

Presenter

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Jane has earned certifications as an Advanced Programmer for SAS®9 and as an Advanced Visual Business Analyst and authored *The SAS® Programmer's PROC REPORT Handbook: Basic to Advanced Reporting Techniques*. She has presented at numerous conferences and users' groups across the US.

The REPORT Procedure and ODS Destination for Excel: The Smarter, Faster Way to Create First-Rate Excel Reports

Jane Eslinger

PROGRAMMERS



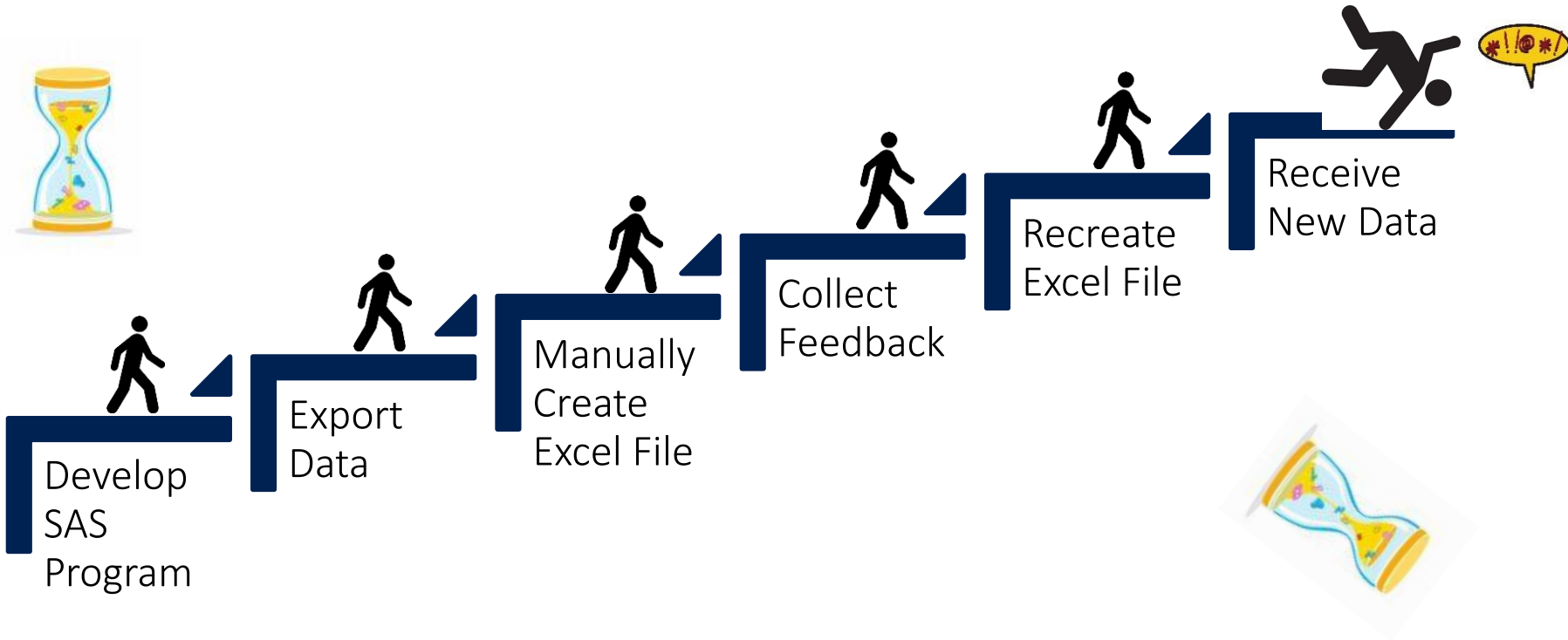
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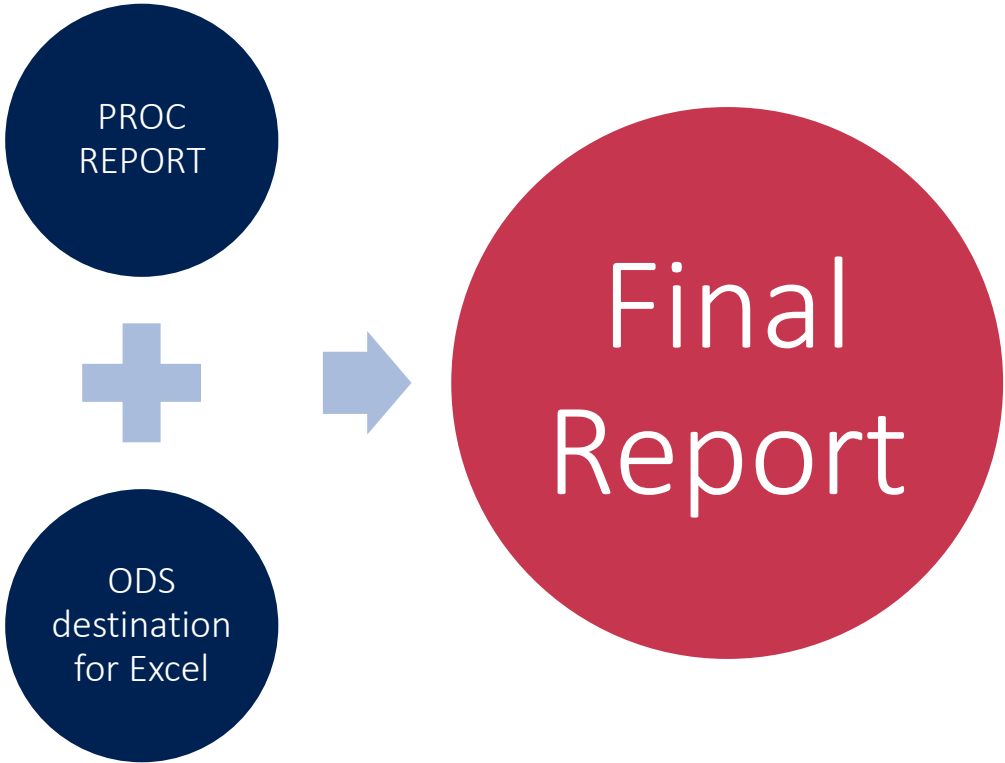
BOSSSES



