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Using the SAS® ODS Excel Destination Options to Enhance Your Excel Output

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ABSTRACT

The new SAS ODS Excel Destination is a feature rich addition to the SAS ODS tool set. In this paper I will show you how to output multiple spreadsheets, add some style options and place your data where you want it. I will use the ID option, the STYLE option, and the START_AT sub-option of the SAS ODS Excel Destination. The ID option allows you to define different output Excel Workbooks that use the same SAS Code but use different output options when writing an Excel Workbook. I will show you how to create three workbooks at once using this ODS option. The STYLE option can enhance your output workbooks, I will show you how to use to the STYLE option to enhance the visual display of your output data. Finally I will show you how the put your output data elements into any row and column in the new worksheet. All of this can be done while you execute your SAS code only once.

INTRODUCTION

This paper describes several elements of the ODS Excel Destination. I will also list the available "Actions", "Options", and "Suboptions" and describe the ID Option, the STYLE option, and the START_AT sub-option of the ODS Excel Destination. Unlike the ODS tagset called EXCELXP, the ODS Excel Destination cannot be modified by you the SAS user. This paper is being presented as a 20 minute paper and therefore can only cover a small set of focused topics. The ODS Excel Destination has over 65 "Actions", "Options", and "Suboptions" available.

PROBLEM

The ability to output SAS data and graphs to Microsoft Excel workbooks has long been something that both SAS and Excel users have wanted. SAS users want better ways to output more detailed and complex data because their boss wants the data in an Excel workbook. Excel users want the data in Excel because they can easily process "What – If …" questions, create graphs, and manipulate data in the worksheets in many different ways. Therefore, both SAS and Excel users really want betters ways to produce Excel workbooks.

ODS EXCEL DESTINATION FEATURE DESCRIPTION

ODS Excel Destination "Actions", "Options", and "Suboptions" work with different parts of the Excel Workbook. This paper will describe one "Action" associated with the ODS Excel Destination software called the ID action. This action allows you the SAS user to write SAS output to multiple Excel workbooks while only executing your SAS code once. Each of the output workbooks can be completely different or exactly the same. Also somewhere in between.

ODS EXCEL DESTINATION "ACTIONS", "OPTIONS", AND "SUBOPTIONS"

The following tables list the full list of "Actions", Options", and "Suboption" available for the ODS Excel Destination as presented in SAS V9.4 (TS1M3). Both of the references at the bottom of this paper provide expanded and more detailed information about the additional features, syntax, uses, and outputs of the other features of the ODS Excel Destination.

List of ODS Excel Actions

Actions Include	
NONE	Sends Excel output to the SAS Default output directory.Depending on your version of SAS, the default directory is shown in the bottom left or right side of the display manager window.
CLOSE	Closes an ODS EXCEL statement with or without an ID= option.
EXCLUDE	An ODS EXCLUDE statement prevents an ODS object from being output.
SELECT	An ODS SELECT statement includes an ODS object in the output.
SHOW	An ODS SHOW statement writes the current selection or exclusion list to the log

List of ODS Excel Options

Optional Arguments		
ANCHOR=	AUTHOR=	BOX_SIZING=
CATEGORY=	COMMENTS=	CSSSTYLE=
DOM=	DPI=	FILE=
GFOOTNOTE	NOGFOOTNOTE	GTITLE
NOGTITLE	IMAGE_DPI=	KEYWORDS=
ID=	OPTIONS	SASDATE
STATUS=	STYLE=	TEXT=
TITLE=	WORK=	

