

How to Excel at ODS

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Output Delivery System – Used to format SAS output into different formats.

Before the ODS listing, output was simply plain text files and ASCII art drawings of tables/charts. This new listing system allows us to create output in numerous forms for whatever purpose you may require.

- Print procedure
- SAS Dataset
- Means Procedure
- Frequency procedure

```
ods listing close;
proc print data=libname.yourdata;
run;
```

So the ODS you've used this are pretty high!



Why ODS is Useful

- There are many ways to bring your data from SAS into Excel, including the Proc Export command as well as the Libname Engine.
- All of these methods are useful, but none give you as much ability to create Client-ready output as the ODS.
- With its wealth of commands and options to change a SAS dataset on its way to Excel, the ODS is the best way to make your tables look pretty.

Your old output



ODS

Your new output









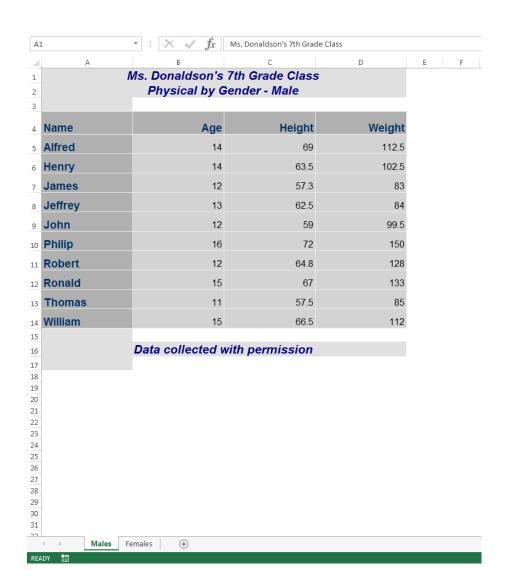
The quickest way to bring your data out of SAS is Proc Export. Simple and effective. But do you really want to spend your time modifying this file to become client-ready when you could write a code to do it for you?

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4	Α	В	С	D	Е	F
1	Name	Sex	Age	Height	Weight	
2	Alfred	M	14	69	112.5	
3	Alice	F	13	56.5	84	
4	Barbara	F	13	65.3	98	
5	Carol	F	14	62.8	102.5	
6	Henry	M	14	63.5	102.5	
7	James	M	12	57.3	83	
8	Jane	F	12	59.8	84.5	
9	Janet	F	15	62.5	112.5	
10	Jeffrey	M	13	62.5	84	
11	John	M	12	59	99.5	
12	Joyce	F	11	51.3	50.5	
13	Judy	F	14	64.3	90	
14	Louise	F	12	56.3	77	
15	Mary	F	15	66.5	112	
16	Philip	M	16	72	150	
17	Robert	M	12	64.8	128	
18	Ronald	M	15	67	133	
19	Thomas	M	11	57.5	85	
20	William	M	15	66.5	112	
21						
22						





With the ODS, we can use tagsets and other commands to summarize and format our table as well as add useful information.







Types of ODS Output

Output Type	Description	
HTML and XHTML	HTML is the primary format used on the Web. When you browse, you are looking at HTML files. XHTML is HTML that is formatted as a valid XML file.	
XML	XML is a well defined, plain text format. Until XML became popular, each file required its own format, grammar, and parser. XML simplified the exchange of data by creating a file type that is easily processed by various tools.	
PDF	PDF is a file that can be used for printing as well as for online viewing. To view a PDF file, download the free Adobe Acrobat Reader. (Acrobat Reader is usually pre-installed on computers).	
RTF	RTF is a format used by most word processors.	
Excel	The Microsoft Excel format enables you to share your SAS data with Excel users.	
LaTex	LaTex enables you to copy and paste SAS output into other LaTex documents which are generally used for scientific documentation.	
Data Set	Data set enables you to use ODS tables as data sets.	



ODS for Excel



- Now that we've seen and been introduced to the ODS, what else can it do for us?
- Given that a lot of client output sent out today is in Microsoft Excel format, it makes sense to use the ODS to output our data into Excel.
- By using ODS instead of manually editing our Excel tables, we save time and resources all while maintaining more precise formatting.



