

# Getting the Right Report (Again): Your Compatibility Guide for ODS PDF in SAS<sup>®</sup> 9.2

Bari Lawhorn  
SAS Institute Inc., Cary, NC



THE  
POWER  
TO KNOW<sup>®</sup>



# Authors

- Bari Lawhorn
  - SAS Technical Support Analyst
  - 13 years
- Scott Huntley
  - SAS Software Developer
  - 13 years



# Comparison of Image Size in SAS® 9.1.3 and SAS 9.2

SAS  
9.1.3



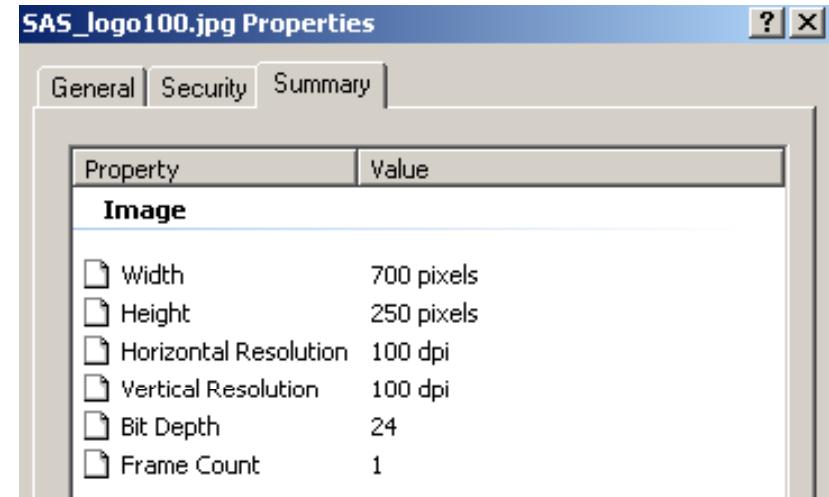
Obs	Name	Sex	Age	Height	Weight
1	Alfred	M	14	69.0	112.5
2	Alice	F	13	56.5	84.0
3	Barbara	F	13	65.3	98.0

SAS  
9.2



Obs	Name	Sex	Age	Height	Weight
1	Alfred	M	14	69.0	112.5
2	Alice	F	13	56.5	84.0
3	Barbara	F	13	65.3	98.0

# Comparison of Image Resolution in SAS<sup>®</sup> 9.1.3 and SAS 9.2



- **SAS 9.1.3:** 700 x 250 at 150 DPI = 4.67 inches x 1.67 inches
- **SAS 9.2:** 700 x 250 at 100 DPI = 7 inches x 2.5 inches

# Placement of Titles and Text in PDF Files

*Title statement*

Text before the table

Obs	Name	Sex	Age	Height	Weight
1	Alfred	M	14	69.0	112.5
2	Alice	F	13	56.5	84.0
3	Barbara	F	13	65.3	98.0
4	Carol	F	14	62.8	102.5
5	Henry	M	14	63.5	102.5

(continued)<sub>6</sub>

# Placement of Titles and Text in PDF Files

## SAS 9.1.3

*Title statement*

Text before the table

Obs	Name	Sex	Age	Height	Weight
1	Alfred	M	14	69.0	112.5
2	Alice	F	13	56.5	84.0
3	Barbara	F	13	65.3	98.0
4	Carol	F	14	62.8	102.5
5	Henry	M	14	63.5	102.5

## SAS 9.2

Text before the table

*Title statement*

Obs	Name	Sex	Age	Height	Weight
1	Alfred	M	14	69.0	112.5
2	Alice	F	13	56.5	84.0
3	Barbara	F	13	65.3	98.0
4	Carol	F	14	62.8	102.5
5	Henry	M	14	63.5	102.5

## STARTPAGE= Option to the Rescue!

Using the SAS 9.2 STARTPAGE= option enables you to render the placement of the table title and text so they match their appearance in SAS 9.1.3:

