

SCSUG2011-S07

## **Practically Perfect Presentations**

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### **ABSTRACT**

PROC REPORT is a powerful reporting procedure, whose output can be "practically perfect" when you add ODS STYLE= overrides to your PROC REPORT code. This hands-on workshop will feature several PROC REPORT programs that produce default output for ODS HTML, RTF and PDF destinations. Workshop attendees will learn how to modify the defaults to change elements of PROC REPORT output, such as HEADER cells, DATA cells, SUMMARY cells and LINE output using ODS STYLE= overrides. In addition, attendees will learn how to apply conditional formatting at the column or cell level and at the row level using PROC FORMAT techniques and CALL DEFINE techniques. Other topics include: table attributes that control interior table lines and table borders, use of logos in output and producing "Page x of y" page numbering. The rest of this document is divided into two parts: the slides used in the Hands-On Workshop presentation and the attendee worksheet.

### **CONTACT INFORMATION**

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## Practically Perfect Presentations Using ODS and PROC REPORT

PharmaSUG 2010  
Hands-On Workshop  
By: Cynthia Zender

THE  
POWER  
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### Today's Agenda

- Modify PROC REPORT defaults to change elements of PROC REPORT output
  - HEADER cells
  - DATA cells
  - SUMMARY cells
  - LINE output using ODS STYLE= overrides
- Apply conditional formatting at the column, cell or row level
- Modify table attributes that control interior table lines and table borders
- Use logos or images in output
- Produce "Page x of y" page numbering for RTF and PDF output.

## Chapter 6: Using Options with ODS

1) Basic PROC REPORT, ODS Style= and ESCAPECHAR

2) Style= Statement Level Overrides

3) Overriding Style for LINES and CALL DEFINE

4) Inserting Images and Performing Traffic Lighting

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## Proc Report Review – Pen and Paper Activity

Match the statement with its function in PROC REPORT:

- |                        |   |
|------------------------|---|
| A: DEFINE              | 1: defines a block of code to be executed                                       |
| B: COLUMN              | 2: specifies that variable values should be listed without ordering or grouping |
| C: DISPLAY             | 3: specifies that a column is created for every variable value                  |
| D: COMPUTE/<br>ENDCOMP | 4: specifies how to use a report item   |
| E: ACROSS              | 5: specifies which report items are used on the report                          |

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## Review Material for PROC REPORT Syntax

The following material can be used as reference throughout the Workshop. The correct answer to the review quiz can be found on Slide # 20, Page 10.

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## About the REPORT Procedure

PROC REPORT produces

- detail reports in data storage order
- detail reports in sorted order from unsorted data
- summary reports based on grouping variables
- summary rows (group subtotals and overall report totals) for both detail and summary reports
- statistics for analysis variables
- custom text.

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## Using the Report Procedure

General form of the REPORT procedure:

```
PROC REPORT DATA=library.filename <option(s)>;  
  COLUMN column-specification(s);  
  DEFINE report-item / <usage> <attribute(s)>  
    <option(s)> ;  
  COMPUTE report-item </ type-specification>;  
    . . . select SAS language elements . . .  
  ENDCOMP;  
  BREAK location break-variable</ option(s)>;  
  RBREAK location </ option(s)>;  
RUN;
```

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## Reviewing the PROC REPORT Statement

```
PROC REPORT DATA=library.filename NOWD <option(s)>;
```

- The NOWINDOWS | NOWD option specifies how to generate the report.
- **The NOWD option is important if you are using the Output Delivery System.**
- With the NOWD option, the report is sent to the LISTING window and open ODS destinations in non-interactive mode.
- Without the NOWD option, the report is generated in the REPORT window, an interactive environment in which to develop a report.

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## Reviewing the PROC REPORT Statement

Selected PROC REPORT statement options:

To Do This	Use This
Underline all column headers and the spaces between them.	HEADLINE*
Write a blank line beneath all column headers.	HEADSKIP*
Use formatting characters to add line-drawing characters to the report.	BOX*
Specify the number of panels on each page of the report.	PANELS=*
Specify the split character. The default split character is a forward slash (/).	SPLIT=
Specify the length of a line of the report.	LS=*
Specify the number of lines in a page of the report	PS=*

9 \* Listing destination only

## Reviewing the COLUMN Statement

**COLUMN** *column-specification(s)*;

*column-specification(s)* is one or more of the following:

- report items such as the name of a data set variable, computed variable, or a statistic
- a comma operator to nest or stack columns
- parentheses to group columns
- headers to span columns
- an alias for a column.

