Excel Reports from SAS[®] with HTML, ExcelXP, MSOffice2K_x, TableEditor, or Dynamic Data Exchange (DDE), Which Is Best?

LeRoy Bessler PhD Bessler Consulting and Research Strong Smart Systems[™] Le_Roy_Bessler@wi.rr.com

Long form of 4 Nov 2013 Presentation at Wisconsin Illinois SAS Users Conference

SAS is a registered trademark or trademark of SAS Institute Inc. in the USA and other countries. indicates USA registration. Other product and brand names are trademarks or registered trademarks of their respective owners.

About These Slides

These slides are intended for self-study. They have not been presented in a time slot of sufficient duration.

Acknowledgement

This presentation benefitted from expertise of Cynthia Zender and Chevell Parker at SAS Institute.

Search on their names and any non-DDE tools used here for more information.

For ExcelXP, search for papers of Vince (or Vincent) Del Gobbo also at SAS Institute.

Purpose of Presentation

- Problem:
 - Too many tool choices
 - Users really want only ONE choice
 - Variety of documentation resources
- (Partial) Solution Here:
 - ONE place to compare tools
 - to assist tool selection based on need
- For a simple unformatted data dump, use PROC EXPORT or the LIBNAME engine, not to be discussed here

Content of Presentation

- Best Reason to use ODS TableEditor TagSet: Pivot Tables
- ODS HTML is adequate for simple needs
- Significant Advantages of ODS tagsets over the simpler solution of ODS HTML
- Frozen Headers, Filters, AutoFit Rows/Cols
- DDE (Dynamic Data Exchange)
- Multiple WorkSheets per WorkBook
- WorkSheet with Multiple Graphs
- WorkSheet with Multiple Tables
- WorkSheet with Multiple Tables and Graphs

More . . .

In the Conference Proceedings & Tools, find:

- ODS Code Examples Used Here
- Other ODS SAS-to-Excel Resources— Tips, References, Sample Program SetUp
- Detailed DDE Code Example
 - Stepwise use of DDE, showing effect of each command on spreadsheet being built
- An expansive DDE paper
- DDE toolkit of 60 macros, 28 sample programs, and supporting files

Related SAS Institute Training

Exporting SAS Data Sets and Creating ODS Files for Microsoft Excel

Exported data is unformatted

DDE tool not included in the course

Comment

Graphs used here are for proof of concept, but are not meant as good graphic design.

Ways to Do SAS to Excel with highly formatted output

- DDE (Dynamic Data Exchange)*
- ODS HTML
- ExcelXP tagset
- MSOffice2K tagset (less capability)
- MSOffice2K_x tagset
- TableEditor tagset**
- *SAS must be running on Windows
- **JavaScript must be enabled

About MSOffice2K

- Less capability than MSOffice2K_x, ExcelXP, TableEditor, and DDE
- If your needs are nominally met by ODS HTML, then MSOffice2K will do a nicer job
- However, MSOffice2K is not within the scope of this presentation & the project that led to it
- If interested, please investigate via search at support.sas.com, www.lexjansen.com, or the whole wide world via the browser of your choice

Why Use MSOffice2K?

"For simple HTML-based output, use ODS MSOFFICE2K to create HTML tags that Microsoft uses and to get an XLS file that you can open with Excel and still respects the SAS ODS style you have chosen."

— My quotation of an expert, but paraphrased

Comparison of Tool Alternatives

Feature	TableEditor*	ExcelXP	MSOffice2K x	HTML	DDE**
					requires an
Pivot Table	Yes	No	No	No	Excel macro
AutoFit					
Columns	By Default*	No	By Default*	By Default	Yes
	Yes, but All		Yes, but All		
Filters	Columns only	Yes	Columns only	No	Yes
Freeze Panes	Row 1 only	Yes	Yes	No	Yes
Side-By-Side					
Elements in					
WorkSheet	Yes	No	Yes	No	Yes
Multi-Sheet					
WorkBook	Yes	Yes, Easy	Yes	No	Yes
Graphs	Yes	No	Yes	Yes	Yes
	Not with				
Titles	other features	Yes	Yes	Yes	Yes

*Headings of columns autofit by default can be overlaid by filter buttons *Javascript must be enabled **SAS must be running on Windows

ODS TagSets

- tagsets updated without new release of SAS
- part of Base SAS
- can be user installed
- documentation
 - in many places
 - no manuals
- get doc in SAS log by including options(doc='help') in your ODS statement, but the result might suggest more resources
- for more information on the matters above, see support.sas.com, or email request my "Tips and Suggested Related Reading"

Why care about TagSets?

If you don't use DDE, there are things ODS HTML cannot do. (DDE can do more than TagSets but it might not be an option for you)

TableEditor TagSet IS the only ODS solution to create Pivot Tables

The Best Reason to use TableEditor TagSet

	PivotTbl.xls - Microsoft Excel												
Fi	ile Hom	ie In	sert Pag	ie Lay	out i	ormulas	; Data Re	eview View	Acrobat	Op	tions Design	1	x 🖬 🗆 🕥 🌣
Pivoť	Table Active Field ¥	Image: Sort weight of the sector of the		Refres	Line Data Source ▼ Data	 Iclear ▼ Select ▼ Move PivotTa Actions 	able Calculat	tions PivotChart		ls 👻	 Field List ➡ +/- Buttons ➡ Field Headers Show 		
	A1		•		<i>f</i> ∞ Ye	ar							~
	А		В		C	2	D	E	F		G		PivotTable Field List 🛛 🔻 🗙
1	Year		(AII)	-									Choose fields to add
2	-											_	to report:
3	Sum of Pro	ofit	Quarter	•		_							Obs
4	Product_L	duct_Line <u>1999Q1</u> 1		1999Q	99Q2 1999Q3		1999Q4	2000Q1		2000Q2	200	V Year	
5	Children		83729.45		169275.76		159256.52	129290.36	90331		1/6233.57	1	Product Line
6	Clothes &	Shoes	764469	9.01	1233880.86		1213900.28	977378.48	88/63/.3		1452140.44	14	Product Category
	Outdoors		5/212/	/.1/	947800.82		/62239.5	605265.87	69/33/.	23	11202/4.81		Product_Group
8	Sports		11/2/94	1.99	1576959.49		1485250.23	14188/2.03	141/305.	81	1910901.94	19 =	Quantity
9	Grand Lota	al	2593120).62	392/916.93 36		3620646.53	3130806.74	3092611.34		34 4659550.76		V Profit
10													
11										_			Drag fields between areas
12													Delow:
1/													
15													
16											🛄 Row L Σ Values		
17											Produ ▼ Sum ▼		
18												•	Defer L Update
H 4	► ► Tal	ole_1	Table_1_	piv	ot 🦄	/							
Read	dy											100)% (-) (+) , ;;

ods results; /* MUST BE TURNED ON

so you can get and respond to prompts */

- ods tagsets.tableeditor
- file="%sysfunc(getoption(work))\temp.html"
- options(
- pivotrow="product_line"
- pivotcol="quarter"
- pivotdata="profit"
- pivotpage="year"
- auto_excel="yes"
- excel_save_file="C:\\SomeFolder\\PivotTbl.xls");
- /* Note mandatory double back slash \\ in the path. */
- proc print data=sashelp.orsales; run;
- ods tagsets.tableeditor close;
- /* MORE pivot table options are available */

ods results; /* MUST BE TURNED ON in your SAS code so you can get and respond to prompts */ /* ALSO, in SAS Display Manager, under Tools > **Options > Preferences > Results** on the Results tab, in the Results options section, you **MUST Check** "View results as they are generated" so you can get and respond to prompts. On the Results tab, my other preferences are: 1. Uncheck "Create listing" and "Create HTML" and "Use ODS Graphics" (so I can control that through my code with no possible interference from SAS defaults) 2. For "View results using:", select "Internal Browser". (Using an external browser might cause problems, depending on which one you use. Step 1 of the ODS TableEditor run opens an intermediate HTML file.)

- /* Two-Step Process:
- 1. Output a web page
- 2. Convert it to an Excel file */
- ods tagsets.tableeditor
- file="%sysfunc(getoption(work))\temp.html"
- options(
- < formatting options here >
- auto_excel="yes"
- excel_save_file="C:\\SomeFolder \\PivotTbl.xls");
- /* Note mandatory double back slash \\ in the path. */

This two-step process cannot be run in batch. It requires responses (both "Yes") to two prompts. Excel file has already been created when second prompt appears. This is the first prompt:

Windows S	ecurity Warning
	An ActiveX control on this page might be unsafe to interact with other parts of the page. Do you want to allow this interaction?
	Yes <u>N</u> o

This two-step process cannot be run in batch. Excel file has already been created when the second prompt appears. Below is an example of the second prompt, where most of it has been clipped off. The text can vary. It is computer-specific and path-specific. The "error" is always harmless, at least in my experience.



TableEditor for Pivot Table

- Benefit:
 - Meets a very popular desire
 - Coding is easy
- Limitation:
 - Code must be run in Display Manager so that you can respond to prompts
 - Cannot be run in batch hands-off
 - Cannot be run as a scheduled job

Comparison of ODS TagSets, ODS HTML, and Dynamic Data Exchange (DDE)

Easiest Solution for Minimal Need

- If need is limited to:
 - font, size, color for data & headings
 - title(s) (and footnotes)
 - possibly a hyperlink in a title/footnote
- use ODS HTML with filetype XLS
- use any ODS style that you like
- optionally override with STYLE(...)=[...]
 in PROC PRINT statements
- you might need to use some HTML tags

For more on use of STYLE(...)=[...] to customize a complex table, see my WIILSU Proceedings-Only paper: Using Color to Communicate, Not to Decorate

Also, to color-code spreadsheet data when NOT using DDE, see Color-Coding Your Data (NOT "Traffic-Lighting") in this same paper. **ODS HTML**

	שיי פי <mark>ש</mark>	(≈ -	÷					HTML_De	mo.xls	Mic	roso	ft Excel								- 6		x
F	ile Ho	ome	Inse	rt Pag	e Layout	Formu	las I	Data F	Review	View	/	Acrobat							~	?	- 6	2 23
Pas	te	Calibr BB	i <i>I</i> U	- 1: - E	l → A [*] • <u></u>	A ·	A* Image: Second state of the second st								*	Insert - Delete - Format	Sc Fil	Sort & Find & Filter * Select *				
Clipt	board is			Font	£	Lii	Alignment Ta Number Ta Styles Cells											Ealting				
	IDX	D			Jx										14							
	A	в		D formt	E	+		G J f +1	H Hia T	TTT -	F a	1			К		L		N	/1		
1						is are	usec	1 IOF L				later	nem	· .		~	,	ъ				
2		W1	th F	ITML	colum	n spa	annı	ng, wo	orksh	eet	titl	es al	ways	s sta	rt in	Co	lumr	IB.				
3		Wi	thou	it HTI	ML col	umn	spar	nning	, worl	κshe	eet	title	s alv	vays	are	in (Colun	nn A	4, w	hic	h is	S
4		<u>Go t</u>	o Wis	consin I	llinois SA	S Users	s Home	e Page														
5		HT	ML	font o	control	s hao	d no	effect	on th	le li	nk	text	abov	ze.								≡
6																						
7	Name	Sex	Age	Height	Weight																	
8	Alfred	M	14	69	112.5																	
9	Alice		13	50.5 65.2	84																	
11	Carol	F	14	62.8	102 5																	
12	Henry	М	14	63.5	102.5																	
13	James	M	12	57.3	83																	
14	Jane	F	12	59.8	84.5																	
15	Janet	F	15	62.5	112.5																	
16	Jeffrey	М	13	62.5	<mark>8</mark> 4																	
17	John	М	12	59	99.5																	•
	► ► [H	IML_	Dem	0 / 💭 /													1000/					<u>–</u> –
Rea	ay															Ш	100% ((U .::

- ods noresults; /* prevents pop-up about Save or Open */ ods graphics / reset=all; ods graphics off;
- goptions reset=all;
- ods html style=Minimal path="C:\Folder" file="File.xls";
- title1 ' HTML font controls . . .';
- /* HTML font sizes are 1,2,3,4,5,6,7, which are not point sizes */
- < other TITLE statements here >
- title4 "
- Go to Wisconsin Illinois
- SAS Users Home Page";
 - /* title4 justify=left height=16pt color=red
 - link='http://www.wiilsu.org' 'Go to . . . ';
 - The above way to create a hyperlink in a title
 - is not applicable with ODS HTML. */
- title5 . . . ;
- proc print data=sashelp.class noobs; run;
- ods html close;

- title1 '
-
- HTML font controls are used for this TITLE statement
- ';
- HTML font sizes are 1,2,3,4,5,6,7, which are not point sizes.
- Without HTML column spanning, worksheet titles always are in Column A, which is stretched.
- With HTML column spanning, worksheet titles always start in Column B.

ODS HTML or ODS tagset output with filetype XLS

When you open such an XLS file, you get misleading intimidating message:

The file you are trying to open, 'FileName.xls', is in a different format than specified by the file extension. Verify that the file is not corrupted and is from a trusted source before opening the file. Do you want to open file now?

Yes No Help

WHY you get the nuisance message

Your file is not "true, binary" Excel output. The message is warning you that file contents do not match the file extension.

A SAS Note explains this in more detail. (You can change the Windows registry to suppress the message.)

See: http://support.sas.com/kb/31/956.html

With ODS ExcelXP, if you use filetype XML instead of XLS You will AVOID that message

Frequent-Use Features in Excel

- Titles
- AutoFit Column Widths & Row Heights*
- Frozen Headers*
- Frozen RowHeaders*
- Filters*
- Hyperlink in a title (and/or footnote)
- Zoom*
- * Not available with ODS HTML
- * Only available with DDE

Effect of Each TagSet

- It implements each feature IF supported, but possibly somewhat differently
- For the same ODS style, each tagset renders appearance of that style differently
- I have used STYLE=Minimal

TagSet Support for Filters

- ExcelXP All Columns or Selective, Easy
- MSOffice2Kx Only All Columns
- TableEditor All Columns or Selective*
- *Selective-Columns Option Is Defective
Let's Compare Results for

ExcelXP MSOffice2K_x TableEditor Dynamic Data Exchange (DDE)

ExcelXP: Freeze 8 Hdrs (top rows) & 3 RowHdrs, 4 Filters

🗶 🖬 🖓 = (P = 🔤	WIILSU_4N	lov2013_ExcelXP_Der	mo_1.xml -	Microsoft Excel			X
File Home Insert Page Layou	ut Formulas	Data Review Vi	ew Acrob	at		∞ ?	- @ ×
Clipboard G Font	A [*] A [*] [*] A [*] [*] 4 [*] 4 [*] [*] 4 [*] 4 [*] [*] 4 [*] 4 [*] 4 [*] [*] 4 [*] 4	Image: Second state Image: Second state Ima	- ■ ■ C	onditional Formatting ormat as Table * ell Styles * Styles	 ✓ Insert → Image: Delete → Image:	∑ • 	ો a & ct ≁
D9 🗸 🕤 f 🖈	12						~
 A 1 Listing of SASHELP.SHOES with 2 ExcelXP estimates & sets all colur 3 Usually, if using justify=left for TIT 4 Here, wraptext="no" was added to 5 Hyperlink below is only clickable i 6 Go to Wisconsin Illinois SAS User 	B ExcelXP TagSet nns too wide. LE1 and style=I the ODS tagset n Column A. rs Home Page	ت t & zoom="65" Minimal, what exten s.ExcelXP options	D ds past Co string.	E Iumn A is hidden	F	G	H
8 Region	Subsidiary 💽	Product 💌	Ste 💌	Sales	Inventory	Returns	
9 Africa	Addis Ababa	Boot	12	\$29,761.00	\$191,821.00	\$769.00	
10 Africa	Addis Ababa	Men's Casual	4	\$67,242.00	\$118,036.00	\$2,284.00	
11 Africa	Addis Ababa	Men's Dress	7	\$76,793.00	\$136,273.00	\$2,433.00	
12 Africa	Addis Ababa	Sandal	10	\$62,819.00	\$204,284.00	\$1,861.00	
13 Africa	Addis Ababa	Slipper	14	\$68,641.00	\$279,795.00	\$1,771.00	
14 Africa	Addis Ababa	Sport Shoe	4	\$1,690.00	\$16,634.00	\$79.00	
15 Africa	Addis Ababa	Women's Casual	2	\$51,541.00	\$98,641.00	\$940.00	
Ib Africa	Addis Ababa	Women's Dress	12	\$108,942.00	\$311,017.00	\$3,233.00	
17 Africa	Algiers	boot	21	\$21,237.00 \$52,206.00	\$73,737.00 ¢100.992.00	\$710.00 ¢2.221.00	
19 Africa	Algiers	Men's Dress	4	\$123,743,00	\$428 575 00	\$2,221.00	
20 Africa	Algiers	Sandal	25	\$29,198,00	\$84 447 00	\$1,530,00	
21 Africa	Algiers	Slipper	17	\$64.891.00	\$248,198.00	\$1.823.00	
22 Africa	– Algiers	Sport Shoe		\$2,617.00	\$9,372.00	\$168.00	
23 Africa	- Algiers	Women's Dress	12	\$90,648.00	\$266,805.00	\$2,690.00	
ExcelXP Features Demo		D	20	** 04C 00	#10.005.00	*220.00	* }