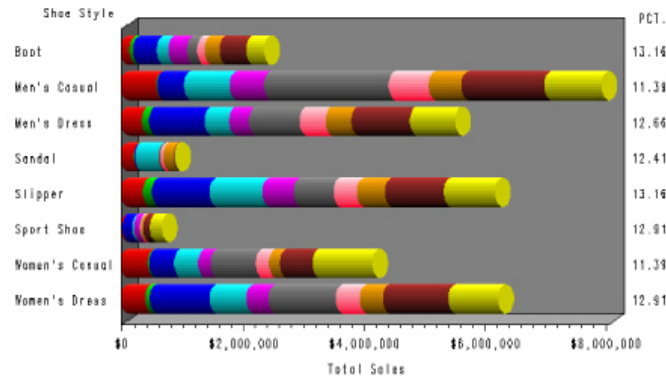
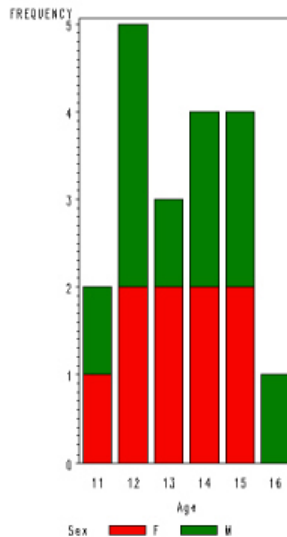
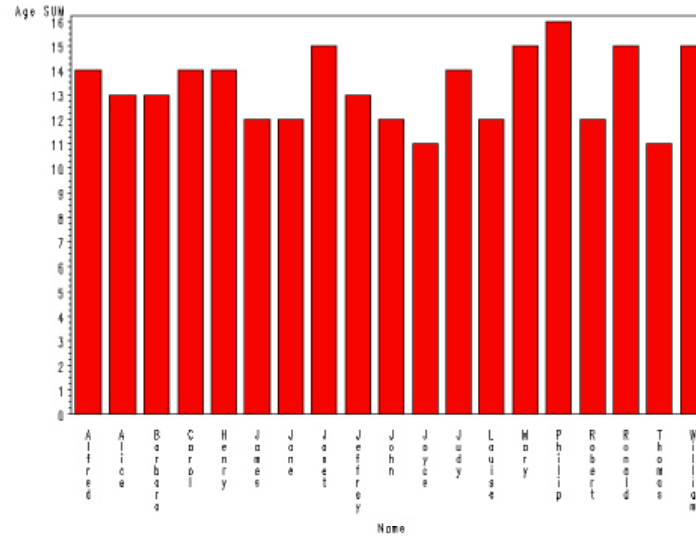
```
ods escapechar = '^';
ods pdf file='text.pdf' startpage=now;
ods pdf startpage=no;

title 'Title statement';
ods pdf text='^S={just=center foreground=blue
              font_size=12pt} Text before the table';
proc print data=sashelp.class(obs=5);
run;

ods pdf close;
```

# The ODS LAYOUT Statement in SAS® 9.1.3

	Product			
	BED		CHAIR	
	Actual Sales	Predicted Sales	Actual Sales	Predicted Sales
Country				
Canada	\$790,506.00	\$850,600.80	\$782,128.80	\$847,395.00
Mexico	\$535,408.20	\$605,701.80	\$515,390.40	\$571,402.80
U.S.A.	\$2384337.64	\$2453193.80	\$2397864.42	\$2579405.29
Total	\$3710251.84	\$3909496.40	\$3695383.62	\$3998203.09



