

A SAS® Output Delivery System Menu for All Appetites and Applications

**THE
POWER
TO KNOW®**

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Menu

Breakfast, Lunch, and Early-Bird Dinner Specials


Enhancing Data Presentation

Dinner

Developing Web Applications
Using ODS

Dessert

Using ODS with Microsoft Office
Applications



Enhancing Data Presentation

Breakfast

7am - 10am

Modifying The Table of Contents

Luncheon Specials

11am - 2pm

*Arranging and Laying Out Tables
and Graphs*

Early-Bird-Dinner Specials

3pm - 5pm

Using ODS to Enhance Styles

Modifying the Table of Contents

Breakfast Selections

naming and removing items in the TOC and bookmark list
destination-specific restructuring of the TOC
using the ODS Document Facility

BREAKFAST SERVED ALL DAY!

15% GRATUITY ADDED TO GROUPS OF 5 OR MORE

Table of contents and bookmark list

ODS PROCLABEL

CONTENTS=
CONTENTS_LABEL
DESCRIPTION=

The screenshot displays two overlapping windows. The top window is 'SAS Output - Internet Explorer provided by...' showing a 'Table of Contents' with four entries:

- 1. The Print Procedure
-[Data Set SASHELP.CLASS](#)
- 2. The SQL Procedure
-[Query Results](#)
- 3. The Gchart Procedure
-[VBAR chart of Age](#)
- 4. The Tabulate Procedure
-[Cross-tabular summary report](#)
-[Table 1](#)

The bottom window is 'Adobe Acrobat Professional - [temp2.pdf]' showing a 'Bookmarks' list that mirrors the structure of the table of contents:

- [-] The Print Procedure
 - [-] Data Set SASHELP.CLASS
- [-] The SQL Procedure
 - [-] Query Results
- [-] The Gchart Procedure
 - [-] VBAR chart of Age
- [-] The Tabulate Procedure
 - [-] Cross-tabular summary report
 - [-] Table 1

Arrows from the text boxes on the left point to the corresponding elements in the screenshots: 'ODS PROCLABEL' points to the procedure names, 'CONTENTS=' points to the procedure names, 'CONTENTS_LABEL=' points to the sub-headers, and 'DESCRIPTION=' points to the detailed sub-headers.

Table of contents modifications: naming items

```
ods html file="b.html" contents="c.html";
ods proclabel "Print Output";
proc print data=sashelp.class
contents="sub-node";
run;
```

```
ods proclabel "Gchart Output";
proc gchart data=sashelp.class;
vbar age / des="Graph sub-node";
run;
quit;
```

```
ods proclabel "Tabulate Output";
proc tabulate data=sashelp.class
contents="Tabulate sub-node";
class age;
var height;
table age, height / contents="sub-node2";
run;
ods html close;
```

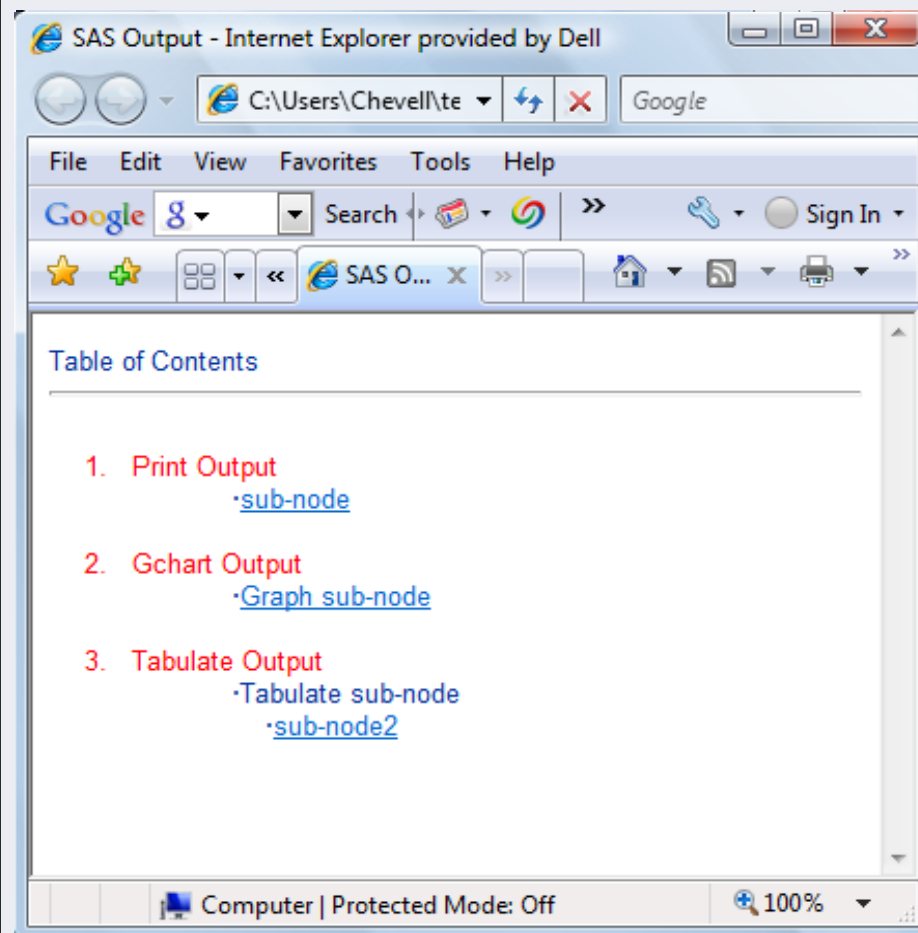


Table of contents modifications: naming and removing items

```
ods html file="b.html " contents="c.html";
ods proclabel "Print Output";
proc print data=sashelp.class contents= ' ';
run;
```

```
ods proclabel "Graph Output";
proc gchart data=sashelp.class;
vbar age / des= 'Graph sub-node';
run;
quit;
```

```
ods proclabel "Tabulate Output";
proc tabulate data=sashelp.class contents=" ";
class age;
var height;
table age, height / Contents= ' ';
run;
ods html close;
```