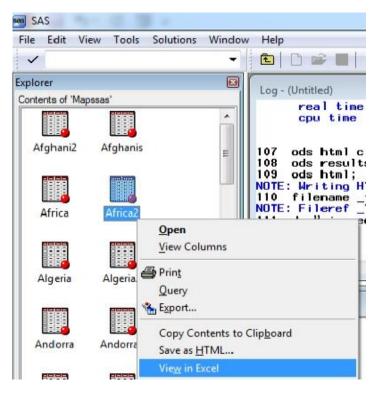




Excel: ODS Tips and Tricks

Getting Started

 Here is an example dataset that you have created and wish to view in Excel. One way to do this quickly is to right click the dataset and select the 'View in Excel' option, which will automatically invoke ODS for you.



```
filename temp "C:\SAS Temporary Files\ TD20420 LCANR90A1W84 \#LN00052.xls";
     ods noresults;
     ods listing close;
     ods html file=_temp_ rs=none style=minimal;
NOTE: Writing HTML Body file: _TEMP_
127 proc print data=Mapssas.'Africa2'N label noobs;
NOTE: There were 61 observations read from the data set MAPSSAS.AFRICA2.
NOTE: PROCEDURE PRINT used (Total process time):
       real time
                              0.12 seconds
       cpu time
                              0.03 seconds
     ods html close:
     ods results;
131 ods html:
NOTE: Writing HTML Body file: sashtml4.htm
132 filename _temp_;
NOTE: Fileref _TEMP_ has been deassigned.
133 dm "winexecfile ""C:\SAS Temporary Files\_TD20420_LCANR90A1W84_\#LN00052.xls"" ";
```







tu

 The problem is, when you use this option the data is exported with preselected settings. You have no control over many aspects of the data such as file appearance, size or format. The following slides will directly address how to deal with these issues.

	Numeric	GLC: Country	ISO Country	GLC Country IDName	ISO Na
1					
2	Rep. for	ID Number	Number:		
3	Continent		900+ Undefined		
4	94	125	12	ALGERIA	ALGERIA
5	94	141	24	ANGOLA	ANGOLA
6	94	187	638	BASSAS DA INDIA	REUNION
7	94	210	72	BOTSWANA	BOTSWANA
8	94	252	108	BURUNDI	BURUNDI
9	94	257	120	CAMEROON	CAMEROON
10	94	264	132	CAPE VERDE	CAPE VERDE
11	94	269	140	CENTRAL AFRICAN REP.	CENTRAL AFRICA
12	94	273	148	CHAD	CHAD
13	94	286	174	COMOROS	COMOROS
14	94	290	178	CONGO	CONGO
	94	291	180	ZAIRE	CONGO, THE DE
15					THE
16	94	311	204	BENIN	BENIN
17	94	317	262	DJIBOUTI	DJIBOUTI
18	94	327	232	ERITREA	ERITREA
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Getting Started: Solution





Trick 1: Titles and Footnotes

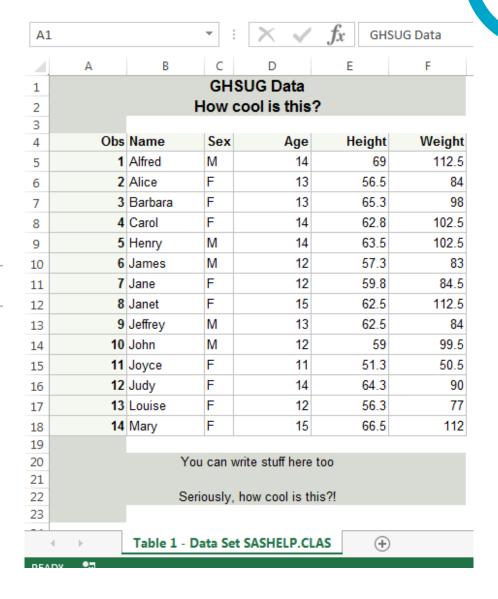


- Controlling how you want your Excel file to look can be easily done with ODS tagsets and will save you the time of naming worksheets and tables.
- By using the ODS embedded_titles and embedded_footnotes commands and setting your output file extension to xls or xlsx, you can create headers and footers for your data directly in SAS.



