
headline missing out=&dlxls. nowindows;
/* the basefont is used to make sure a
certain font is used to view the report */
title1 "<BASEFONT size=1.5>";

/* the following titles all use some HTML
in order to make sure the titles are
centered. Font size 3 is used for Letters
to appear bigger. The color blue is used
for the lettering */
title2 "<CENTER><FONT FACE=ARIAL SIZE=3
COLOR=BLUE>SUNTRUST - Bank -
&fname.</CENTER></FONT>";
title3 "<CENTER><FONT FACE=ARIAL SIZE=3
COLOR=BLUE>Branch - &br&i
&brnam.</CENTER></FONT>";
title4 "<CENTER><FONT FACE=ARIAL SIZE=3
COLOR=BLUE>Personal Deposits Open/Close
Weekly Report</CENTER></FONT>";
title5 "<CENTER><FONT FACE=ARIAL SIZE=3
COLOR=BLUE>Week Ending: &dttitle.
</CENTER></FONT>";
title6 "<CENTER><FONT FACE=ARIAL SIZE=3
COLOR=BLUE>Note: All balances are in 000's
</CENTER></FONT>";

/* the following footnotes are hyperlinks
which are used in PICTURE2.
footnote1 is a hyperlink to a CSV file
which can be brought up in EXCEL.
footnote2 is a hyperlink to a USER GUIDE*/

footnote1 "<CENTER><FONT FACE=ARIAL SIZE=3
COLOR=BLUE><A HREF=../&namxls..CSV>DOWNLOAD
FILE</A></CENTER></FONT>";
footnote2 "<CENTER><FONT FACE=ARIAL SIZE=3
COLOR=BLUE><A
HREF='http://www.suntrust.com/WeeklyUserGu
ide.doc'>HELP</A></CENTER></FONT>";

column grpord prodgrp prodroll onumcls
onumnew onumexs onumconv onumdcnv
onewbal oexsbal oconvbal numcls
clsbal numnew newbal numexs
exsbal numconv convbal numdconv
dconvbal
(" _Total Accounts_" totacctg chg1b
totbals chg2b )
(" _Opened Accounts_" numcon1
convbal1 numnew1 newbal1 chg3b)
(" _Closed Accounts_" numdcon1
dconvbal1 numcls1 clsbal1 chg4b) ;
define grpord /order noprint;
define prodgrp /order noprint;
define prodroll / display format= $20.
width=20 'Deposits' left ;

```

```

define onumcls / sum noprint;
define onumnew / sum noprint;
define onumexs / sum noprint;
define onumconv / sum noprint;
define onumdcnv / sum noprint;
define onewbal / sum noprint;
define oexsbal / sum noprint;
define oconvbal / sum noprint;
define numcls / sum noprint;
define clsbal / sum noprint;
define numnew / sum noprint;
define newbal / sum noprint;
define numexs / sum noprint;
define exsbal / sum noprint;
define numconv / sum noprint;
define convbal / sum noprint;
define numdconv / sum noprint;
define dconvbal / sum noprint;
define totaccts / computed format=comma10.
width=10 "***Number" right;
define chg1b / computed format=percent7.1 width=8
"% Change*over*prior*week";
define totbals / computed format=dollar14.
width=14 "***Balances" right;
define chg2b / computed format=percent7.1 width=8
"% Change*over*prior*week";
define numcon1 / computed format=comma11.
width=11 '# Converted' right;
define convball / computed format=dollar10.
width=10 "Converted*Balances" right;
define numnew1 / computed format=comma9. width=9
"# New";
define newball / computed format=dollar10.
width=10 "New *Balances";
define chg3b / computed format=percent9.1
width=12 "% Change in*Total New*over*prior week";
define numdcon1 / computed format=comma13.
width=13 '# Deconverted' right;
define dconvb11 / computed format=dollar11.
width=11 "Deconverted*Balances" right;
define numcls1 / computed format=comma9. width=9
"# Closed";
define clsball / computed format=dollar10.
width=10 "Closed*Balances";
define chg4b / computed format=percent9.1
width=12 "% Change in*Total Closed*over*prior
week";

compute totaccts;
totaccts = numnew.sum + numexs.sum + numconv.sum;
endcomp;