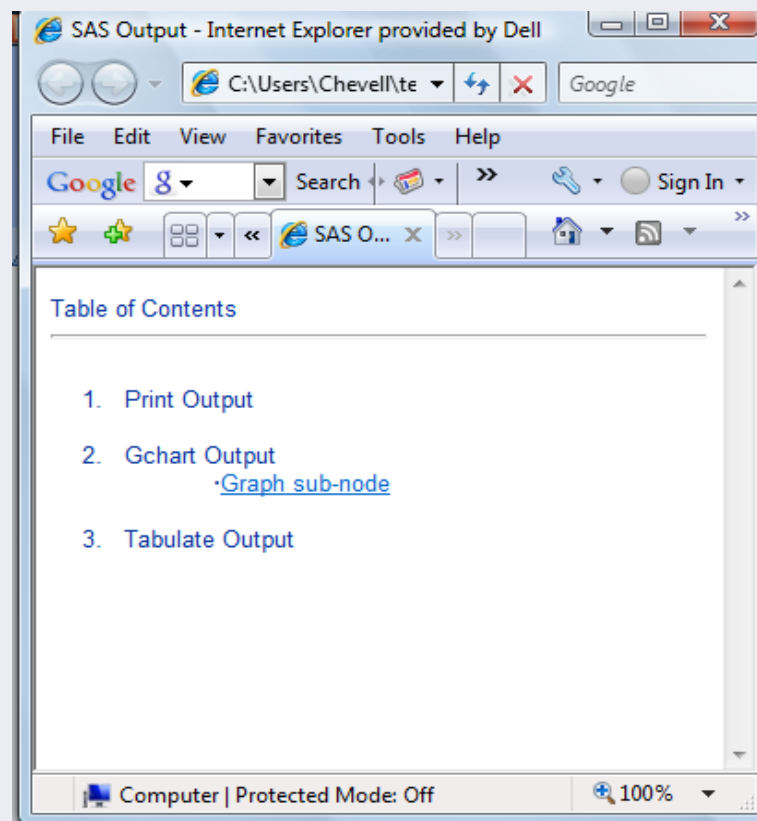


Table of contents modifications: PDFTOC=

```
ods pdf file="temp2.pdf" pdftoc=1 ;
proc print data=sashelp.class;
run;
```

```
proc gchart data=sashelp.class;
vbar age;
run;
quit;
```

```
proc tabulate data=sashelp.class;
class age;
table age, height;
run;
ods pdf close
```

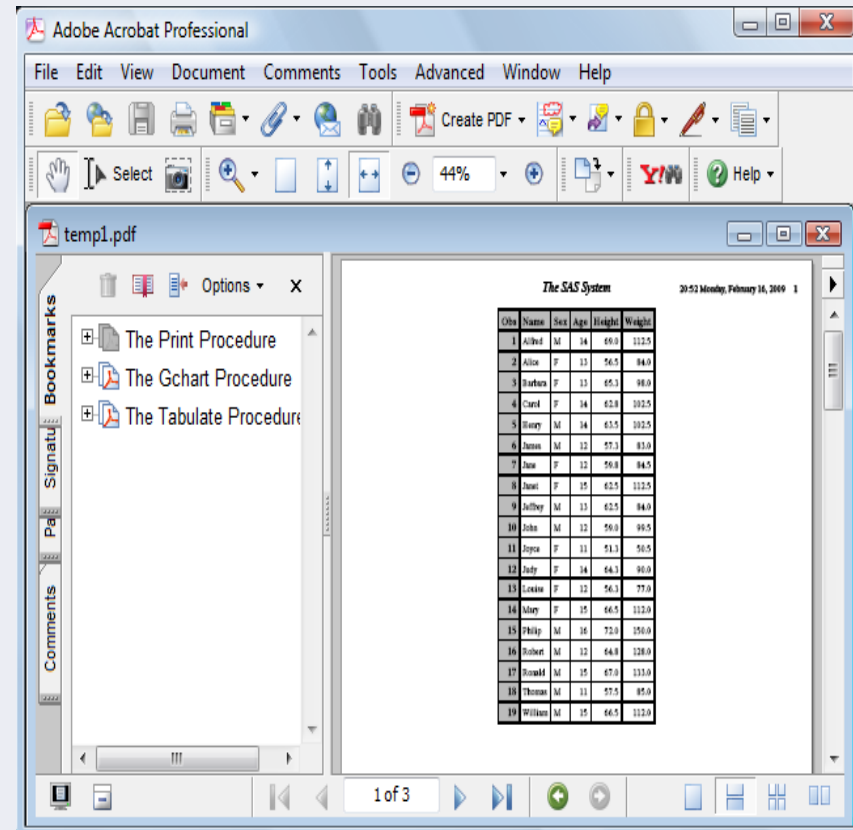


Table of contents modifications: the Document Facility

- enables objects to be hidden, deleted, removed, or reordered
- includes ODS Document, Document window, SASEDOC libname engine, and PROC DOCUMENT
- adds support for PROC REPORT in SAS[®] 9.2
- provides complete modification of the table of contents

The Document Facility

```
ods document name=test(write);
```

```
proc print data=sashelp.class;run;
```

```
proc gchart data=sashelp.class;
vbar age;
run;
```

```
proc tabulate data=sashelp.class;
class age;
table age;
run;
```

```
ods document close;
```

```
proc document name=test;
list/levels=all;
run;
quit;
```

