ABSTRACT
We all use proc print, it is one of the simplest procedures in the book. So, if this is the case why don’t we use its full capabilities. The aim of this paper is to show you how much more you can do with proc print. All those options that we know are there but have never got around to using, or have long since been forgotten. Also, we will be looking at how we can significantly enhance our reports using ODS. Proc print is more than just Proc Print:Run; so explore the procedure and I think you will be pleasantly surprised.

INTRODUCTION
Proc print is a simple reporting procedure, which provides lots of interesting options for enhancing our reports. However, what is often the case is it is learnt and then its capabilities are quickly forgotten and overlooked. This paper highlights some of those more useful capabilities, with the aim of putting proc print back on the reporting agenda.

OVERVIEW
The Print procedure prints observations of a dataset to the listing window, and displays all or some of the variables. You have the ability to create a very simple report or use some of the print features to produce a more complex enhanced report.

PROC PRINT SYNTAX
Most people are used to using proc print, however are you limiting yourself to just the basic 2 lines of code:

```
Proc print data=work.demog; Run;
```

Consider the complete syntax of Proc Print as shown below:

```
PROC PRINT DATA= SAS-table
CONTENTS=’link-text’
DOUBLE
NOOBS
UNIFORM
LABEL
SPLIT= ’split-character’
N
ROUND
HEADING= direction
ROWS= page-format
STYLE (location(s))=style-element-name
WIDTH= column-width;
VAR variable-list;
ID variable-list;
BY variable-list;
PAGEBY BY-variable;
SUMBY BY-variable;
SUM variable-list;
RUN;
```

You can also use Format, Where, and Label statements within Proc Print.

PROC PRINT STATEMENTS

VAR
ID
Identifies observations by using the formatted values of the variables that you list instead of by using observation numbers.

**ID AND BY TOGETHER**
If the ID and by statement are used together then proc print uses a special layout for the report.

**SUM**
Totals values of numeric variables.

If this statement is used in combination with the By statement you will get totals for all the by groups as well as a total across all by groups.
WHERE
The WHERE statement or WHERE options can be applied as a filter.

LABEL
Use the label statement if you want to assign an alternative heading for your columns, it can be used either in the DATA step of the PROC step. To see your label with PROC PRINT, you must specify the LABEL option on the PROC PRINT statement.

One useful feature of the LABEL statement is creating a blank label. To do this you have to suppress the label from being printed using '00'x.

PROC PRINT OPTIONS
There are a number of PROC print options that can be used to enhance your report; some of the key ones are discussed below.

NOOBS
To suppress the automatically generated OBS variable from being printed out use the option NOOBS on the PROC PRINT statement. Use in combination with the N option to get the number of observations in the report printed as well.

OBS
The OBS option allows you to assign a label to the automatically generated OBS column shown in your output, thus differing from the global OBS option OBS, which allows you to state a certain number of observations. It is a simple case of using OBS='String', on the PROC PRINT statement.

Proc print data=work.names
observables='Number of Records';
Run;

Number of Records staffno age
49 0049 25
50 0050 41
51 0051 61
52 0052 21
53 0053 45

Obs staffno age gender
2 002 26 F
5 005 23 F
7 007 34 F
8 008 38 F
9 009 55 F
10 010 52 F
11 011 60 F
12 012 56 F
13 013 46 F
14 014 65 F
15 015 23 F

Obs Gender RPT151 Job
58 16840.34 M D low
51 25410.34 F M high
52 25410.34 F M high
53 15410.32 F M high
54 17610.44 M M high
55 29500.33 M W high
56 10460.37 M S low
57 19500.35 M M high
58 12995.20 F S low
59 12950.18 F S low

Proc print data=work.demog
var staffno age gender;
run;

Proc print data=work.demog
var staffno age gender;
where gender='F';
run;

Proc print data=work.demog
var staffno age gender;
label gender='Gender';
label status='Marital Status';
label grade='Job Grade';
salary='00'x;
run;

Proc print data=work.demog
var staffno age gender;
where gender='F';
run;
N=
Print the number of observations in the data set, in BY groups, or both, and specify explanatory text to print with the number.

```
proc print data=work.names
  rows=page;
run;
```

ROWS
The PAGE value can reduce the number of pages in the output if the data set contains large numbers of variables and observations. However, be aware that if the data set contains a large number of variables but few observations, the PAGE value can increase the number of pages in the output.

```
proc print data=work.names
  rows=page;
run;
```

WIDTH
Determines the column width for each variable. To use specify:

```
width=(Full, Minimum, Uniform, or UniformBy).
```

Using Width=Full can reduce execution time. If your data set is large, and you want a uniform report, you can save computer resources by using formats. When you specify WIDTH = UNIFORM(BY), Proc Print reads the data set twice. If each variable has a format applied Proc Print reads the data set only once.

DIRECT PATHING
Direct pathing allows you to print a SAS table to the output window without having to use a libname. The syntax will differ depending on your operating system. When using the path requires quotes, double quotes or single quotes can be used. When referencing your table you may use the file extension if you wish, but it is not required.

```
proc print data="C:\temp\client";
run;
```

ODS
Ods allows you to use many style options in various places within your proc print. This allows you to enhance your report using colours, fonts, and styles. A table showing this is included below. Also, an example using some of these options is included, on the next page.

<table>
<thead>
<tr>
<th>Location Values</th>
<th>Statements</th>
</tr>
</thead>
<tbody>
<tr>
<td>DATA</td>
<td>PROC PRINT, VAR, ID, SUM</td>
</tr>
<tr>
<td>HEADER</td>
<td>PROC PRINT, VAR, ID, SUM</td>
</tr>
<tr>
<td>TOTAL</td>
<td>PROC PRINT, SUM</td>
</tr>
<tr>
<td>GRANDTOTAL</td>
<td>PROC PRINT</td>
</tr>
<tr>
<td>BYLABEL</td>
<td>PROC PRINT</td>
</tr>
<tr>
<td>OBS</td>
<td>PROC PRINT</td>
</tr>
<tr>
<td>OBSHEADER</td>
<td>PROC PRINT</td>
</tr>
<tr>
<td>N</td>
<td>PROC PRINT</td>
</tr>
<tr>
<td>TABLE</td>
<td>PROC PRINT</td>
</tr>
</tbody>
</table>

```
options nocoeyline;
  title "List for #byval1 - #byval2";
  ods listings close;
  ods html body='c:\temp\demo.html';
  proc print data=work.names;
run;
```
CONCLUSION
This paper aimed to highlight some key options available to enhance your report using proc print. It was a simple explanation of some forgotten features. I hope even if nothing new has been learnt, that your memory has been refreshed, and that this paper has proved that proc print still has a lot to offer, and should not be overlooked.

CONTACT INFORMATION
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