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## COLUMN Statement Examples

Some COLUMN statement examples:

- list report items such as the name of a **data set variable**, **computed variable**, or a **statistic**

```
column Region District N Sales;
```

- list an **alias** for a column.

```
column Region Sales Sales=SLmedian;
```

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## Comma and Parentheses Examples

The COLUMN statement also supports use of:

- a comma operator to nest or stack columns

```
column Product Sales,N Sales,Mean;
```

- parentheses and a comma operator to nest or stack columns

```
column Region Product,(Sales N);
```

- parentheses and headers to span columns.

```
column Region ('-Cosmetic Division-' Product Sales);
```

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## Specifying a DEFINE Statement

The DEFINE statement specifies HOW to use a report item:

```
DEFINE report-item / <usage> <attribute(s)> <option(s)> ;
```

where

- *report-item* is a data set variable, a statistic, column alias, or a computed column that has been listed in the COLUMN statement
- *usage* is DISPLAY, ORDER, GROUP, ACROSS, ANALYSIS, or COMPUTED
- *attributes* define the format, width, spacing, statistic for analysis variable, or sort sequence of the column
- *options* specify the label and justification.

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## Specifying DEFINE Statement Usages

To Do This	Usage
Present the data in the order in which it is stored.	DISPLAY
Present the data in the default order or the order specified by the ORDER= option.	ORDER
Summarize analysis variables based on the group variables and consolidate into one row all observations that have the same value for the group variable.	GROUP
Use the variable values as the column headers in the report.	ACROSS
Summarize these variables when there is a GROUP variable and/or a BREAK or RBREAK statement.	ANALYSIS
Compute the variable value from statements within a compute block.	COMPUTED

## Identifying DEFINE Statement Options

DEFINE statement options alter the report appearance for a particular column.

Selected DEFINE statement options:

To Modify	Use This Option
Justification	LEFT   RIGHT   CENTER
Column headings	'Variable Label'
Order of data values	ORDER=
Printing of column	NOPRINT
Number of blanks to the left of a column	SPACING= *
Column width	WIDTH= *
Consider missing values as valid values for the item	MISSING
Format data	FORMAT=

The order of the options after the slash does not matter.

\* Listing destination only

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## Creating Column Summaries

To create a summary for the entire report, use the RBREAK statement.

```
RBREAK BEFORE | AFTER / <options>;
```

To create a summary for groups of data, use the BREAK statement.

```
BREAK BEFORE | AFTER break-variable / <options>;
```

The *break-variable* is a group or order variable. When the value of the *break-variable* changes, PROC REPORT creates a summary line.

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## Using RBREAK and BREAK Options

To Do This	Use This Option
Double-underline each value.	DUL*
Double-overline each value.	DOL*
Overline each value.	OL*
Underline each value.	UL*
Start a new page after the last break line.	PAGE
Write a blank line for the last break line.	SKIP*
Write a summary line in each group of break lines.	SUMMARIZE
Suppress the printing of the value of the break variable in the summary line and of any underlining or overlining in the break lines in the column that contains the break variable.	SUPPRESS

17 \* Listing destination only

## Customizing Text for Breaks

```
COMPUTE BEFORE | AFTER <variable> <_PAGE_> /;
    executable statements
ENDCOMP;
```

- When a variable is not specified, the compute block is executed either before or after the report is created.
- The `_PAGE_` option specifies that the compute block is executed either before or after the page break. There must be a `BREAK` statement with the `PAGE` option in order to use the `_PAGE_` option in a `COMPUTE` statement.
- The executable statements can calculate variables, use `IF...THEN` logic, write out custom text, or use most `DATA` step statements.

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## Using a COMPUTE Statement

To execute the compute block	Use This Target	Use This Location
at a break immediately after the last row of a set of rows. If there is a default summary on that variable, immediately after the creation of the preliminary summary line.	<i>Report-item</i>	AFTER
near the bottom of each page, immediately before any footnotes. (LISTING only)	<i>_PAGE_ *</i>	AFTER
at the end of the report.	<i>No target</i>	AFTER
at a break immediately before the last row of a set of rows. If there is a default summary on that variable, immediately after the creation of the preliminary summary line.	<i>Report-item</i>	BEFORE
immediately after printing any titles. (LISTING only)	<i>_PAGE_ *</i>	BEFORE
at the end of the report.	<i>No target</i>	BEFORE

If the target is *\_PAGE\_*, you can specify a justification option, LEFT, RIGHT, or CENTER.