Listing of: \Work.Test\

Order by: Insertion

Number of levels: All

| Obs | Path | Type |
|-----|------------------------------|--------|
| 1 | \Print#1 | Dir |
| 2 | \Print#1\Print#1 | Report |
| 3 | \Gchart#1 | Dir |
| 4 | \Gchart#1\Gchart1#1 | Graph |
| 5 | \Tabulate#1 | Dir |
| 6 | \Tabulate#1\Report#1 | Dir |
| 7 | \Tabulate#1\Report#1\Table#1 | Table |

PROC DOCUMENT

```

ods pdf file="temp.pdf";
proc document name=test;
make \test;
dir \test#1;
copy \Print#1\Print#1 to ^;
copy \Gchart#1\Gchart#1 to ^;
copy \Tabulate#1\Report#1\Table#1 to ^;
replay \test#1;
quit;
ods pdf close;

```

| Obs | Path | Type |
|-----|------------------------------|--------|
| 1 | \Print#1 | Dir |
| 2 | \Print#1\Print#1 | Report |
| 3 | \Gchart#1 | Dir |
| 4 | \Gchart#1\Gchart#1 | Graph |
| 5 | \Tabulate#1 | Dir |
| 6 | \Tabulate#1\Report#1 | Dir |
| 7 | \Tabulate#1\Report#1\Table#1 | Table |

| Obs | Path | Type |
|-------|------|------|
| <hr/> | | |

Luncheon Specials

Includes: Paneling tables and graphics, spanning columns and rows within tables, placement of tables graphics and text anywhere on the page

Arranging and Laying Out Tables and Graphs

* **These dishes are considered to be very spicy and can be made to order**

* HTMLPanel and TableEditor Tagsets for HTML

* The ODS LAYOUT Feature

* The Report Writing Feature of the DATA Step

* GREPLAY and new SG procedures
(we are sold out of this item today)

HTMLPANEL and TableEditor tagsets

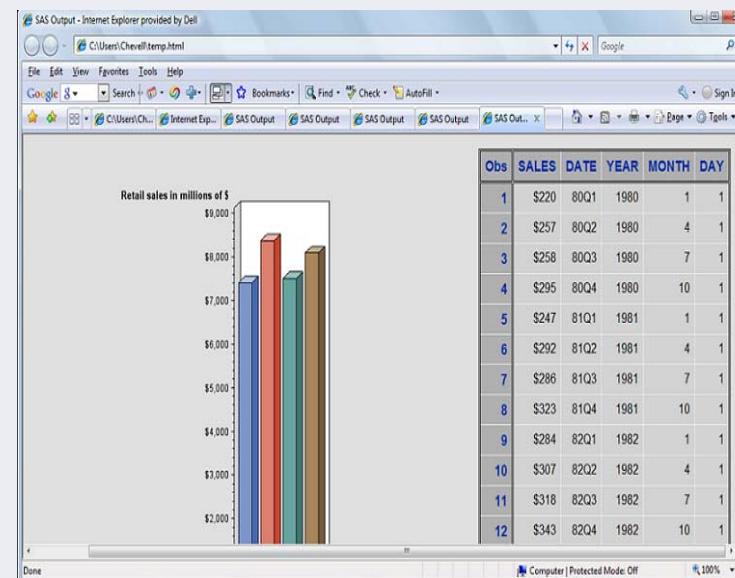
- both tagsets generate HTML, panel tables, and graphs
- created with ODS Markup and have options
- HTMLPanel tagset enables complex paneling
- TableEditor tagset enables other options such as WEB_TABS=

HTMLPANEL and TableEditor tagsets (cont'd)

```
ods tagsets.htmlpanel file="temp.html";
ods tagsets.htmlpanel event=panel(start);
```

```
proc gchart data=sashelp.retail;
vbar3d year / discrete sumvar=sales type=sum
patternid=midpoint;
run;
quit;
```

```
proc print data=sashelp.retail;
run;
ods tagsets.htmlpanel event=panel(finish);
ods tagsets.htmlpanel close;
```



The ODS LAYOUT feature

- enables output to be placed specifically on a page
- is good for emulating specific type of reports
- creates both gridded and absolute layouts
- defined by one or more regions

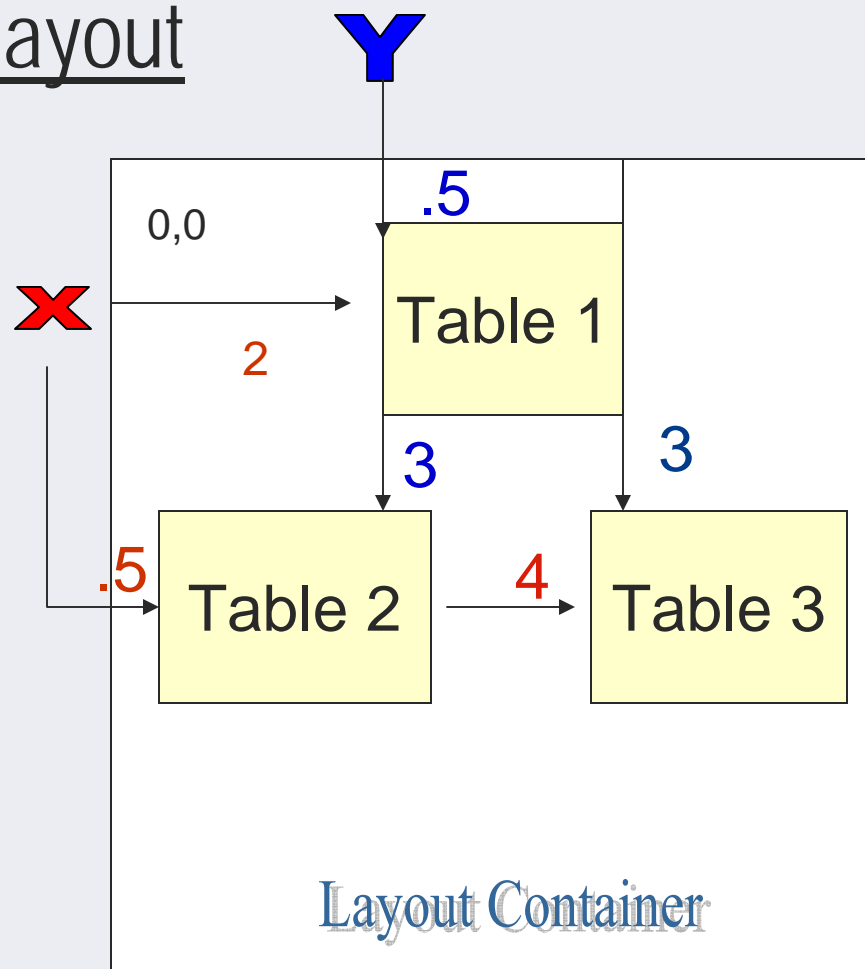
ODS LAYOUT – absolute layout

```
ods layout start width=8in height=10in;
ods region x=2in y=.5in width=6in...;
proc print ...
```

```
ods region x=.5in y=3in width=4in...;
proc print....
```

```
ods region x=4in y=3in width=4in...;
proc print...
```

```
ods layout end;
```