compute totbals;
totbals = (newbal.sum + exsbal.sum +
convbal.sum)/1000;
endcomp;

compute numcon1;
numcon1 = numconv.sum;
endcomp;

compute convball;
convball = (convbal.sum)/1000;
endcomp;

compute numnew1;
numnew1 = numnew.sum;
endcomp;

compute newball;
newball = (newbal.sum)/1000;
endcomp;

compute numdcon1;
numdcon1 = numdconv.sum;
endcomp;

compute dconvb11;
dconvb11 = (dconvbal.sum)/1000;
endcomp;

compute numcls1;
numcls1 = numcls.sum;
endcomp;

compute clsball;
clsball = (clsbal.sum)/1000;
endcomp;

compute chg1b;
if (onumnew.sum + onumexs.sum +
onumconv.sum) > 0 then do;
chg1b = (numnew.sum + numexs.sum +
numconv.sum - onumnew.sum - onumexs.sum -
onumconv.sum)/(onumnew.sum + onumexs.sum +
onumconv.sum);
end;
else do;
chg1b = 0;
end;
endcomp;

compute chg2b;
if (onewbal.sum + oexsbal.sum +
oconvbal.sum) > 0 then do;
chg2b = (newbal.sum + exsbal.sum +
convbal.sum - onewbal.sum - oexsbal.sum -
oconvbal.sum)/(onewbal.sum + oexsbal.sum +
oconvbal.sum);
end;
else do;
chg2b = 0;
end;
endcomp;

compute chg3b;
if (onumnew.sum) > 0 then do;
chg3b = (numnew.sum -
onumnew.sum)/(onumnew.sum);
end;
else do;
chg3b = 0;
end;
endcomp;

compute chg4b;
if (onumcls.sum) > 0 then do;
chg4b = (numcls.sum -
onumcls.sum)/(onumcls.sum);
end;
else do;
chg4b = 0;
end;
endcomp;

break before prodgrp / ;
break after prodgrp / ol skip summarize ;

compute before prodgrp;
line @1 prodgrp $20. ;
endcomp;

compute after prodgrp;
prodroll = trim(prodgrp)||' Sub-Total';
endcomp;

```

```

rbreak after / ol skip summarize ;

compute after;
prodroll = 'Total';
endcomp;
run;

/* the final 4 lines of %out2htm.
capture=off - stops capturing output.
encode=n lets the browser render the title with
attributes specified.
htmlfile - lets you name the HTML file.
ttag= no formatting - tells the output formatter
not to assign any HTML tags.
** you could also add bgttype=image which
indicates an image as a background type, then
specify the name of image in the BG argument.
*/

%out2htm(capture=off,
          encode=n,
          htmlfile=/gs/&hf. ,
          ttag=NO FORMATTING);

/* this section is used to rename the variables
that will be used for a CSV file which can be
displayed in EXCEL */

```

```

data b&dlxls.(drop= totaccts chg1b totbals chg2b
numcon1 convbal1 numnew1 newball1 chg3b
numdcon1 dconvb11 numcls1
clsball1 chg4b);
set &dlxls.(drop =grpord onumcls onumnew onumexs
onumconv onumdcnv
onewbal oexsbal oconvbal numcls clsbal
numnew newbal numexs
exsbal numconv convbal numdconv dconvbal
_break_);
if prodroll in ( ' ') then delete;
total_num_accts = totaccts;
tot_acct_perc_chg = chg1b;
total_balances = totbals;
tot_bal_perc_chg = chg2b;
num_converted = numcon1;
converted_balances = convbal1;
num_new = numnew1;
new_balances = newball1;
new_perc_chg = chg3b;
num_deconverted = numdcon1;
deconverted_balances = dconvb11;
num_closed = numcls1;
closed_balances = clsball1;
closed_perc_chg = chg4b;
run;

```

```

/* the creation of the CSV file used
in the HYPERLINK on the HTML page. */

```

```

PROC EXPORT DATA= b&dlxls.
OUTFILE="/gs/&namxls..csv"
DBMS=CSV REPLACE;

```

```

RUN;

```

```

/* macro branches ending - which is used for
selection of acctbank and branch, name of
acctbank, name of branch, HTML file name, and
CSV file name */

```