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## Proc Report Review – Solutions

The correct answers are:

A/4: DEFINE - specifies HOW to use a report item

B/5: COLUMN - specifies WHICH report items are used on the report

C/2: DISPLAY - specifies that variable values should be listed without ordering or grouping

D/1: COMPUTE/ENDCOMP - defines a block of code to be executed

E/3: ACROSS - specifies that a column is created for every variable value

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## Your Turn: Submit Demo Programs

- Turn to your worksheet and run the programs outlined on #1 and #2.

For more information about PROC REPORT options that only work in the LISTING destination, see these web sites:

<http://support.sas.com/kb/2/549.html>

<http://support.sas.com/kb/23/671.html>

<http://support.sas.com/rnd/base/ods/templateFAQ/repooption.html>

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## Summary of Demo Results

ODS destinations do not all use PROC REPORT Options the same way.

Statement or Option	LISTING	HTML	PDF	RTF
HEADLINE/HEADSKIP	Y	N	N	N
WIDTH	Y	N	N	N
SPACING	Y	N	N	N
DOL/DUL	Y	N	N	N
CENTER	Y	Y	Y	Y
SKIP	Y	N	N	N
LS	Y	N	N	N
Repeat Character in Spanning Header	Y	N	N	N
NUMBER and PAGENO=1	Y	N	Y	Y

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## Summary of Global System Options

	HTML	PDF	RTF
DATE   NODATE		✓	✓
NUMBER   NONUMBER		✓	✓
PAGENO=		✓	✓
ORIENTATION=		✓	✓
CENTER   NOCENTER	✓	✓	✓
TOPMARGIN=		✓	✓ <sub>9.2</sub>
BOTTOMMARGIN=		✓	✓ <sub>9.2</sub>
LEFTMARGIN=		✓	✓ <sub>9.2</sub>
RIGHTMARGIN=		✓	✓ <sub>9.2</sub>

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## STYLE= Option

	HTML	PDF	RTF
STYLE= <i>style template</i>	✓	✓	✓

The STYLE= option specifies the style template to use. Style templates describe how to display the presentation aspects of the output.

To get a listing of the style templates supplied by SAS, submit the following code:

```
proc template;
  list styles / store=sashelp.tmplmst;
run;
```

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## ODS ESCAPECHAR

The ODS ESCAPECHAR statement sets an escape character that is used to introduce special sequences for in-line formatting.

```
ods escapechar = 'escape-character';
```

Choose a unique character that does not occur in your code or output.

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## ODS ESCAPECHAR

Examples of ODS ESCAPECHAR statement:

```
ods escapechar = '!';  
ods escapechar = '*';  
ods escapechar = '~';  
ods escapechar = '^';  
ods escapechar = '#';
```

The ODS ESCAPECHAR statement can be omitted entirely if you use one of the following as the escape character:

- '03'x
- (\*ESC\*)

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## ODS ESCAPECHAR

Categories of Special Sequences	Description
Function	Performs a function to get specialized formatting effects within a cell.
Style	Modifies the style of the current cell based on the specified style attributes.
Raw Text	Inserts raw text into the current cell.
Miscellaneous	Inserts special codes, line breaks, line wraps, and non-breaking space.

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## Function

	HTML	PDF	RTF
<b>{super <i>text</i>}</b>	✓	✓	✓
<b>{sub <i>text</i>}</b>	✓	✓	✓
<b>{dagger}</b>	✓	✓	✓
<b>{thispage}</b>		✓	✓
<b>{lastpage}</b>		✓	✓
<b>{pageof}</b>			✓

The escape character followed by a function creates a specialized formatting effect within a cell.

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## Your Turn: Different Styles and Page X of Y

Turn to your worksheet and do items 3 and 4:

- Submit the **Demo01e\_different\_styles.sas** program to use different STYLE= options.
- Submit the **Demo01f\_page\_x\_of\_y.sas** program to use the ODS ESCAPECHAR option as shown below:

```
<after ODS invocation statements>  
ods escapechar='~';  
footnote j=r 'Page ~{pageof}';  
footnote2 j=c 'Page ~{thispage} of ~{lastpage}';
```

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## Practically Perfect Tip #1

If you are creating RTF output, you can use ODS ESCAPECHAR and Style attributes to insert RTF control strings into your result output.

```
footnote j=1 font='Arial' h=10.1pt  
    ^S={protectspecialchars=off "  
    pretext=' \brdrt\brdrs\brdrw1 ' }"  
    "\~";
```