ODS LAYOUT – gridded layout

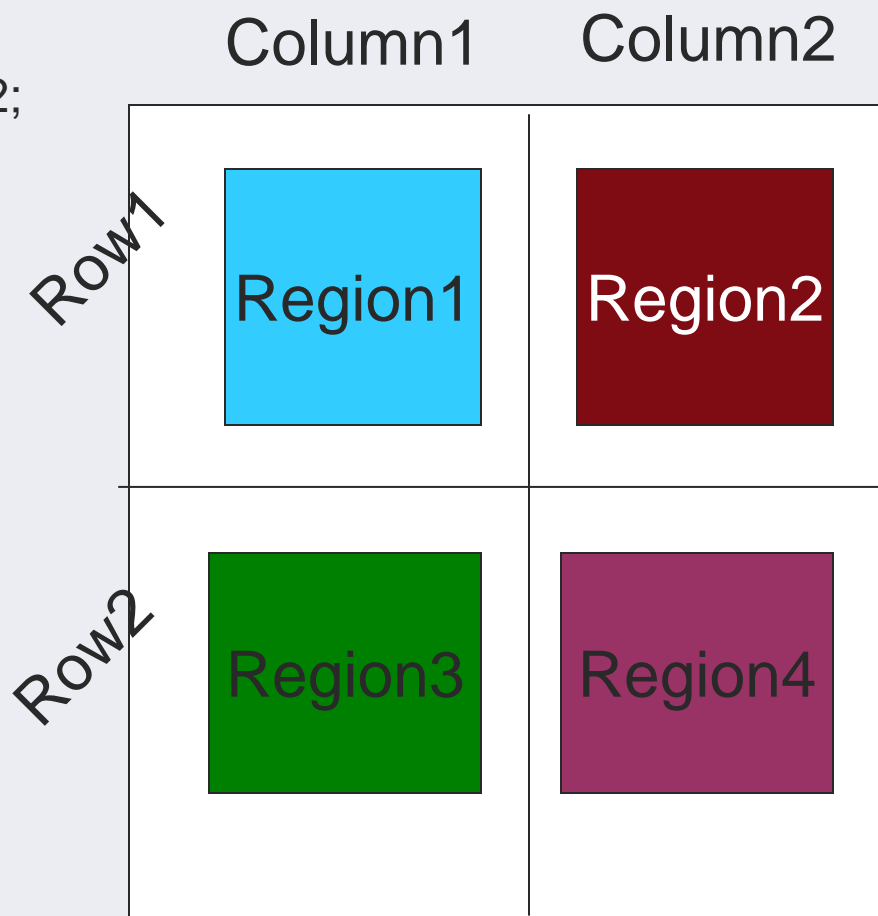
```
ods layout start columns=2 rows=2;
```

```
ods region;  
proc print data=class;run;
```

```
ods region;  
proc print data=fitness;run;
```

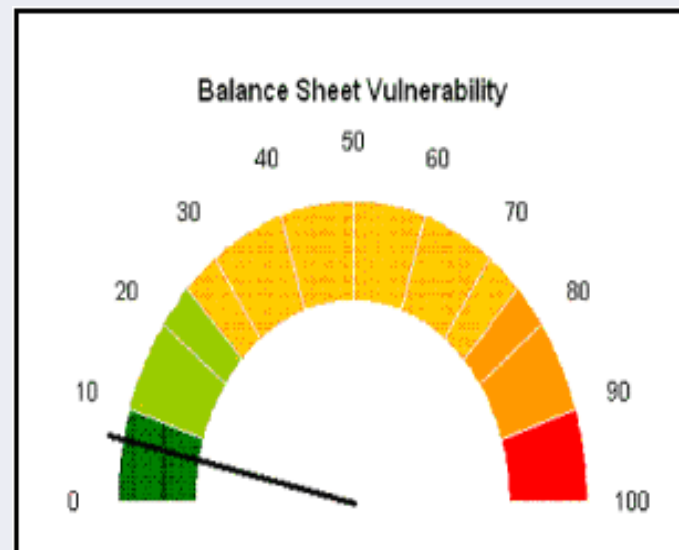
```
ods region;  
proc print data=orsales;run;
```

```
ods region;  
proc print data=prdsale;run;  
ods layout end;
```



The Report Writing Interface of the DATA step

| Trial Balance Sheet | | |
|---|---------|-------------|
| Item | Assets | Liabilities |
| Cash | \$20000 | \$0 |
| Inventory | \$50000 | |
| Account Receivables | \$10000 | |
| Returns | \$0 | \$30000 |
| Retained Earnings | | \$30000 |
| Net Income | \$20000 | \$0 |
| | \$80000 | \$80000 |
| Company has been certified as viable for 2008 | | |



```
obj.region();
obj.table_start();
obj.row_start();
obj.format_cell(text:"",overrides:"preimage=""c:\balance_sheet5.gif""");
obj.row_end();
obj.table_end();
obj.layout_end();
```

