

Old Wine, New Bottle: Using DDE to Automate Assembly of ODS HTML Output Files into Multiple Sheets of One Excel Workbook

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ODS Output to Excel

- Easy to create single-sheet Excel workbook using ODS.
- Selectable formatting.
 - More than 40 Styles available.
- But, multiple worksheets via ODS not so easy.
 - XML code intensive.



Info at support.sas.com

- Usage Note 23664
 - “How can I send ODS output to Excel, Word, PowerPoint, and Oracle?”
 - Contains link to detailed PDF document...
- “Using ODS to Generate Excel Files”
 - 24 pages.
 - Numerous techniques for customizing output.
 - Understandably, barely mentions DDE.



The ODS HTML Advantage

- Excel opens HTML files.
- You can use .xls extension on the file name to open in Excel with double-click.
- STYLE option available

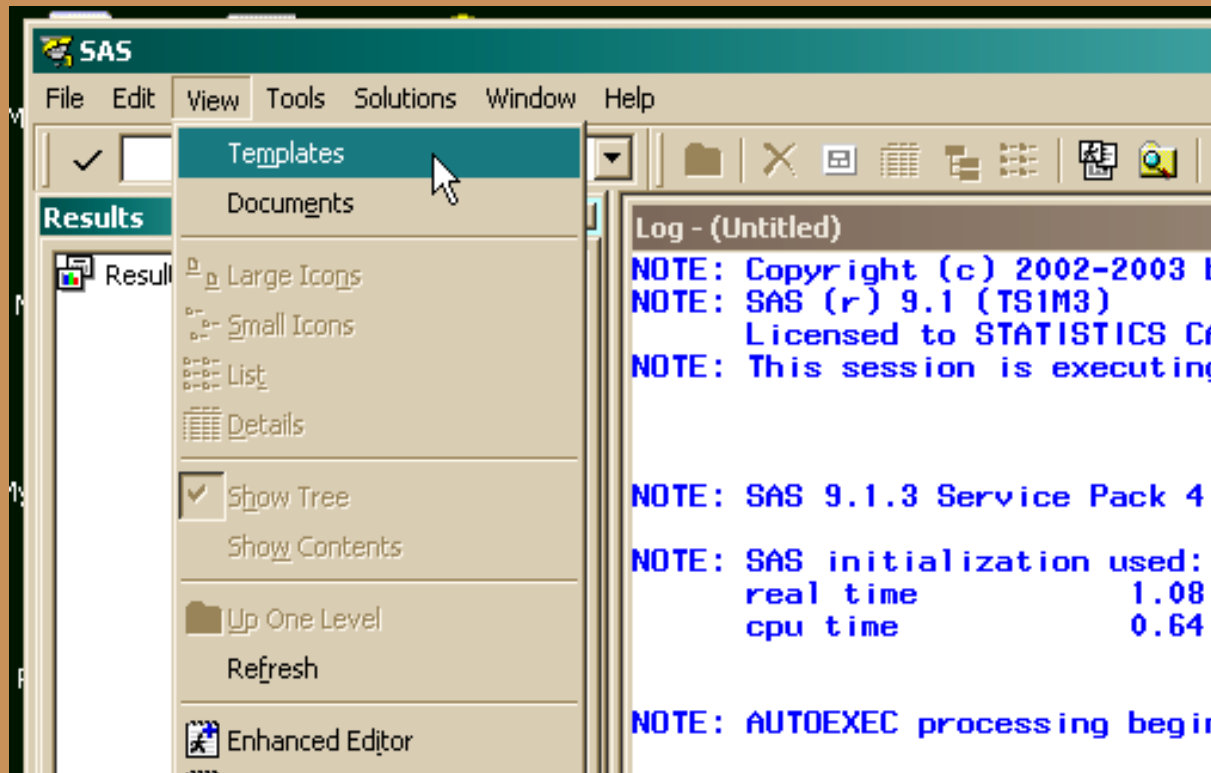
ODS HTML STYLE=ANALYSIS

```
BODY= 'C:\temp\demo\table1.xls';
```