Current Process



New Way



ODS EXCEL Statement Document Options

- Author
- Category
- Comments
- Keywords
- Status
- Title

ODS EXCEL Statement OPTIONS Option

- Approximately 45 suboptions!
- Half control printing aspects
- Half control worksheet and table features

OPTIONS Suboptions for Worksheet Features

- EMBEDDED_TITLES places titles in worksheet
- EMBEDDED_FOOTNOTES places footnotes in worksheet
- TAB_COLOR changes background color of tab name
- START_AT specifies cell to place first piece of output
- FROZEN_HEADERS forces header rows to be static

OPTIONS Suboptions for Worksheet Features

```
ods excel file='example.xlsx'  
          options (embedded_titles='yes'  
                  embedded_footnotes='yes'  
                  tab_color='purple'  
                  start_at='2,4'  
                  frozen_headers='yes');  
title 'This title will appear in the worksheet';  
footnote 'This footnote will appear in the  
         worksheet';  
proc report data=sashelp.class;  
run;  
ods excel close;
```

	A	B	C	D	E	F
1						
2						
3						
4	This title will appear in the worksheet					
5						
6		Name	Sex	Age	Height	Weight
7		Alfred	M	14	69	112.5
8		Alice	F	13	56.5	84
9		Barbara	F	13	65.3	98
10		Carol	F	14	62.8	102.5
11		Henry	M	14	63.5	102.5
12		James	M	12	57.3	83
13		Jane	F	12	59.8	84.5
14		Janet	F	15	62.5	112.5
15		Jeffrey	M	13	62.5	84
16		John	M	12	59	99.5
17		Joyce	F	11	51.3	50.5
18		Judy	F	14	64.3	90
19		Louise	F	12	56.3	77
20		Mary	F	15	66.5	112
21		Philip	M	16	72	150
22		Robert	M	12	64.8	128
23		Ronald	M	15	67	133
24		Thomas	M	11	57.5	85
25		William	M	15	66.5	112
26						
27	This footnote will appear in the worksheet					
28						