Using ODS to Enhance Styles

Cotton Street Café *Early-Bird Dinner Specials*

*the new PROC TEMPLATE enhancements
for SAS® 9.2*

the new CSSSTYLE= option

in-line formatting enhancements

PROC TEMPLATE enhancements

```

proc template;
  define style styles.test;
    parent=styles.default;
    import "c:\temp\sgf.css";
    class header, rowheader /
      foreground=red
      background=black;
  end;
run;
ods html style=styles.test;
proc print data=sashelp.class;
run;
ods html close;

```

css file

```

.data {
  color:blue;
  font-size:10pt;
  background-color:white
}

```

| 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 |

The new CSSSTYLE= option

- uses CSS files to provide formatting with PDF, HTML, and RTF destinations
- can provide media types such as Screen and Print
- can be used with SAS[®] Enterprise Guide[®] which uses CSS by default

```
ods pdf file="temp.pdf" cssstyle="temp.css";  
proc print data=sashelp.class;  
run;  
ods pdf close;
```

The new in-line formatting syntax

- adds new functions such as UNICODE, STYLE, and NBSPACE
- enables nesting of styles which is new for SAS[®] 9.2
- new syntax allows backward compatibility

```
ods pdf file="temp.pdf";
ods escapechar="^";
title "^{style[color=red] Red ^{sub nested} ^{style[color=green] now green output}}";
ods pdf text="^{style systemtitle[just=center] Text using the systemtitle style element}";

proc print data=sashelp.class;
run;
ods pdf close;
```

Developing Web Applications Using ODS



DINNER MENU

Creating Drill-Downs Usings Tables and Graphs

Enhancing Web Applications Using Tagsets

Creating Dynamic Applications Using SAS®

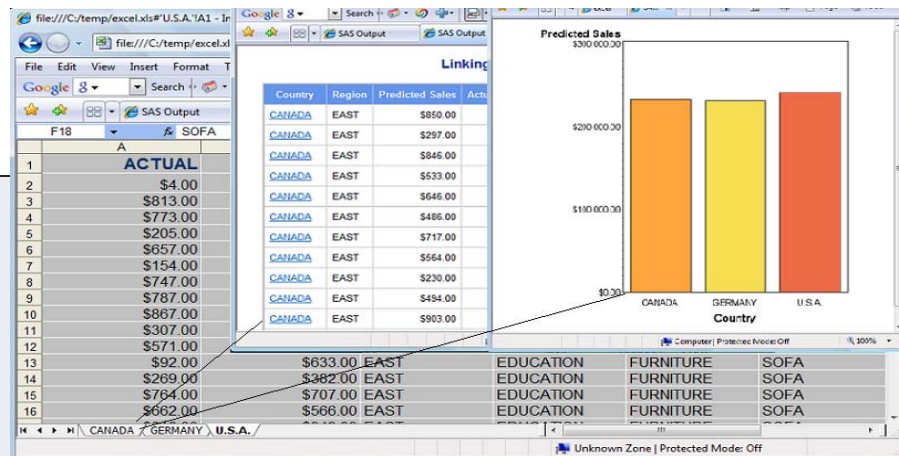
| HTML | |
|---|--|
| <code></code> | Links to file |
| <code></code> | Links to the second table of page |
| <code></code> | Links to the second table in a new window |
| PDF | |
| <code></code> | Links to first page of the document |
| <code></code> | Links to file and displays bookmarks |
| <code></code> | Links to third table of the document |
| <code></code> | Links to and opens file with a zoom of 80% |
| EXCEL | |
| <code></code> | Links to and displays Excel file |
| <code></code> | Links to Excel file and displays Sheet1 |
| EMAIL | |
| <code></code> | Opens mail file to include email address |

Creating Drill-Downs Using Tables and Graphs

```

data one;
set sashelp.prdsale;
linkvar="href="""c:\temp.xls#""||trim(left(country))||""!A1""";
run;

goptions hsize=5in vsize=5in;
ods html file="temp.html" style=sasweb;
proc gchart data=one;
  vbar country / sumvar=predict patternid=midpoint type=sum html=linkvar;
run;
quit;
ods _all_ close;
  