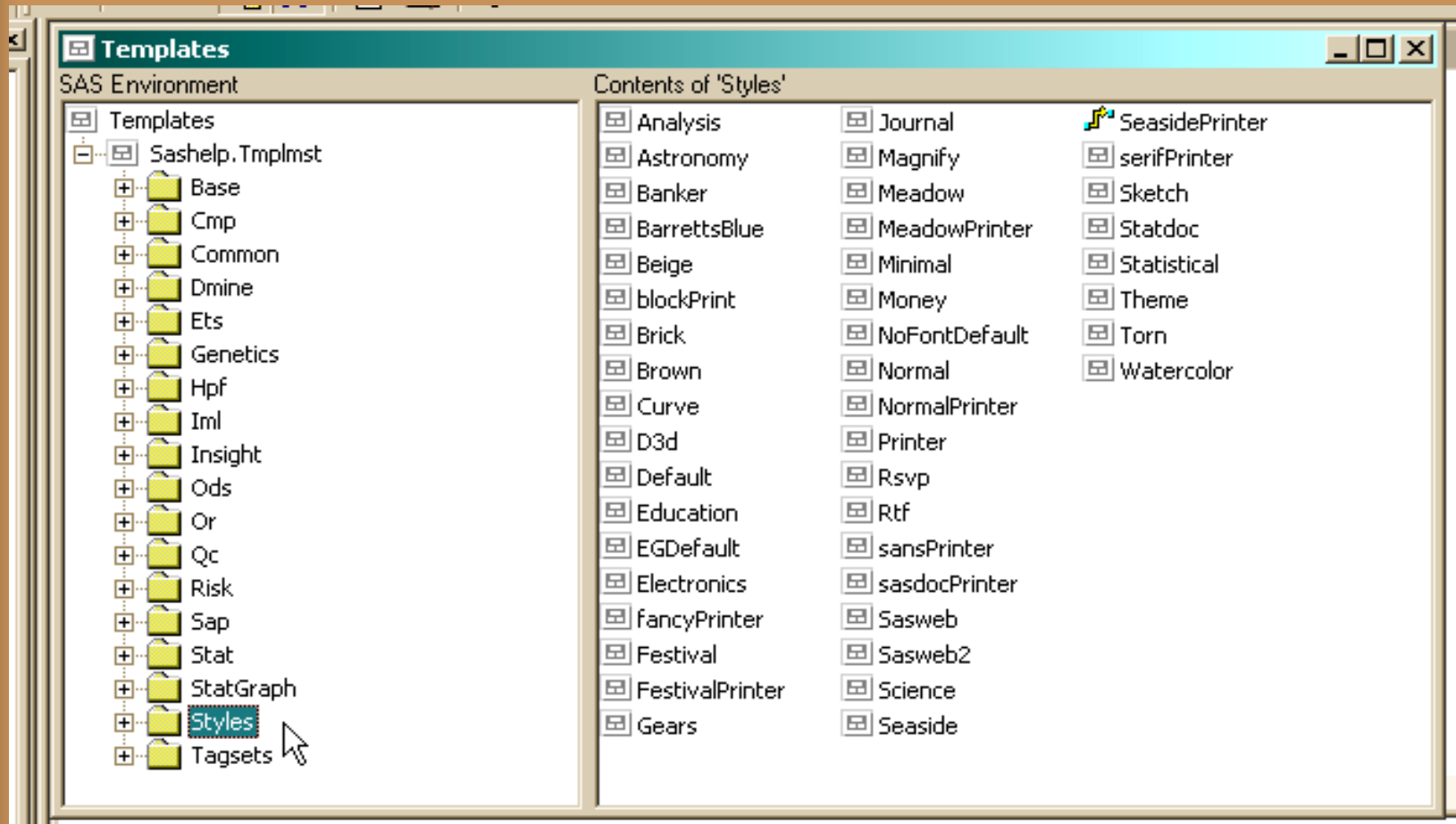


Finding the Styles (1)

Select Results > View > Templates



Finding the Styles (2)



STYLE=DEFAULT

The SAS System

Obs	Account	Name	Type	Transaction
1	1118	ART CONTUCK	D	57.69
2	2287	MICHAEL WINSTONE	D	145.89
3	6201	MARY WATERS	C	45.00
4	7821	MICHELLE STANTON	A	304.45
5	6621	WALTER LUND	C	234.76
6	1086	KATHERINE MORRY	A	64.98
7	0556	LEE McDONALD	D	70.82
8	7821	ELIZABETH WESTIN	C	188.23
9	0265	JEFFREY DONALDSON	C	78.90
10	1010	MARTIN LYNN	D	150.55