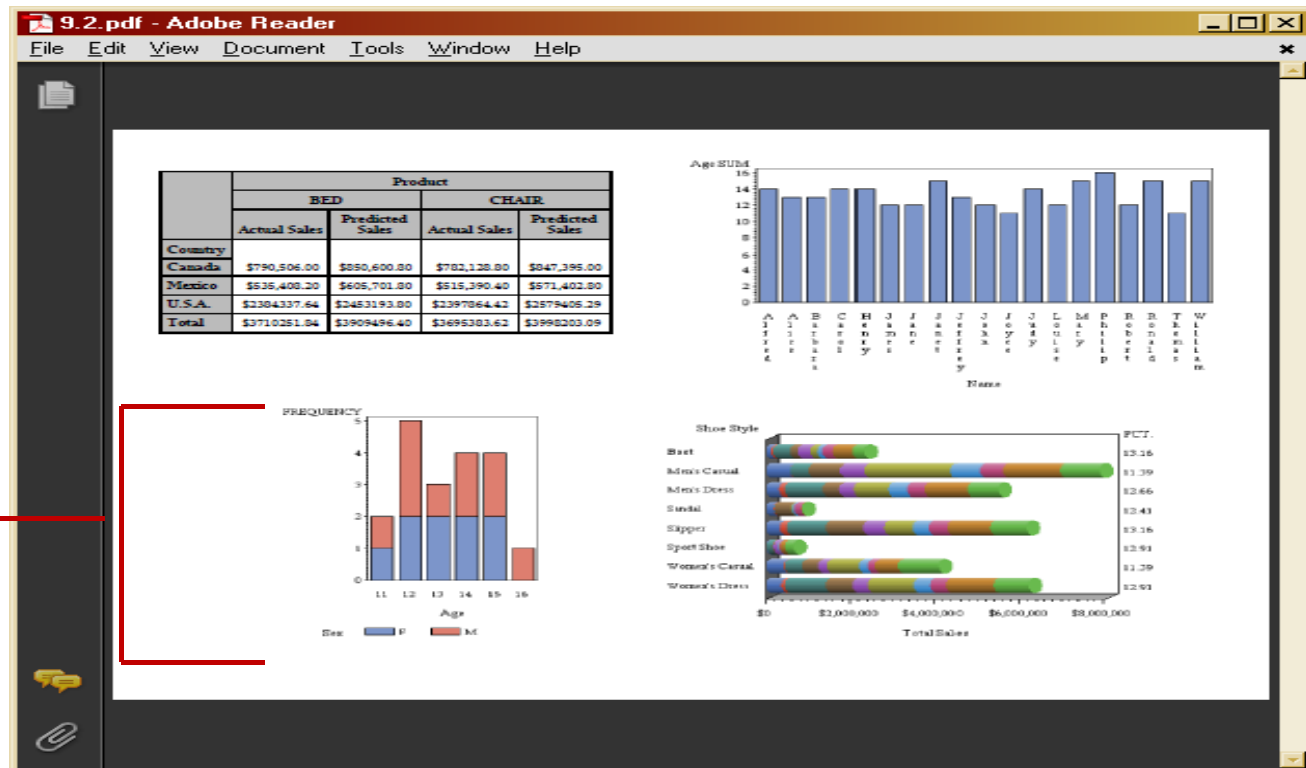
# The ODS LAYOUT Statement in SAS® 9.2: What Happened?

```
122 ods pdf close;
```

**Note:** ODS PDF printed 4 pages to C:\temp\9.2.pdf.

# The ODS LAYOUT and ODS REGION Statements

```
ods layout start columns=2 column_widths=(5in 5in);
ods region height=3.5in;
```



# Font Improvements

Arial vs. Albany AMT

Times New Roman versus Thorndale AMT

Courier New versus Cumberland AMT

$\frac{20}{200}$	E	$\frac{200 \text{ FT}}{61 \text{ M}}$	1
$\frac{20}{100}$	F P	$\frac{100 \text{ FT}}{30.5 \text{ M}}$	2
$\frac{20}{70}$	T O Z	$\frac{70 \text{ FT}}{21.3 \text{ M}}$	3
$\frac{20}{50}$	L P E D	$\frac{50 \text{ FT}}{15.2 \text{ M}}$	4
$\frac{20}{40}$	P E C F D	$\frac{40 \text{ FT}}{12.2 \text{ M}}$	5
$\frac{20}{30}$	<u>E D F C Z P</u>	$\frac{30 \text{ FT}}{9.14 \text{ M}}$	6
$\frac{20}{25}$	F E L O P Z D	$\frac{25 \text{ FT}}{7.62 \text{ M}}$	7
$\frac{20}{20}$	<u>D E F P O T E C</u>	$\frac{20 \text{ FT}}{6.10 \text{ M}}$	8
$\frac{20}{15}$	L E F O D P C T	$\frac{15 \text{ FT}}{4.57 \text{ M}}$	9
$\frac{20}{13}$	F D P L T C E O	$\frac{13 \text{ FT}}{3.96 \text{ M}}$	10
$\frac{20}{10}$	F E S O L C F T D	$\frac{10 \text{ FT}}{3.05 \text{ M}}$	11

(continued) 12

## ■ フォント\* Improvements

Representing double-byte character set (DBCS) characters in SAS 9.1.3:

- FONTREG procedure
- REGISTRY procedure
- TEMPLATE procedure

\*フォント = Font

(continued) 13

## ■ フォント Improvements

Representing DBCS characters in SAS 9.2:

```
data sample;
  var1='あいうえお'; /* The vowels a,i,u,e,o */
                        /* in Japanese.           */
run;

ods pdf file("&sysver.test.pdf");

title "てすと";      /* The word "test" in */
                    /* Japanese.           */
proc print data=sample;
run;

ods pdf close;
```

(continued) 14

## ■ フォント Improvements

Output  
from  
previous  
code:



9.2test.pdf - Adobe Reader

File Edit View Document Tools Window Help



ですと

OBS	Var1
1	あいうえお

8.26 x 11.69 in

# PDF Files in SAS<sup>®</sup> 9.2: My How You've Grown!

SAS 9.2 uses TrueType fonts. Embedding these fonts in a PDF file increases the size of the file.

Name	Size	Type
 test_v920.pdf	9 KB	Adobe Acrobat Document
 test_v913.pdf	4 KB	Adobe Acrobat Document

# Font Embedding

## *Font embedding*

Obs	Name	Sex	Age	Height	Weight
1	Alfred	M	14	69.0	112.5
2	Alice	F	13	56.5	84.0
3	Barbara	F	13	65.3	98.0
4	Carol	F	14	62.8	102.5
5	Henry	M	14	63.5	102.5

options fontembedding;

.....

• • •	• • • •	• • •	• • •	• • • • •	• • • • •
•	• • • • •	•	• •	• • •	• • • •
•	• • • •	•	• •	• • •	• • •
•	• • • • •	•	• •	• • •	• • •
•	• • • •	•	• •	• • •	• • • •
•	• • • •	•	• •	• • •	• • • •

options nofontembedding;

# Matching the SAS® 9.1.3 Fonts

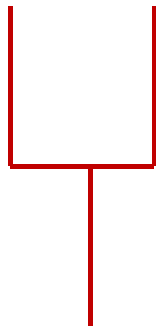
```
proc template;
  define style Styles.myPrinter;
    parent=styles.printer;
    class fonts / 'TitleFont2'=( "Times",12pt,bold italic)
                  'TitleFont'=( "Times",13pt,bold italic)
                  'StrongFont'=( "Times",10pt,bold)
                  'EmphasisFont'=( "Times",10pt,italic)
                  'FixedEmphasisFont'=( "Courier",9pt,italic)
                  'FixedStrongFont'=( "Courier",9pt,bold)
                  'FixedHeadingFont'=( "Courier",9pt,bold)
                  'BatchFixedFont'=( "SAS Monospace,Courier",6.7pt)
                  'FixedFont'=( "Courier",9pt)
                  'headingEmphasisFont'=( "Times",11pt,bold italic)
                  'headingFont'=( "Times",11pt,bold)
                  'docFont'=( "Times",10pt);
  end;
run;

ods pdf file="times_92.pdf" style=styles.myprinter;
```

## Margin Control in SAS® 9.1.3

The OPTIONS statement sets the margin at 2 inches, while the template sets the margin at .5 inches.

Obs	Name	Sex	Age	Height	Weight
1	Alfred	M	14	69.0	112.5
2	Alice	F	13	56.5	84.0
3	Barbara	F	13	65.3	98.0



.5 inch

# Comparison of Margin Control in SAS<sup>®</sup> 9.1.3 and SAS 9.2

SAS  
9.1.3

Here, the template is controlling the margin.

Obs	Name	Sex	Age	Height	Weight
1	Alfred	M	14	69.0	112.5
2	Alice	F	13	56.5	84.0
3	Barbara	F	13	65.3	98.0

SAS  
9.2

Here, the OPTIONS statement is controlling the margin.

Obs	Name	Sex	Age	Height	Weight
1	Alfred	M	14	69.0	112.5
2	Alice	F	13	56.5	84.0
3	Barbara	F	13	65.3	98.0

# Placing Text on Images

Placing text on images is new for SAS 9.2.