```



Enhancing Web Applications Using Tagsets

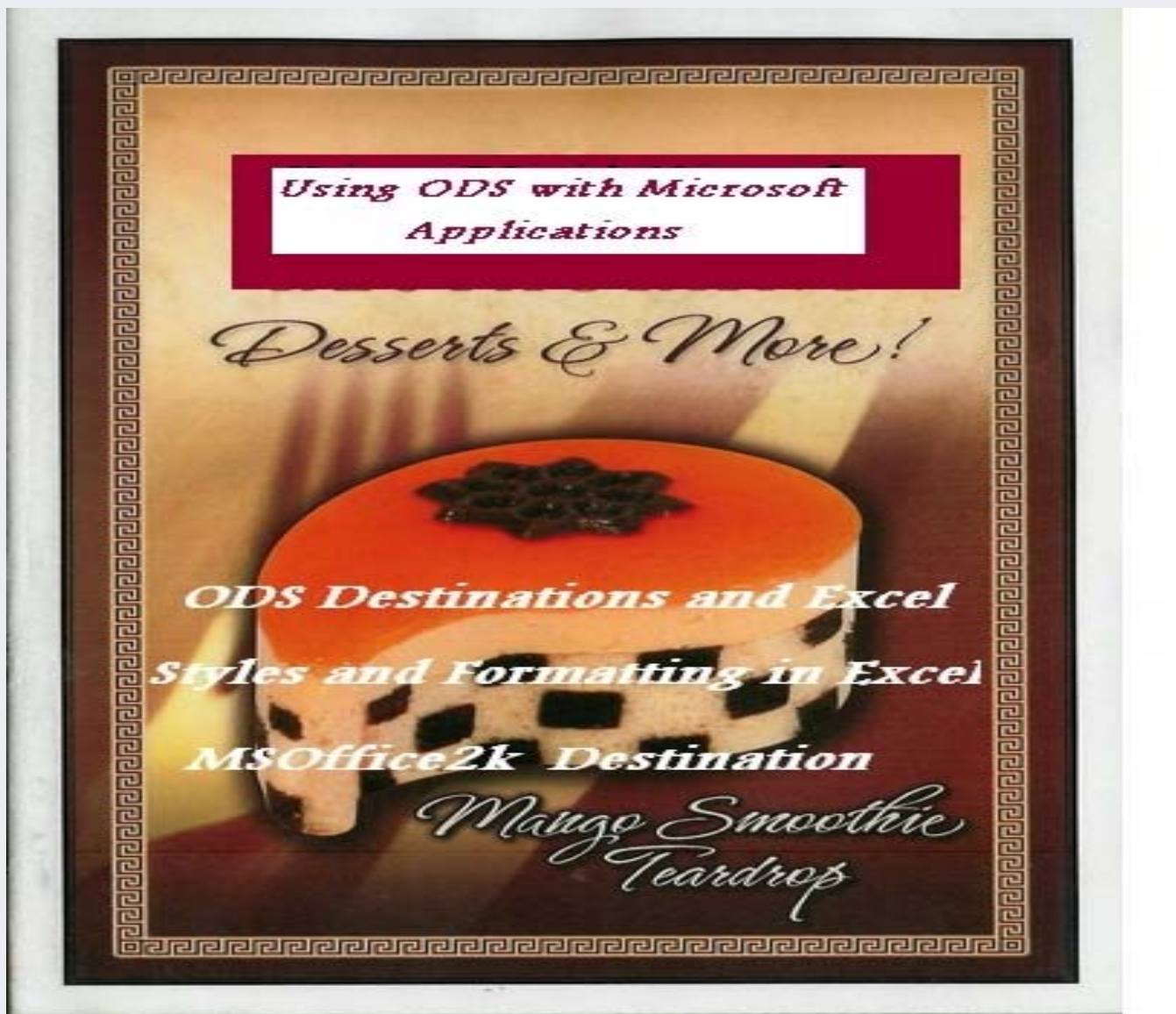
- provides the ability to add styles across procedures
- enables dynamic sorting, filtering, frozen columns, and rows, edit, drag and drop, tabs, and so on.....
- can create a Tree View of the TOC
- can export to other applications, such as Excel, and add graphics, pivot tables, and so on...
- downloadable from the Web

support.sas.com/rnd/base/ods/odsmarkup/tableeditor/index.html

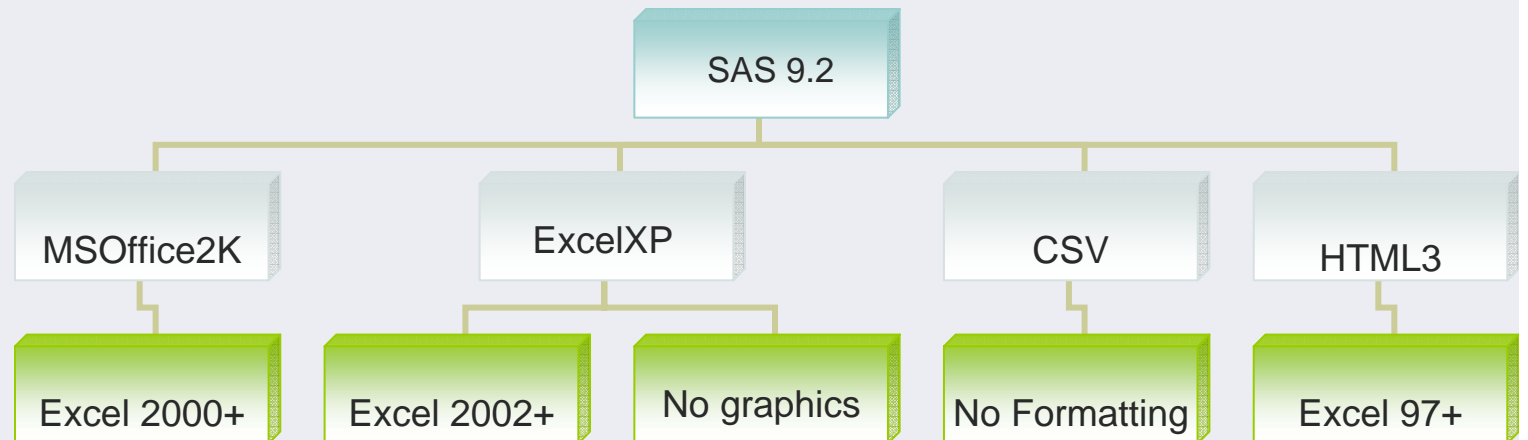
Creating Dynamic Applications Using SAS®

- SAS/IntrNet® applications
- stored process Web applications
- %STPBGIN and %STPEND macros

```
%let _ODSDEST=tagsets.tableEditor;  
%let _ODSSTYLE=SASWEB;  
%let _ODSOPTIONS=RS=NONE;  
%let _GOPT_DEVICE=activex;  
* processbody;  
%stpbegin;  
proc print data=sashelp.class;  
run;  
%stpend;
```