```

%mend branches;
%branches(accom(wher=(acctbank in("&ab&i") and
acctbr in ("&br&i")

```

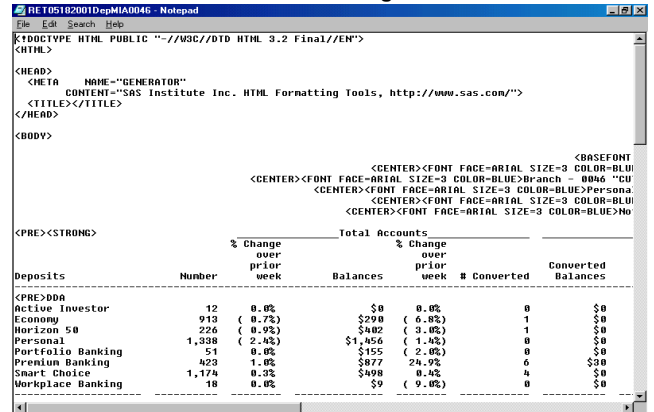
```

)))&abn&i,"&brn&i",RET&&fdt.Dep&&ab&i.&
&br&i...html,t1,RET&&fdt.Dep&&ab&i.&&br&i.
);
%end;

%mend putloop;
%putloop;

```

The above code creates the following HTML code:



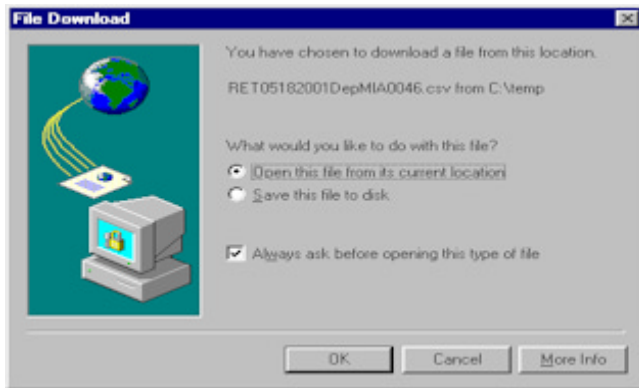
which appears on the web like this:

Deposits		Total Accounts		Open Accounts		Total New		Deposits	
	% Change over prior week	Number	% Change over prior week	Number	% Change over prior week	Number	% Change over prior week	Number	% Change over prior week
Active Investor	12 (0.0%)	12	0.0%	12	0.0%	12	0.0%	12	0.0%
Economy	913 (0.7%)	913	(0.7%)	913	(0.7%)	913	(0.7%)	913	(0.7%)
Horizon 50	226 (0.9%)	226	(0.9%)	226	(0.9%)	226	(0.9%)	226	(0.9%)
Personal	1,338 (2.4%)	1,338	(2.4%)	1,338	(2.4%)	1,338	(2.4%)	1,338	(2.4%)
Portfolio Banking	51 0.0%	51	0.0%	51	0.0%	51	0.0%	51	0.0%
Premium Banking	423 1.0%	423	1.0%	423	1.0%	423	1.0%	423	1.0%
Smart Choice	1,174 0.3%	1,174	0.3%	1,174	0.3%	1,174	0.3%	1,174	0.3%
Workplace Banking	18 0.0%	18	0.0%	18	0.0%	18	0.0%	18	0.0%
Sub-Total	4,155 (0.9%)	4,155	(0.9%)	4,155	(0.9%)	4,155	(0.9%)	4,155	(0.9%)

The hyperlinks are at the bottom of each report:

Deposits		Total Accounts		Open Accounts		Total New		Deposits	
	% Change over prior week	Number	% Change over prior week	Number	% Change over prior week	Number	% Change over prior week	Number	% Change over prior week
Active Investor	12 (0.0%)	12	0.0%	12	0.0%	12	0.0%	12	0.0%
Economy	913 (0.7%)	913	(0.7%)	913	(0.7%)	913	(0.7%)	913	(0.7%)
Horizon 50	226 (0.9%)	226	(0.9%)	226	(0.9%)	226	(0.9%)	226	(0.9%)
Personal	1,338 (2.4%)	1,338	(2.4%)	1,338	(2.4%)	1,338	(2.4%)	1,338	(2.4%)
Portfolio Banking	51 0.0%	51	0.0%	51	0.0%	51	0.0%	51	0.0%
Premium Banking	423 1.0%	423	1.0%	423	1.0%	423	1.0%	423	1.0%
Smart Choice	1,174 0.3%	1,174	0.3%	1,174	0.3%	1,174	0.3%	1,174	0.3%
Workplace Banking	18 0.0%	18	0.0%	18	0.0%	18	0.0%	18	0.0%