Interesting Text

Obs	Name	Sex	Age	Height	Weight
1	Alfred	M	14	69	112.5

(continued) <sup>21</sup>

# Placing Text on Images

```
ods pdf text='^{style [foreground=black font_size=18pt  
just=right  
backgroundimage="u:\pp\blkprttb.gif"]Interesting Text}';
```

Interesting Text

Obs	Name	Sex	Age	Height	Weight
1	Alfred	M	14	69	112.5

```
ods pdf text='^{style [cellwidth=8in cellheight=.5in  
foreground=black font_size=18pt vjust=top just=right  
backgroundimage="u:\pp\blkprttb.gif"]Interesting Text}';
```

Interesting Text

Obs	Name	Sex	Age	Height	Weight
1	Alfred	M	14	69	112.5

# The REPORT Procedure Statement without the SPANROWS Option

```
proc report data=sashelp.shoes nowd;
```

Page 1

Region	Product	Subsidiary	Number of Stores	Total Sales	Total Inventory	Total Returns
Africa	Boot	Addis Ababa	12	\$29,761	\$191,821	\$769
		Algiers	21	\$21,297	\$73,737	\$710
		Cairo	20	\$4,846	\$18,965	\$229
		Johannesburg	14	\$8,365	\$33,011	\$483
		Khartoum	24	\$19,282	\$105,370	\$700
		Kinshasa	16	\$13,921	\$70,736	\$553
		Luanda	8	\$6,081	\$51,572	\$325
		Nairobi	25	\$16,282	\$66,017	\$844
	Men's Casual	Addis Ababa	4	\$67,242	\$118,036	\$2,284
		Algiers	4	\$63,206	\$100,982	\$2,221

Page 2

Region	Product	Subsidiary	Number of Stores	Total Sales	Total Inventory	Total Returns
		Luanda	9	\$11,145	\$19,900	\$657
		Nairobi	19	\$16,289	\$47,406	\$1,175
	Slipper	Addis Ababa	14	\$68,641	\$279,795	\$1,771

# The PROC REPORT Statement with the SPANROWS Option

```
proc report data=sashelp.shoes nowd spanrows;
```

Page 1

Region	Product	Subsidiary	Number of Stores	Total Sales	Total Inventory	Total Returns
Africa	Boot	Addis Ababa	12	\$29,761	\$191,821	\$769
		Algiers	21	\$21,297	\$73,737	\$710
		Cairo	20	\$4,846	\$18,965	\$229
		Johannesburg	14	\$8,365	\$33,011	\$483
		Khartoum	24	\$19,282	\$105,370	\$700
		Kinshasa	16	\$13,921	\$70,736	\$553
		Luanda	8	\$6,081	\$51,572	\$325
		Nairobi	25	\$16,282	\$66,017	\$844
	Men's Casual	Addis Ababa	4	\$67,242	\$118,036	\$2,284
		Algiers	4	\$63,206	\$100,982	\$2,221

Page 2

Region	Product	Subsidiary	Number of Stores	Total Sales	Total Inventory	Total Returns
Africa	Sandal	Kinshasa	10	\$16,662	\$104,438	\$611
		Luanda	9	\$11,145	\$19,900	\$657

## Formatting Hyperlinks in PDF Files

Typically, hyperlinks in PDF files are displayed with a blue box around the link.

Obs	Name	Sex	Age	Height	Weight
1	Alfred	M	14	69.0	112.5
2	Alice	F	13	56.5	84.0
3	Barbara	F	13	65.3	98.0

Here is the link to SAS



<http://www.sas.com>

(continued) 25

## Formatting Hyperlinks in PDF Files

The TEXT= option in the ODS PDF statement enables you to format a hyperlink in a PDF file. The following code removes the blue box and formats the word “link” in blue.

```
ods pdf text='^{style [url="http://www.sas.com"  
just=center linkcolor=white] Here is the ^{style  
[color=blue]link} to SAS }';
```

Obs	Name	Sex	Age	Height	Weight
1	Alfred	M	14	69.0	112.5
2	Alice	F	13	56.5	84.0
3	Barbara	F	13	65.3	98.0