Suboptions of the OPTIONS option of the ODS EXCEL statement

Suboptions of the OPTIONS Argument	
ABSOLUTE_COLUMN_WIDTH=	ABSOLUTE_ROW_HEIGHT=
AUTOFILTER=	BLACKANDWHITE=
BLANK_SHEET=	CENTER_HORIZONTAL=
CENTER_VERTICAL=	COLUMN_REPEAT=
CONTENTS=	DPI=
DRAFTQUALITY=	EMBEDDED_FOONOTES=
ENBED_FOOTNOTES_ONCE=	EMBEDDED_TITLES=
EMBED_TITLES_ONCE=	FITTOPAGE=
FORMULAS=	FROZEN_HEADERS=
FROZEN_ROWHEADERS=	GRIDLINES=
HIDDEN_COLUMNS=	HIDDEN_ROWS=
INDEX=	MSG_LEVEL=
ORIENTATION=	PAGE_ORDER_ACROSS=
PAGES_FITHEIGHT=	PAGES_FITWIDTH=
PRINT_AREA=	PRINT_FOOTER=
PRINT_FOOTER_MARGIN=	PRINT_HEADER=
PRINT_HEADER_MARGIN=	ROWBREAKS_COUNT=
ROWBREAKS_INTERVAL=	ROWCOLHEADINGS=
ROW_HEIGHTS=	ROW_REPEAT=
SCALE=	SHEET_INTERVAL=
SHEET_LABEL=	SHEET_NAME=

START_AT=	SUPPRESS_BYLINES=
TAB_COLOR=	TITLE_FOOTNOTE_NOBREAK=
TITLE_FOOTNOTE_WIDTH=	ZOOM=

THE ODS EXCEL DESTINATION SYNTAX

Simple ODS Syntax for the ODS EXCEL destination.

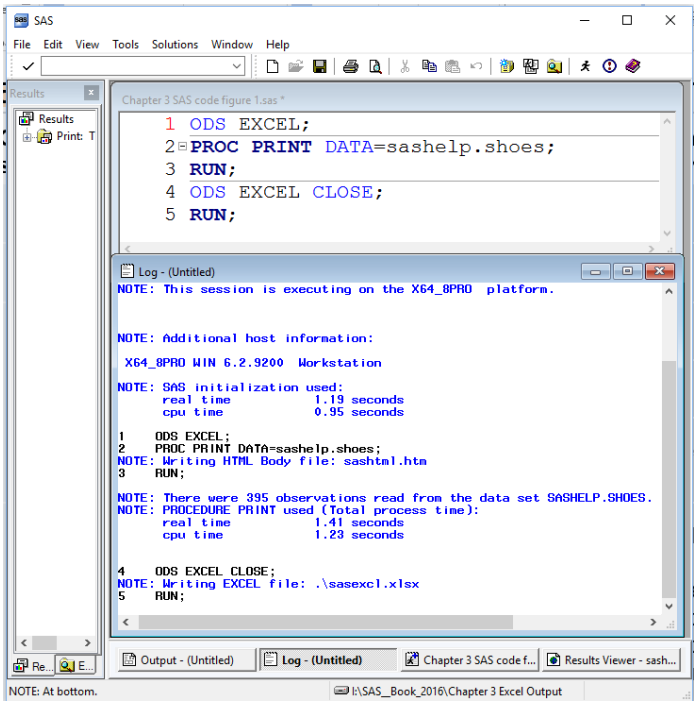
```
ODS EXCEL <(<ID=> identifier)> < action> ;
ODS EXCEL <(<ID=> identifier)> <option(s)> ;
```

The SAS ODS Excel destination syntax shown above is just the tip of the iceberg. As shown, everything except “ODS EXCEL;” is optional. One thing to point out is that there is an “Argument” called “OPTIONS” that has many “SUB-OPTIONS”, they are described in the SAS HELP under the Base SAS 9.4 (TS1M3) topic “ODS EXCEL Statement. In its simplest form the following SAS code will produce an Excel workbook. As shown here.

```
ODS EXCEL;
 PROC PRINT DATA=sashelp.shoes;
 RUN;
ODS EXCEL CLOSE;
```