🌐 🗉 🛄 65% 🕞

 \oplus

MSOffice2K_x: Freeze 7 Hdrs (top rows) & 3 RowHdrs, Filter All



Ready

TableEditor: Freeze Top Row, Filters on All ColumnsNo Title Lines Possible with Filters and/or Frozen Top RowColumns are AutoFit, but filter buttons partially overlay headings

🗶 🖬 🕫 - 🖸 - 🗖 -	Table	eEditor_Features	_Demo.xl	s - Microsoft I	Excel				X
File Home Insert Page	Layout Formulas	Data Reviev	v View	Acrobat				∝ (?) □	er 23
Calibri - 11			eneral \$ → %	 Condit Format 	ional Formatting t as Table 🔻	 Insert Insert Insert 	·····································	Sort & Find	
Paste → B Z <u>U</u> → → →	🐣 * 📥 * 👍 i	≡ ≫ - *	.0 .00 00 - .0	📑 Cell Sty	yles *	🗒 Forma	at * 🖉 *	Filter * Selec	ct∗
Clipboard 🖬 Font	Gi Ali	gnment 🗔 I	Number	Ei.	Styles	Cells		Editing	
A2 -	<i>f</i> _≭ Africa								~
A	В	С	D	E	F	G	Н	I.	
1 Region 🗸	Product 🔹	Subsidiary 💌	Stor -	Sal 👻	Invento 👻	Retur 👻			
2 Africa	Boot	Addis Ababa	12	\$29,761	\$191,821	\$769			
3 Africa	Men's Casual	Addis Ababa	4	\$67,242	\$118,036	\$2,284			
4 Africa	Men's Dress	Addis Ababa	7	\$76,793	\$136,273	\$2,433			
5 Africa	Sandal	Addis Ababa	10	\$62,819	\$204,284	\$1,861			
6 Africa	Slipper	Addis Ababa	14	\$68,641	\$279,795	\$1,771			
7 Africa	Sport Shoe	Addis Ababa	4	\$1,690	\$16,634	\$79			
8 Africa	Women's Casual	Addis Ababa	2	\$51,541	\$98,641	\$940			
9 Africa	Women's Dress	Addis Ababa	12	\$108,942	\$311,017	\$3,233			
10 Africa	Boot	Algiers	21	\$21,297	\$73,737	\$710			
11 Africa	Men's Casual	Algiers	4	\$63,206	\$100,982	\$2,221			
12 Africa	Men's Dress	Algiers	13	\$123,743	\$428,575	\$3,621			
13 Africa	Sandal	Algiers	25	\$29,198	\$84,447	\$1,530			
14 Africa	Slipper	Algiers	17	\$64,891	\$248,198	\$1,823			
15 Africa	Sport Shoe	Algiers	9	\$2,617	\$9,372	\$168			
16 Africa	Women's Dress	Algiers	12	\$90,648	\$266,805	\$2,690			
17 Africa	Boot	Cairo	20	\$4,846	\$18,965	\$229			
18 Africa	Men's Casual	Cairo	25	\$360,209	\$1,063,251	\$9,424			•
Frozen Headers and	Filters 💭						0		
Ready] 凹 100%	Θ	-U $-$	÷ ,;

DDE: AutoFit Cols, Freeze 5 Hdrs & 3 RowHdrs, 4 Filters

X		9 -	6 - 1-	-							Boo	k1 - I	Micros	oft E	xcel								X	
	File	н	lome	Insert	: Page	Layou	ut F	orm	ulas	Dat	ta Re	eview	Vie	w	Acrobat						۵	0	- 6	23
Pa	iste	€ ≧ - ≯	Arial	r <u>u</u>	• 16 •	• 	A A - A	•		= = = = = ;	■ ■ • ■ ■ • ≫ •	Gen \$ 0	eral ✓%	, ,	闘 Cond 臓 Form III Cell S	lition lat as Styles St	al Formatting * s Table * s *	in im D im Fo	sert - elete - ormat - ells	Σ 	Sort & Filter	Find Select	& ct =	
		A1		-	(fx	e List	ting	of SA	SHE	LP.SHO	DES u	sing D)vnar	nic Data	Exc	change (DDE)	with 7	700m a	at 70 ⁹	%	.9		v
				A				E	3			С			D		E		F		G		Н	
1	List	ing	of SA	SHE	LP.SH	OE	S usi	ng	Dyn	am	ic Da	ta E	xcha	inge	(DDE) w	ith Zoom a	: 70 %	6					
2	То	/isi	t the \	Nisc	onsin l	llin	ois S	AS	Use	rs	Home	Pag	ge, U	se t	he Lin	kΕ	Below.							
3	http:	//wv	vw.wii	lsu.o	rg																			
4	The	onl	y disa	dvan	tage of	this	solu	tion	n is th	nat t	he linl	k is n	not au	utom	atically	cli	ckable.							
5	Reg	ion	•		•	•	Sub	sid	liary	-	Prod	uct		-	Store	5 -	Sales	Inv	/ento	ry	Retu	rns		
6	Afric	a					Addi	is A	baba	a	Boot					12	\$29,761	\$	5191,8	321	\$7	69		-
7	Afric	a					Addi	is A	baba	a	Men's	s Cas	sual			4	\$67,242	\$	5118,0)36	\$2,2	84		
8	Afric	a					Addi	is A	baba	a	Men's	s Dre	ess			7	\$76,793	\$	5136,2	273	\$2,4	33		
9	Afric	a					Addi	is A	baba	a	Sand	al				10	\$62,819	\$	5204,2	284	\$1,8	61		
10	Afric	a					Addi	is A	baba	a	Slipp	er				14	\$68,641	\$	5279,7	795	\$1,7	71		
11	Afric	a					Addi	is A	baba	a	Sport	t Sho	be			4	\$1,690)	\$16,6	634	\$	79		
12	Afric	a					Addi	is A	baba	a	Wom	en's	Cas	ual		2	\$51,541		\$98,6	641	\$9	40		
13	Afric	a					Addi	is A	baba	a	Wom	en's	Dres	ss		12	\$108,942	\$	5311,C)17	\$3,2	33		
14	Afric	a					Algie	ers			Boot					21	\$21,297	'	\$73,7	737	\$7	10		
15	Afric	a					Algie	ers			Men's	s Cas	sual			4	\$63,206	\$	6100,S	982	\$2,2	21		
16	Afric	a					Algie	ers			Men's	s Dre	ess			13	\$123,743	\$	6428,5	575	\$3,6	21		
17	Afric	a					Algie	ers			Sand	al				25	\$29,198		\$84,4	147	\$1,5	30		
18	Afric	a					Algie	ers			Slipp	er				17	\$64,891	\$	6248,1	98	\$1,8	23		
19	Afric	a					Algie	ers			Sport	t Sho	be			9	\$2,617	'	\$9,3	372	\$1	68		-
M	4 > >	1 5	heet1	<u>, 🔁</u>	/																		•	
Thi	s sheet	is re	duced to	0 70%	of normal	size													U 70%	6 (=)(<u> </u>		(\pm)

Now Let's Compare Results and See the Code for:

ExcelXP MSOffice2K_x TableEditor StepWise Demo Run of Code for DDE is at the end of these slides

ExcelXP: Freeze 8 Hdrs (top rows) & 3 RowHdrs, 4 Filters

🗶 🖬 🖓 = (P = 🔤	WIILSU_4N	lov2013_ExcelXP_Der	mo_1.xml -	Microsoft Excel			X
File Home Insert Page Layou	ut Formulas	Data Review Vi	ew Acrob	at		∞ ?	- @ ×
Clipboard G Font	A [*] A [*] [*] A [*] [*] 4 [*] 4 [*] [*] 4 [*] 4 [*] [*] 4 [*] 4 [*] 4 [*] [*] 4 [*] 4	Image: Second secon	- ■ ■ C	onditional Formatting ormat as Table * ell Styles * Styles	 ✓ Insert → Image: Delete → Image:	∑ • 	ો a & ct ≁
D9 🗸 🕤 f 🖈	12						~
 A 1 Listing of SASHELP.SHOES with 2 ExcelXP estimates & sets all colur 3 Usually, if using justify=left for TIT 4 Here, wraptext="no" was added to 5 Hyperlink below is only clickable i 6 Go to Wisconsin Illinois SAS User 	B ExcelXP TagSet nns too wide. LE1 and style=I the ODS tagset n Column A. rs Home Page	ت t & zoom="65" Minimal, what exten s.ExcelXP options	D ds past Co string.	E Iumn A is hidden	F	G	H
8 Region	Subsidiary 💽	Product 💌	Ste 💌	Sales	Inventory	Returns	
9 Africa	Addis Ababa	Boot	12	\$29,761.00	\$191,821.00	\$769.00	
10 Africa	Addis Ababa	Men's Casual	4	\$67,242.00	\$118,036.00	\$2,284.00	
11 Africa	Addis Ababa	Men's Dress	7	\$76,793.00	\$136,273.00	\$2,433.00	
12 Africa	Addis Ababa	Sandal	10	\$62,819.00	\$204,284.00	\$1,861.00	
13 Africa	Addis Ababa	Slipper	14	\$68,641.00	\$279,795.00	\$1,771.00	
14 Africa	Addis Ababa	Sport Shoe	4	\$1,690.00	\$16,634.00	\$79.00	
15 Africa	Addis Ababa	Women's Casual	2	\$51,541.00	\$98,641.00	\$940.00	
Ib Africa	Addis Ababa	Women's Dress	12	\$108,942.00	\$311,017.00	\$3,233.00	
17 Africa	Algiers	boot	21	\$21,237.00 \$52,206.00	\$73,737.00 ¢100.992.00	\$710.00 ¢2.221.00	
19 Africa	Algiers	Men's Dress	4	\$123,743,00	\$428 575 00	\$2,221.00	
20 Africa	Algiers	Sandal	25	\$29,198,00	\$84 447 00	\$1,530,00	
21 Africa	Algiers	Slipper	17	\$64.891.00	\$248,198.00	\$1.823.00	
22 Africa	– Algiers	Sport Shoe		\$2,617.00	\$9,372.00	\$168.00	
23 Africa	- Algiers	Women's Dress	12	\$90,648.00	\$266,805.00	\$2,690.00	
ExcelXP Features Demo		D	20	** 04C 00	#10.00E.00	*220.00	* }

🌐 🗉 🛄 65% 🕞

 \oplus

- ods noresults; /* prevents pop-up about Save or Open */
- ods graphics / reset=all; ods graphics off;
- goptions reset=all;
- ods tagsets.ExceIXP path="C:\SomeFolder"
- style=minimal
 - file="SomeFileName.xml"
 - /* can use file extension xls instead,
 - but it causes a misleading message at file open time */
 options(
- wraptext="no" /* to solve problem */
- zoom="65" embedded_titles="yes"
- frozen_headers="8" frozen_rowheaders="3" autofilter="1-4"
- sheet_name="ExcelXP Features Demo");
- < PROC PRINT STEP HERE >
- ods tagsets.ExcelXP close;

/* PROC PRINT STEP */

proc print data=sashelp.shoes noobs;

- title1 justify=left height=14pt color=blue 'title1 text';
- < other TITLE statements here >
- title6 justify=left height=16pt color=blue
- link='http://www.wiilsu.org'
- 'Go to Wisconsin Illinois SAS Users Home Page';
- /* title6 "Go to
- Wisconsin Illinois SAS Users Home Page";
 - The above way to create a hyperlink in the title does not work with this tagset. */
- id region subsidiary product;
- run;

MSOffice2K_x: Freeze 7 Hdrs (top rows) & 3 RowHdrs, Filter All



Ready

- ods noresults; /* prevents pop-up about Save or Open */ ods graphics / reset=all; ods graphics off;
- goptions reset=all;
- ods tagsets.msoffice2k_x path="C:\SomeFolder" style=minimal
 - headtext="<style> h1 {margin:0}</style>"
 - /* above fix prevents blank lines between title lines */ file="SomeFileName.xls"
 - options(
- zoom="120"
- orientation="landscape"
- frozen_headers="7" frozen_rowheaders="3"
- autofilter="yes"
- sheet_name="MSOffice2K_x Features Demo");
- < PROC PRINT STEP HERE >
- ods tagsets.msoffice2k_x close;

/* PROC PRINT STEP */

- proc print data=sashelp.shoes noobs;
- title1 justify=left height=14pt color=blue 'title1 text';
- < other TITLE statements here >
- title5 justify=left "
- Go to Wisconsin Illinois SAS Users Home Page";
 - /* title5 justify=left link='http://www.wiilsu.org'
 - 'Go to Wisconsin Illinois SAS Users Home Page';
 - The above way to create a hyperlink in the title does not work with this tagset. */
- id region subsidiary product;
- run;

TableEditor: Freeze Top Row, Filters on All ColumnsNo Title Lines Possible with Filters and/or Frozen Top RowColumns are AutoFit, but filter buttons partially overlay headings

🗶 🖬 🕫 - 🖸 - 🗖 -	Table	eEditor_Features	_Demo.xl	s - Microsoft I	Excel				X
File Home Insert Page	Layout Formulas	Data Reviev	v View	Acrobat				∝ (?) □	er 23
Calibri - 11			eneral \$ → %	 Condit Format 	ional Formatting t as Table 🔻	 Insert Insert Insert 	·····································	Sort & Find	
Paste → B Z <u>U</u> → → →	🐣 * 📥 * 👍 i	≡ ≫ ·	.0 .00 00 - .0	📑 Cell Sty	yles *	🗒 Forma	at * 📿 *	Filter * Selec	ct∗
Clipboard 🖬 Font	Gi Ali	gnment 🗔 I	Number	Ei.	Styles	Cells		Editing	
A2 -	<i>f</i> _≭ Africa								~
A	В	С	D	E	F	G	Н	I.	
1 Region 🗸	Product 🔹	Subsidiary 💌	Stor -	Sal 👻	Invento 👻	Retur 👻			
2 Africa	Boot	Addis Ababa	12	\$29,761	\$191,821	\$769			
3 Africa	Men's Casual	Addis Ababa	4	\$67,242	\$118,036	\$2,284			
4 Africa	Men's Dress	Addis Ababa	7	\$76,793	\$136,273	\$2,433			
5 Africa	Sandal	Addis Ababa	10	\$62,819	\$204,284	\$1,861			
6 Africa	Slipper	Addis Ababa	14	\$68,641	\$279,795	\$1,771			
7 Africa	Sport Shoe	Addis Ababa	4	\$1,690	\$16,634	\$79			
8 Africa	Women's Casual	Addis Ababa	2	\$51,541	\$98,641	\$940			
9 Africa	Women's Dress	Addis Ababa	12	\$108,942	\$311,017	\$3,233			
10 Africa	Boot	Algiers	21	\$21,297	\$73,737	\$710			
11 Africa	Men's Casual	Algiers	4	\$63,206	\$100,982	\$2,221			
12 Africa	Men's Dress	Algiers	13	\$123,743	\$428,575	\$3,621			
13 Africa	Sandal	Algiers	25	\$29,198	\$84,447	\$1,530			
14 Africa	Slipper	Algiers	17	\$64,891	\$248,198	\$1,823			
15 Africa	Sport Shoe	Algiers	9	\$2,617	\$9,372	\$168			
16 Africa	Women's Dress	Algiers	12	\$90,648	\$266,805	\$2,690			
17 Africa	Boot	Cairo	20	\$4,846	\$18,965	\$229			
18 Africa	Men's Casual	Cairo	25	\$360,209	\$1,063,251	\$9,424			•
Frozen Headers and	Filters 💭						0		
Ready] 凹 100%	Θ	-U $-$	÷ ,;

ods results; /* MUST BE TURNED ON so you can get and respond to prompts */

- ods graphics / reset=all; ods graphics off; goptions reset=all;
- ods tagsets.TableEditor style=minimal
- file="%sysfunc(getoption(work))\temp.html"
 - options(sheet_name="Frozen Headers and Filters"
- excel_orientation="landscape"
- excel_frozen_headers="yes"
- excel_autofilter="yes"
- auto_excel="yes"
- excel_save_file="C:\\SomeFolder\\SomeFile.xls");
- /* Note double back slash \\ in path above. */
- title1 'This title text can not be displayed.';
- proc print data=sashelp.shoes noobs; run;
- ods tagsets.TableEditor close;