Tip01.sas

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## References

<http://www.sas.com/rnd/base/index.html>  
<http://www.sas.com/rnd/base/topics/templateFAQ/repooption.html>  
[http://www.w3schools.com/css/css\\_reference.asp#list](http://www.w3schools.com/css/css_reference.asp#list)

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## Chapter 6: Using Options with ODS

1) Basic PROC REPORT, ODS Style= and ESCAPECHAR

2) Style= Statement Level Overrides

3) Overriding Style for LINES and CALL DEFINE

4) Inserting Images and Performing Traffic Lighting

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### The STYLE= Statement Level Override

General form of the STYLE= statement level override option:

```
STYLE(component)={attribute-1=value-1 ...  
                    attribute-n=value-n}
```

With PROC REPORT, you provide the component name for the STYLE= override option directly in selected PROC REPORT statements.

The STYLE= option is placed after a slash (/) in all the statements except the PROC REPORT statement.

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## Using PROC REPORT Components

Component	Affects This Part of Report	Use in This Statement
Report	Report as a whole and table structure attributes	PROC REPORT
Header (HDR)	Column header cells	PROC REPORT DEFINE
Column	Data cells	PROC REPORT DEFINE
Summary	Summary lines generated by BREAK or RBREAK statements	PROC REPORT RBREAK   BREAK
Lines	Lines generated by LINE statements	PROC REPORT COMPUTE RBREAK   BREAK
Caldef	Cells identified by a CALL DEFINE statement	PROC REPORT

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## Style Attributes and Color Values

Attribute	Sample Values
<p>FOREGROUND</p> <p>BACKGROUND</p>	<p>white, red, yellow, black</p> <p>cxFFFFFF, cxFF0000, cxFFFF00, cx000000</p> <p>h000FF00, h07880FF, h0B480FF, h0000000</p>
BORDERCOLOR	black, cx000000, h0000000

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## Visual Guide to Report Components

Header		Sales Information	
Region	Subsidiary	Product	Sales
Asian Pacific	Cosmetic Products	HairGro Lotion	1,035,962
		WrinkAway Creme	529,945
	OTC	Drizzle Nose Spray	195,180
		SleepTight Tablets	223,970
<i>Asian Pacific</i>			<i>1,985,058</i>
Eastern Europe	Cosmetic Products	HairGro Lotion	1,569,967
		WrinkAway Creme	666,759
	OTC Remedies	Drizzle Nose Spray	594,815
		SleepTight Tablets	377,529
<i>Eastern Europe</i>			<i>3,209,070</i>

37 Demo02.sas

## Font Related Attributes and Sample Values

Attribute	Sample Values
FONT_FACE	"Times New Roman" Arial Helvetica 'Courier New' "Arial, Helvetica, Helv"
FONT_SIZE	5, 10 pt, 1 cm, 0.25 in
FONT_STYLE	italic, roman
FONT_WEIGHT	medium, bold, light
FONT_WIDTH	compressed, narrow, wide

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## Alternate Font Attribute

Attribute	Sample Values
FONT	('Arial, Helvetica, Helv', 2) ("Times, Times New Roman", 3 cm, bold) (Verdana, 4, bold italic) ('Courier New, Courier', 2, italic)

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## Your Turn: Using STYLE= Option

Turn to your worksheet and submit the the **Demo02.sas** program (Item #5). Then review the code and answer the following questions:

- a) What style attribute is set to CYAN?
- b) What style attribute is set to RED?

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## Other Table/Cell Style Attributes

Attribute	Sample Values
CELLWIDTH CELLHEIGHT	150, 2 in, 5 cm, 20%
CELLSPACING CELLPADDING	0, 7, .1 in, 1 cm, em, ex, pt
JUST	left, dec, center, right l, d, c, r
VJUST	top, middle, bottom t, m, b
URL	'www. sas. com' "http: //support. sas. com "

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## Other Style Attributes

Attribute	Sample Values
OUTPUTWIDTH	150, 3 in, 20 cm, 80%
ASIS PROTECTSPECIALCHARS NOBREAKSPACE	ON, OFF
INDENT	<i>n (number of units to indent)</i>

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## Table Structure, Interior Lines and Exterior Frame

Attribute	Sample Values
CELLSPACING BORDERWIDTH	0, 7, .1 in, 1 cm, em, ex, pt
RULES	ALL, GROUPS, NONE, COLS, ROWS
FRAME	ABOVE, BELOW, BOX, HSIDES, VSIDES, LHS, RHS, VOID

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## RULES Style Attribute

The RULES style attribute specifies the types of rules, or interior table lines, to use in a table.