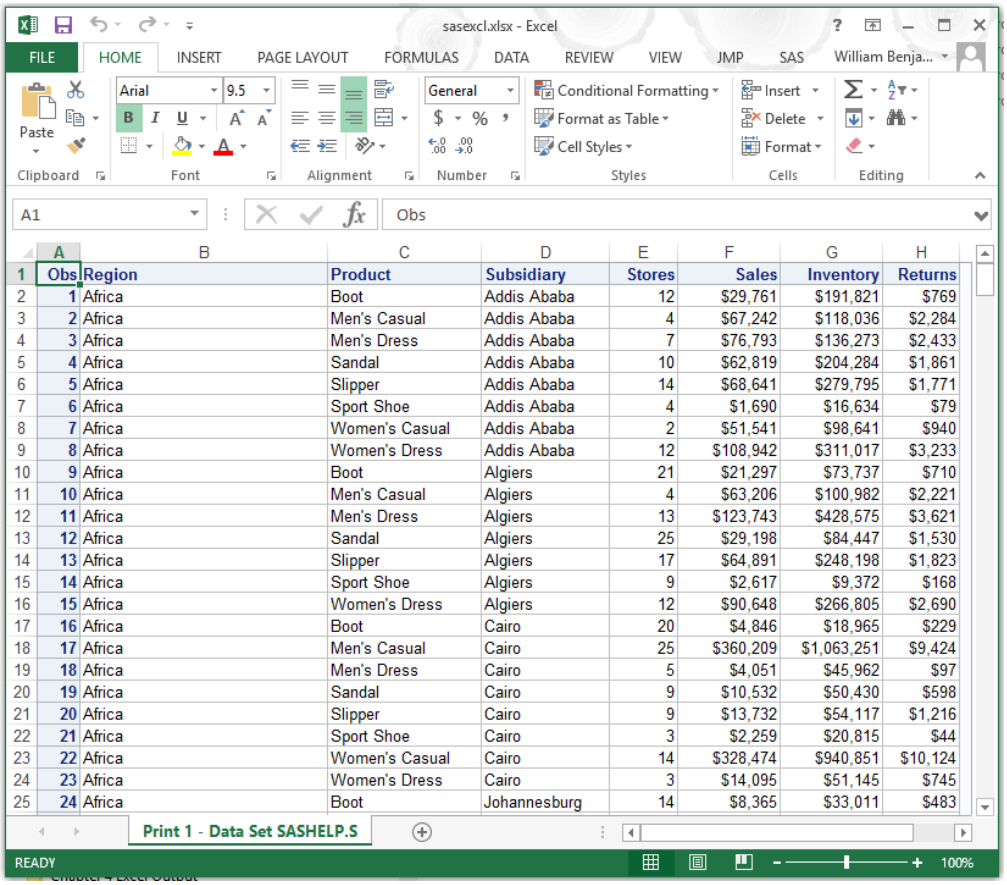
The SAS output looks like this, note that without a FILE= statement the output Excel Workbook goes to the current default directory with the default file name sasexcl.xlsx. The sheet name is also a default name composed of the procedure name and the SAS Dataset name.

Figure 1. SAS Code and Log output showing the default actions of “ODS EXCEL”.



The Excel output workbook looks like the following. On the bottom of the PC SAS display manager window in Figure 1, the default output directory name is listed. The actual location on the screen varies depending on the version of SAS that you are using. This form of execution selects the filename at execution time, while the FILE= option enables you to select an output filename. In this example, the name defaults to sasexcl.xlsx, but on other operating systems the default name might be different. Depending on the operating system that the SAS code was running on, and the TOOLS> Options> Preferences “Results” tab selections, the output EXCEL workbook can be forced open using EXCEL.

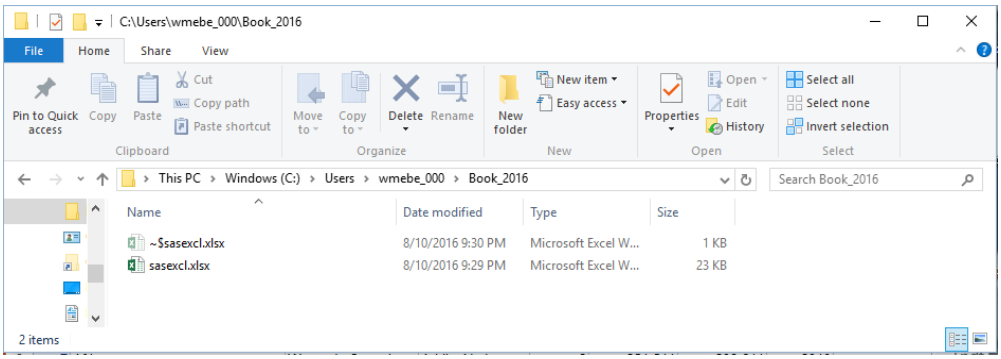
Figure 2 – Excel Output generated by the code in Figure 1.