Example

```
ods listing close;
  ods tagsets.excelxp file="test.xls" style=statistical
      options( embedded titles='yes' embedded footnotes='yes' );
  title "GHSUG Data":
  title2 "How cool is this?";
 proc print data=sashelp.class (obs = 14); run;
  footnote "You can write stuff here too":
 footnote3 "Seriously, how cool is this?!";
  ods tagsets.excelxp close;
  ods listing;
```

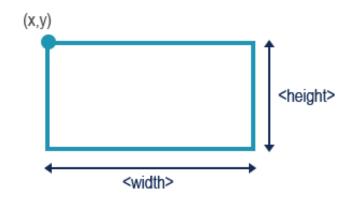








- Although you can set these by manipulating your SAS dataset, your changes may be (and often are) ignored by Excel.
- To transfer these changes into Excel, simply begin your ODS use your ExcelXP tagset with options width_points and row_heights to make changes that will be transferred to your output.







Example

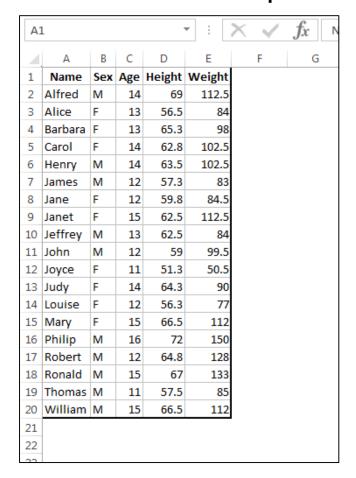
 To Transfer these changes into Excel, simply begin your ODS command with an Excel file extension (.xls or .xlsx) and set your tagsets command as shown here. This allows you to use a width or height command in your output which will be transferred to Excel.

```
ods listing close;
 ods tagsets.excelxp file = "test2.xls" options(width points = '15' row heights = '35, 20');
Dproc print data=class noobs label split='*';
      id name:
      var age;
      var height weight;
 run; quit;
 ods tagsets.excelxp close;
 ods listing;
```





'View in Excel' Option





ODS Width/Height Commands









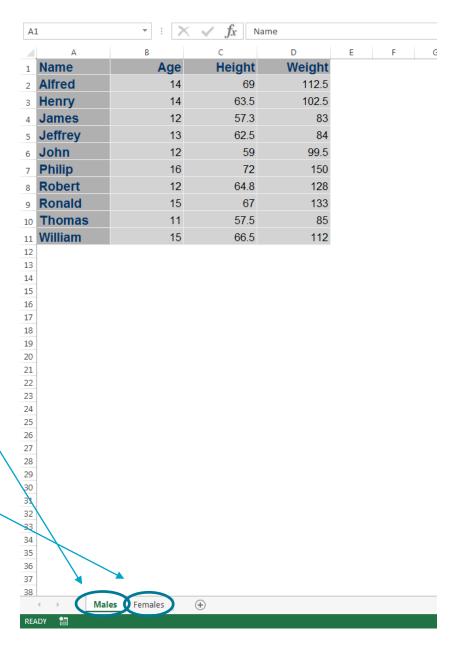
- During many instances there are multiple parts of a dataset in SAS that we
 wish to view on different worksheets in an Excel document.
- By using the sheet_name command within the ODS excels tagset, we can
 do split up and summarize a worksheet into as many tabs as we wish by
 simply stacking ODS commands on top of each other.





Example

```
∃data class:
      set sashelp.class;
 run;
□proc sort data=class; by name sex age; run; quit;
 ods listing close;
 ods tagsets.excelxp file = "test.xls" options (sheet name = 'Males');
∃proc print data=class noobs label split='*';
      where sex eq 'M';
      id name;
      var age height weight;
 run; quit;
 ods tagsets.excelxp options (sheet name = 'Females');
□proc print data=class noobs label split='*';
      where sex eq 'F';
      id name;
      var age height weight;
 run; quit;
 ods tagsets.excelxp close;
 ods listing;
```



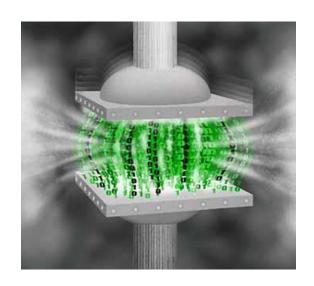








- Though they aren't ever too large, Excel files can still take up space on your hard drive.
- Though this is not specific to the ExcelXP tagset, by using the style option 'minimal', we can reduce the size of our files and free up space on our machines.