STYLE=ANALYSIS

The SAS System

<i>Obs</i>	<i>Account</i>	<i>Name</i>	<i>Type</i>	<i>Transaction</i>
1	1118	ART CONTUCK	D	57.69
2	2287	MICHAEL WINSTONE	D	145.89
3	6201	MARY WATERS	C	45.00
4	7821	MICHELLE STANTON	A	304.45
5	6621	WALTER LUND	C	234.76
6	1086	KATHERINE MORRY	A	64.98
7	0556	LEE McDONALD	D	70.82
8	7821	ELIZABETH WESTIN	C	188.23
9	0265	JEFFREY DONALDSON	C	78.90
10	1010	MARTIN LYNN	D	150.55



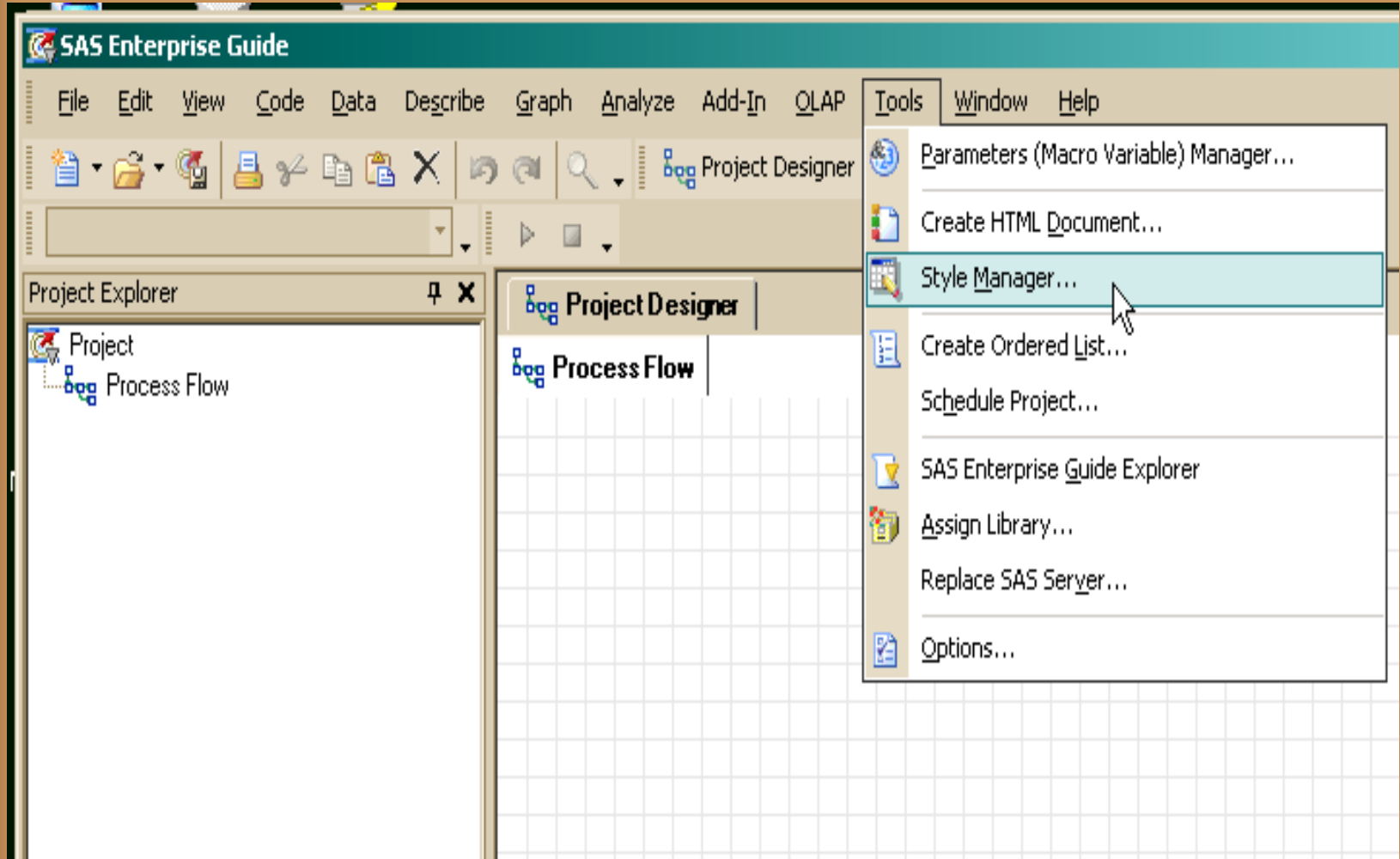
STYLE=BROWN

The SAS System

Obs	Account	Name	Type	Transaction
1	1118	ART CONTUCK	D	57.69
2	2287	MICHAEL WINSTONE	D	145.89
3	6201	MARY WATERS	C	45.00
4	7821	MICHELLE STANTON	A	304.45
5	6621	WALTER LUND	C	234.76
6	1086	KATHERINE MORRY	A	64.98
7	0556	LEE McDONALD	D	70.82
8	7821	ELIZABETH WESTIN	C	188.23
9	0265	JEFFREY DONALDSON	C	78.90
10	1010	MARTIN LYNN	D	150.55