Obs	Region	Product	Subsidiary	Stores	Sales	Inventory	Returns
1	Africa	Boot	Addis Ababa	12	$29,761	$191,821	$769
2	Africa	Men's Casual	Addis Ababa	4	$67,242	$118,036	$2,284
3	Africa	Men's Dress	Addis Ababa	7	$76,793	$136,273	$2,433
4	Africa	Sandal	Addis Ababa	10	$62,819	$204,284	$1,861
5	Africa	Slipper	Addis Ababa	14	$68,641	$279,795	$1,771
6	Africa	Sport Shoe	Addis Ababa	4	$1,690	$16,634	$79
7	Africa	Women's Casual	Addis Ababa	2	$51,541	$98,641	$940
8	Africa	Women's Dress	Addis Ababa	12	$108,942	$311,017	$3,233
9	Africa	Boot	Algiers	21	$21,297	$73,737	$710
10	Africa	Men's Casual	Algiers	4	$63,206	$100,982	$2,221
11	Africa	Men's Dress	Algiers	13	$123,743	$428,575	$3,621
12	Africa	Sandal	Algiers	25	$29,198	$84,447	$1,530
13	Africa	Slipper	Algiers	17	$64,891	$248,198	$1,823
14	Africa	Sport Shoe	Algiers	9	$2,617	$9,372	$168
15	Africa	Women's Dress	Algiers	12	$90,648	$266,805	$2,690
16	Africa	Boot	Cairo	20	$4,846	$18,965	$229
17	Africa	Men's Casual	Cairo	25	$360,209	$1,063,251	$9,424
18	Africa	Men's Dress	Cairo	5	$4,051	$45,962	$97
19	Africa	Sandal	Cairo	9	$10,532	$50,430	$598
20	Africa	Slipper	Cairo	9	$13,732	$54,117	$1,216
21	Africa	Sport Shoe	Cairo	3	$2,259	$20,815	$44
22	Africa	Women's Casual	Cairo	14	$328,474	$940,851	$10,124
23	Africa	Women's Dress	Cairo	3	$14,095	$51,145	$745
24	Africa	Boot	Johannesburg	14	$8,365	$33,011	$483

The windows output directory is shown below; the directory was empty before the SAS code was executed. Afterward, the directory shows the output Excel workbook. Since the workbook was opened the temporary file generated by Excel is also visible.

Figure 3 – Contents of the default Directory used by SAS to output the Excel Workbook.



THE ID ACTION

The number of actions is relatively small and deals with generating the output for the Excel workbook. The ID= action allows opening of multiple ODS outputs at the same time, including more than one Excel Workbook. This permits selecting, excluding, and listing the SAS objects for output. These are more fully described in the SAS online documentation at the following URL:

http://support.sas.com/documentation/cdl/en/odsug/69832/PDF/default/odsug.pdf.

Figure 4 – Description of the ODS Excel Destination "ID" action.

Action Parameter	Options	Description
ID	'numeric-positive integer', or a series of characters that begin with a letter or underscore that can contain letters, numbers, and underscores	This option allows the creation of multiple instances of the same destination at the same time, each can have different options. The identifier will specify another instance of a destination that is already open, and the ID= option must directly follow the destination name. It is also possible to omit the ID= by using a name or number to identify the instance.

ID ACTION USAGE

The ID= option enables you to create multiple instances of ODS output from the same SAS code. Having different ID values enables you to apply different options and suboptions to separate output. The ID= option can be very useful if you need multiple copies of the same data. If you need a working Excel spreadsheet, a printable Excel workbook, or a PDF for outside delivery, you can use the ID= option to produce these copies in one process. The ability to do this enables you to have a working copy to makeup and verify, a production copy to ship, and a PDF copy for documentation, without rerunning the job. My example here produces three files, two Excel workbooks and a PDF file. I will discuss these files separately. In the SAS Code 5-2 example I did not use the ID= option on the first ODS EXCEL statement to show that it is not required for the first instance, only for later ODS file definitions.