Nice-To-Have Features in Excel

- Multi-Sheet WorkBooks
- Multiple Tables in WorkSheet
- Multiple Graphs in WorkSheet
- Graphs and Tables in WorkSheet
- Possible with MSOffice2K_x tagset, which also supports panels of objects
 Most flexibility with DDE

Here, Panel = one row of side-by-side cells, to improve ability to see all tables/graphs at the same time

- ODS HTML
 - single-worksheet workbooks only
 - no panels, multiple outputs are stacked

- ODS HTML
 - single-worksheet workbooks only
 - no panels, multiple outputs are stacked
- ODS tagsets.ExcelXP
 - multi-sheet workbooks, no panels, no graphs

- ODS HTML
 - single-worksheet workbooks only
 - no panels, multiple outputs are stacked
- ODS tagsets.ExcelXP
 - multi-sheet workbooks, no panels, no graphs
- ODS tagsets.MSOffice2K_x
 - multi-sheet workbooks, panels, graphs

- ODS HTML
 - single-worksheet workbooks only
 - no panels, multiple outputs are stacked
- ODS tagsets.ExcelXP
 - multi-sheet workbooks, no panels, no graphs
- ODS tagsets.MSOffice2K_x
 - multi-sheet workbooks, panels, graphs
- ODS tagsets.TableEditor
 - multi-sheet workbooks, panels, graphs
 - most interesting functions not viable for batch (require reply to prompts in Display Manager)

Best Non-DDE Choice MSOffice2K_x

- if you want these features:
- multi-sheet workbooks
- panels
- graphs

ODS tagsets.MSOffice2K_x

Horizontal Panels

- WorkSheet with Multiple Graphs
- WorkSheet with Multiple Tables
- WorkSheet with Multiple Tables and One Graph (In a panel of tables and graphs, one graph is the maximum, and it must be last in the panel) If you omit the panel option, objects are presented one above the other, with no limit
- on the number of graphs or tables,
- and they can be presented in any order.

First, a Simple Case: Table at Left of Graph (and Sheet Name Customization)

M 🖂	hicroso	ft Excel - Tal	bleAtLeft0	fGraph.xls												P	×
8	<u>F</u> ile <u>E</u>	dit <u>V</u> iew Ir	nsert F <u>o</u> rma	at <u>T</u> ools (<u>D</u> ata <u>W</u> ind	dow <u>H</u> elp	Ado <u>b</u> e PDF						Туре	a question f	or help 🛛 👻	- 8	×
D	🖻 🔛	a - V		- 🤮 Σ -	- 21 100	? » Ar	rial	- 14	• • B	<u>ι</u> υ ≣		\$ %	•.0 .00 •.• 00.	€ €	- 🕭 -	Α.	
- *a	ta ta			Reniv	with Change	es End Rev	iew						-			_	İ
							•										
		_	f. Toblo														
		B	/× Table	П	F	F	G	н	I		K	1	М	N			=
1		Table	Ť		Graph		Ŭ			Ŭ					Ŭ		-
2		Tuble		é	Ciupii												
3	Aae	Name	Heiaht			Hoight											
1	13	Alice	56.5	1		rieigni											
 Ε		Barbara	65.3	Alice		56.5											
0	13	Danbara	121.8	Barbara	a	65.3											
ю 7	M = 2	>	121.0	Carol		62.8											
7	14	Caral	62.0	Judy		64.3											
8	14		02.0	Journal		01.0											
9		Juay	64.3	-													
10	14		127.1														
11			248.9														
12	N = 2	2															
13	Tota	IN = 4															
14																	
15 16																	
17																	
18																	
19 20																	
20															_		
22																	
23																	
24																<u> </u>	
26																	
 44	F H	Table At Le	ft Of Grapi	h/													•
Read	łv	,															

- * Table at Left of Graph *;
- * (and Excel Sheet Name Customization) *;
- ods tagsets.MSOffice2K_x style=Minimal path="C:\SomeFolder" file="TableAtLeftOfGraph.xls" options(panelcols="2" /* panel_space="1" */ sheet_name="Table At Left Of Graph" doc="help"); < proc print step here > < proc gchart step here > ods _all_ close:
- * doc="help" to list all of the tagset options in SAS log *;

MSOffice2K_x panels panel = <u>one</u> row of tables or graphs or tables and one graph MSOffice2K_x panels

- . graphs only any number OK
- . tables only any number OK
- . any number of tables
 - at left of one graph OK

extra graphs (>1) at right of table(s) will overlay each other

Problem: graphs overlay if > 1 at right of table(s)



table at right of graph goes below graph, not next to it

Problem: table desired at right goes below graph

🔀 🛛 🐱 🖓 🗸 🖓 🗸 🗐 🖛 Slide109_MS	Office2K_x_Analogue_D	Defective_Panel_Of_Tal	ble_At_Right_Of_SASGRAPH_P	lot.xls - Microsc	
File Home Insert Page	Layout Formulas D	ata Review View	Acrobat		a ? 🗆 🗗 🛛
Clipboard		E I General General S → % S → %	✓ I Conditional Formatting * ✓	Insert ▼ Delete ▼ Format ▼ Cells	Σ · Sort & Find & Filter · Select · Editing
A1 •	f _s				· · · · · · · · · · · · · · · · · · ·
A1 A A B C D D D C D D D C D D D C D D D C D D D C D D D D C D D D D C D D D D D D D D D D D D D	Jx E F	G H I I I I <	J K L M I I I I I I I I I I I I I I I	N O F	
24 IName W 25 26 Name W 27 28 Alfred Alice 29 30 Carol Carol IN < ▶ ▶	/eight Height 112.5 69 84 56.5 98 65.3 102.5 62.8				

Multi-Sheet Workbook using MSOffice2K_x TagSet

- MSOffice2K_x WorkBook is a <u>collection</u> of files
- See discussion later about keys to Portability*
- Use a SAS macro

if you wish to simulate the BY processing
option available when using ExcelXP tagset
*Portability =

- can move the collection to another folder, or email it,
- and everything will still work.

MSOffice2K_x WorkBook is a <u>collection</u> of files

🕞 🕞 🗢 📙 « ! SAS_to_	Excel_4Nov2013 ► Results ► MSOffice2K_x ► V5	→ 41	Search V5)	ρ
Organize 👻 🕅 Open	 Print E-mail Burn New folder 			0	
🚖 Favorites	Name	Date modified	Туре	(-
📃 Desktop	Ø Gplots.html	10/2/2013 5:25 PM	HTML Document		
🐌 Downloads	Ø HgtStats.html	10/2/2013 5:25 PM	HTML Document		
laces 😓 Recent Places	📧 hgtvsage_gplot.gif	10/2/2013 5:25 PM	GIF image		
	HgtVsAge_SGPLOT_SCATTER.png	10/2/2013 5:25 PM	PNG File		
门 Libraries	HgtVsAge_SGSCATTER_PLOT.png	10/2/2013 5:25 PM	PNG File		
Documents	MultiSheetWorkBookOfTableAndPlotsAndStatistics.xls	10/2/2013 5:25 PM	Microsoft Excel 97-2003 Wo	rkshee	
🕹 Music	🥭 SGplots.html	10/2/2013 5:25 PM	HTML Document		
Sectores	SGscatters.html	10/2/2013 5:25 PM	HTML Document		
🢐 Videos	🥭 Table.html	10/2/2013 5:25 PM	HTML Document		
	ThreeTables.html	10/2/2013 5:25 PM	HTML Document		Ξ
🐝 Homegroup	TwoTablesOnePlot.html	10/2/2013 5:25 PM	HTML Document		
	WarningMessageFromLeRB.html	10/2/2013 5:25 PM	HTML Document		
💐 Computer	Ø WgtStats.html	10/2/2013 5:25 PM	HTML Document		
🧶 OS (C:)	🚾 wgtvsage_gplot.gif	10/2/2013 5:25 PM	GIF image		
Interpretation of the second s	WgtVsAge_SGPLOT_SCATTER.png	10/2/2013 5:25 PM	PNG File		
ISEA_DISK (F:)	WgtVsAge_SGSCATTER_PLOT.png	10/2/2013 5:25 PM	PNG File		
🔃 Network	WgtVsHgt_2.png	10/2/2013 5:25 PM	PNG File		
	🚾 wgtvshgt_gplot.gif	10/2/2013 5:25 PM	GIF image		
	WgtVsHgt_SGPLOT_SCATTER.png	10/2/2013 5:25 PM	PNG File		
	WgtVsHgt_SGSCATTER_PLOT.png	10/2/2013 5:25 PM	PNG File		Ŧ

Multi-Sheet Workbook using MSOffice2K_x TagSet Several Sheets:

- Three Tables Side-by-Side
- Three Plots Side-by-Side (three ways):
 - SGPLOT with SCATTER statement
 - GPLOT with PLOT statement
 - SGSCATTER with PLOT statement (defect)
- Two Tables and One Plot Side-by-Side
- Two Univariate Reports on Separate Sheets
- Extra Sheet (demo only) Warnings

Multi-Sheet Workbook using MSOffice2K_x TagSet More Sheets:

- Table Over Plot
- Two Tables Over Two Plots
- Plot Over Table
- Two Plots Over Two Tables

Let's Open the Result


- There is no corruption
- Get this with every ODS tagset if you create Excel output. **Exception:** Create ExcelXP with filetype xml.

Problems During Load
Problems came up in the following areas during load:
Worksheet Setting Workbook Setting
A log file has been created listing the load errors. This file has been saved to the following location: C:\Users\Dr LeRoy Bessler\AppData\Local\Microsoft\Windows\Temporary Internet Files\Content.MSO\293817A0.log.
OK Cancel

This is a False Alarm No Problem

This is a False Alarm No Problem

But if you omit all graphs, or create one per sheet or multiple, but stacked within the sheet, (i.e., avoid a side-by-side panel), the pop-up does not occur.

For Demo Only

- My workbook includes a warning worksheet.
- You MIGHT want to retain the second warning message in a warning worksheet if any other worksheets in the workbook are panels of graphs.

WorkSheet of Warnings

X	<mark>යි</mark> ව ∗	(~ ^ ₹		N	/ISOffice2K_	x_Demo_	Panels	_And_Mult	iple_	Sheets.xls - Microsoft Excel				x
F	le F	lome I	insert Page	Layout	Formulas	Data	Rev	view Viev	V	Acrobat		∧ (3 - 1	a ×
Pas	te ♂	Calibri B I	 16 <u>₩</u> <u>₩</u> <u>₩</u> 	- 1 3		= = = = ≇ ≫		General \$ - % 	~ ,	Conditional Formatting *	∎ Insert × Delete × Format ×	Σ · Z × Sort & Filter ·	Find & Select *	
Clip	oard 🖬		Font	£		lignment	- Fa	Number	<u> </u>	Styles	Cells	Editing		
	AI		◆ (c	Jx	warnings	:		٨					D	Ť
	14/000							А						
2 3 4	In the Assig confu displa ALSO false Work graph omitte in a s alarm	e step ned in using l ayed i ayed i a, it is alarm book ns. If t ted, th ide-by n disa	that ass the OD abel will n the po NORMA about a Setting. the ODS ne false a y-side ar ppears.	semi oS ta be <u>p-up</u> L for a Pro Tha opti alarr ray.	oles the gsets.m substitu o messa the po oblem v t false a ons par n disap If the v	e mult nsoffic uted f age up p-up vith W alarm ramet pears vorkb	i-sh ce2k or th oon Pro Vork is ca ers f ook	eet wo (_x stan hat nar openir oblems oblems sheet (aused for the d the g contai	orki ter ne g t Di Set by pa rap	book, if a WorkSh nents exceeds 31 , and an EXTRA w the WorkBook. uring Load" mess ting and a Proble presence of the p nel and graph_w ohs appear in a ve no graphic works	eet Nam charact /arning v age to ra m with oanel of t idth are ertical sta heets, th	ers, a vill be aise a three ack, not he false		
	F H \	Narn / T	ables / SGpl	ots /	Gplots / S	Gscatters	s / Ta	ables+Plot	/H	lotStall	1111			

🌐 🗐 🛄 100% 😑

 (\pm)

PROC PRINT steps deliver panel of 3 tables - zoom="90"



Ready

- ods tagsets.msoffice2k_x path="C:\SomeFolder"
 file="ThreeTables.html" style=minimal
 options(orientation="landscape" zoom="90"
 panelcols="3" panel_space="1");
- proc print data=sashelp.class; title color=red " title text here "; var height age;

run;

- /* like above for two more tables */
- ods tagsets.msoffice2k_x close;

PROC SGPLOT SCATTER steps deliver panel of 3 images - zoom="85"



goptions reset=all;

- ods graphics on / reset=all height=4in width=4in border=on antialiasmax=2500;
- ods tagsets.msoffice2k_x path="C:\SomeFolder"
 (url=none) file="SGplots.html" style=minimal
 options(zoom="85" orientation="landscape"
 panelcols="3" panel_space="1" graph_width="300");
- ods graphics on /

imagename='HgtVsAge_SGPLOT_SCATTER';
proc sgplot data=sashelp.class;
title color=red " title text here ";
scatter y=height x=age; run;

- /* like above for two more plots */
- ods tagsets.msoffice2k_x close;

- **NOTE:** In an earlier version of this code, I had used a smaller height & width = 3in and graph_width = 225 and default zoom = 100. With those parameters, three plots did fit in the Excel worksheet window, and there was no need to scroll to the right to see the last plot.
- The monitor resolution was set to 1024 X 768.
- ods graphics on / reset=all height=4in width=4in border=on antialiasmax=2500;
- ods tagsets.msoffice2k_x path="C:\SomeFolder"
 (url=none) file="SGplots.html" style=minimal
 options(zoom="85" orientation="landscape"
 panelcols="3" panel_space="1" graph_width="300");

PROC GPLOT PLOT steps deliver panel of 3 images - zoom="85"



PROC SGSCATTER PLOT - images overlaid when XLS file is viewed in Excel



Two Tables at Left of Plot (zoom="95"), plot must be last, maximum one plot



Ready

- goptions reset=all;
- ods graphics on / reset=all height=3in width=3in border=on antialiasmax=2500;
- ods tagsets.msoffice2k_x path="C:\SomeFolder"
- (url=none) file="TwoTablesOnePlot.html" style=minimal options(orientation="landscape" zoom= "95"
- panelcols="3" panel_space="1" graph_width="225");
- < proc print step >
- < proc print step >
- < proc sgplot step >
- ods tagsets.msoffice2k_x close;

proc print data=sashelp.class; title "Name & Height"; var name height; run;

proc print data=sashelp.class;
title "Name & Weight"; var name weight; run;

ods graphics on / imagename='WgtVsHgt_2'; proc sgplot data=sashelp.class; title color=red "Weight vs Height"; scatter y=height x=age; run;