OPTIONS Suboptions for Table Features

- HIDDEN_ROWS hides specific rows
- AUTOFILTER turns on Excel filtering capability
- ABSOLUTE_COLUMN_WIDTH specifies column width
- ABSOLUTE_ROW_HEIGHT specifies row height

OPTIONS Suboptions for Table Features

```
ods excel file='example.xlsx'  
          options(hidden_rows='6'  
                 autofilter='1-3'  
                 absolute_column_width='16'  
                 absolute_row_height='25');  
proc report data=sashelp.cars;  
run;  
ods excel close;
```

OPTIONS Suboptions for Table Features

	A	B	C	D	E	F
1	Make <input type="text"/>	Model <input type="text"/>	Type <input type="text"/>	Origin	DriveTrain	MSRP
2	Acura	MDX	SUV	Asia	All	\$36,945
3	Acura	RSX Type S 2dr	Sedan	Asia	Front	\$23,820
4	Acura	TSX 4dr	Sedan	Asia	Front	\$26,990
5	Acura	TL 4dr	Sedan	Asia	Front	\$33,195
7	Acura	3.5 RL w/Navigation	Sedan	Asia	Front	\$46,100
8	Acura	NSX coupe 2dr man	Sports	Asia	Rear	\$89,765
9	Audi	A4 1.8T 4dr	Sedan	Europe	Front	\$25,940

Suboptions for Sheet Name and Sheet Creation

- SHEET_INTERVAL
 - Default value is TABLE
 - PROC REPORT creates one table
 - BY statement or PAGE option generates multiple tables
- SHEET_NAME
 - Default value is procedure based
 - ‘Report 1 – Detailed and-or summarized report’
- SHEET_LABEL
 - Default is NONE
 - Prepends default sheet name

Multiple Tables on Multiple Worksheets

	A	B	C
1	Age	Height	Weight
2		62.336842	100.02632
3	11	54.4	67.75
4	12	59.44	94.4
5	13	61.433333	88.666667
6	14	64.9	101.875
7	15	65.625	117.375
8	16	72	150
9			
10	Sex	Height	Weight
11		62.336842	100.02632
12	F	60.588889	90.111111
13	M	63.91	108.95
14			
15			
16			
17			
18			
19			
20			

Navigation: < > Class Heart

	A	B	C
1	Blood Pressure Status	Height	Weight
2		64.813185	153.08668
3	High	64.713687	161.84636
4	Normal	65.005841	149.16768
5	Optimal	64.578947	138.7202
6			
7	Sex	Height	Weight
8		64.813185	153.08668
9	Female	62.572586	141.38864
10	Male	67.567374	167.46615
11			
12			
13			
14			
15			
16			
17			
18			
19			
20			

Navigation: < > Class Heart +

Multiple Tables on Multiple Worksheets

```
ods excel file='example.xlsx'  
      options(sheet_interval='none' sheet_name='Class');  
proc report data=sashelp.class;  
  column age height weight;  
  define age / group;  
  define height / mean;  
  define weight / mean;  
  rbreak before / summarize;  
run;  
  
proc report data=sashelp.class;  
  column sex height weight;  
  define sex / group;  
  define height / mean;  
  define weight / mean;  
  rbreak before / summarize;  
run;
```

Multiple Tables on Multiple Worksheets

```
ods excel options(sheet_interval='output');

ods exclude all;
data _null_;
    declare odsout obj();
run;
ods select all;

ods excel options(sheet_interval='none'
                 sheet_name='Heart');
```

Multiple Tables on Multiple Worksheets

```
proc report data=sashelp.heart;  
  column bp_status height weight;  
  define bp_status / group;  
  define height / mean;  
  define weight / mean;  
  rbreak before / summarize;  
run;
```

```
proc report data=sashelp.heart;  
  column sex height weight;  
  define sex / group;  
  define height / mean;  
  define weight / mean;  
  rbreak before / summarize;  
run;  
ods excel close;
```