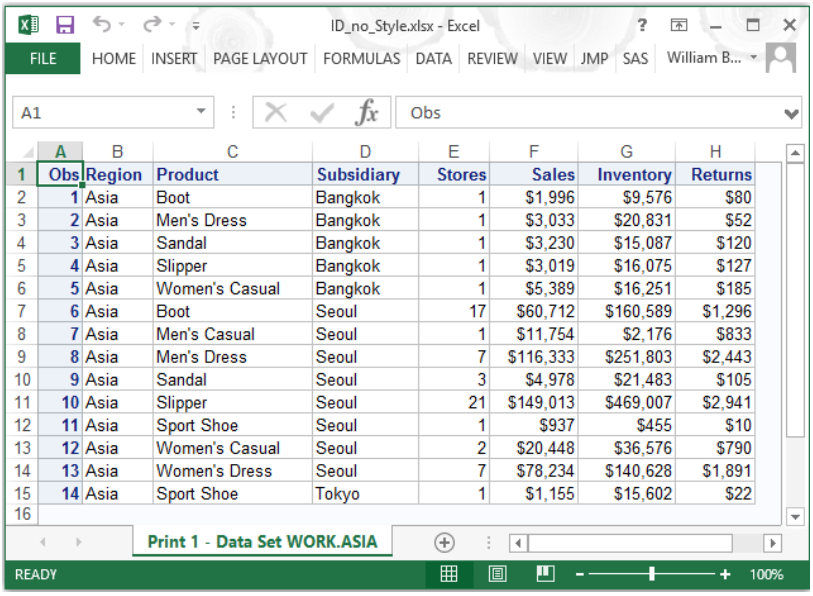
Using the ODS ID= Option to Produce Multiple Outputs

```
/*************************************************/
/**  Code to create a SAS work data set ASIA_ONLY              **/
/*************************************************/
data ASIA_ONLY;
set sashelp.shoes (where=(region="Asia"));
run;
%let path = your directory path to your files;
ods excel file="&path.\ID_no_Style.xlsx" ;
 ods excel (id=harvest) style=harvest     file="&path.\ID_harvest_Style.xlsx" ;
 ods pdf   (id=Sapphire) style=Sapphire file='&path.\ID_Sapphire_Style.pdf';
 proc print data=asia_only;
 run;
 ods excel close;
```

```
ods excel (id=harvest)  close;
ods pdf   (id=Sapphire) close;
```

This workbook has no updates to the output workbook, it shows only the defaults, and this is what SAS will normally create.

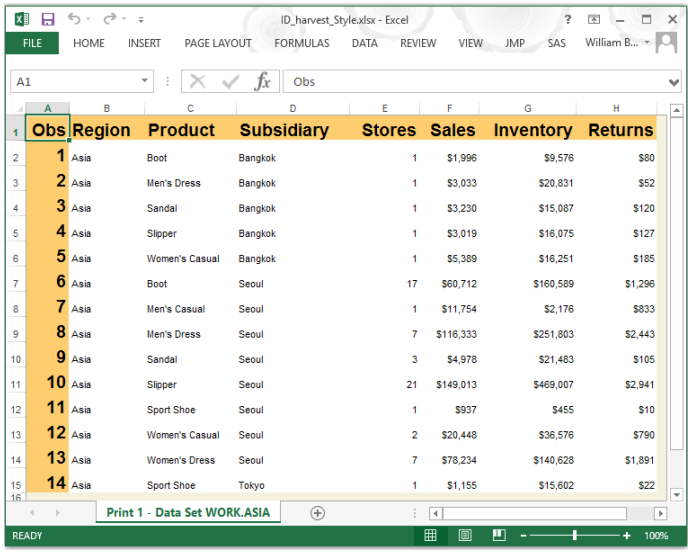
ODS Excel Output Using No Style or ID= Option (the defaults)



Obs	Region	Product	Subsidiary	Stores	Sales	Inventory	Returns
1	Asia	Boot	Bangkok	1	$1,996	$9,576	$80
2	Asia	Men's Dress	Bangkok	1	$3,033	$20,831	$52
3	Asia	Sandal	Bangkok	1	$3,230	$15,087	$120
4	Asia	Slipper	Bangkok	1	$3,019	$16,075	$127
5	Asia	Women's Casual	Bangkok	1	$5,389	$16,251	$185
6	Asia	Boot	Seoul	17	$60,712	$160,589	$1,296
7	Asia	Men's Casual	Seoul	1	$11,754	$2,176	$833
8	Asia	Men's Dress	Seoul	7	$116,333	$251,803	$2,443
9	Asia	Sandal	Seoul	3	$4,978	$21,483	$105
10	Asia	Slipper	Seoul	21	$149,013	$469,007	$2,941
11	Asia	Sport Shoe	Seoul	1	$937	$455	$10
12	Asia	Women's Casual	Seoul	2	$20,448	$36,576	$790
13	Asia	Women's Dress	Seoul	7	$78,234	$140,628	$1,891
14	Asia	Sport Shoe	Tokyo	1	$1,155	$15,602	$22