Table Over Plot (zoom="80")

	. 9	- @ -	=						MSOf	fice2K_x_Der	mo_Panel	s_And_Mul	tiple_Shee	ts.xls - N	vicrosoft I	Excel							۲
Fil	e	Home	Insert	Page	e Layout	t F	ormulas	Data	Review	View	Acrobat										۵ 🕜	- 7	23
Ê	*	Aria	I	- 12	*	A A	. ≡ =	= =	≫⁄ -	🖥 Wrap Te	xt	General		*	≤ġ			-		Σ AutoS	um • 🎦	Â	
Past	e 🦼	в	ΙŪ	-	- <u></u>	- <u>A</u>		E 3		💀 Merge &	Center -	\$ - %	• <u></u> •.0	.00 Co	nditional F	ormat as	Cell I	insert Delet	e Format	Image: Fill ▼	Sort	& Find &	&
Cliph	oard	5		Font			5		Alianme	nt	E.	Nur	nber	For	matting *	Table ▼ St tyles	tyles *	• • • Cells	*		Filter	 Select 	1.4
Cilpb	A	1	-	-	fx	Na	me & We	eight &	Height			1101	ino ci			.gres		Cells			caning		~
	A	B	С	D		E	F	G	Н	I	J	К	L	М	N	0	Р	Q	R	S	Т	U	E
1 N	lame <mark>(</mark>	. Weig	ht & Hei	ght																			
2 3 N	ame	Heigh																					
4 A	lfred	69																					_
5 A	iice arbara	65.3																					-
7 C	arol	62.8																					_
9 Ja	enry ames	63.5 57.3																					-
10 Ja	ine	59.8																					_
11 Ja 12 Je	effrey	62.5																					-
13 Jo	ohn	59																					
14 JC	idy Jdy	51.3 64.3																					-
16 Lo	ouise	56.3																					
17 IV 18 P	hilip	00.5 72																					-
19 R	obert	64.8																					
20 K	homas	57.5																					-
22 W	/illiam	66.5																					
23																							-
25			Weight	vs Heig	lht																		
27	70 -					٥																	-
28				0	8																		
30	65 -	1	• •	000																			
31	년 우 0 -		0	Ū	0																		
33	-	•	0 0 0																				-
34	55 -	1																					
36	50 -	•																					-
37		11	12 13	14	15	16																	_
39				Age																			-
	••	Warn	<u> </u>	s / SGp	olots	Gplo	its 🖉 2Gp	olotsSta	ck / SG	scatters 🦯	Tables+P	Plot Tab	leOverPlo	ot 🖉 21	ablesOver	r2Plots /	PlotOve	erTable 🧹	2PlotsOve	r2Tables	/ HgtSta	ts 🚺 🕪	
Read	У																		I II 80	% —		- (+) .;;

Two Tables Over Two Plots (zoom="50")

🗶 🔛 🕫 v 🛛 🗸	MSOffice2K_x_Demo_Panel	ls_And_Multiple_Sheets.xls - Microso	oft Excel	
File Home Insert Page Layout Formulas Data	Review View Acrobat			a 😮 🗖 🖸 🔀
Calibri - 24 - A A = =	≫ - 📑 Wrap Text	General 🗸		× ΔutoSum -
Paste B I U + H + M + A + F F F	🖆 🖆 🍱 Merge & Center 🗸	\$ - % ,	al Format as Cell Insert Dele	ete Format
Clipboard I Far Font	Alianment 5	Formatting	Table Tuble Cel	
A1 • <i>f</i> _{sc} Height and Age				×
	L M N O P	Q R S T U V	W X Y Z AA AE	3 AC AD AE AF AG AH
2 2 3 Ob Heinb An				
4 1 63 14 5 2 56.5 13				
b 3				
9 6 57.3 12 10 7 59.8 12 11 8 62.5 15				
12 9 62.5 13 13 10 59 12 14 11 513 11				
15 12 64.3 14 18 13 66.3 12 14 16 15 65 12				
17 17 17 1003 103 18 15 72 16 19 16 64.8 12				
20 17 67 15 21 18 57.5 11 22 19 66.5 15				=======================================
23 24				
25 Weight and Age				
27 Ob Weigh Ag 28 1 112.5 14 29 21 841 13				
30 3 38 13 31 4 102.5 14 22 5 1925 14				
30 8 112.5 10 36 9 84 13 37 10 99.5 12				
38 11 50.5 11 39 12 30 14 40 13 77 12				
41 14 112 15 42 15 150 16 43 16 128 12				
44 17 123 15 45 18 25 11 45 19 20 21				
40 (3 112 13 44 47 47 48 47 47 47 48 47 47 47 48 47 47 47 47 47 47 47 47 47 47 47 47 47				
Height Vs Age (using ODS Graphics PROC SOPLOT SCATTER plot defaults)				
52 70 - o				
55 65 0 0 8 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0				
58 <u>58</u> ± 60 - 0				
Superior o o I I I Warn Tables ✓ SGplots Gplots ✓ Gplots	k / SGscatters / Tables+I	Plot / TableOverPlot / 2TablesO	Over2Plots PlotOverTable	2PlotsOver2Tables / HgtStats
Ready			l l l l l l l l l l l l l l l l l l l	50% — — — — — — — — — —

Two Tables Over Two Plots (zoom="35")

🗶 🔜 9 - (2 -) -	MSOffice2K_x_Demo_Panels_And_Multip	ole_Sheets.xls - Microsoft Excel	
File Home Insert Page Layout Formulas Data	Review View Acrobat		x 🖷 🗆 🕥 X
	≫ - 🗃 Wrap Text General	·	Σ AutoSum - 😿 👬
Paste J B Z U + 🖽 + 💁 + 🧮 = 🚍	🖆 🖆 🏧 Merge & Center 🔹 💲 🔹 %	, Conditional Format as Cell In	nsert Delete Format
Clipboard 🖼 Font 🖼	Alignment 🖫 Numb	er 🕞 Styles	Cells Editing
A1 🔹 🏂 Height and Age			×
Image Image <th< td=""><td>Q R S T U V W X Y Z</td><td>AA AD AC AD AE AF AG AH AI AJ AK</td><td>WA VA UA TA ZA AA AA AA AA AA AA</td></th<>	Q R S T U V W X Y Z	AA AD AC AD AE AF AG AH AI AJ AK	WA VA UA TA ZA AA AA AA AA AA AA
2 01- 87-102 01- 4 4 52 4 2 2 11-10 4			
b 3 3.5.5 3 7 6 1.4.6 6 8 2 3.5.3 6 9 5 6.7.3 6			
19 6 1.0.2 1.0 19 0 1.0.2 1.0 19 0 1.0.2 1.0 19 0 1.0.2 1.0 19 0 1.0.2 1.0 19 0 1.0.2 1.0 19 0 2.0 1.0			
weight and Age			
33 2 44 23 3 3 34 23 34 4 422.2 44 5 5 412.2 44			
3 3 5 19 12 4 2 16.5 12 3 8 17.5 12 5 9 10			
27 (4) 25.5 (2) 31 (4) 25.6 (4) 33 (4) 25 (2) 34 (4) 25 (2) 44 (4) 25 (2) 37 (2)			
41 41 42 42 42 42 43 44 43 42 42 42 44 47 92 42			_
			=
H Huggery's Aprix barry 000 Ordenie Horize SpArt, 075 Ordenie			
1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1			
85 10			
0 71 73 72			
Yougers Application COC Continue More Soft Control for Continue Proce Soft Of Example Internetwork St. Continue O			
77 440 78 0 79 120 11 120			
II Lo App II 11 12 13 16 15 16 II II 12 13 16 15 16 II II App 15 16 16 16			~
Warn / Tables / SGplots / Gplots / 2GplotsSta	k / SGscatters / Tables+Plot / Table	OverPlot 2TablesOver2Plots PlotOve	Table 2PlotsOver2Tables HgtStats /
Ready			· · · · · · · · · · · · · · · · · · ·

Plot Over Table (zoom="80")

🔣 🔙 19 - (N -) -	MSOffice2K_x_Demo_Pane	s_And_Multiple_Sheets.xls - Microsoft Excel	
File Home Insert Page Layout Formulas	Data Review View Acrobat		x 🖷 🗕 😯
Calibri - 11 - A A =	≡ 📄 ≫ - 📑 Wrap Text	General	∓ 🔭 🔲 Σ AutoSum - 🎢 🧥
Paste B U · · · =	■ 目 達 達 國 Merge & Center -	\$ - % , 🔐 😳 Conditional Format as Cell	Insert Delete Format
Clipboard 5 Font 5	Alianment	Formatting * Table * Styles * Number 5 Styles	Cells Editing
A1 - fx			· · · · · · · · · · · · · · · · · · ·
A B C D E F	G H I J	K L M N O P	Q R S T U
1 Weight vs Height			ñ
3 70 -			
8			
7 <u>5</u> 8 2 60 - 8			
9 0 0 0			
10 55 -			
13 14 11 12 13 14 15 16			
15 Age			
17			
18			=
20 Name & Weight & Height			
21 22 Name Heich			
23 Alfred 69			
24 Alice 56.5			
26 Carol 62.8			
27 Henry 63.5 28 James 57.3			
29 Jane 59.8			
30 Janet 62.5 31 Jeffrey 62.5			
32 John 59			
33 Joyce 51.3 34 Judy 64.3			
35 Louise 56.3			
36 Mary 66.5 37 Philip 72			
38 Robert 64.8			
39 Ronald 67			
Ready Ready	piotsstack / Suscatters / Tables+		Per lable ZPiotsOver2 Lables HgtStats

Two Plots Over Two Tables (zoom="50")

		5.	(°	-			-					MSOff	fice2K_	x_Den	no_Pan	els_A	nd_Mu	ltiple_	Sheets	s.xls -	Micros	soft Ex	xcel							E			×	
	File	ŀ	Home	Ins	ert	Page L	.ayout	Foi	rmulas	Data	a F	Review	Vie	w.	Acrobat																۵ (2 -	đ	23
	<u> </u>	¥	Calib	ri		· 11	- A	A A	=	= =	\$%	Ŧ	a wi	rap Tex	đ	Ge	eneral			-	≤₹					⊷ ←	*		Σ	AutoS	um - 🥻		A	
Р	aste	• •	в	I	<u>u</u> -	•	<u>گ</u> -	<u>A</u> -	≣	= =	- 	ŧ.	•a• M	erge &	Center	- 9	- %	, ,	.00.		Condition	nal Fo	rmat a	s Cell	In	nsert	Delete	Forma	t 🛃	Fill ₹	_ Sc	ort &	Find &	81
Cli	• pboar	od 🗔			Fo	ont		5			A	ignme	nt			5	Nu	ımber		F Fa	ormattin	ig ▼ T Sty	Table ▼ /les	Styles	*	*	Cells	*	2	cicai	Fil Editin	lter * S g	Select	*
		A1			• (=		f_{x}					_																						×
1	A	вС	D Height Vs	E Age (usin	F ng ODS Gri	G	н	1	J	К	L	M	N	0	P	Q	B	S	Т	U	V	V	X	Y	Z	AA	AB	AC	AD	AE	AF .	AG .	AH	
3	70		PROC SGF	LOT SCAT	ITER plot of	defauits)	0																											
5 6 7					0	8																												_
8 9 10	ight 9	1	0	0	8	0																												
11	운 60 도	•	0000	0																														-
14	55	1	0	Ū																														-
16 17 18	50		12	13	14	15	16																											-
19 20 21				Age	•																													_
22 23 24							_																											-
25		_	Weight V PROC SGI	s Age (usii PLOT SCA'	ng ODS G TTER plot	raphics defaults)																												_
28	14	0 -				0																												-
30 31 32	12	o -	0		0	0																												-
33 34 35	Meight 10	o -	۰	0	0	•																												_
36 37 38	8	o - °	8 0	o	0																													-
39	6	0-																																
41		11	12	13	14	15	16																											-
44 45 46				~~																														-
47																																		
49	Hei	ght a	and A	\ge																														-
52	1 2	69 14 56.5 13																																-
54 55 56	3 4 5	35.3 13 32.8 14 33.5 14																																-
57 58 59	6 7	57.3 12 59.8 12 52.5 15																																_
60 61 62	9 10	59 12																																-
K	▲ ►	JI.Jf II	Warn	/Ta	bles	SGplo	ots 🦯	Gplots	s / 20	GplotsSt	tack	∕ SG	scatte	rs /	Tables	+Plot	/ Ta	ableOv	erPlot	/ 7	2Tables	Over2	Plots	/ Plo	otOver	Table	2P	lotsO	ver2	ables	Hgt	Stats		Į
Re	ady																												50%	Θ			-(+) .::

Two Plots Over Two Tables (zoom="35")

	MSOffice2K_x_Demo_Panels_And_Multiple_Sheets.xls - Microsoft Excel	_ 🗆 🗙
File Home Insert Page Layout Formulas Data	Review View Acrobat	a 🕜 🗆 🗗 🛛
Calibri · 11 · A A = =	≫ - → Wrap Text General - → → → → → → → → → → → → → → → → → →	· 🖅 🏔 📗
Paste B I U · B · A · E E E	章 律 國 Merge & Center - \$ - % , 號 20 Conditional Format as Cell Insert Delete Format (2) Celar - 2 Cela	Sort & Find &
Clipboard 🖬 Font 🖬	Alignment 🛱 Number 🛱 Styles Cells E	Filter * Select *
A1 • <i>f</i> x		v
B P C D E P G H I J K L H H 0 P 5 HINDS 109,015 (Stratting and Results) THE STRATT (Stratting and Results) T <	2a 9a 9a 9a 9a 9a 19a 19a 19a 19a 19a 19a	AT AU AV AV
4 70- 5 70- 6 5 7 7 8		
12 0 0 0 13 50 0 14 55 -		
45 0 47 10 1 1 1 48 11 12 13 14 15 16 49 44 15 16 46 15 16		
10 27 28 39		
Weight in Age (seing ODS Graphics HIDC SORLOT SCATTER (and enclose)		
Image: International system Image: International system		
11 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1		
27 00 0 31 33 46 60 -		
er 0 i i j er 11 12 13 14 15 16 er Age 4 4 4 4 4		
6 6 0 1		=
Height and Age Age Age		
22 4 53 64 32 2 2.6.2 04 46 3 6.5.3 05 57 4 1.3 4		
56 5 6 65.5 19 76 6 77.3 6 78 9 5 554 6 78 9 5 5 5 10 78 9 5 5 10 78 9		
weight and Age		
7 0.00 Trial life 8 0.00 Trial life 8 0.00 Trial life		
14 3 14 3 15 4 15 3 15 4 15 3 15 4 15 3 16 4 15 3		
11 1 1 1 27 15 11 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1		-
Image: state	ack / SGscatters / Tables+Plot / TableOverPlot / 2TablesOver2Plots / PlotOverTable 2PlotsOver2Tables/	HgtStats /
Ready	🔲 🛄 🛄 35% 🕞 — 🖓 —	