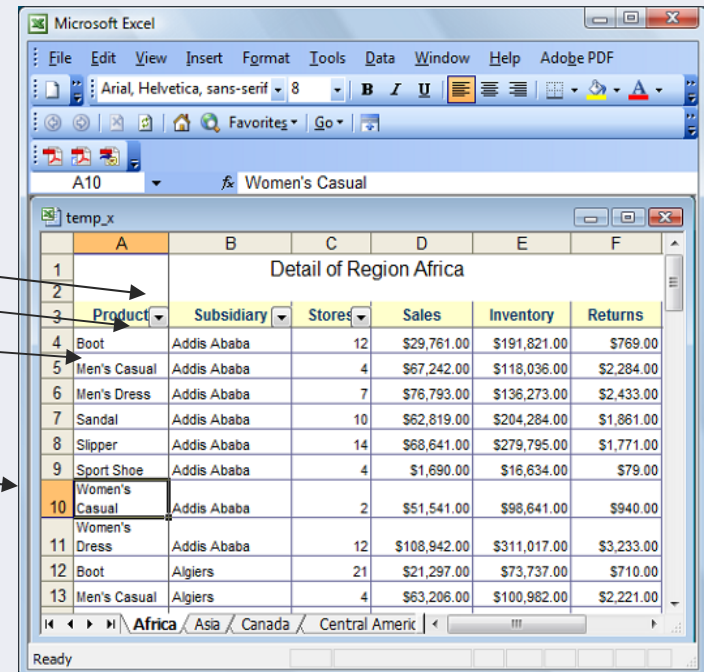


ODS Destinations and Excel



ExcelXp destination display options

```
ods tagsets.excelxp file="temp.xls"
options(doc="help"
embedded_titles="yes"
autofilter="1-3"
frozen_headers="3"
frozen_rowheaders="1"
absolute_column_width="8.5,11,7,9,8,8"
autofit_height="yes"
sheet_interval="bygroup"
sheet_label=" "
suppress_bylines="yes") style=normal;
```



```
proc print data=sashelp.shoes noobs;
title "Detail of Region #byval(region)";
by region;
run;
ods tagsets.excelxp close;
```

Cell formatting in Excel

- E
W
 - E
W
- ```

ods tagsets.excelxp file="temp.xls" Style=normal;

proc print data=one;
title "Values after the Excel formats applied";
var leading_z / style(data)={tagattr="format:@"};
var trailing_z / style(data)={tagattr="format:#####.#0"};
var long_n / style(data)={tagattr="format:@"};
var long_s / style(data)={tagattr="format:#,###"};
var comma_f / style(data)={tagattr="format:#,###"};;
var dollar_f / style(data)={tagattr="format:$#,###;$-#,###"};
format dollar_f;
run;

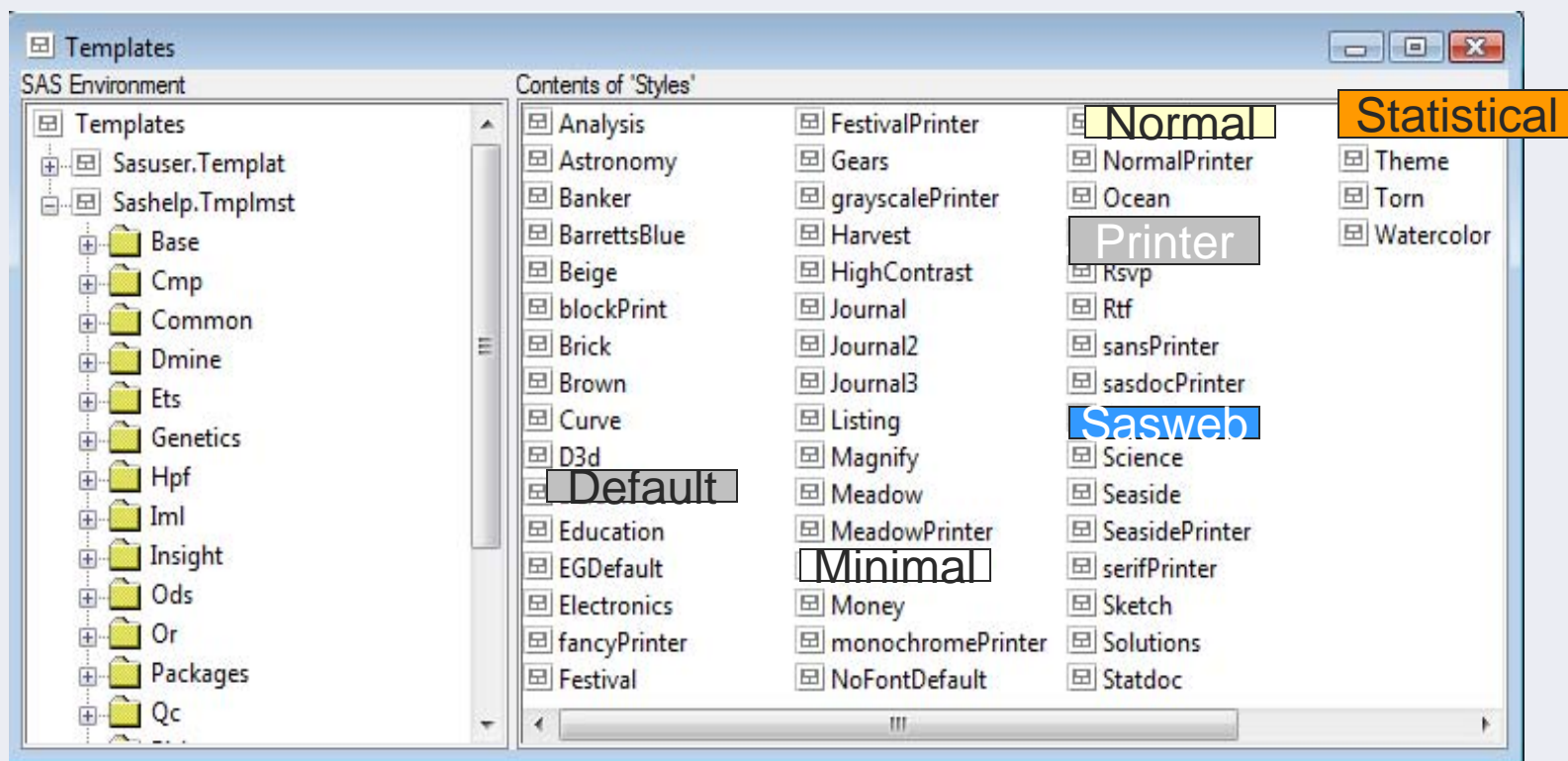
ods tagsets.excelxp close;