The output in the next image, was created using the SAS maintained STYLE called HARVEST. Notice the different colors in the row and column headers. The ID= option identified this file as HARVEST, during the opening and closing of the Excel Workbook. Any options assigned during this ODS FILE statement and sent to the output file at the close are unique to this Excel Workbook.

ODS Excel Output Using Harvest Style and the ID= Option



Obs	Region	Product	Subsidiary	Stores	Sales	Inventory	Returns
1	Asia	Boot	Bangkok	1	$1,996	$9,576	$80
2	Asia	Men's Dress	Bangkok	1	$3,033	$20,831	$52
3	Asia	Sandal	Bangkok	1	$3,230	$15,087	$120
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6	Asia	Boot	Seoul	17	$60,712	$160,589	$1,296
7	Asia	Men's Casual	Seoul	1	$11,754	$2,176	$833
8	Asia	Men's Dress	Seoul	7	$116,333	$251,803	$2,443
9	Asia	Sandal	Seoul	3	$4,978	$21,483	$105
10	Asia	Slipper	Seoul	21	$149,013	$469,007	$2,941
11	Asia	Sport Shoe	Seoul	1	$937	$455	$10
12	Asia	Women's Casual	Seoul	2	$20,448	$36,576	$790
13	Asia	Women's Dress	Seoul	7	$78,234	$140,628	$1,891
14	Asia	Sport Shoe	Tokyo	1	$1,155	$15,602	$22

The next image, is the result of the ODS PDF statement. This output was generated with the SAS supported style called Sapphire. Once again, the ODS PDF statement defined the output options. In the ID= option where the ID was set to “SAPPHIRE”, the output is a PDF file.

ODS PDF Output Using the Sapphire Style and the ID= Option

The SAS System 1

Obs	Region	Product	Subsidiary	Stores	Sales	Inventory	Returns
1	Asia	Boot	Bangkok	1	$1,996	$9,576	$80
2	Asia	Men's Dress	Bangkok	1	$3,033	$20,831	$52
3	Asia	Sandal	Bangkok	1	$3,230	$15,087	$120
4	Asia	Slipper	Bangkok	1	$3,019	$16,075	$127
5	Asia	Women's Casual	Bangkok	1	$5,389	$16,251	$185
6	Asia	Boot	Seoul	17	$60,712	$160,589	$1,296
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12	Asia	Women's Casual	Seoul	2	$20,448	$36,576	$790
13	Asia	Women's Dress	Seoul	7	$78,234	$140,628	$1,891
14	Asia	Sport Shoe	Tokyo	1	$1,155	$15,602	$22

THE STYLE OPTION

The Style option permits you to change the look of the output sent to Excel. Hidden beneath each ODS output we use is a default style. When the ODS EXCEL statement is used to write an Excel workbook there is always a style used. The default STYLE is EXCEL. The ODS EXCEL STYLE= option enables you to modify that default.

Action Parameter	Options	Description
STYLE	Style-override(s)	Use a predefined style element, a collection of style changes, or a single (or group of) style name-value pair of changes.

SAS SUPPORTED STYLE OPTIONS

There is a way to determine what styles are available in your current version. The SAS Code below generates a list of the available styles. They are displayed by PROC TEMPLATE. They reside in the SASHELP.TMPLMST item store. The Table of Supported SAS Styles below contains the names of the styles supported in SAS version 9.4 1M3. The SAS code prints a list and I copied the list into the table shown here.