PROC UNIVARIATE step delivers serial chain of tables for height statistics

	🚽 🤊 • (° - 두		MSOffice2K_x_Der	no_Panels_And	Multiple	Sheets.xls	- Microsoft Excel				х	
F	ile Home Ir	nsert Page La	ayout Formulas D	ata Review	View	Acrobat				∧ (?) □	đ	×
Pas	te v B Z	• 11 <u>U</u> • · · ·	· A [*] A [*] ≡ ≡ . A [*] A [*] ≡ ≡ . A [*] I [*] I [*] I [‡] I [‡]	= = Gene = ⊡ • \$ ≫ •	eral ↓ ↓ % ,	👪 Condi 👿 Forma 🖳 Cell St	tional Formatting * at as Table * tyles *	¦ter Inser Image: Inser Dele Image: Image:	t • Σ • te • 🛃 • nat • 📿 •	Sort & Find & Filter * Select *		
Clipl	board 🖫	Font	🖬 Alignm	ent 🖫 Nu	mber 🛛 🖫		Styles	Cells	5	Editing		
	A1	• (**	<i>f</i> _≪ Variable: Height	nt								¥
	А	В	С	D	E	F	G	Н	I	J	k	
1		Vá	ariable: Height									
2					-	-						
3		Mo	oments									
4	N	19	Sum Weights	19)							≡
5	Mean	62.3368421	Sum Observations	1184.4	ł							
6	Std Deviation	5.12707525	Variance	26.2869006	5							
7	Skewness	-0.2596696	Kurtosis	-0.1389692	2							
8	Uncorrected SS	74304.92	Corrected SS	473.164211								
9	Coeff Variation	8.22479143	Std Error Mean	1.17623173	3							
10					_							
11		Basic Statis	stical Measures									
12	Locati	on	Variabil	ity								
13	Mean	62.33684	Std Deviation	5.12708	3							
14	Median	62.8	Variance	26.2869)							
15	Mode	62.5	Range	20.7	'							
16			Interquartile Range	9								
17	_											
18	Note: The mode	e displayed is t	the smallest of 2 mo	des with a co	unt of 2.							
1Q		SGnlots G	nlots SGscatters	Tables+Plot	HatStat							•
Rea	dv			Tablestriot	ngtətat				100%			Ŧ
										~	1	1

- ods noproctitle;
- ods tagsets.msoffice2k_x path="C:\SomeFolder"
 file="HgtStats.html" style=minimal;
- proc univariate data=sashelp.class; title;
- var height;
- run;
- ods tagsets.msoffice2k_x close;
- /* same for var weight */

PROC UNIVARIATE step delivers serial chain of tables for **weight** statistics

K	🚽 🤊 • 🤆 - 🗖		MSOffice2K_x_Den	no_Panels_And	_Multiple_	_Sheets.xls	- Microsoft Excel				x
Fi	le Home Ir	nsert Page La	ayout Formulas Da	ata Review	View	Acrobat				ا 🗆 (؟ ه	a x
Past	te J B Z	• 11 <u>U</u> •	· A [*] A [*] ≡ ≡	■ 🗐 Gene ■ 📴 \$ ≫ - 5‰	eral ↓ ↓ % ,	👪 Condit 😻 Forma 🖳 Cell St	tional Formatting * t as Table * yles *	iter Inser iter Dele iter Form	t • Σ • te • J • nat • 2 •	Sort & Find & Filter * Select *	
Clipb	oard 🖬	Font	G Alignme	ent 🖫 Nu	mber 🗔		Styles	Cells	5	Editing	
	A1	▼ (°	∫∡ Variable: Heigh	t							×
	A	В	С	D	E	F	G	Н	I	J	K 💌
1		Vá	ariable: Height								
2					-						
3		Mo	oments	1	4						
4	N	19	Sum Weights	19)						≡
5	Mean	62.3368421	Sum Observations	1184.4	ŀ						
6	Std Deviation	5.12707525	Variance	26.2869006	5						
7	Skewness	-0.2596696	Kurtosis	-0.1389692	2						
8	Uncorrected SS	74304.92	Corrected SS	473.164211	-						
9	Coeff Variation	8.22479143	Std Error Mean	1.17623173	3						
10					-						
11		Basic Statis	stical Measures		4						
12	Locati	on	Variabili	ty	4						
13	Mean	62.33684	Std Deviation	5.12708	3						
14	Median	62.8	Variance	26.2869)						
15	Mode	62.5	Range	20.7	'						
16			Interquartile Range	9)						
17											
18	Note: The mode	e displayed is t	the smallest of 2 mo	des with a co	unt of 2.						_
1Q ∢ ∢	▶ M / Tables	SGplots / Gr	olots / SGscatters /	Tables+Plot	HatStat	s / WI 4					•
Read	ty				rigiorai				100% (-(+)

As Of 18 October 2013, using SAS Version 9.4 (TS1M0) for the two preceding PROC UNIVARIATE examples the note "The mode displayed is the smallest of 2 modes with a count of 2." is not correctly displayed with the MSOffice2K_x tagset. For how to circumvent this problem, at support.sas.com see SAS Note 51405.

ods tagsets.msoffice2k_x path="C:\SomeFolder" file="SomeFile.xls" options(worksheet source=" Warn#.\WarningMessageFromLeRB.html, 3Tables#.\ThreeTables.html, 3SGplots#.\SGplots.html, 3Gplots#.\Gplots.html, 3SGscatters#.\SGscatters.html, Tables+Plot#.\TwoTablesOnePlot.html, HgtStats#.\HgtStats.html, WgtStats#.\WgtStats.html "); data _null_; file print; put _all_; run; ods tagsets.msoffice2k x close;

About dot in Tables# \ThreeTables.html

- The dot is signal that html file is in the same folder as that of the output XLS file.
- The **(url=none)** in graph ODS steps is a signal that any image file(s) will be in the same folder as the HTML file.
- These codings assure that package of xls file, html files, and image files is relocatable:
- -- Move anywhere
- -- Send via email
- -- XLS file will open & all parts will be found

About dot **•** in Tables# • \ThreeTables.html

- The dot is really the usual round dot
- My choice of font renders it as a square in this slide.

ODS tagsets.MSOffice2K_x

- MultiSheet WorkBook with WorkSheets containing tables, graphs, tables and graphs. **Objects can be presented in a horizontal panel, or stacked one above the other. Only limit:**
- in a horizontal panel of tables and graphs, maximum of one graph
- and it must be presented last.
- Only combination not tested:
- stack with alternating tables and graphs.
- My conjecture: Unlikely to be a problem.
- If you find otherwise, please notify me.

Multi-Sheet Workbook using ExcelXP TagSet

- No support for graphs
- No panels
- Can exploit SAS BY processing
- WorkBook is a single file
- Easy multi-sheet WorkBook creation

easy multi-sheet workbook creation using ExcelXP tagset

- < usual setup code goes here >
- ods tagsets.ExcelXP path="C:\Folder"
 - file="FileName.xml" style=minimal
 - options(embedded_titles="yes" wraptext="no");
- ods tagsets.ExcelXP options(sheet_name="Girls");
- proc print data=sashelp.class(where=(Sex EQ 'F')) noobs;
- title1 justify=left height=16pt color=red 'text 1'; run;
- ods tagsets.ExcelXP options(sheet_name="Boys");
- proc print data=sashelp.class(where=(Sex EQ 'M')) noobs;
- title1 justify=left height=16pt color=blue 'text 2'; run;
- ods tagsets.ExcelXP close;

			WIIL	SU_4Nov2013_Exc	eIXP_Demo_Slide_	2.xml - Microsoft Excel		
F	ile Home I	nsert	Page Layout Fo	ormulas Data	Review View	Acrobat		a 🕜 🗆 🗗 🗙
Pas Clipt	te Sooard G	<u>U</u>	• 16 • A A • • <u>A</u> • • <u>A</u>	, ≡ ≡ ≡ ≡ ≡ ≡ ≡ ≊ ⊈ ≇ ≢ ≫ • Alignment	General →	Conditional Formatting *	 Insert ▼ Delete ▼ Format ▼ Cells 	Σ · Sort & Find & Filter · Select · Editing
	A1	-	<i>f</i> ≈ List	ing of Girls in SAS	HELP.CLASS with	ExcelXP TagSet		~
1 2	A Listing of	в Girl	د s in SASH	ELP.CLAS	[€] SS with Ex	F G celXP TagSet	H I	
3	Name	Sex	Age	Height	Weight			
4	Alice	F	13	56.5	84			
5	Barbara	F	13	<mark>65.3</mark>	98			
6	Carol	F	14	<mark>62.8</mark>	102.5			=
7	Jane	F	12	59.8	84.5			
8	Janet	F	15	62.5	112.5			
9	Joyce	F	11	51.3	50.5			
10	Judy	F	14	64.3	90			
11	Louise	F	12	56.3	77			
12	Mary	F	15	66.5	112			
13								
14								
12								~
Rea	• • Girls ∕ B dy	oys 🔿	æ/				III 100% ──	

	<mark>, א</mark> א א א		WIIL	SU_4Nov2013_Exc	elXP_Demo_Slide_	2.xml - Microsoft Excel		
F	le Home 1	insert	Page Layout Fo	rmulas Data	Review View	Acrobat		a 😮 🗆 🗗 🛛
Pas	te opard G	<u>U</u> . F	• 16 • A • •	≡ ≡ ≡ ≣ ≣ ≡ ≡ ≊ ′ ∉ ∉ ≫ - Alignment	General →	Conditional Formatting • Format as Table • Cell Styles • Styles	Insert → Delete → Format → Cells	Σ · Sort & Find & Filter · Select · Editing
	A1	-	<i>f</i> ∡ Listi	ng of Boys in SA	SHELP.CLASS wit	n ExcelXP TagSet		~
1	A Listing of	в <mark>Воу</mark>	c vs in SASH	D IELP.CLA	E SS with Ex	F G celXP TagSet	H I	J
3	Name	Sex	Age	Height	Weight			
4	Alfred	м	14	<mark>6</mark> 9	112.5			
5	Henry	м	14	63.5	102.5			
6	James	м	12	57.3	83			=
7	Jeffrey	м	13	62.5	84			
8	John	м	12	59	99.5			
9	Philip	м	16	72	150			
10	Robert	м	12	<mark>64.8</mark>	128			
11	Ronald	м	15	67	133			
12	Thomas	м	11	57.5	85			
13	William	м	15	66.5	112			
14								
15	N N Girla D		h /					▼
Rea	dy	υγεζι	.d'/				III 100% —	

- /* Can Exploit SAS BY Processing */
- < usual setup code goes here >
- ods tagsets.excelxp style=Minimal path="..." file="..."
- options(embedded_titles="yes" wraptext="no");
- ods tagsets.excelxp options(sheet_name="Height");
- title1 justify=left height=16pt 'Height of Students'
- proc print data=sashelp.class noobs;
- id name; var height; run;
- ods tagsets.excelxp options(sheet_name="none");
- ods tagsets.excelxp options(sheet_interval='bygroup'
 sheet_label='Sex' suppress_bylines='yes');
- proc sort data=sashelp.class out=Sorted; by sex; run; title1 justify=left height=16pt 'Age of Students';
- proc print data=Sorted noobs;
- by sex; id name; var age; run;
- ods tagsets.excelxp close;

File Home Insert Page Layout Formulas Data Review View Acrobat Anial 15 A.K.A. Paste I I I	🗶 🔚 २ - ८	* -	WIILSU_	4Nov2013_I	ExcelXP_De	no_3.xm	nl - Microsoft E	xcel			. 🗆 💻	x
Arial 10 Ar Paste B Z B Z Font Font Font Font <t< td=""><td>File Hom</td><td>e Insert Page Layout</td><td>t Formulas</td><td>Data F</td><td>Review Vi</td><td>ew A</td><td>crobat</td><td></td><td></td><td>۵</td><td>? – é</td><td>p x</td></t<>	File Hom	e Insert Page Layout	t Formulas	Data F	Review Vi	ew A	crobat			۵	? – é	p x
Clipboard is Font La Algament Is Number is Styles Cells Editing A1 Image: Styles Image: Styles<td>Paste</td><td>ial - 16 - : I U - 16 - 30</td><td></td><td>= <mark>=</mark> = = = = =</td><td>General ▼ \$ - % *.00 ->.00</td><td>,</td><td>B Conditional Fo Format as Tab Cell Styles ▼</td><td>ormatting * ole *</td><td>Hara Insert → Hara Delete → Hara Format →</td><td>Σ → Z Z Z Sort Filter</td><td>& Find & • Select •</td><td></td>	Paste	ial - 16 - : I U - 16 - 30		= <mark>=</mark> = = = = =	General ▼ \$ - % *.00 ->.00	,	B Conditional Fo Format as Tab Cell Styles ▼	ormatting * ole *	Hara Insert → Hara Delete → Hara Format →	Σ → Z Z Z Sort Filter	& Find & • Select •	
A B C D E F G H I J K 1 Height of Students 3 Name Height 4 A If red 69 5 Alice 56.5 5 5 Alice 56.5 6 Barbara 65.3 7 Carol 62.8 8 Henry 63.5 9 James 57.3 10 Jane 59.8 11 Janet 62.5 12 Jeffrey 62.5 13 John 59 14 Joyce 51.3 15 Judy 64.3 Image: Control of the sex F / Sex M Image: Control of the sex F / Sex M Image: Control of the sex F / Sex M Image: Control of the sex F / Sex M Image: Control of the sex F / Sex M Image: Control of the sex F / Sex M Image: Control of the sex F / Sex M Image: Control of the sex F / Sex M Image: Control of the sex F / Sex M Image: Control of the sex F / Sex M Image: Control of the sex F / Sex M Image: Control of the sex F / Sex M Image: Control of the sex F / Sex M Image: Control of the sex F / Sex M Image: Control of the sex F / Sex M Image: Control of the sex F / Sex M Image: Control of the sex F / Sex M Image: Control of the sex F / Sex M		Font	Height of S	gnment i	Number	12	Styles		Cells	Edit	ng	~
1 Height of Students 3 Name 4 Alfred 69 5 Alice 5.6 Barbara 65.3 7 Carol 62.8 8 Henry 63.5 9 James 57.3 10 Jane 59.8 11 Janet 62.5 13 John 14 Joyce 51.3 15 Judy 64.3	AI	R R	C C	D	F	F	G	н	I	1	ĸ	
3 Name Height 4 Alfred 69 5 Alice 56.5 6 Barbara 65.3 7 Carol 62.8 8 Henry 63.5 9 James 57.3 10 Jane 59.8 11 Janet 62.5 12 Jeffrey 62.5 13 John 59 14 Joyce 51.3 15 Judy 64.3	1 Height	of Students	C	D	E	r	6	п		,	ĸ	
4 Alfred 69 5 Alice 56.5 6 Barbara 65.3 7 Carol 62.8 8 Henry 63.5 9 James 57.3 10 Jane 59.8 11 Janet 62.5 12 Jeffrey 62.5 13 John 59 14 Joyce 51.3 15 Judy 64.3 *** Height Sex F Sex M	3 Name	Height										
5 Alice 56.5 6 Barbara 65.3 7 Carol 62.8 8 Henry 63.5 9 James 57.3 10 Jane 59.8 11 Janet 62.5 12 Jeffrey 62.5 13 John 59 14 Joyce 51.3 15 Judy 64.3 Image: Colspan="2">Image: Colspan="2" 14 Joyce 51.3 15 Judy 64.3 Image: Colspan="2" Image: Colspan="2">Image: Colspan="2" Image: Colspa="2" Image: Colspa="2" Image: Colspa="2" Im	4 Alfred	69										
6 Barbara 65.3 7 Carol 62.8 8 Henry 63.5 9 James 57.3 10 Jane 59.8 11 Janet 62.5 12 Jeffrey 62.5 13 John 59 14 Joyce 51.3 15 Judy 64.3 K → F Height Sex F Ready Employee 100%	5 Alice	56.5										
7 Carol 62.8 8 Henry 63.5 9 James 57.3 10 Jane 59.8 11 Janet 62.5 12 Jeffrey 62.5 13 John 59 14 Joyce 51.3 15 Judy 64.3 If ↓ ▶ Height Sex F Sex M	6 Barbara	65.3										≡
8 Henry 63.5 9 James 57.3 10 Jane 59.8 11 Janet 62.5 12 Jeffrey 62.5 13 John 59 14 Joyce 51.3 15 Judy 64.3 Image: Height Sex F / Sex M Ready Image: Height	7 Carol	62.8										
9 James 57.3 10 Jane 59.8 11 Janet 62.5 12 Jeffrey 62.5 13 John 59 14 Joyce 51.3 15 Judy 64.3 I → H Height Sex F Seedy Image: Constraint of the set of the s	8 Henry	63.5										
10 Jane 59.8 11 Janet 62.5 12 Jeffrey 62.5 13 John 59 14 Joyce 51.3 15 Judy 64.3 Image: Height Sex F Sex M Image: Height Sex F Sex M	9 James	57.3										
11 Janet 62.5 12 Jeffrey 62.5 13 John 59 14 Joyce 51.3 15 Judy 64.3 K ← F / Sex M / 2 Image: Constraint of the set of	10 Jane	59.8										
12 Jeffrey 62.5 13 John 59 14 Joyce 51.3 15 Judy 64.3 I I III I III IIII Ready IIIII 100%	11 Janet	62.5										
13 John 59 14 Joyce 51.3 15 Judy 64.3 I Height Sex F Sex F Sex M	12 Jeffrey	62.5										
14 Joyce 51.3 15 Judy 64.3 I I I I I I I I I I I I I I I I I I I	13 John	59										
15 Judy 64.3 ↓ ↓ Height Sex F Sex M 2 Ready 100% - +	14 Joyce	51.3										
Image: Sex F / Sex M / 2 Image: Sex F / Sex M / 2 Ready Image: Sex F / Sex M / 2	15 Judy	64.3										
		abt Cox E Cox M	h /									•
	Ready	JIL / SEX F / SEX M / T	.a.					E C	III III 100	% —		