RULES Value	Creates interior table lines:
ALL	between all rows and columns
GROUPS	between the table header and the table and between the table and the table footer, if there is one
NONE	no rules anywhere
COLS	between all columns
ROWS	between all rows

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## FRAME Style Attributes

FRAME specifies the type of frame to use on a table.

FRAME Value	Creates this kind of frame around the table
ABOVE	a border at the top
BELOW	a border at the bottom
BOX	borders at the top, bottom, and both sides
HSIDES VSIDES	borders at the top and bottom borders at the left and right sides
LHS RHS	a border at the left side a border at the right side
VOID	no borders

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## Practically Perfect Tip #2

There is an interaction between CELLSPACING, BORDERWIDTH and the RULES and FRAMES style attributes.

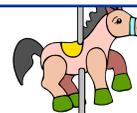


Sales Information			
Region	Subsidiary	Product	Sales
Western Europe	OTC Remedies	Drizzle Nose Spray	1,097,392
Western Europe			

HTML Output

```
background=cyan
cellspacing=0
bordercolor=red
borderwidth=0
rules=rows frame=box
```

**CELLSPACING=0** prevents the CYAN table background from showing around each table cell and **BORDERWIDTH=0** prevents the RED border color from being used for the interior table lines.



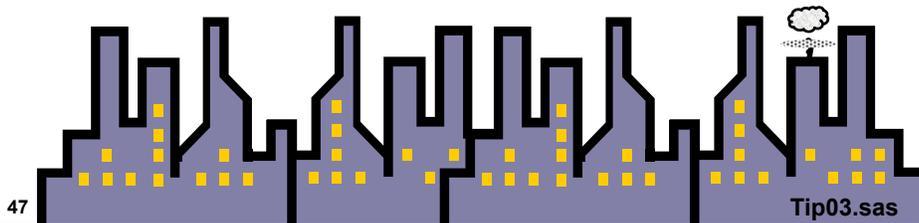
Tip02.sas

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## Practically Perfect Tip #3

When dealing with very wide tables:

- HTML – tables can be as wide as required.
- RTF & PDF – table width is controlled by the viewer or rendering software. Use these techniques to make wide tables fit:
  - Set `ORIENTATION` option to `LANDSCAPE` in `OPTIONS` statement.
  - Change `FONT_SIZE` attribute.
  - Change `CELLPADDING` style attribute.



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## Chapter 6: Using Options with ODS

1) Basic PROC REPORT, ODS Style= and ESCAPECHAR

2) Style= Statement Level Overrides

3) Overriding Style for LINES and CALL DEFINE

4) Inserting Images and Performing Traffic Lighting

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## Other Methods to Change Style Attributes

Summary

Region	Subsidiary	Product	Sales
Asian Pacific	OTC Remedies	Drizzle Nose Spray	195,180
		SleepTight Tablets	223,970
<i>Asian Pacific</i>			<i>419,151</i>
Eastern Europe	OTC Remedies	Drizzle Nose Spray	594,815
		SleepTight Tablets	377,529
<i>Eastern Europe</i>			<i>972,344</i>
North America	OTC Remedies	Drizzle Nose Spray	1,235,135
		SleepTight Tablets	774,334
<i>North America</i>			<i>2,009,470</i>
South America	OTC Remedies	Drizzle Nose Spray	498,317
		SleepTight Tablets	383,055
<i>South America</i>			<i>881,372</i>
Western Europe	OTC Remedies	Drizzle Nose Spray	1,097,399
		SleepTight Tablets	271,031
<i>Western Europe</i>			<i>1,368,432</i>
<b>Grand Total:</b>			<b>\$5,650,818</b>

Header

Call Define

Lines

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Demo03.sas

## Changing STYLE(LINES)

The LINES component changes the style of a line written in a COMPUTE block:

Western Europe	OTC Remedies	Drizzle Nose Spray	1,097,392
		SleepTight Tablets	271,091
Western Europe			1,368,482
<b>Grand Total:</b>			<b>\$5,650,818</b>

```
proc report data=salesdata nowd
  style(report)={background=white cellspacing=0
                 bordercolor=black borderwidth=2
                 rules=rows frame=box}
  style(header)={background=purple foreground=white}
  style(column)={background=white}
  style(lines)={font_weight=bold font_size=14pt
                just=r vjust=b foreground=black}
  style(summary)={background=purple foreground=white};
```

## CALL DEFINE

Inside a COMPUTE block, you can use the CALL DEFINE statement to change STYLE attributes:

Eastern Europe			972,344
North America	OTC Remedies	Drizzle Nose Spray	1,235,135
		SleepTight Tablets	774,334
North America			2,009,470
Western Europe			1,368,482

```
compute after Region;
  if upcase(_break_) = 'REGION' and
     index(Region,'Europe') gt 0 then
     call define(_ROW_,'style',
               'style={background=green foreground=white}');
endcomp;
```

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## CALL DEFINE Syntax

A CALL DEFINE statement sets the value of an attribute for a particular column or row in the current row.

```
CALL DEFINE (column-id, attribute-name, value);
```

1

2

3

The CALL DEFINE statement has three arguments.

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## CALL DEFINE Syntax

1

A <i>COLUMN-ID</i> can be	Examples
a character literal (in quotes)	'EmpID' 'Salary.sum'
a name of the form <i>_Cn_</i> (in quotes), where <i>n</i> is the column number	'_C1_' '_C5_'
the automatic variable <i>_COL_</i> This variable identifies the column to which the compute block is attached.	<i>_COL_</i>
the automatic variable <i>_ROW_</i> This variable identifies the row to which the compute block is attached.	<i>_ROW_</i>

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## CALL DEFINE Syntax

2

Possible <i>attribute-name</i> values	Description
'STYLE'	specifies the style element
'URL'	makes the contents of each cell of the column a link to the specified Uniform Resource Locator (URL)
'FORMAT'	specifies a format for the column

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## CALL DEFINE Syntax

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<i>attribute-name</i>	Example <i>values</i>
'STYLE'	'STYLE={background=white foreground=red}' 'STYLE={foreground=cxFF3300 font_weight=bold}'
'URL'	'MyHTMLPage.html' MYURL (where MYURL is a variable equal to a URL)
'FORMAT'	'dollar12.2' 'myformat.'

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## Another CALL DEFINE Example

Region	Subsidiary	Product	Sales
Asian Pacific	Cosmetic Products	HairGro Lotion	1,035,962
		WrinkAway Creme	529,945
Asian Pacific			
Eastern Europe			
	OTC Remedies	Drizzle Nose Spray	594,815
		SleepTight Tablets	377,529
Eastern Europe			3,209,070

```

if upcase(_break_) ne 'REGION' then do;
  if mod(cntr,2) ne 0 then
    call define(_row_,'style',
      'style={background=cxeeeeee}');
end;
else if upcase(_break_) eq 'REGION' then do;
  call define(_row_,'style','style=Header');
end;

```

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Demo04.sas

## Another LINE Example

Region	Subsidiary	Product	Sales
Asian Pacific			
		SleepTight Tablets	377,529
Asian Pacific			1,985,058
Eastern Europe	Cosmetic Products	HairGro Lotion	1,589,967
		WrinkAway Creme	666,759
	OTC Remedies	Drizzle Nose Spray	594,815
		SleepTight Tablets	377,529
Eastern Europe			3,209,070

```

compute after Region /
  style={foreground=white background=white
    cellheight=1px font_size=1px};
  line ' ';
endcomp;

```

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Demo04.sas

## Other CALL DEFINE Examples

Region	Subsidiary	Product	Sales
<a href="#">North America</a>	Cosmetic Products	HairGro Lotion	1,355,795
		WrinkAway Creme	1,055,312
	OTC Remedies	Drizzle Nose Spray	1,235,135
		SleepTight Tablets	774,334
<b>North America</b>			<b>\$4,420,577</b>
<a href="#">South America</a>	Cosmetic Products	HairGro Lotion	878,828
		WrinkAway Creme	355,997
	OTC Remedies	Drizzle Nose Spray	498,317
		SleepTight Tablets	383,055
<b>South America</b>			<b>\$2,116,197</b>

Annotations: **URL** points to the 'North America' and 'South America' links. **STYLE** points to the blue background of the regional summary rows. **FORMAT** points to the '\$4,420,577' and '\$2,116,197' values.

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Demo05.sas

## Practically Perfect Tip #4

When you need to perform highlighting based on two or more variable values, use the CALL DEFINE statement.