Multiple Tables on Multiple Worksheets

	A	B	C
1	Age	Height	Weight
2		62.336842	100.02632
3	11	54.4	67.75
4	12	59.44	94.4
5	13	61.433333	88.666667
6	14	64.9	101.875
7	15	65.625	117.375
8	16	72	150
9			
10	Sex	Height	Weight
11		62.336842	100.02632
12	F	60.588889	90.111111
13	M	63.91	108.95
14			
15			
16			
17			
18			
19			
20			

Navigation: < > Class Heart

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1	Blood Pressure Status	Height	Weight
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3	High	64.713687	161.84636
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6			
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8		64.813185	153.08668
9	Female	62.572586	141.38864
10	Male	67.567374	167.46615
11			
12			
13			
14			
15			
16			
17			
18			
19			
20			

Navigation: < > Class Heart +

Create Custom Report

Data Preparation

```
data pricedata;  
length productname $50.;  
set sashelp.pricedata;  
  
if productname="Product8" then product=8;  
else if productname="Product9" then product=9;  
else if productname="Product10" then product=10;  
else if productname="Product11" then product=11;  
  
productnum = put(product,z3.);  
run;
```

Pricedata Data Set

	productname	date	sale	price	discount	cost	regionName	productLine	region	line	product	productnum
1	Product1	JAN98	355	52.3	0	23.9	Region1	Line1	1	1	1	001
2	Product1	FEB98	398	52.3	0	23.9	Region1	Line1	1	1	1	001
3	Product1	MAR98	387	52.3	0	23.9	Region1	Line1	1	1	1	001
4	Product1	APR98	380	52.3	0	23.9	Region1	Line1	1	1	1	001
5	Product1	MAY98	555	44.455	0.15	23.9	Region1	Line1	1	1	1	001
6	Product1	JUN98	385	52.3	0	23.9	Region1	Line1	1	1	1	001
7	Product1	JUL98	390	52.3	0	23.9	Region1	Line1	1	1	1	001
8	Product1	AUG98	377	52.3	0	23.9	Region1	Line1	1	1	1	001
9	Product1	SEP98	386	52.3	0	23.9	Region1	Line1	1	1	1	001
10	Product1	OCT98	367	52.3	0	23.9	Region1	Line1	1	1	1	001
11	Product1	NOV98	372	52.3	0	23.9	Region1	Line1	1	1	1	001
12	Product1	DEC98	378	52.3	0	23.9	Region1	Line1	1	1	1	001
13	Product1	JAN99	391	52.3	0	23.9	Region1	Line1	1	1	1	001
14	Product1	FEB99	386	52.3	0	23.9	Region1	Line1	1	1	1	001
15	Product1	MAR99	356	52.3	0	23.9	Region1	Line1	1	1	1	001
16	Product1	APR99	380	52.3	0	23.9	Region1	Line1	1	1	1	001
17	Product1	MAY99	393	52.3	0	23.9	Region1	Line1	1	1	1	001
18	Product1	JUN99	389	52.3	0	23.9	Region1	Line1	1	1	1	001
19	Product1	JUL99	388	52.3	0	23.9	Region1	Line1	1	1	1	001
20	Product1	AUG99	397	52.3	0	23.9	Region1	Line1	1	1	1	001
21	Product1	SEP99	379	52.3	0	23.9	Region1	Line1	1	1	1	001
22	Product1	OCT99	502	47.07	0.1	23.9	Region1	Line1	1	1	1	001
23	Product1	NOV99	342	52.3		23.9	Region1	Line1	1	1	1	001

Snippet 1

```
ods excel file='example.xlsx' options(embedded_titles='yes'  
                                       frozen_headers='yes');  
title "Year-end Sales Totals";  
proc report data=pricedata;  
column region regionname product productname productnum  
         cost price sale;  
define region / group order=internal noprint;  
define regionname / group noprint;  
define product / group order=internal noprint;  
define productname / group;  
define productnum / group 'Product Number';  
run;  
ods excel close;
```