Example

```
'Select View in Excel Option'
 VS.
  ODS PHTML FILE= 'C:\Users\cgilles\Documents\Projects\SUG Presentation\datasets\classODS.xls' style = minimal;
□ PROC PRINT DATA=SASHELP.CLASS;
  RUN:
  ODS PHTML CLOSE;
                                                                                                                                         \Sigma S
                                                                        23
                                                                                   classODS.xls Properties
               classVIEWINEXCEL.xlsx Properties
                                                                                         Security Details
                                                                                                          Previous Versions
                          Security Details Previous Versions
                   x
                                                                                                classODS.xls
                                classVIEWINEXCEL.xlsx
                                                                                    34
                                                                                               Microsoft Excel 97-2003 Worksheet (xls)
                                                                                   Type of file:
                   Type of file:
                               Microsoft Excel Worksheet (xlsx)
                                                                                                X 

Excel (desktop)
                                                                                   Opens with:
                   Opens with:
                               Change...
                                                            Change...
                                                                                                C:\Users\cgilles\Documents\Projects\SUG Presenta
                               C:\Users\cgilles\Documents\Projects\SUG Presenta
                                                                                   Location:
                   Location:
                                                                                                5.04 KB (5,170 bytes)
                   Size:
                               12.6 KB (12,978 bytes)
                                                                                   Size:
                                                                                   Size on disk: 8.00 KB (8,192 bytes)
                   Size on disk: 16.0 KB (16,384 bytes)
```