X ₩ 9 • 9 • [-	WIILSU_4Nov201	13_ExceIXP_Demo_3.x	ml - Microsoft Excel								
File Home Insert Page	Layout Formulas Data	Review View	Acrobat		~ ? – ₽ ×						
Paste ▼ Clinboard IS Font		General →	Conditional Formatting *	Insert → Σ → Delete → I → → Format → 2 → Cells	Sort & Find & Filter * Select *						
A1 • (***	fx Age of Students			0000	v						
A B	C D	E F	G H	Ι.	Ј К						
Age of StJdentsNameAliceAliceBarbaraCarolJaneJanetJoyceJudyLouiseMary	Age 13 13 14 12 15 11 14 12 15 11 14 12 15										
13 14 15 16 17 I ▲ ▶ ▶ H Height Sex F Sex I	M / 💭										
Reduy			le l								
🗶 🖂 🏷 - 🤆 - 📔	-	WIIL	SU_4Nov201	3_ExceIXP_0	Demo_3.x	ml - Microsoft	Excel				x
---	---	-----------	------------	--	----------------------------	--	----------------------	---	--	--------------------------------	-----
File Home	Insert Page Layout	t Formula	as Data	Review	View	Acrobat			^	? — é	p ×
Paste	- 16 - <i>I</i> <u>U</u> - Font			Genera Genera S - tol S G Numi	al - %, 28 ber Fa	E Conditional F Format as Ta Cell Styles *	ormatting * ble *	Insert → Delete → Format → Cells	Σ · A ↓ Z 2 · Sort Filter Edit	& Find & • Select • ting	
A1	▼ (° f _x	Age of S	tudents								¥
A	В	С	D	E	F	G	Н	I	J	К	
Age of S233Name4Alfred5Henry6James7Jeffrey8John9Philip10Robert11Ronald12Thomas13William14	Age 14 14 14 14 12 13 12 13 12 13 12 13 12 15 11 15										
16 17 ► ► Height	Sex F Sex M	2/						1111			•
Ready								100	% —		+

For More on ODS TagSets

- In Proceedings and Tools:
- Other ODS SAS-to-Excel Resources—

Tips, References, Sample Program SetUp

DDE

What is DDE?

Dynamic Data Exchange:

- A concurrent Excel session
- is started by the SAS session.
- The Excel session acts as a server
- for the SAS session.
- The SAS session acts as a client of Excel.
- SAS & Excel must run
- on the same Windows computer .

What Can You Do with DDE?

- Anything you can do with keyboard & mouse
- Commands simulate mouse & keyboard actions
- Now let's look at how use of DDE is coded

options noxwait noxsync;

x ' "C:\Program Files (x86)\Microsoft Office\Office14\EXCEL.exe" '; /* this path depends on your version of Windows and of Excel */

data _null_;
z=sleep(3); /* wait 3 seconds for Excel to start */
run;

/* Above code launches Excel and opens a new workbook, with one empty worksheet: Sheet1. */

/* After opening the empty worksheet, the next step could be any one of these:

- Format the empty cells
- Open an existing workbook instead
- Use DDE to load the empty worksheet */

Home Inset Page Layout Formulas Data Review View Acrobat Picture Cip Singers/ Picture Cip Singers/ Biscr Singers/ Biscr Singers/ Picture Cip A B C D E F G H J K L Charts F F G H J K L Charts F G H J K L K L K K K <td< th=""><th>X 🛃</th><th>3 + (</th><th>- -</th><th></th><th></th><th>Во</th><th>ok1 - M</th><th>icrosoft Exc</th><th>el</th><th></th><th></th><th></th><th></th><th></th><th>×</th></td<>	X 🛃	3 + (- -			Во	ok1 - M	icrosoft Exc	el						×
Pivorable Pieles	File	Home	Insert	Page Layout	Form	ulas Data f	Review	View A	crobat				\$		p 53
A1 - fz A B C D E F G H I J K L 1 - </td <td>PivotTa T</td> <td>ble Table</td> <td>Picture C</td> <td>Shap Sma Clip Art Scre Illustrations</td> <td>oes * rtArt enshot *</td> <td>Column Column</td> <td> Area Scat Other </td> <td>a * ter * er Charts * Fa</td> <td>Line Column Win/Loss Sparklines</td> <td>Slicer Filter</td> <td>With the second /td> <td>A Text Box</td> <td>Header & Footer Text</td> <td>Ω Symbo</td> <td>ols</td>	PivotTa T	ble Table	Picture C	Shap Sma Clip Art Scre Illustrations	oes * rtArt enshot *	Column Column	 Area Scat Other 	a * ter * er Charts * Fa	Line Column Win/Loss Sparklines	Slicer Filter	With the second	A Text Box	Header & Footer Text	Ω Symbo	ols
A B C D E F G H I J K L 1		A1	• (*	f_x											~
1 2 3 3 4 4 5 6 6 7 8 9 10 1 11 1 12 1 13 1 14 1 15 1 16 1 17 1 18 1 19 1 14 1 15 1 16 1 17 1 18 1 19 10% •	1	А	В	С	D	E	F	G	H	Ι	J		K	L	
2 3 4 5 6 7 7 8 9 10 11 12 13 14 15 16 17 18 19 10 11 12 13 14 15 16 17 18 19 10 11 12 13 14 15 16 17 18 19 10 11 10 11 10 11 12 13 14 15 16 17 18 19 10 11 10 11 10 11 10 11 10 11 10 11 10 11 10 11 10 11 11	1														
3 4 4 5 6 7 8 9 9 9 10 1 11 1 12 1 13 1 14 1 15 1 16 1 17 1 18 100%	2														
4 5 6 6 7 6 7 6 7 </td <td>3</td> <td></td> <td></td> <td></td> <td></td> <td>-</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td>	3					-									
5 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 7 6 6 7 6 7 6 7 7 6 7 <td>4</td> <td></td>	4														
6 7 0	5														
7 8 <td< td=""><td>6</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></td<>	6														
o o <td>/</td> <td></td>	/														
0 10 11 12 13 14 15 16 17 18 19	0														=
11 11 11 12 13 14 14 14 14 14 14 14 14 15 16 16 16 16 16 16 16 17 18 19 100% (-) (+) 17 18 19 100% (-) (+) 100% (-) (+) 100% (-) (+) 100% (-) (+)	10														
12 13 14 15 16 17 16 17 18 19 10% - + 1 18 19 100% - + 100% - + 100% - + +	11														
13 14 15 16 17 16 17 16 17 16 17	12														
14 14 14 14 14 14 15 15 16	13														
15 16 16 17 16 17 17 16 17	14														
16 17 18 19 14 18 19 10% (¬, (¬, (¬, (¬, (¬, (¬, (¬, (¬, (¬, (¬,	15														
17 18 19 19 Image: Sheet1 / Sheet1	16														
18 19 Image: A + → N Sheet1 / 2 Ready Image: A + → N	17														
19	18														
Ready 100% - (+)	19	M Shoe	t1 17												
	Ready		AL (WAY									100%	Θ	0	-(+)

filename target dde 'excel|Sheet1!R1C1:R999C6' notab;

/* to load data in columns 1 to 6
 of rows 1 to 999.
 The ending row number must equal or exceed
 the number of SAS observations to be sent to Excel. */

data _null_; set sashelp.shoes;

file target;

< PUT statements here to load headings row and data rows > run;

```
data _null_;
set sashelp.shoes;
file target;
```

put Region '09'X Subsidiary '09'X Product '09'X Stores '09'X Sales '09'X Inventory '09'X Returns;

run;

/* '09'X is a delimiter that tells Excel to step to the next cell in the current worksheet row before inserting next variable from current SAS observation */

X	9 + C	 ▼ ▼ 				Book1 - Mic	rosoft Exc	el				- 0 -	x
F	ile Hor	ne Insert	Page Layou	ut Formula	as Data	Review	View Ad	crobat			۵	? - 6	p 53
Pas	te	Calibri B <i>I</i> <u>U</u> -	• 11 • 		Ē ₩ 2 ₩ ₩ Ē ₩ 2 ₩ ₩ Alignment	General General S S S Numb	I - ₿	🗟 Conditional Fo 📝 Format as Tak 🍠 Cell Styles 🔻 Styles	ormatting * ble *	Insert → Delete → Format → Cells	Σ → Z Z Z Z Z Z Z Z Z Z Z Z Z Z Z Z Z Z Z	& Find & • Select • ing	
	A1	- (f _x	Region									×
	А	В	С	D	E	F	G	Н	I	J	К	L	
1	Region	Subsidiary	Product	Stores	Sales	Inventory	Returns						
2	Africa	Addis Abal	Boot	12	\$29,761	\$191,821	\$76	9					
3	Africa	Addis Abat	Men's Cas	4	\$67,242	\$118,036	\$2,284	4					
4	Africa	Addis Abat	Men's Dre	7	\$76,793	\$136,273	\$2,433	3					
5	Africa	Addis Abal	Sandal	10	\$62,819	\$204,284	\$1,863	1					
6	Africa	Addis Abal	Slipper	14	\$68,641	\$279,795	\$1,77	1					
7	Africa	Addis Abat	Sport Shoe	4	\$1,690	\$16,634	\$79	9					
8	Africa	Addis Abat	Women's (2	\$51,541	\$98,641	\$940	0					
9	Africa	Addis Abal	Women's I	12	\$108,942	\$311,017	\$3,23	3					
10	Africa	Algiers	Boot	21	\$21,297	\$73,737	\$71	0					
11	Africa	Algiers	Men's Cas	4	\$63,206	\$100,982	\$2,22	1					
12	Africa	Algiers	Men's Dre	13	\$123,743	\$428,575	\$3,62	1					
13	Africa	Algiers	Sandal	25	\$29,198	\$84,447	\$1,530	0					
14	Africa	Algiers	Slipper	17	\$64,891	\$248,198	\$1,82	3					
15	Africa	Algiers	Sport Shoe	9	\$2,617	\$9,372	\$16	8					
16	Africa	Algiers	Women's I	12	\$90,648	\$266,805	\$2,69	0					
17	Africa	Cairo	Boot	20	\$4,846	\$18,965	\$22	9					
18	Africa	Cairo	Men's Cas	25	\$360,209	########	\$9,424	4					
19	Africa	Cairo	Men's Dre	5	\$4,051	\$45,962	\$9	7					-
	► ► Sh	eet1 / 况 /											
Rea	dy									田田田 100	%		(+)

filename DDEcmds dde "excel|system"; /* to send commands to Excel from SAS */

/* In the steps that follow, only one or few DDE commands are issued in each DATA step.

The steps could be consolidated into one.

Here, the steps are kept discrete, for the sake of simplicity and brevity, and to be able to display the evolution of formatting of the worksheet by each successive command. */ filename DDEcmds dde "excel|system"; /* to send commands to Excel from SAS */

```
data _null_;
file DDEcmds;
```

```
put '[select("C1:C7")]';
put '[font.properties("Arial",,16,,,,,,1)]';
/* Columns 1-7 Arial 16pt Black */
```

```
put '[select("R1")]';
put '[font.properties(,"Bold")]';
/* Row 1 Bold */
```

X	🖬 🤊 • 🕅	- -			Book	d - Micr	osoft E	xcel				E		O	X	
F	ile Hom	ne Insert	Page Layou	ıt Formula	s Data Rev	view V	'iew	Acrobat					۵ (? –	đ	23
	N 🕺	rial	- 16 -	A A ≡	= 들 🖥	General	•	👪 Conditional F	ormatting 🔹	<mark>≓•</mark> ■ Ins	ert 🝷	Σ -	A 7	æ		
Pas	te 🔤 🗸			▲	= = 🔤 ·	\$ - %	6,	📆 Format as Ta	ble *	ᢪ De	lete 👻	₹.	Sort &	Find 8	z	
*	3			· 🔶 i 🌵	≣ ≫ -	00. 0. → 0. ← 00.		🧐 Cell Styles ▾		📑 For	rmat 🝷	Q +	Filter *	Select	*	
Clip	board 🖫	F 	Font P	Bagian	Alignment 🗔	Numbe	r 🖬	Styles		Ce	lls		Editing]		
	AI	P	Ja	Region	E			E	G		ш				1	
1	Regio	Subsi	Produ	Stores	Sales		Inve	ntory	Retur	ne						
1	Africo	Addia	Deet	10	¢20.7	761	<u>е</u>	101 001	¢7	60						-
2	Airica	Addis	BOOL	12	\$29,I	101	<u>ک</u>	191,021	٦ <i>٦</i>	09						
3	Africa	Addis	Men's	4	\$67,2	242	\$	118,036	\$2,2	84						
4	Africa	Addis	Men's	7	\$76,7	793	\$	136,273	\$2,4	33						
5	Africa	Addis	Sanda	10	\$62,8	319	\$2	204,284	\$1,8	61						
6	Africa	Addis	Slippe	14	\$68,6	641	\$2	279,795	\$1,7	71						
7	Africa	Addis	Sport	4	\$1,6	690	(\$16,634	\$	79						
8	Africa	Addis	Wome	2	\$51,5	541	(\$98,641	\$9	40						
9	Africa	Addis	Wome	12	\$108,9	942	\$3	311,017	\$3,2	33						
10	Africa	Algiers	Boot	21	\$21,2	297		\$73,737	\$7	10						
11	Africa	Algiers	Men's	4	\$63,2	206	\$	100,982	\$2,2	21						
12	Africa	Algiers	Men's	13	\$123,7	743	\$4	428,575	\$3,6	21						
13	Africa	Algiers	Sanda	25	\$29,1	198	,	\$84,447	\$1,5	30						-
	► ► She	et1 🖉			· - · ·		<u> </u>		• • -							I
Rea	dy							Cou	int: 7		1009	6 🗩		0-		(+)

file DDEcmds;

```
put '[select("C1:C4")]';
/* only contiguous groups of columns
    can be used with filters */
```

put '[Filter()]';