Sub-Total	4,155 (0.9%)	4,155	(0.9%)	4,155	(0.9%)	4,155	(0.9%)	4,155	(0.9%)

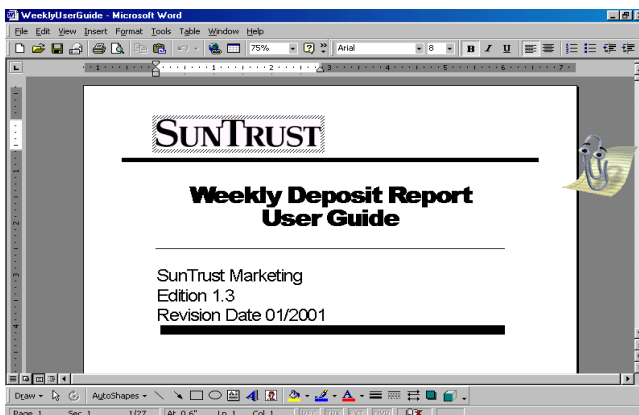
Once the download file hyperlink is clicked it appears as:



Select the 'Open this file from its current location' option and it appears as:

	A	B	C	D	E	F	G	H	I	J	K					
1	prodgrp	prodroll	total_num	tot_acct	ptotal	balartot	bal	pe	num	conv	converted	num	new	balan	new	perc
2	DDA	Active Inve	12	0	0	0	0	0	0	0	0	0	0	0	0	0
3	DDA	Economy	913	-0.00653	290.408	-0.06766	1	0.321	0	0	0	0	0	0	0	0
4	DDA	Horizon 50	226	-0.00877	401.968	-0.02996	1	0	0	0	0	0	0	0	0	0
5	DDA	Personal	1338	-0.02407	1456.099	-0.01366	0	0	0	0	0	0	0	0	0	0
6	DDA	Portfolio B	51	0	154.9254	-0.02031	0	0	0	0	0	0	0	0	0	0
7	DDA	Premium E	423	0.009547	877.0803	0.249146	6	29.6505	0	0	0	0	0	0	0	0
8	DDA	Smart Cho	1174	0.003419	497.8832	0.00377	4	0	6	1.383	0	0	0	0	0	0
9	DDA	Workplace	18	0	9.1728	-0.08975	0	0	0	0	0	0	0	0	0	0
10	DDA	DDA Sub-	4155	-0.00788	3687.537	0.03357	12	29.9715	6	1.383	-0.14268	0	0	0	0	0
11	NOW	Active Inve	4	0.333333	14.119	0	1	0	0	0	0	0	0	0	0	0
12	NOW	Horizon 50	184	0.016575	600.9063	0.008587	0	2.7375	1	5	0	0	0	0	0	0
13	NOW	Interest	123	-0.02381	360.829	-0.07636	0	0	0	0	0	0	0	0	0	0
14	NOW	Portfolio B	217	0.023585	553.6237	0.041086	0	1.8766	1	1.676	0	0	0	0	0	0

Once the HELP hyperlink is clicked it appears as a word document:



CONCLUSION

SAS version 8 provides an excellent tool for producing Proc Reports on the WEB. The %OUT2HTM macro is a very helpful HTML formatting tool that is beneficial to Suntrust Bank. Quite easy to use, 5 lines of codes can convert a simple Report to an HTML page with similar characteristics as the non-HTML type report. Remember, to first write the PROC REPORT then add the SAS macro %OUT2HTM . Next, add some HTML to your own specifications for your desired results.

ACKNOWLEDGEMENTS

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REFERENCES

SAS online support.

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