Previewing Styles in EG





EG Style Manager

Style Manager

Style List:

Style	Location	URL
AMODefault	Built-in Style	C:\Program Files\
Analysis	Built-in Style	C:\Program Files\
Astronomy	Built-in Style	C:\Program Files\
Banker	Built-in Style	C:\Program Files\
BarrettsBlue	Built-in Style	C:\Program Files\
beige	Built-in Style	C:\Program Files\
blockPrint	Built-in Style	C:\Program Files\
brick	Built-in Style	C:\Program Files\
brown	Built-in Style	C:\Program Files\
Curve	Built-in Style	C:\Program Files\
d3d	Built-in Style	C:\Program Files\
default	Built-in Style	C:\Program Files\
Education	Built-in Style	C:\Program Files\
EGDefault	Built-in ...	C:\Program Fil
EGDefault82	Built-in Style	C:\Program Files\
Electronics	Built-in Style	C:\Program Files\
fancyprinter	Built-in Style	C:\Program Files\
Festival	Built-in Style	C:\Program Files\
Gears	Built-in Style	C:\Program Files\
HighContrast	Built-in Style	C:\Program Files\
Journal	Built-in Style	C:\Program Files\
Magnify	Built-in Style	C:\Program Files\

Preview of EGDefault:

sas | Enterprise Guide®

The Power to Know.

SAS System Title
SAS Procedure Title

Column 1	Column 2	Column 3
Row 1	Data (Num)	Data (Char)
Row 2	Data (Num)	Data (Char)

GRAPH RESULTS

SAS System Footnote

Buttons: Set as Default, Edit..., Add..., Delete, Create a Copy..., OK, Cancel, Help



Some Sample Data

```
LIBNAME DEMO 'c:\temp\demo';  
DATA DEMO.A; /*From !SASROOT\core\sample*/  
  DO N=1 TO 1000;          LENGTH DEFAULT=4;  
    X=INT(UNIFORM(77777)*7);  
    Y=INT(UNIFORM(77777)*5);  
    Z=INT(UNIFORM(77777)*24);  
    W=UNIFORM(77777)*10;  
    C='  ';  
    IF W>2 THEN C='A';  
    IF W>7 THEN C='B';  
    OUTPUT;  
  END;  
  
RUN;
```



Creating ODS Output

```
ODS LISTING CLOSE;
ODS HTML BODY='c:\temp\demo\table1.xls';
PROC FREQ DATA=DEMO.A;
    TABLES X*Z / NOROW NOCOL NOPERCENT;
RUN;
ODS HTML BODY='c:\temp\demo\table2.xls';
PROC FREQ DATA=DEMO.A;
    TABLES X*Z;
RUN;
ODS HTML BODY='c:\temp\demo\table3.xls';
PROC FREQ DATA=DEMO.A;
    TABLES Y*Z / NOROW NOCOL NOPERCENT;
RUN;
ODS HTML BODY='c:\temp\demo\table4.xls';
PROC FREQ DATA=DEMO.A;
    TABLES Y*Z;
RUN;
ODS HTML CLOSE;
ODS LISTING;
```



ODS coding close-up

```
ODS LISTING CLOSE;  
ODS HTML BODY='c:\temp\demo\table1.xls';  
PROC FREQ DATA=demo.A;  
    TABLES X*Z / NOROW NOCOL NOPERCENT;  
RUN;  
  
...  
(Remaining ODS and Proc Freq steps)  
  
...  
ODS LISTING;
```