North America	Cosmetic Products	HairGro Lotion	1,355,795
		WrinkAway Creme	1,055,312
	OTC Remedies	Drizzle Nose Spray	1,235,135
		SleepTight Tablets	774,334
		WrinkAway Creme	355,997
	OTC Remedies	Drizzle Nose Spray	498,317
		SleepTight Tablets	383,055
<b>South America</b>			<b>2,116,197</b>

```
if sales.sum gt 500000 and
  Product eq 'WrinkAway Creme' then
  call define(_ROW_,'style',
    'style={background=yellow}');
```



Tip04.sas

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## Chapter 6: Using Options with ODS

1) Basic PROC REPORT, ODS Style= and ESCAPECHAR

2) Style= Statement Level Overrides

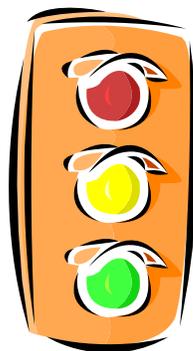
3) Overriding Style for LINES and CALL DEFINE

4) Inserting Images and Performing Traffic Lighting

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## Traffic Lighting

Traffic lighting is highlighting individual cells based on the cell's value. With CALL DEFINE, you can highlight cells, rows or columns based on multiple values.



Example:

Red for bad results.

Yellow for neutral results.

Green for good results.

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## Adding Traffic Lighting with Formats

Two items must be completed in order to modify individual cells within a column:

- 1 Create a format referencing the style attribute values with PROC FORMAT.
- 2 Refer to the format in the STYLE option in PROC REPORT for the appropriate column.

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## Adding Traffic Lighting

Create the format with the appropriate value for the style attribute you want to change.

```
proc format;
  value tlite low <750000 = 'light red'
              750000 - 1200000 = 'light yellow'
              1200000 <- 2000000 = 'light green'
              other = 'cx6495ED';
run;
```

1

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## Traffic Lighting with Format

Refer to the format in the STYLE= option or CALL DEFINE:

Region	Subsidiary	Product	Sales
North America	Cosmetic Products	HairGro Lotion	1,355,795
		WrinkAway Creme	1,055,312
	OTC Remedies	Drizzle Nose Spray	1,235,135
		SleepTight Tablets	774,334
<b>North America</b>			<b>4,420,577</b>

```
define Sales/ sum 'Sales' f=comma16.  
style(column)={background=tlite.};
```

	OTC Remedies	Drizzle Nose Spray	498,317
		SleepTight Tablets	383,055
<b>South America</b>			<b>2,116,197</b>

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Demo06.sas

## Your Turn: Using the Correct Format Ranges

- Turn to your worksheet and submit programs Demo06.sas and Demo06\_diff\_format.sas. (Item 7) Review the output and note how the summary line changes whether there is an "OTHER" category or not.

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## Table/Cell Style Attributes

Attribute	Definition
PREIMAGE POSTIMAGE BACKGROUNDIMAGE	'C:\Logo.jpg' "PharmaSUG.jpg"
PREHTML POSTHTML	"<HR size=3>" '<a href="www. sas. com"> SAS Web Page</a>'
PRETEXT POSTTEXT	'This is a draft.' "Continue"

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## Using the PREIMAGE Style Attribute

The location of the image file for HTML is the place where the file will be found when the HTML file is opened by the browser:



Region	Subsidiary	Product	Sales
North America	Cosmetic Products	HairGro Lotion	1,355,795
		WrinkAway Creme	1,055,312
	OTC Remedies	Drizzle Nose Spray	1,235,135
		SleepTight Tablets	774,334
North America			4,420,577
South America	Cosmetic Products	HairGro Lotion	878,828

```
proc report data=salesdata nowd
  style(report)={preimage='PharmaSUG.jpg'};
  title 'Demo 07 - Using Images';
```

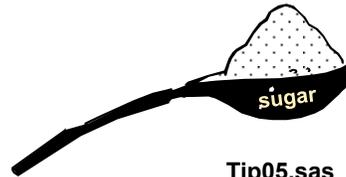
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Demo07.sas

## Practically Perfect Tip #5

Even though some PROC REPORT options are not used by all ODS destinations, you can simulate many of the options using the HTMLSTYLE attribute with CSS style properties and values.

The HTMLSTYLE attribute is only used for HTML destination output. However, starting in SAS 9.2, new style attributes will allow you to change attributes like border top and border bottom in order to simulate PROC REPORT options for RTF and PDF destinations, too.



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Tip05.sas

## Practically Perfect Tip #6

You can also put a corporate logo into the SAS TITLE statement using ODS ESCAPECHAR.