Here is the [link](http://www.sas.com) to SAS



<http://www.sas.com>

# Bookmark Control

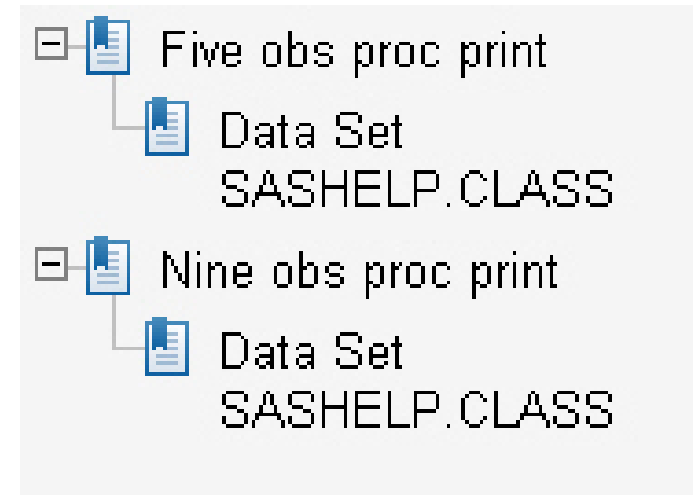
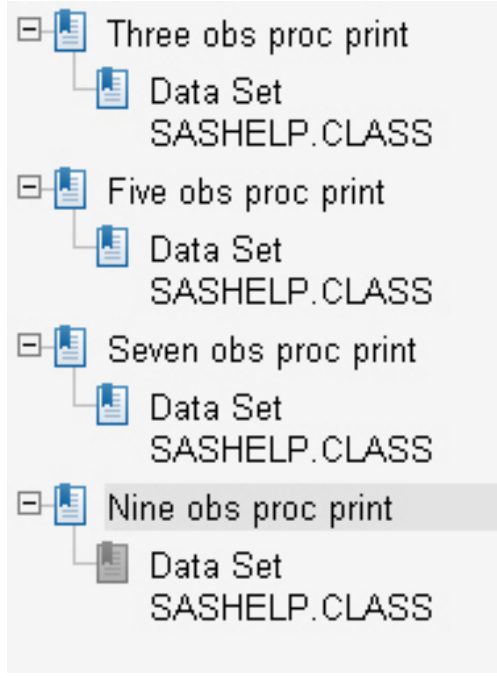
```
ods pdf file="test.pdf";  
ods graphics;  
  
proc hpf data=sashelp.air out=_null_  
    lead=20 back=20 print=all plot=all;  
    id date interval=month;  
    forecast air / model=best transform=auto  
        select=mape;  
  
run;  
  
ods graphics off;  
ods pdf close;
```

- [-] The Hpf Procedure
  - [-] Input Data Set
  - [-] AIR
    - [-] Variable Information
    - [-] Descriptive Statistics
    - [-] Model Selection Criterion = MAPE
    - [-] Parameter Estimates
    - [-] Model Plot
    - [-] Smoothed Level State Plot
    - [-] Smoothed Trend State Plot
    - [-] Smoothed Season State Plot
  - [-] Prediction Errors
    - [-] Prediction Error Plot
    - [-] Prediction Error Histogram
    - [-] ACF Plot
    - [-] Standardized ACF Plot
    - [-] PACF Plot
    - [-] Standardized PACF Plot
    - [-] IACF Plot
    - [-] Standardized IACF Plot
    - [-] White Noise Probability Plot
    - [-] White Noise Probability Plot (Log Scale)
  - [-] Model and Forecasts Plot
  - [-] Forecasts Plot
  - [-] Forecasts Only Plot
  - [-] Forecasts
  - [-] Statistics of Fit
  - [-] Performance Statistics
- [-] Forecast Summary

(continued) 27

# Bookmark Control

```
ods pdf file='bookmark.pdf' bookmarkgen=off;  
proc print data=sashelp.class(obs=3);  
run;  
  
ods pdf bookmarkgen=on;  
ods proclabel="five obs proc print";  
proc print data=sashelp.class(obs=5);  
run;
```



# Conclusion

- Images
- Title and Text Placement
- Layout
- Fonts
- Margins





## Resources

SAS Institute Inc. 2010. Customer Support Web Site. Cary, NC: SAS Institute Inc. Available at [support.sas.com/](http://support.sas.com/).

SAS Institute Inc. 2010. SAS Discussion Forums. Cary, NC: SAS Institute Inc. Available at [support.sas.com/forums](http://support.sas.com/forums).

## Contact Information

- Bari Lawhorn  
E-mail: [support@sas.com](mailto:support@sas.com)  
Phone: 919-677-8008  
Web: [support.sas.com/](http://support.sas.com/)
- Scott Huntley  
[Scott.Huntley@sas.com](mailto:Scott.Huntley@sas.com)
- ODS Development Group  
[ODS@sas.com](mailto:ODS@sas.com)

# Questions?

[www.sas.com](http://www.sas.com)



**THE  
POWER  
TO KNOW®**