X	🖬 🤊 - C	- -			Воо	k1 - Mic	rosoft E	xcel							X	
F	ile Hom	ne Insert	Page Layou	ıt Formula	s Data Re	view \	/iew	Acrobat					۵ (-	đ	23
	X	rial	- 16 -	A A ≡	= = =	General	*	🛃 Conditional F	ormatting 🔹	¦a ter Ins	ert -	Σ		A		
Pas	te	B Z U -		- A - 📃	= = = ₩ -	\$ - 0	%,	Format as Ta	ble *	De De	lete 🔻	•	Sort &	Find &		
Clin	and E		Font	- 1	Alianment ⊑	.0000 .000	ar E	Styles		EI FOI	rmat *	Q *	Filter *	Select	r	
Cipi	A1	• (f _x	Region	Alighment of	TNUTTER		Styles			115		Luting			×
	А	В	C	D	E			F	G		Н		1		J	Ē
1	Regi	Sub	Proc-	Stor -	Sales		Inve	entory	Retur	ns						
2	Africa	Addis	Boot	12	\$29.	761	\$	191.821	\$7	69						
3	Africa	Addis	Men's	4	\$67.	242	\$	118.036	\$2.2	84						
4	Africa	Addis	Men's	7	\$76.	793	\$	136.273	\$2.4	33						
5	Africa	Addis	Sanda	10	\$62.	819	\$2	204.284	\$1.8	61						
6	Africa	Addis	Slippe	14	\$68,	641	\$2	279,795	\$1,7	71						
7	Africa	Addis	Sport	4	\$1,0	690		\$16,634	\$	79						
8	Africa	Addis	Wome	2	\$51,	541	(\$98,641	\$9	40						
9	Africa	Addis	Wome	12	\$108,	942	\$	311,017	\$3,2	33						
10	Africa	Algiers	Boot	21	\$21,	297	(\$73,737	\$7	10						
11	Africa	Algiers	Men's	4	\$63,	206	\$	100,982	\$2,2	21						
12	Africa	Algier	Men's	13	\$123,	743	\$4	428,575	\$3,6	21						
13	Africa	Algier	Sanda	25	\$29,	198		\$84,447	\$1,5	30						
	▶ ► She	et1 📜			• • ·		-		• • •]		
Rea	dy				Avera	age: 11.64	810127	Count: 1584 Su	ım: 4601 🛛 🖪		1009	6 🖂			(÷

file DDEcmds;

put '[freeze.panes(true,3,1)]';

/* Between ,, (if not the value 0),
 put number of rightmost frozen column.
 After ,, (if not the value 0),
 put number of bottommost frozen row. */

X	🖬 🤊 • e	↓ ↓			Bool	k1 - Micr	osoft E	kcel							X	
F	ile Hom	ne Insert	Page Layou	ut Formula	as Data Re	view V	/iew	Acrobat					۵ (3 -	đ	23
Pas	te	rial B <i>I <u>U</u> -</i>	• 16 •		『 = <mark>=</mark> 『 =] 『 : : : : : : : : :	General \$ - % 	• /o •	B Conditional F Format as Ta Cell Styles -	Formatting * able *	¦tere Ins Ins De IIII Fo	sert + elete + rmat +	Σ 	Sort & Filter *	Find 8 Select	ž.	
Clipł	board 🗔		Font	5	Alignment 🕞	Numbe	er 🕠	Styles	5	Ce	ells		Editing			
	Al	• (Ja	Region	Г			r	6						1	*
1	Redi	 Sub⊂	Pror'-	Stor	Sales		Inve	ntory	Retu	ns	п		1		J	
2	Africa	Addis	Boot	12	\$29	761	\$	191 821	\$7	69						-
3	Africa	Addis	Men's	4	\$67.2	242	\$`	118.036	\$2.2	84						
4	Africa	Addis	Men's	7	\$76,	793	\$	136,273	\$2,4	33						
5	Africa	Addis	Sanda	10	\$62,8	819	\$2	204,284	\$1,8	61						
6	Africa	Addis	Slippe	14	\$68,6	641	\$2	279,795	\$1,7	71						
7	Africa	Addis	Sport	4	\$1,6	690	Ş	\$16,634	\$	79						
8	Africa	Addis	Wome	2	\$51,	541		\$98,641	\$9	40						
9	Africa	Addis	Wome	12	\$108,9	942	\$3	311,017	\$3,2	33						
10	Africa	Algiers	Boot	21	\$21,2	297		\$73,737	\$7	10						
11	Africa	Algiers	Men's	4	\$63,2	206	\$	100,982	\$2,2	21						
12	Africa	Algiers	Men's	13	\$123,	743	\$4	128,575	\$3,6	21						
13	Africa	Algier	Sanda	25	\$29,	198		\$84,447	\$1,5	30						Ŧ
14 4	► ► She	et1 ⁄ 🕽	,				-								►	
Rea	dy				Avera	age: 11.648	810127	Count: 1584 S	um: 4601 🛛 🛛		1009	% (-))	0-		(\pm)

file DDEcmds;

put '[select("C1:C6")]';

put '[column.width(,,,3)]'; /* 3 = AutoFit */

X	🖬 🤊 • 🤆 • 🛛			Book	k1 - Microsoft	t Exc	cel			_	o x	
F	ile Home	Insert Page Layout	Formulas	Data Rev	view View	A	crobat			~	9 - Ø	23
Pas	Arial	- 16 - A Z <u>U</u> - ⊡ - <u></u> →	ĂĂ ĂŢ		General → \$ → % ,	•	👪 Conditional Formatting 🔹 🐺 Format as Table 🔹 🛒 Cell Styles 🔹	ë• Insert ᢪ Delet ∰ Form	t• Σ• e• Σ • at• ⊘•	Sort &	Find & Select *	
Clip	board 🖫	Font	🖬 Align	ment 🗔	Number 5		Styles	Cells		Editin	g	
	A1	▼ (<i>f</i> x	Region	1			1					×
		А			В		С		D			E A
1	Region		*	Subs	idiary	•	Product	-	Store	S 🖵	Sales	
2	Africa			Addis	Ababa		Boot			12	\$2	2!
3	Africa			Addis	Ababa		Men's Casual			4	\$6	5
4	Africa			Addis	Ababa		Men's Dress			7	\$7	1
5	Africa			Addis	Ababa		Sandal			10	\$6	52
6	Africa			Addis	Ababa		Slipper			14	\$6	51
7	Africa			Addis	Ababa		Sport Shoe			4	\$	5
8	Africa			Addis	Ababa		Women's Cas	sual		2	\$5	5
9	Africa			Addis	Ababa		Women's Dre	SS		12	\$10);
10	Africa			Algier	S		Boot			21	\$2	2
11	Africa			Algier	S		Men's Casual			4	\$6	<mark>5</mark> .
12	Africa			Algier	S		Men's Dress			13	\$12	2:
13	Africa			Algier	s		Sandal			25	\$2	2!_
H 4	Sheet1	<u>/</u>									•	
Rea	dy			Average: 11	12203.5595 Co	ount:	2376 Sum: 132961218 🗄		100% —		-0	(+)

file DDEcmds;

put '[zoom(70)]';

put '[message(true, "This sheet is reduced to 70% of normal size")]';

🗶 🔜 🤟 👻 🖓 👻 🚽 🔤 👘 🖓 🖬	Book1 - Microsoft E	xcel			x
File Home Insert Page Layout Formulas	Data Review View	Acrobat		۵ 🕜 🗖	er XX
	들 📑 General 🕞	👪 Conditional Formatting 🔹	¦area Insert - Σ	· 🗛 🏔	
	≣ - \$ - % ,	퍯 Format as Table 🔹	🌁 Delete 👻 🔳	, <u>X</u> II II	
Paste 🕜 🖪 Z 🗓 - 🖾 - 🚣 - 🛊 🛊	\$ →.0 →.0	🖳 Cell Styles 🔹	🏥 Format 🝷 🥥	Sort & Find &	,
Clipboard 🖬 Font 🖬 Align	iment 🕞 Number 🕞	Styles	Cells	Editing	
A1 $ f_x$ Region					~
A B	С	D E	F	G	H
1 Region Subsidiary	Product	Stores - Sales	Inventory	Returns	
2 Africa Addis Ababa	Boot	12 \$29,761	\$191,821	\$769	
₃ Africa Addis Ababa	Men's Casual	4 \$67,242	2 \$118,036	\$2,284	
4 Africa Addis Ababa	Men's Dress	7 \$76,793	\$136,273	\$2,433	
5 Africa Addis Ababa	Sandal	10 \$62,819	\$204,284	\$1,861	
6 Africa Addis Ababa	Slipper	14 \$68,641	\$279,795	\$1,771	
7 Africa Addis Ababa	Sport Shoe	4 \$1,690	\$16,634	\$79	
8 Africa Addis Ababa	Women's Casual	2 \$51,541	\$98,641	\$940	
9 Africa Addis Ababa	Women's Dress	12 \$108,942	2 \$311,017	\$3,233	
10 Africa Algiers	Boot	21 \$21,297	\$73,737	\$710	
11 Africa Algiers	Men's Casual	4 \$63,206	\$100,982	\$2,221	
12 Africa Algiers	Men's Dress	13 \$123,743	\$428,575	\$3,621	
13 Africa Algiers	Sandal	25 \$29,198	\$84,447	\$1,530	
14 Africa Algiers	Slipper	17 \$64,891	\$248,198	\$1,823	
15 Africa Algiers	Sport Shoe	9 \$2,617	\$9,372	\$168	
16 Africa Algiers	Women's Dress	12 \$90,648	\$266,805	\$2,690	
17 Africa Cairo	Boot	20 \$4.846	\$18,965	\$229	
18 Africa Cairo	Men's Casual	25 \$360.209	\$1.063,251	\$9.424	
19 Africa Cairo	Men's Dress	5 \$4.051	\$45,962	\$97	-
I I I I Sheet1 / □			,		•
This sheet is reduced to 70% of normal size	Average: 112203.5595 Cour	nt: 2376 Sum: 132961218	I II 70% (-)0	+

Let's magnify the message at the lower left





file DDEcmds;

put '[select("R1")]'; /* insert four blank lines above row 1 */

put '[insert()]';
put '[insert()]';
put '[insert()]';
put '[insert()]';

X	🖬 🤊 •	° - -					Bool	k <mark>1 -</mark> Micros	oft E	xcel						X	
F	ile H	ome	Insert Page La	ayou	it Fori	mulas Da	ta Re	view Viev	N	Acrobat					۵ 🕜	- 6	23
Pa: Clip	ste	Arial B Z	- 16 <u>■</u> - Font	•	A* A* * <u>A</u> *	≡ ≡ ≡ ≣ ≣ ≡ ≡ ⊈ ⊈ 4	∎ ∎ - ≫	General \$ - % €.00 -00 Number	• •	Condition E Format as Cell Styles	nal Formatting * s Table * s * tyles	i Inse Ise Ise Ise Cel	ert - lete - rmat - lls	Σ . 	Sort & Fin Filter - Sele Editing	d & ect •	
	A1		▼ (=	f_{x}													v
			A			В		С		D	E		F		G	Н	
1																	
2	Š																
3																	
4																	
5	Region			•	Subsi	diary 🔽	Produ	uct	*	Stores -	Sales	Inve	entor	y I	Returns		_
6	Africa				Addis	Ababa	Boot			12	\$29,76	1 \$1	191,82	21	\$769		
7	Africa				Addis	Ababa	Men's	Casual		4	\$67,24	2 \$1	118,03	36	\$2,284		
8	Africa				Addis	Ababa	Men's	Dress		7	\$76,79	3 \$1	136,2	73	\$2,433		
9	Africa				Addis	Ababa	Sanda	al		10	\$62,81	9 \$2	204,28	84	\$1,861		
10	Africa				Addis	Ababa	Slippe	er		14	\$68,64	1 \$2	279,79	95	\$1,771		
11	Africa				Addis	Ababa	Sport	Shoe		4	\$1,69	0 5	\$16,6	34	\$79		
12	Africa				Addis	Ababa	Wome	en's Cas	ual	2	\$51,54	1 5	\$98,64	41	\$940		
13	Africa				Addis	Ababa	Wome	en's Dres	SS	12	\$108,94	2 \$3	311,0 ⁻	17	\$3,233		
14	Africa				Algiers	5	Boot			21	\$21,29	7 9	\$73,73	37	\$710		
15	Africa				Algiers	5	Men's	Casual		4	\$63,20	6 \$´	100,98	82	\$2,221		
16	Africa				Algiers	5	Men's	Dress		13	\$123,74	3 \$4	428,5	75	\$3,621		
17	Africa				Algiers	5	Sanda	al		25	\$29,19	8 9	\$84,44	47	\$1,530		
18	Africa				Algiers	5	Slippe	er		17	\$64,89	1 \$2	248,19	98	\$1,823		
19	Africa	_			Algiers	5	Sport	Shoe		9	\$2,61	1	\$9,3	/2	\$168		•
H -	C > > S	heet1	<u>/ 💭 /</u>											0		•	
This	sheet is re	duced to	70% of normal size	ze									70%	(-)			(+)

run;

put '[select("R4")]';
put '[font.properties(,,,,,,,1)]'; /* Row 4 Normal Black */

put '[select("R3")]';
put '[font.properties(,,,,,,,5)]'; * Row 3 Normal Blue */

put '[select("R2")]';
put '[font.properties(,"Bold",,,,,,,3)]'; /* Row 2 Bold Red */

put '[select("R1")]';
put '[font.properties(,"Bold",,,,,,,5)]'; /* Row 1 Bold Blue */

file DDEcmds;

data _null_;

Four rows of cells formatted, but effect not yet apparent.

X		ŋ -	° - [-	-			Bool	k1 - Micros	oft E	xcel						X	
	File	н	ome	Insert	Page Layo	ut For	mulas Da	ta Re	view Viev	v	Acrobat				~ (3 -	đ	23
Pa Clip	aste	¥ ≧ - ∛	Arial B	<u>т</u> - Т	• 16 • ⊞ • <u>ॐ</u> Font	A A <u>A</u>	≡ ≡ ∎ ≣ ≣ ∃ ⊈ ⊈ I	<mark>■</mark> ■ ■ ⊡ + ≫ + nt G	General \$ → % 5:8 ÷:8 Number	, ,	Condition Format as Cell Styles	al Formatting 👻 5 Table 👻 5 👻 yles	Insert → Delete → Format → Cells	Σ * 	Sort & Filter • Editing	Find & Select	¥ Ť	
		A4		•	f_{i}													¥
1 2 3				A			В		C		D	E	F		G		H	
4 5	Reg	ion			v	Subs	idiarv 🕝	Prod	uct	-	Stores -	Sales	Invento	rv F	Returr	าร		1
6	Afric	ca				Addis	Ababa	Boot			12	\$29,761	\$191,8	321	\$76	9		1
7	Afric	ca				Addis	Ababa	Men's	Casual		4	\$67,242	\$118,0)36	\$2,28	34		
8	Afrio	ca				Addis	Ababa	Men's	Dress		7	\$76,793	\$136,2	273	\$2,43	3		
9	Afric	ca				Addis	Ababa	Sanda	al		10	\$62,819	\$204,2	284	\$1,86	51		
10	Afric	ca				Addis	Ababa	Slippe	ər		14	\$68,641	\$279,7	795	\$1,77	'1		
11	Afric	ca				Addis	Ababa	Sport	Shoe		4	\$1,690	\$16,6	34	\$7	'9		
12	Afric	ca				Addis	Ababa	Wom	en's Casi	Jal	2	\$51,541	\$98,6	641	\$94	0		
13	Afric	ca				Addis	Ababa	Wom	en's Dres	s	12	\$108,942	\$311,0)17	\$3,23	3		
14	Afric	ca				Algier	s	Boot			21	\$21,297	\$73,7	737	\$71	0		
15	Afric	ca				Algier	s	Men's	Casual		4	\$63,206	\$100,9	82	\$2,22	21		
16	Afric	ca				Algier	s	Men's	Dress		13	\$123,743	\$428,5	575	\$3,62	21		
17	Afric	ca				Algier	s	Sanda	al		25	\$29,198	\$84,4	47	\$1,53	0		
18	Afric	ca				Algier	s	Slippe	ər		17	\$64,891	\$248,1	98	\$1,82	23		
19	Afric	ca				Algier	s	Sport	Shoe		9	\$2,617	\$9,3	372	\$16	8		•
H.	∢ ≻) S	heet1	. / 🔁 /	,												•	
Thi	is shee	t is re	duced t	o 70% of	normal size							E	B 🖸 💾 709	6 (-)-	— U		(+)

filename titles dde 'excel|Sheet1!R1:R4' notab;

data _null_;

file titles; /* load title text into rows 1 to 4 */

put 'Listing of SASHELP.SHOES ...'; put 'To visit the ...'; put 'http://www.wiilsu.org'; put 'The only disadvantage ...';

