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

Chevell Parker, Technical Support Analyst
SAS Institute Inc.
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

BREFAST SERVED ALL DAY!

15% GRATUITY ADDED TO GROUPS OF 5 OR MORE
Table of contents and bookmark list

ODS PROCLABEL

CONTENTS=

CONTENTS_LABEL

DESCRIPTION=
Table of contents modifications: naming items

```sas
ods html file="b.html" contents="c.html";
odspath        "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;
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;
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

<table>
<thead>
<tr>
<th>Item</th>
<th>Assets</th>
<th>Liabilities</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cash</td>
<td>$20000</td>
<td>$0</td>
</tr>
<tr>
<td>Inventory</td>
<td>$50000</td>
<td></td>
</tr>
<tr>
<td>Account Receivables</td>
<td>$10000</td>
<td></td>
</tr>
<tr>
<td>Returns</td>
<td>$0</td>
<td>$30000</td>
</tr>
<tr>
<td>Retained Earnings</td>
<td></td>
<td>$30000</td>
</tr>
<tr>
<td><strong>Net Income</strong></td>
<td>$20000</td>
<td>$0</td>
</tr>
<tr>
<td><strong>Total Assets</strong></td>
<td>$80000</td>
<td>$80000</td>
</tr>
</tbody>
</table>

Company has been certified as viable for 2008
Using ODS to Enhance Styles

- 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;
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

```sas
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 Using Tables and Graphs
Enhancing Web Applications Using Tagsets
Creating Dynamic Applications Using SAS®
<table>
<thead>
<tr>
<th>Type</th>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>HTML</td>
<td><code>&lt;a href=&quot;c:\temp.html&quot;&gt;</code></td>
<td>Links to file</td>
</tr>
<tr>
<td>HTML</td>
<td><code>&lt;a href=&quot;c:\temp.html#idx1&quot; parent=_blank&gt;</code></td>
<td>Links to the second table in a new window</td>
</tr>
<tr>
<td>HTML</td>
<td><code>&lt;a href=&quot;c:\temp.html#idx1&quot;&gt;</code></td>
<td>Links to the second table of page</td>
</tr>
<tr>
<td>PDF</td>
<td><code>&lt;a href=&quot;c:\temp.pdf#page=1&quot;&gt;</code></td>
<td>Links to first page of the document</td>
</tr>
<tr>
<td>PDF</td>
<td><code>&lt;a href=&quot;c:\temp.pdf#pagemode=bookmarks&quot;&gt;</code></td>
<td>Links to file and displays bookmarks</td>
</tr>
<tr>
<td>PDF</td>
<td><code>&lt;a href=&quot;c:\temp.pdf#nameddest=IDX2&quot;&gt;</code></td>
<td>Links to third table of the document</td>
</tr>
<tr>
<td>PDF</td>
<td><code>&lt;a href=&quot;c:\temp.pdf#zoom=80%&quot;&gt;</code></td>
<td>Links to and opens file with a zoom of 80%</td>
</tr>
<tr>
<td>EXCEL</td>
<td><code>&lt;a href=&quot;c:\temp.xls&quot;&gt;</code></td>
<td>Links to and displays Excel file</td>
</tr>
<tr>
<td>EXCEL</td>
<td><code>&lt;a href=&quot;c:\temp.xls#Sheet1!A1&quot;&gt;</code></td>
<td>Links to Excel file and displays Sheet1</td>
</tr>
<tr>
<td>EMAIL</td>
<td><code>&lt;a href=&quot;mailto:chevell.parker@sas.com&quot;&gt;</code></td>
<td>Opens mail file to include email address</td>
</tr>
</tbody>
</table>
Creating Drill-Downs Using Tables and Graphs

```sas
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

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

Desserts & More!

ODS Destinations and Excel
Styles and Formatting in Excel
MSOffice2k Destination
Mango Smoothie Teardrop
ODS Destinations and Excel

- SAS 9.2
  - MSOffice2K
    - Excel 2000+
  - ExcelXP
    - Excel 2002+
  - CSV
    - No graphics
  - HTML3
    - No Formatting
    - Excel 97+
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

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

<table>
<thead>
<tr>
<th>Obs</th>
<th>leading_z</th>
<th>trailing_z</th>
<th>long_n</th>
<th>long_s</th>
<th>comma_f</th>
<th>dollar_f</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1</td>
<td>1234.5</td>
<td>123457E+21</td>
<td>123457E+12</td>
<td>1234567</td>
<td>$-1234567</td>
</tr>
</tbody>
</table>
Styles and Formatting in Excel

MSOffice2K Destination

- allows both graphics and tables
- very flexible with styles
- a part of the ODS Markup family
- options can be created to enhance functionality

```sas
ods tagsets.msoffice2k_x file="temp.xls"
options(rotate_headers="90"
panelcols="2"
autofilter="yes"
sheet_name="MSOffice Output"doc="help") style=normal;
proc print
data=sashelp.prdsale;
title "Table Output";
run;
proc gchart
data=sashelp.class;
vbar age / patternid=midpoint;
title h=10 pt "Graphics Output";
run;
quit
ods _all_ close;
```
Guest Comment Card

Do you see how output could be enhanced using ODS?

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

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

“Creating That Perfect Data Grid Using ODS”

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

“ODS Markup”

“ODS Report Writing Interface”
http://support.sas.com/rnd/base/datastep/dsobject/index.html