Generate a List of SAS Supported Styles

```
ods _all_ close;

ods listing;

   proc template;
```

```
      list styles;

   run;

quit;
```

Table of Supported SAS Styles for SAS version 9.4 1M3

List of SAS Styles Supported (SAS 9.4 1M3)			
Analysis	BarrettsBlue	BlockPrint	DTree
Daisy	Default	Dove	EGDefault
Excel	FancyPrinter	Festival	FestivalPrinter
Gantt	GrayscalePrinter	HTMLBlue	Harvest
HighContrast	HighContrastLarge	Journal	Journal1a
Journal2	Journal2a	Journal3	Journal3a
Listing	Meadow	MeadowPrinter	Minimal
MonochromePrinter	Monospace	Moonflower	Netdraw
NoFontDefault	Normal	NormalPrinter	Ocean
Pearl	PearlJ	Plateau	PowerPointDark
PowerPointLight	Printer	Raven	Rtf
Sapphire	SasDocPrinter	SasWeb	Seaside
SeasidePrinter	StatDoc	Statistical	Word
vaDark	vaHighContrast	vaLight	

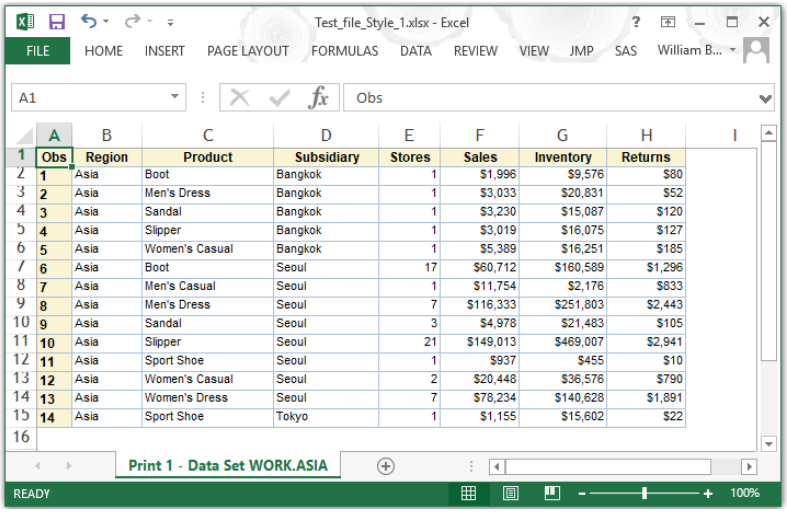
The following code writes an Excel workbook sheet using the SAS supported style called “SEASIDE”. I created the sas data set called “ASIA_ONLY” by using the SASHELP.SHOES data set and selecting only the records where REGION=”ASIA”. This allows my to show the whole worksheet on one small screen shot.

Generate an Excel Workbook with STYLE=SEASIDE

```
ods excel file = "&path.\Test_file_Style_1.xlsx"
              STYLE=SEASIDE;
Proc Print data=Asia_Only;
run;
ods excel close;
```

The default STYLE is EXCEL which produces light blue Column and Row headers. Each of the styles listed in the Table of Supported SAS Styles produces a different layout in the EXCEL workbook. I have not executed code using all of the styles, but I do know that some of the styles only have minor differences from other styles.

Figure 6-10 Excel Workbook Using the SEASIDE STYLE



Obs	Region	Product	Subsidiary	Stores	Sales	Inventory	Returns
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13	Asia	Women's Dress	Seoul	7	$78,234	$140,628	$1,891
14	Asia	Sport Shoe	Tokyo	1	$1,155	$15,602	$22

Notice the yellow Column and Row headers.

THE ODS EXCEL STYLE= OVERRIDES

There are other ways to “Stylize” your output within Excel worksheets, and some of them even have “STYLE=” as part of the name. However, styles are applied within the procedures, not the ODS statement. As a result I will list some of the different types of style overrides, but not show detailed examples. I found these examples on page 311 of SAS Institute Inc. 2016. SAS® 9.4 Output Delivery System: User’s Guide, Fifth Edition. Cary, NC: SAS Institute Inc.

There are two methods of providing style overrides. First, as a style element, which is a collection of attributes that affect some output of a SAS program. Second, as a style attribute, which is a name-value pair that describes an output behavior or visual result that you want to apply to output data. A style attribute change is the most specific way to directly change how your data looks.