Tip 06 - Using a Logo

Region	Subsidiary	Product	Sales
North America	Cosmetic Products	HairGro Lotion	1,355,795
		WrinkAway Creme	1,055,312
	OTC Remedies	Drizzle Nose Spray	1,235,135
		SleepTight Tablets	774,334
North America			4,420,577
South America	Cosmetic Products	HairGro Lotion	878,938

```
title j=1 "~S={preimage='PharmaSUG.jpg'}";  
title2 'Tip 06 - Using a Logo';
```

South America			2,116,197
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Tip06.sas

## About the Speaker

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## Proc Report Review – Solutions

The correct answers are:

A/4: DEFINE - specifies HOW to use a report item

B/5: COLUMN - specifies WHICH report items are used on the report

C/2: DISPLAY - specifies that variable values should be listed without ordering or grouping

D/1: COMPUTE/ENDCOMP - defines a block of code to be executed

E/3: ACROSS - specifies that a column is created for every variable value

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1. Submit program **Demo00\_setup.sas** to establish the libref and working directory for class.
  - a. The working directory where output will be written is: **C:\Workshp\Zender\output**
2. Submit programs **Demo01a.sas**, **Demo01b.sas** and **Demo01c.sas** and review the output files created. This chart documents how PROC REPORT options work in the various ODS destinations, as illustrated in these three programs.
  - a. To learn about the PANELS= option and the COLUMNS= option submit program **Demo01d.sas**.
    - i. PANELS= is a LISTING only destination option
    - ii. COLUMNS= is an option that works in ODS PDF and ODS RTF destinations, but not in the ODS HTML destination.

Statement	LISTING	HTML	RTF	PDF
<b>HEADLINE/HEADSKIP</b>	Y	N	N	N
<b>WIDTH</b>	Y	N	N	N
<b>SPACING</b>	Y	N	N	N
<b>DOL/DUL</b>	Y	N	N	N
<b>CENTER</b>	Y	Y	Y	Y
<b>SKIP</b>	Y	N	N	N
<b>LS</b>	Y	N	N	N
<b>Repeat Character in Spanning Header</b>	Y	N	N	N
<b>NUMBER and PAGENO=1</b>	Y	N	N	N
<b>HEADLINE/HEADSKIP</b>	Y	N	Y	Y

In addition the FLOW option is a LISTING destination only option.

3. To see different style templates for each of the destinations, run program **Demo01e\_different\_styles.sas**
  - a. Style=**JOURNAL** is designed especially for use for journal publication and black and white results.
4. To learn how to do Page X of Y page numbering using ODS ESCAPECHAR functions, submit program **Demo01f\_page\_x\_of\_y.sas**.
  - a. Note that the {PAGEOF} function only works in the RTF destination, while {THISPAGE} and {LASTPAGE} work in both the PDF and RTF destination.
5. Submit program **Demo02.sas** and note which style attributes are used for these colors:
  - a. What style attribute is set to CYAN?
  - b. What style attribute is set to RED?
6. **Demo03.sas** illustrates the use of the CALL DEFINE statement. **Demo04.sas** shows how to make output with alternating rows in different colors. **Demo05.sas** shows the use of the URL= option to create a hyperlink in report output. Note that you will not be able to run Demo05.sas during the workshop if there is no Internet connectivity.
7. Submit programs **Demo06.sas** and **Demo06\_diff\_format.sas**. Compare the summary line in both outputs. Note how the OTHER specification was needed so the summary line was the same color as the Header style background.

### Other Programs

**Tip01.sas:** This program shows how to insert "raw" RTF control strings into your RTF output file.

**Tip02.sas:** This program shows the interaction between CELLSPACING, BORDERWIDTH and the RULES and FRAMES style attributes.

**Tip03.sas:** This program shows how to use various techniques to make wide tables fit on an RTF or PDF page: set ORIENTATION option to LANDSCAPE in OPTIONS statement; change FONT\_SIZE attribute; and/or change the CELLPADDING style attribute.

**Tip04.sas:** When you need to perform highlighting based on two or more variable values in PROC REPORT, use the CALL DEFINE statement in a COMPUTE BLOCK.

**Tip05.sas:** Even though some PROC REPORT options are not used by all ODS destinations, you can simulate many of the options using the HTMLSTYLE attribute with CSS style properties and values. This program shows how to use some of the CSS style properties to simulate PROC REPORT options.

**Tip06.sas:** This program illustrates how to insert a logo at the top of a report using the PREIMAGE attribute in a TITLE statement.

**Xtra\_column\_statement.sas:** This program illustrates different ways you can use a COLUMN statement in PROC REPORT.

**Xtra\_page\_xofy.sas:** This program illustrates the way to use Page X of Y ODS ESCAPECHAR functions in RTF and PDF destinations.