Snippet 1 Output

	A	B	C	D	E
1	Year-end Sales Totals				
2					
3	Product Name	Product Number	Unit Cost	Unit Price	Unit Sale
4	Product1	1	1434	3101.39	23769
5	Product2	2	3141	6831	24742
6	Product3	3	1209	1982.29	20667
7	Product4	4	1854	4033.26	25734
8	Product5	5	984	2131.2	26250
9	Product6	6	1332	2884.41	21572
10	Product7	7	1146	2488.5	30745
11	Product8	8	1554	3371.325	25982
12	Product9	9	4680	10172.59	29048
13	Product10	10	1611	3501.65	22268
14	Product11	11	1782	3866.36	15339
15	Product12	12	4014	8731.8	26892
16	Product13	13	3333	7222.4	20934
17	Product14	14	1596	3142.9	26971
18	Product15	15	3282	7139.88	24331
19	Product16	16	2268	4926.05	27841
20	Product17	17	2199	4777.675	23642
21					
22					
23					
24					
25					

Snippet 2

```
define productnum / group 'Product Number' format=$3.;  
  
define cost /  
    style(column)=[tagattr="format:$#,###;$-#,###"];  
  
define price /  
    style(column)=[tagattr="format:$#,###.00;$-#,###.00"];  
  
define sale /  
    style(column)=[tagattr="format:#,###"];
```

Snippet 2 Output

	A	B	C	D	E
1	Year-end Sales Totals				
2					
3	Product Name	Product Number	Unit Cost	Unit Price	Unit Sale
4	Product1	001	\$1,434	\$3,101.39	23,769
5	Product2	002	\$3,141	\$6,831.00	24,742
6	Product3	003	\$1,209	\$1,982.29	20,667
7	Product4	004	\$1,854	\$4,033.26	25,734
8	Product5	005	\$984	\$2,131.20	26,250
9	Product6	006	\$1,332	\$2,884.41	21,572
10	Product7	007	\$1,146	\$2,488.50	30,745
11	Product8	008	\$1,554	\$3,371.33	25,982
12	Product9	009	\$4,680	\$10,172.59	29,048
13	Product10	010	\$1,611	\$3,501.65	22,268
14	Product11	011	\$1,782	\$3,866.36	15,339
15	Product12	012	\$4,014	\$8,731.80	26,892
16	Product13	013	\$3,333	\$7,222.40	20,934
17	Product14	014	\$1,596	\$3,142.90	26,971
18	Product15	015	\$3,282	\$7,139.88	24,331
19	Product16	016	\$2,268	\$4,926.05	27,841
20	Product17	017	\$2,199	\$4,777.68	23,642
21					
22					
23					
24					
25					

Snippet 3

```
compute before regionname /  
    style=[background=lightblue just=l font_weight=bold];  
  
    line regionname $20.;  
  
endcomp;
```

Snippet 3 Output

	A	B	C	D	E
1	Year-end Sales Totals				
2					
3	Product Name	Product Number	Unit Cost	Unit Price	Unit Sale
4	Region1				
5	Product1	001	\$1,434	\$3,101.39	23,769
6	Product2	002	\$3,141	\$6,831.00	24,742
7	Product3	003	\$1,209	\$1,982.29	20,667
8	Region2				
9	Product4	004	\$1,854	\$4,033.26	25,734
10	Product5	005	\$984	\$2,131.20	26,250
11	Product6	006	\$1,332	\$2,884.41	21,572
12	Product7	007	\$1,146	\$2,488.50	30,745
13	Product8	008	\$1,554	\$3,371.33	25,982
14	Product9	009	\$4,680	\$10,172.59	29,048
15	Product10	010	\$1,611	\$3,501.65	22,268
16	Product11	011	\$1,782	\$3,866.36	15,339
17	Region3				
18	Product12	012	\$4,014	\$8,731.80	26,892
19	Product13	013	\$3,333	\$7,222.40	20,934
20	Product14	014	\$1,596	\$3,142.90	26,971
21	Product15	015	\$3,282	\$7,139.88	24,331
22	Product16	016	\$2,268	\$4,926.05	27,841
23	Product17	017	\$2,199	\$4,777.68	23,642
24					
25					

Snippet 4

```
break after regionname / summarize;
```

```
rbreak after / summarize
```