As seen in Results Viewer

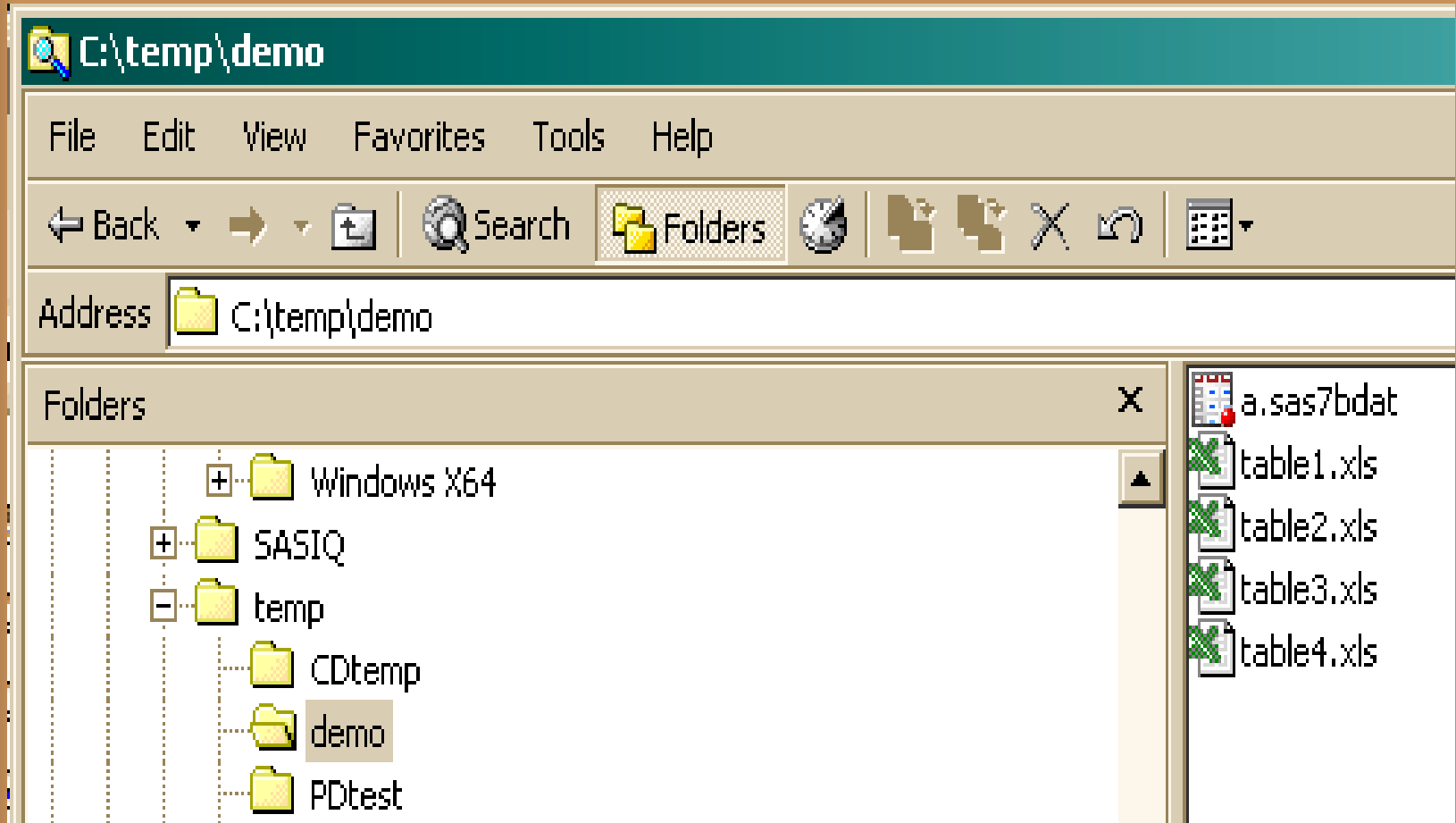
The SAS System

The FREQ Procedure

Frequency		Table of X by Z																							
		Z																							Total
X	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
0	6	8	4	4	10	2	5	5	7	8	4	6	5	6	4	8	5	2	5	5	5	6	9	6	135
1	4	5	3	4	7	6	4	2	4	4	11	3	3	4	5	5	4	4	5	6	6	4	2	6	111
2	2	10	4	4	8	8	9	9	2	5	3	5	9	5	6	6	5	7	3	4	4	8	4	6	136
3	2	3	4	7	3	10	9	9	8	11	10	1	5	7	9	9	7	7	6	4	10	5	5	8	159
4	4	5	5	7	8	3	9	4	12	6	4	7	7	10	9	7	2	6	3	9	5	4	9	6	151
5	2	6	3	6	5	7	3	5	7	7	6	5	10	11	6	8	2	8	10	8	9	9	8	8	159
6	5	7	4	5	5	6	2	8	8	3	2	5	13	6	7	10	7	8	6	4	7	5	6	10	149
Total	25	44	27	37	46	42	41	42	48	44	40	32	52	49	46	53	32	42	38	40	46	41	43	50	1000



ODS Output Files



DDE's Contribution

- “Dynamic Data Exchange”.
- SAS sends commands to live Excel session using FILE and PUT statements.
- Simple commands combine multiple files from ODS into sheets of one workbook.
- Original ODS file names become the sheet names of the target workbook.
- Save the resulting workbook under your choice of name and path.