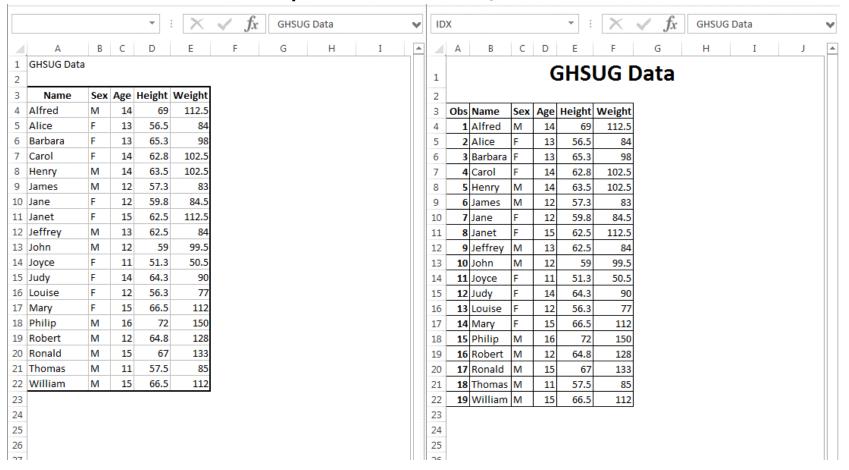






'View in Excel' Option

Style Minimal Command





Nome	Default value	Description
Name		Description
ASCII_DOTS	yes	Turn off/on leading dots in textual 'batch' output
AUTOFILTER	none	Turn on auto filter for all columns or a range of columns
AUTOFILTER_TABLE	1	Which table on the worksheet should get the filters
ABSOLUTE_COLUMN_WIDTH	none	List of widths to use for each column in a table no matter what
AUTOFIT_HEIGHT	no	If yes, no row heights will be specified
AUTO SUBTOTALS	no	
		Add a subtotal function to the summary line of proc print
BLACKANDWHITE	no	This value turns on black and white for printing
BLANK_SHEET		Create a Blank Worksheet with the name given
CENTER_VERTICAL	no	This value controls vertical centering for printing
CENTER_HORIZONTAL	no	This value controls horizontal centering for printing
COLUMN_REPEAT	none	Repeat columns across pages when printing
CONTENTS	no	Create a worksheet that will contain a table of contents
CONTENTS_WORKBOOK	Contents, Index	Create a workbook with a table of contents and/or an index of workbooks and/or an index of worksheets
	·	
CONVERT_PERCENTAGES	yes	Remove percent symbol, apply Excel percent format, and multiply by 100
CURRENCY_SYMBOL	\$	Used for detection of currency formats and for removing symbols so Excel will see currency as numbers
CURRENCY_FORMAT	Currency	The currency format specified for Excel to use
DECIMAL_SEPARATOR		The character used for the decimal point
DEFAULT_COLUMN_WIDTH	none	List of widths to use for each column in a table, if there are no widths
DOC	none	Documentation for this tagset. Values are Help, Options, Quick, Settings, and Changelog
DPI	300	This value determines the dots per inch for printing
DRAFTQUALITY	no	This value turns on draft quality for printing
EMBED_TITLES_ONCE	no	If yes, embedded titles will only appear at the top of each worksheet
EMBED_FOOTERS_ONCE	no	If yes, embedded footers will only appear at the bottom of each worksheet
EMBEDDED_FOOTNOTES	no	Put footnotes in the worksheet
EMBEDDED_TITLES	no	Put titles in the worksheet
FITTOPAGE	no	Fit to Page when printing
FORMULAS		
	yes	Data values that start with an '=' will become formulas
FROZEN_HEADERS	no	Freeze rows from scrolling with the scrollbar
FROZEN_ROWHEADERS	no	Freeze columns from scrolling with the scrollbar
GRIDLINES	no	This value turns on gridlines for printing
HIDDEN_COLUMNS	none	range or list of column numbers to hide
INDEX	no	Create a worksheet that will contain a index of worksheets
MERGE TITLES FOOTNOTES	no	Merge left justified titles and footnotes.
MINIMIZE_STYLE	no	Minimize the styles written to the stylesheet. Can cause unloadable XML files
MISSING_ALIGN	r	Sets the alignment for missing values
NUMERIC_TEST_FORMAT	12	Used for determining if a value is numeric or not
ORIENTATION	Portrait	Print orientation for the worksheet, Portrait or Landscape
PAGE_ORDER_ACROSS	no	If set to yes, the worksheet page order will be set to print across, then down
PAGEBREAKS	no	Insert page break lines in the worksheet
PAGES_FITWIDTH	1	
		This value determines the number of pages to fit the worksheet across when printing
PAGES_FITHEIGHT	1	This value determines the number of pages down to fit the worksheet when printing
PRINT_FOOTER	None	If there are no footers, or embedded footnotes are on, this value will be used as the footer for printing
PRINT_FOOTER_MARGIN	none	This is the footer margin as set in the page setup dialog window
PRINT_HEADER	None	If there are no titles or embedded titles are on, this value will be used as the header for printing
PRINT_HEADER_MARGIN	none	This is the header margin as set in the page setup dialog window
ROW_HEIGHT_FUDGE	4	A fudge value to add to the row height for each row
ROW_HEIGHTS	0,0,0,0,0,0	
		Positional list of point sizes to use for row heights
ROW_REPEAT	none	Repeat rows across pages when printing
ROWCOLHEADINGS	no	This value turns on row and column headings for printing
SCALE	100	This value determines the scale level for printing
SHEET_INTERVAL	Table	Interval to divide the output between worksheets. Values are Table, Page, Bygroup, Proc, or None
SHEET NAME	none	Worksheet name to use for the next worksheet
SHEET_LABEL	none	Replace the prefix of the worksheet name with this value
SKIP_SPACE	1,0,1,1,1	Multiplier for the space that follows the different types of output
SUPPRESS_BYLINES	no	Suppresses bylines in the worksheet
THOUSANDS_SEPARATOR	,	The character used for indicating thousands in numeric values
TITLE_FOOTNOTE_WIDTH	0	The number of columns titles and footnotes are allowed to span.
WIDTH_FUDGE	0.75	This value is used along with Width_Points and column width to calculate an approximate width for the table columns
WIDTH_POINTS	none	Override value for width calculations
WRAPTEXT	ves	This value turns wraptext on and off for all style definitions.
ZOOM	100	This value determines the zoom level on the worksheet
DEBUG LEVEL	0	Numeric value to turn on various debug messages
CONFIGURATION_FILE	none	An ini file to read option settings from
CONFIGURATION_NAME	none	A section name in an ini file that holds option settings
(tu)		





Summary

 While there are many ways to export your data into an Excel spreadsheet, by using the ODS listing you have the means necessary to customize your output to match the exact format you need.





Thank You!

Questions?

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