Snippet 4 Output

	A	B	C	D	E
1	Year-end Sales Totals				
2					
3	Product Name	Product Number	Unit Cost	Unit Price	Unit Sale
4	Region1				
5	Product1	001	\$1,434	\$3,101.39	23,769
6	Product2	002	\$3,141	\$6,831.00	24,742
7	Product3	003	\$1,209	\$1,982.29	20,667
8			\$5,784	\$11,914.68	69,178
9	Region2				
10	Product4	004	\$1,854	\$4,033.26	25,734
11	Product5	005	\$984	\$2,131.20	26,250
12	Product6	006	\$1,332	\$2,884.41	21,572
13	Product7	007	\$1,146	\$2,488.50	30,745
14	Product8	008	\$1,554	\$3,371.33	25,982
15	Product9	009	\$4,680	\$10,172.59	29,048
16	Product10	010	\$1,611	\$3,501.65	22,268
17	Product11	011	\$1,782	\$3,866.36	15,339
18			\$14,943	\$32,449.30	196,938
19	Region3				
20	Product12	012	\$4,014	\$8,731.80	26,892
21	Product13	013	\$3,333	\$7,222.40	20,934
22	Product14	014	\$1,596	\$3,142.90	26,971
23	Product15	015	\$3,282	\$7,139.88	24,331
24	Product16	016	\$2,268	\$4,926.05	27,841
25	Product17	017	\$2,199	\$4,777.68	23,642
26			\$16,692	\$35,940.71	150,611
27			\$37,419	\$80,304.68	416,727
28					

USERS PROGRAM



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Snippet 5

```
proc report data=pricedata
```

```
    style(summary)=[font_weight=bold];
```

```
    compute after regionname;
```

```
    1 productname = catx(' ', 'Total', regionname);
```

```
    2 call define(_row_, 'style',  
        'style=[bordertopstyle=solid  
        bordertopwidth=1pt bordertopcolor=black  
        borderbottomstyle=solid borderbottomwidth=1pt  
        borderbottomcolor=black]');
```

```
    3 line ' ';  
    endcomp;
```


Snippet 5 Output

	A	B	C	D	E
1	Year-end Sales Totals				
2					
3	Product Name	Product Number	Unit Cost	Unit Price	Unit Sale
4	Region1				
5	Product1	001	\$1,434	\$3,101.39	23,769
6	Product2	002	\$3,141	\$6,831.00	24,742
7	Product3	003	\$1,209	\$1,982.29	20,667
8	Total Region1		\$5,784	\$11,914.68	69,178
9					
10	Region2				
11	Product4	004	\$1,854	\$4,033.26	25,734
12	Product5	005	\$984	\$2,131.20	26,250
13	Product6	006	\$1,332	\$2,884.41	21,572
14	Product7	007	\$1,146	\$2,488.50	30,745
15	Product8	008	\$1,554	\$3,371.33	25,982
16	Product9	009	\$4,680	\$10,172.59	29,048
17	Product10	010	\$1,611	\$3,501.65	22,268
18	Product11	011	\$1,782	\$3,866.36	15,339
19	Total Region2		\$14,943	\$32,449.30	196,938
20					
21	Region3				
22	Product12	012	\$4,014	\$8,731.80	26,892
23	Product13	013	\$3,333	\$7,222.40	20,934
24	Product14	014	\$1,596	\$3,142.90	26,971
25	Product15	015	\$3,282	\$7,139.88	24,331
26	Product16	016	\$2,268	\$4,926.05	27,841
27	Product17	017	\$2,199	\$4,777.68	23,642
28	Total Region3		\$16,692	\$35,940.71	150,611
29					
30			\$37,419	\$80,304.68	416,727
31					

Snippet 6

```
compute after;  
  productname = "All Regions";  
  call define(_row_,'style',  
    'style=[bordertopstyle=solid  
      bordertopwidth=1pt  
      bordertopcolor=black  
      borderbottomstyle=solid  
      borderbottomwidth=1pt  
      borderbottomcolor=black] ');  
endcomp;
```