Preparing for DDE to Excel

```
OPTIONS NOXWAIT NOXSYNC;  
X ' "C:\Program Files\Microsoft Office\  
Office10\excel.exe" ' ;  
DATA _NULL_ ;  
    X=SLEEP(5); /*Sleep time in seconds,  
                adjust if required*/  
RUN;
```



Sending Commands

- DATA _NULL_ step.
- FILENAME ... DDE statement.
- FILE statement with fileref from FILENAME DDE statement.
- PUT statement for each command.



Four DDE Commands for This Task

- Open
- Workbook.move
- Save.as
- Close
- The above are actually macro functions.



Sequence of operations for Four Worksheets

- **Open** first workbook (table1.xls).
 - This is where all the sheets will come together.
- **Open** second workbook (table2.xls).
- **Workbook.move** second to first.
 - Second and subsequent books close automatically because they have only 1 sheet.
- **Open** third workbook (table3.xls).
- **Workbook.move** third to first.
- **Open** fourth workbook (table4.xls).
- **Workbook.move** fourth to first.
- **Save.as** to store first book under name and path of your choice.
- **Close** the new book if you don't want it left open.



Code for DDE

```
FILENAME COMNDS DDE 'EXCEL|SYSTEM';  
DATA _NULL_;  
FILE COMNDS;  
PUT '[OPEN("c:\temp\demo\table1.xls")]';  
PUT '[OPEN("c:\temp\demo\table2.xls")]';  
PUT '[WORKBOOK.MOVE("table2","table1.xls")]';  
PUT '[OPEN("c:\temp\demo\table3.xls")]';  
PUT '[WORKBOOK.MOVE("table3","table1.xls")]';  
PUT '[OPEN("c:\temp\demo\table4.xls")]';  
PUT '[WORKBOOK.MOVE("table4","table1.xls")]';  
PUT '[SAVE.AS("c:\Personal\ODS to Excel\DemoBook.xls")]';  
PUT '[CLOSE]'; /* Optional */  
RUN;
```



The View in Excel

DemoBook.xls

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	AA	AB
1	The SAS System																											
2																												
3	The FREQ Procedure																											
4																												
5	Frequency		Table of X by Z																									
6		X	Z																							Total		
7			0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23		
8		0	6	8	4	4	10	2	5	5	7	8	4	6	5	6	4	8	5	2	5	5	5	6	9	6	135	
9		1	4	5	3	4	7	6	4	2	4	4	11	3	3	4	5	5	4	4	5	6	6	4	2	6	111	
10		2	2	10	4	4	8	8	9	9	2	5	3	5	9	5	6	6	5	7	3	4	4	8	4	6	136	
11		3	2	3	4	7	3	10	9	9	8	11	10	1	5	7	9	9	7	7	6	4	10	5	5	8	159	
12		4	4	5	5	7	8	3	9	4	12	6	4	7	7	10	9	7	2	6	3	9	5	4	9	6	151	
13		5	2	6	3	6	5	7	3	5	7	7	6	5	10	11	6	8	2	8	10	8	9	9	8	8	159	
14		6	5	7	4	5	5	6	2	8	8	3	2	5	13	6	7	10	7	8	6	4	7	5	6	10	149	
15		Total	25	44	27	37	46	42	41	42	48	44	40	32	52	49	46	53	32	42	38	40	46	41	43	50	1000	
16																												

DemoBook.xls

	A
1	The SAS Sys
2	

33					
34					
35					
36					
 <table border="1"> <tr> <td>table1</td> <td>table2</td> <td>table3</td> <td>table4</td> </tr> </table>		table1	table2	table3	table4
table1	table2	table3	table4		



More on DDE

- At support.sas.com, search for 'Sample 26146'.
- In the sample page, you will see a Web address for Microsoft where you can download the macro function help file [macrofun.hlp](#).



Questions / Comments



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