X	P - 0 -	@ - -					Bool	k1 - Micros	soft E	xcel					×	
I	File H	lome	Insert Page I	Layou	ut Fori	mulas Dat	ta Re	view Vie	w	Acrobat				۵ 🕜	- 6	23
ſ	۳. ۳	Arial	- 16	*	A* A*	= = =		General	-	👪 Conditior	nal Formatting 🔹	¦a•■ Insert -	Σ	· 🔬 🍦	a –	
•	<u> </u>					≣ ≣ ≣	+ a + -	\$ - %	,	ijj Format a	s Table 👻	澤 Delete 👻	-	, Z u u		
Pa	ste • 🝼	BI	<u>u</u> - <u>n</u> -	8	• <u>A</u> •		\$7 -	€.0 .00 .00 →.0		📑 Cell Style	s *	🗒 Format 🔹	2.	Sort & Find Filter * Sele	l& ct∙	
Clip	board 🖫		Font		5	Alignmer	nt 🗔	Number	5	St	tyles	Cells		Editing		
	A4		• (e	f,	The c	only disadva	antage	of this sol	ution	is that the	link is not auto	omatically cl	ickał	ole.		v
			A			В		С		D	E	F		G	Н	
1	Listing	of SA	SHELP.SH	OE	S usin	g Dynam	ic Dat	a Excha	inge	(DDE) w	ith Zoom at	t 70%				
2	To visit	t the W	lisconsin I	llin	ois SA	S Users	Home	Page, U	se t	he Link E	Below.					
3	http://ww	ww.wiils	su.org													
4	The only	y disac	vantage of	this	solutio	on is that t	he link	is not au	utom	atically cli	ckable.					-
5	Region	-		-	Subsi	diary 🕞	Prod	uct	-	Stores -	Sales	Inventor	у	Returns		-
6	Africa				Addis	Ababa	Boot			12	\$29,761	\$191,8	21	\$769		-
7	Africa				Addis	Ababa	Men's	Casual		4	\$67,242	\$118.0	36	\$2,284		
8	Africa				Addis	Ababa	Men's	Dress		7	\$76,793	\$136.2	73	\$2,433		
9	Africa				Addis	Ababa	Sanda	al		10	\$62,819	\$204.2	84	\$1.861		
10	Africa				Addis	Ababa	Slippe	er		14	\$68,641	\$279.7	95	\$1,771		
11	Africa				Addis	Ababa	Sport	Shoe		4	\$1,690	\$16.6	34	\$79		
12	Africa				Addis	Ababa	Wome	en's Cas	ual	2	\$51,541	\$98.6	41	\$940		
13	Africa				Addis	Ababa	Wome	en's Dres	SS	12	\$108,942	\$311.0	17	\$3.233		
14	Africa				Alaiers	5	Boot			21	\$21,297	\$73.7	37	\$710		
15	Africa				Algiers	5	Men's	Casual		4	\$63,206	\$100.9	82	\$2.221		
16	Africa				Algiers	5	Men's	Dress		13	\$123,743	\$428.5	75	\$3,621		
17	Africa				Algiers	5	Sanda	al		25	\$29,198	\$84,4	47	\$1,530		
18	Africa				Algiers	5	Slippe	ər		17	\$64,891	\$248.1	98	\$1,823		
19	Africa				Algiers	5	Sport	Shoe		9	\$2,617	\$9,3	72	\$168		-
M	< > > S	Sheet1	/ 🔁 /		0						,	· · · · · · · · · · · · · · · · · · ·			•	
This	s sheet is re	duced to	70% of normal s	size								B 🗆 🛄 70%	; E			(+)

file DDEcmds;

put '[select("R1")]';
 /* Move focus from row 4 after the preceding title fill step */

X	🖪 9 • C •	-				Bool	k1 - Micros	oft E	xcel					X	
	File Home	Insert Page	Layou	ıt Fori	mulas Dat	a Re	view Viev	v	Acrobat				، 😮 ۵	- 6	23
Pa	Arial	- 16 <i>I</i> <u>U</u> - <u>·</u> -	• 	A* A* • <u>A</u> •		∎ ≣ ∎ ፼ + ≫ -	General \$ - % €.00 .00	,	Condition B Format a Cell Style	aal Formatting × s Table × s ×	∎ Insert + M Delete + Delete +	Σ • • • •	Sort & Find Filter - Sele	ો ક& ct ∗	
Clip	oboard 🕞	Font		5	Alignmer	nt 🗔	Number	12	St	tyles	Cells		Editing		_
	A1	▼ (°	f _x	Listin	g of SASHE	LP.SHO	ES using D	ynar	nic Data Ex	change (DDE)	with Zoom a	t 70%	6		~
	Listing of S		05	2 ucin	B	ic Dat	C C	nac		E ith Zoom at	F		G	H	-
1	To visit the	Wissensin I			g Dynam C Ucoro			nge	ho Link F		10%				
2	TO VISIC LIE	WISCONSINT		JIS 3A	SUSEIS	поше	Page, U	sei		selow.					
3	nttp://www.w	/ilisu.org	thin	o o lutio	un in that t	ا ما	ie net eu		atio ally ali	akabla					
4	The only dis	advantage of	this	Solutio	on is that t	ne link Brodu	is not au	tom	atically cli		Inventor		Deturne		
5	Africa			Subsi		Prod	uci	*	Stores	Sales	mventor	y	¢700		-
6	Africa			Addis	Ababa	BOOt	Convel		12	\$29,761	\$191,0 ¢110,0	21	\$709 \$2,284		
7	Africa			Addis	Ababa	ivien s	Casual		4	\$07,242	\$110,0	30	\$Z,204		
8	Africa			Addis	Ababa	Nens	Dress		10	\$76,793	\$136,2	13	\$2,433		
9	Africa			Addis	Ababa	Sanda			10	\$62,619	\$204,2	04	\$1,001 ¢4,774		
10	Africa			Addis	Ababa	Slippe	er Ohne		14	\$68,641	\$279,7	95	\$1,771		
11	Africa			Addis	Ababa	Sport	Shoe		4	\$1,690	\$10,0 ¢08,0	34	\$/9 ¢040		
12	Africa			Addis	Ababa	vvome	en s Casi	uai	2	\$51,541	\$90,0 ¢211.0	41	\$940		
13	Africa			Addis	Ababa	VVOM	en s Dres	S	12	\$106,942	\$311,0 ¢72.7	17	⊅ວ,∠ວວ ¢740		
14	Africa			Algiers	5	Boot	Convel		21	\$21,297	\$73,7	37	\$/10		
15	Africa			Algiers	5	ivien s	Casual		4	\$03,200 €102,742	\$100,9	02 75	\$Z,ZZ1		
16	Africa			Algiers	5	Nens	Dress		13	\$123,743	\$428,5	15	\$3,621		
17	Africa			Algiers	5	Sanda			25	\$29,198	\$84,4	47	\$1,530		
18	Africa			Algiers	5	Sippe	er Chao			\$04,691 \$2,647	⊅∠40,1 ¢0,2	30	Φ1,0∠3		
19	ATTICA	1		Algiers	5	Sport	Shoe		9	¢∠,017	\$9,3	12	\$108		•
19 	Sheet											0		•	
In	s sheet is reduced	1 to 70% of normal s	size												U

/* Finished Workbook Save As */

data _null_;

file DDEcmds;

put '[error(false)]'; /* suppress any prompt questions */

```
put
'[save.as("D:\Folder\DDE_Customized_WorkSheet_Of_SASHELP
dotSHOES.xls")]';
```

x=sleep(3);

Note the "Saved As" filename below:

🔣 🖃 👻 🐑 👻 🚽 🐨 DDE_Customized_WorkSheet_Of_SASHELPdotSHOES.xls - Microsoft Excel																											
	File	Но	me	Insert	Page l	Layou	it Fo	ormu	ılas	Da	ta	Rev	/iew	View		Acrob	at							۵	? •	- ē	83
Paste									∎ ∰ - \$ ■ ₩ - \$			ral ∽% 	, ,	闘 C 朦 Fi 夢 C	B Conditional Formatting ▼ B Format as Table ▼ Cell Styles ▼				∎• Insert → Σ ■ Delete → ■ Format → 2			Sort & Find & Filter • Select •		& ct •			
Clipboard 🖬 Font							🖬 Alignme				nt 🗔 Numb			nber	12	Styles			Cells			Editing			_		
	-	1		- (°		f _x	List	ing	of S	ASHE	ELP.S	НО	ES us	ing D	ynar	mic D	ata Ex	xch	ange (DD)E) w	ith Zoo	m at	70%	5			~
- 1	Listir	na d	of SA		P SH	OES	s usi	na		nam	nic I	Dat	a Ex	cha	nar			vitk		at	70%	F		G		<u> </u>	
2	To vi	To visit the Wisconsin Illinois SAS Users Home Page Use the Link Below																									
2	http://	/w/w	w wiil	su ora	1				-				. ug	., .													
4	The c	only	disad	lvanta	ae of	this	solut	tion	is t	hat	the l	link	is no	ot au	tom	atica	allv cl	lick	able.								
5	Regi	on			.g	-	Sub	sid	iary	/ -	Pro	odu	ict		-	Sto	res -	S	ales		Inver	ntory	1	Retur	ns		
6	Africa	1					Addi	s A	bab	ba	Во	ot					12	2	\$29,7	61	\$19	1.82	21	\$7	69		-
7	Africa	1					Addi	s A	bab	ba	Me	n's	Cas	ual			4	1	\$67,2	42	\$11	8,03	36	\$2,2	84		
8	Africa	1					Addi	s A	bab	ba	Me	n's	Dres	ss			7	7	\$76,7	93	\$13	6,27	73	\$2,4	33		
9	Africa	1					Addi	s A	bab	ba	Sa	nda	ıl				10)	\$62,8	19	\$20	4,28	34	\$1,8	61		
10	Africa	1					Addi	s A	bab	ba	Slip	ope	r				14	1	\$68,6	641	\$27	9,79	95	\$1,7	71		
11	Africa	1					Addi	s A	bab	ba	Sp	ort	Shoe	е			4	1	\$1,6	90	\$1	6,63	34	\$	79		
12	Africa	1					Addi	s A	bab	ba	Wo	ome	en's (Cası	Jal		2	2	\$51,5	641	\$9	8,64	11	\$9	40		
13	Africa	1					Addi	s A	bab	ba	Wo	ome	en's l	Dres	S		12	2	\$108,9	42	\$31	1,01	17	\$3,2	33		
14	Africa	1					Algie	ers			Bo	ot					21		\$21,2	97	\$7	3,73	37	\$7	10		
15	Africa	1					Algie	ers			Me	n's	Cas	ual			4	1	\$63,2	206	\$10	0,98	32	\$2,2	21		
16	Africa	1					Algie	ers			Me	n's	Dres	SS			13	3	\$123,7	'43	\$42	28,57	75	\$3,6	21		
17	Africa	1					Algie	ers			Sa	nda	al 👘				25	5	\$29,1	98	\$8	84,44	17	\$1,5	30		
18	Africa	1					Algie	ers			Slip	ope	r				17	7	\$64,8	91	\$24	8,19	8	\$1,8	23		
19	Africa	3					Algie	ers			Sp	ort	Shoe	e			9)	\$2,6	517	\$	9,37	2	\$1	68		•
•	▲ ► ►	S	neet1																								
Th	is sheet is	s red	uced to	70% of	normal s	ize																70%	Θ				(\pm)

/* Exiting Excel from SAS */

- data _null_;
- file DDEcmds;
- put '[error(false)]'; /* suppress any prompt questions */
- put '[quit()]'; /* the parenthesis is empty */

```
run;
```

Can You Use DDE?

Running DDE on your own PC

- You can go to the Excel window at each step of the program to inspect the result of commands submitted so far.
- If not satisfied with the current state, you can manually use Excel UnDo, modify your SAS code, and resubmit the code.
- If SAS and/or Excel are/is hung, you can manually intervene (or use Windows Task Manager, if needed).
- If running SAS on your PC via Enterprise Guide, EG might already be enabled to submit code that launches Windows commands.
Possible Special Need #1 for DDE If running SAS on your PC via Enterprise Guide, EG might already be enabled to submit code that launches Windows commands.

The SAS X command is used to launch the Windows command that starts Excel.

If you get this message ERROR: Shell escape is not valid in this SAS session.

see

http://blogs.sas.com/content/sasdummy/2009/11/ 19/using-the-x-and-systask-commands-from-sasenterprise-guide/

Possible Special Need #2 for DDE

- If running SAS on a server, SAS there must be enabled to submit code that launches Windows commands.
- The SAS X command is used to launch the Windows command that starts Excel.
- If you get this message ERROR: Shell escape is not valid in this SAS session. ask your server administrator to turn on the XCMD system option

Possible Inconvenience of DDE

- If SAS runs on a remote server, not on your PC, and a malfunction occurs:
- user needs ability to kill a hung SAS process user needs ability to kill a hung Excel process user needs ability to identify the Process IDs
- OR user must get SAS administrator to intervene.
- For above needs, I have provided user tools for SAS (which can be adapted for Excel). See:
- http://support.sas.com/resources/papers/proceedings10/279-2010.pdf

For More on DDE

In Proceedings and Tools:

- the code, log, and output for these DDE slides
- my expansive DDE paper and DDE toolkit

NOT In Proceedings & Tools

- I learned SAS coding for DDE
- from two papers by Koen Vyverman:
- http://www2.sas.com/proceedings/sugi26/p011-26.pdf
- http://www2.sas.com/proceedings/sugi27/p190-27.pdf
- See also the SAS-provided documentation.
- In SAS, click on SAS Help and Documentation
- > Using SAS Software in Your Operating Environment
- > SAS 9.X Companion for Windows
- (where 9.X is YOUR version of SAS)
- > Using SAS with Other Windows Applications
- > Using Dynamic Data Exchange Under Windows

Comparison of Tool Alternatives

Feature	TableEditor*	ExcelXP	MSOffice2K x	HTML	DDE**
					requires an
Pivot Table	Yes	No	No	No	Excel macro
AutoFit					
Columns	By Default*	No	By Default*	By Default	Yes
	Yes, but All		Yes, but All		
Filters	Columns only	Yes	Columns only	No	Yes
Freeze Panes	Row 1 only	Yes	Yes	No	Yes
Side-By-Side					
Elements in					
WorkSheet	Yes	No	Yes	No	Yes
Multi-Sheet					
WorkBook	Yes	Yes, Easy	Yes	No	Yes
Graphs	Yes	No	Yes	Yes	Yes
	Not with				
Titles	other features	Yes	Yes	Yes	Yes

*Headings of columns autofit by default can be overlaid by filter buttons *Javascript must be enabled **SAS must be running on Windows

Conclusion

Dynamic Data Exchange (DDE) is very powerful, but if you use SAS on a server, esp. via SAS Enterprise Guide, you can have awkward situations that you need to be able to deal with.

Kevin Smith at SAS Institute is working on an ODS Excel destination intended to deliver more function than any of the existing ODS solutions.

An excellent new SAS Institute course: Exporting SAS Data Sets and Creating ODS Files for Microsoft Excel

About SAS Institute Training

Exporting SAS Data Sets and Creating ODS Files for Microsoft Excel

Exported data is unformatted

DDE tool not included in the course

TableEditor is self-study only

About the Author

Dr. LeRoy Bessler has presented at software user conferences in the US, Canada, and Europe, on topics such as effective visual communication (using graphs, tables, web pages, or color), highly formatted Excel reporting from SAS, custom-developed tools to assist SAS server administrators, users, and managers, and Software-Intelligent Application Development methods to maximize Reliability, Reusability, Maintainability, Extendibility, and Flexibility. His SAS experience includes application development and supporting users, servers, software, and data.

For Your Requests, Suggestions, Comments, Questions, Solutions

LeRoy Bessler PhD Bessler Consulting and Research Strong Smart Systems™ Converting Complexity Into Clarity™ Le_Roy_Bessler@wi.rr.com 262-512-1729