```

### *Data values in Excel*

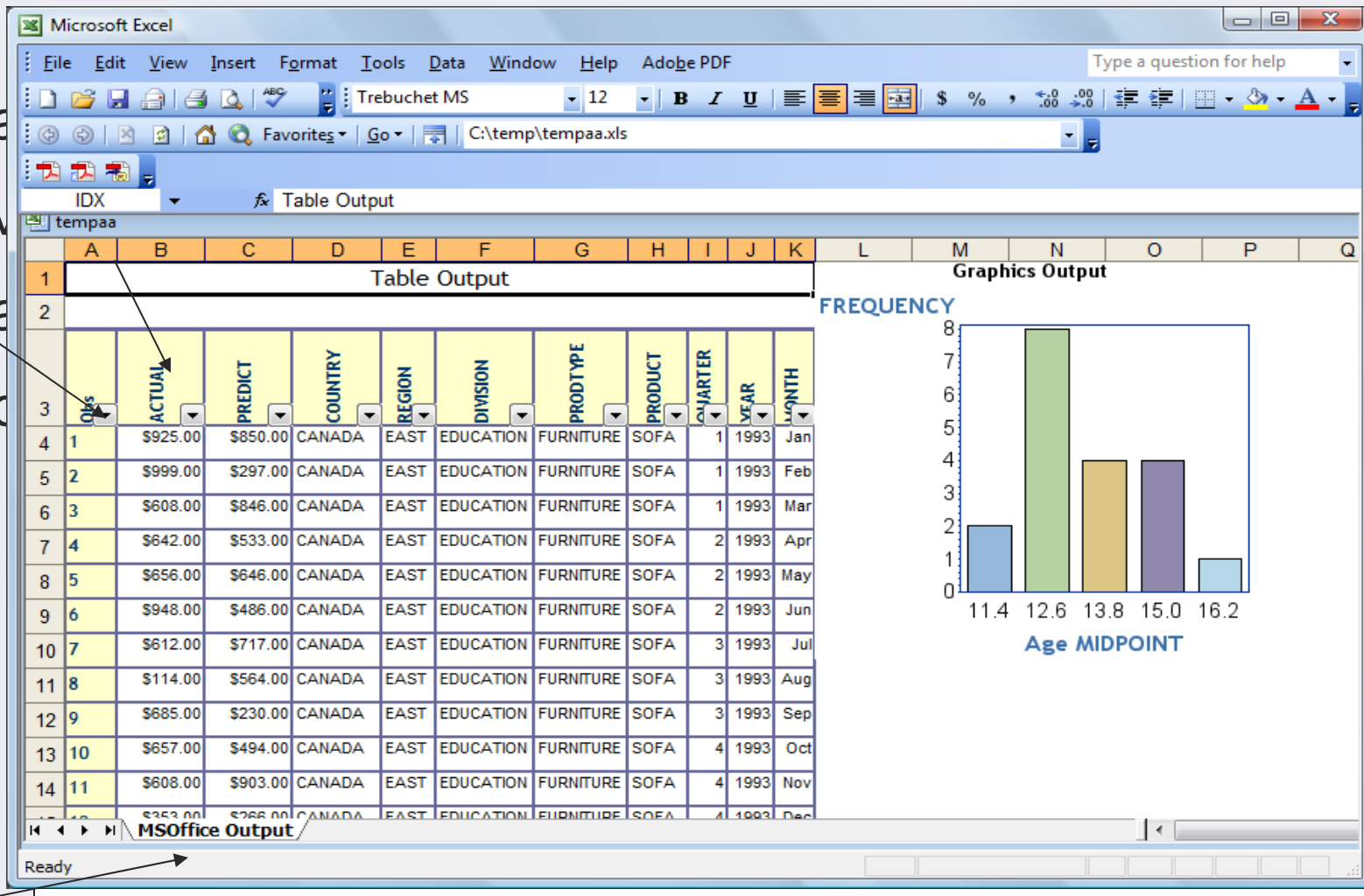
| Obs | leading_z | trailing_z | long_n      | long_s      | comma_f | dollar_f   |
|-----|-----------|------------|-------------|-------------|---------|------------|
| 1   | 1         | 1234.5     | 1.23457E+21 | 1.23457E+12 | 1234567 | \$-1234567 |

# Styles and Formatting in Excel



[Additional styles are available at: ftp.sas.com/techsup/download/public/base/sgf.zip.](ftp.sas.com/techsup/download/public/base/sgf.zip)

# MSOffice2K Destination



# Guest Comment Card

Do you see how output could be enhanced using ODS ?

Yes  No

Do you feel like you can develop great Web applications using ODS?

Yes  No

Do you see how ODS output can be integrated with Microsoft Office Applications?

Yes  No

# Resources

“Creating That Perfect Data Grid Using ODS”

<http://www2.sas.com/proceedings/forum2008/258-2008.pdf>

“A SAS Output Output Delivery System Menu For All Appetites and Applications”

<http://support.sas.com/resources/papers/proceedings09/016-2009.pdf>

“ODS Markup”

<http://support.sas.com/rnd/base/ods/odsmarkup/index.html>

“ODS Report Writing Interface”

<http://support.sas.com/rnd/base/datastep/dsubject/index.html>