Snippet 6 Output

	A	B	C	D	E
1	Year-end Sales Totals				
2					
3	Product Name	Product Number	Unit Cost	Unit Price	Unit Sale
4	Region1				
5	Product1	001	\$1,434	\$3,101.39	23,769
6	Product2	002	\$3,141	\$6,831.00	24,742
7	Product3	003	\$1,209	\$1,982.29	20,667
8	Total Region1		\$5,784	\$11,914.68	69,178
9					
10	Region2				
11	Product4	004	\$1,854	\$4,033.26	25,734
12	Product5	005	\$984	\$2,131.20	26,250
13	Product6	006	\$1,332	\$2,884.41	21,572
14	Product7	007	\$1,146	\$2,488.50	30,745
15	Product8	008	\$1,554	\$3,371.33	25,982
16	Product9	009	\$4,680	\$10,172.59	29,048
17	Product10	010	\$1,611	\$3,501.65	22,268
18	Product11	011	\$1,782	\$3,866.36	15,339
19	Total Region2		\$14,943	\$32,449.30	196,938
20					
21	Region3				
22	Product12	012	\$4,014	\$8,731.80	26,892
23	Product13	013	\$3,333	\$7,222.40	20,934
24	Product14	014	\$1,596	\$3,142.90	26,971
25	Product15	015	\$3,282	\$7,139.88	24,331
26	Product16	016	\$2,268	\$4,926.05	27,841
27	Product17	017	\$2,199	\$4,777.68	23,642
28	Total Region3		\$16,692	\$35,940.71	150,611
29					
30	All Regions		\$37,419	\$80,305	416,727
31					

	A	B	C	D	
1	Year-end Sales Totals				
2					
3	Product Name	Product Number	Unit Cost	Unit Price	Unit Sale
4	Product1	1	1434	3101.39	
5	Product2	2	3141	6831	
6	Product3	3	1209	1982.29	
7	Product4	4	1854	4033.26	
8	Product5	5	984	2131.2	
9	Product6	6	1332	2884.41	
10	Product7	7	1146	2488.5	
11	Product8	8	1554	3371.325	
12	Product9	9	4680	10172.59	
13	Product10	10	1611	3501.65	
14	Product11	11	1782	3866.36	
15	Product12	12	4014	8731.8	
16	Product13	13	3333	7222.4	
17	Product14	14	1596	3142.9	
18	Product15	15	3282	7139.88	
19	Product16	16	2268	4926.05	
20	Product17	17	2199	4777.675	
21					
22					
23					
24					
25					

Before

	A	B	C	D	E
1	Year-end Sales Totals				
2					
3	Product Name	Product Number	Unit Cost	Unit Price	Unit Sale
4	Region1				
5	Product1	001	\$1,434	\$3,101.39	23,769
6	Product2	002	\$3,141	\$6,831.00	24,742
7	Product3	003	\$1,209	\$1,982.29	20,667
8	Total Region1		\$5,784	\$11,914.68	69,178
9					
10	Region2				
11	Product4	004	\$1,854	\$4,033.26	25,734
12	Product5	005	\$984	\$2,131.20	26,250
13	Product6	006	\$1,332	\$2,884.41	21,572
14	Product7	007	\$1,146	\$2,488.50	30,745
15	Product8	008	\$1,554	\$3,371.33	25,982
16	Product9	009	\$4,680	\$10,172.59	29,048
17	Product10	010	\$1,611	\$3,501.65	22,268
18	Product11	011	\$1,782	\$3,866.36	15,339
19	Total Region2		\$14,943	\$32,449.30	196,938
20					
21	Region3				
22	Product12	012	\$4,014	\$8,731.80	26,892
23	Product13	013	\$3,333	\$7,222.40	20,934
24	Product14	014	\$1,596	\$3,142.90	26,971
25	Product15	015	\$3,282	\$7,139.88	24,331
26	Product16	016	\$2,268	\$4,926.05	27,841
27	Product17	017	\$2,199	\$4,777.68	23,642
28	Total Region3		\$16,692	\$35,940.71	150,611
29					
30	All Regions		\$37,419	\$80,305	416,727
31					

After

THE END