General Syntax of the Style Overrides

```
/* These code segments are out of context
* The Style-override element name syntax:
style-element-name | [style-attribute-name-1=style-attribute-value-1
<style-attribute-name-2=style-attribute-value-2 ...>]
* The Style-override attribute syntax;

style={tagattr='format:$#,##0_);[Red]\($#,##0\)
formula:RC[-1]-RC[-2]'};
*/
```

These syntax descriptions in SAS Code 6-17 are out of context. These are style overrides but will not execute as coded. In order to get information about the proper way to use these SAS code structures. See SAS Institute Inc. 2016. SAS® 9.4 Output Delivery System: Procedures Guide, Third Edition. Cary, NC: SAS Institute Inc. for these and other attribute name-value pairs.

THE START_AT SUBOPTION

The syntax for the ODS Excel Destination “OPTIONS” feature follows.

ODS EXCEL OPTIONS(suboption_1=parms_1 suboption_2=parms_2 … suboption_n=parms_n);

The information about the START_AT SUBOPTION is listed below.

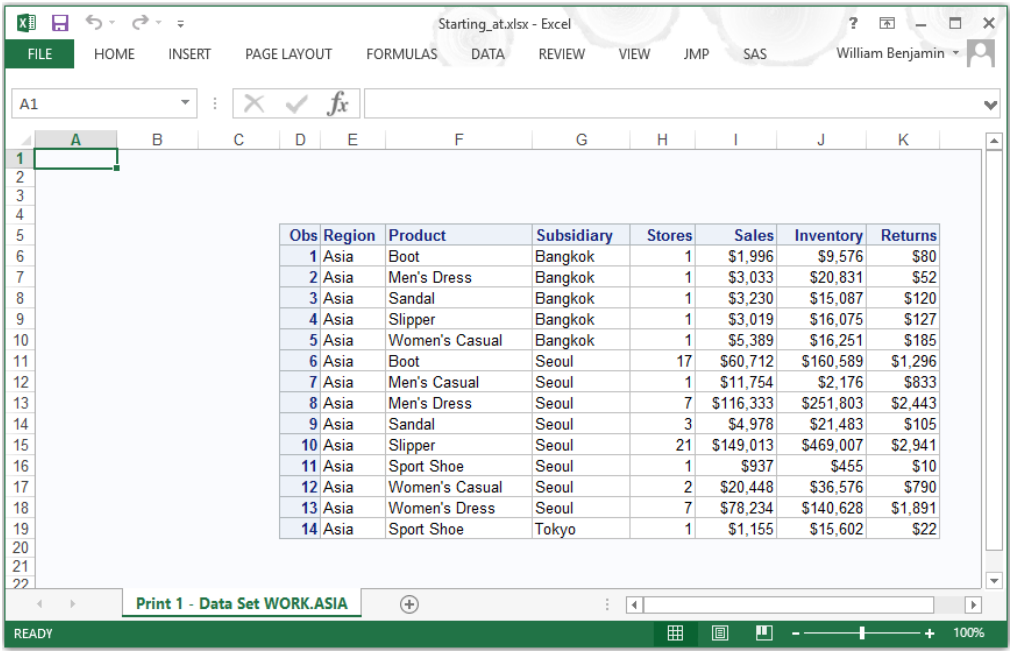
Action Parameter	Options	Description
START_AT	'x,y' where x is a row number and y is a column number. Default = '1,1'	A string that indicates the starting ROW and COLUMN in the Excel worksheet where the output data is to start being output. This cannot be changed within a sheet. SAS 9.4M4 allows the use of alphabetic characters for the 'Column' value as in 'D4'.

The START_AT= suboption is a handy way to place your output into the Excel worksheet somewhere other than the default top-left corner of the worksheet (cell A1). This suboption gives you the freedom to place the output into any row and column of your output worksheet, allowing you to move your data under rows of blank cells. CSS style sheets can be used to add images into the worksheet, and the START_AT= suboption can be used to position your data. SAS 9.4M4 also has added the ability to use alphabetic characters for the column identifiers as in cell "A1". The value '4,5' is 'Column,Row' format.

Using the START_AT= Suboption to Offset the Data within the Excel Worksheet

```
ods excel file = "&path\Starting_at.xlsx"

         options(start_at='4,5');

   proc print data=Asia_only;

  run;

ods excel close;
```

Showing the Output Data Offset to cell 'D5', Column 4, Row 5



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10	Asia	Slipper	Seoul	21	$149,013	$469,007	$2,941
11	Asia	Sport Shoe	Seoul	1	$937	$455	$10
12	Asia	Women's Casual	Seoul	2	$20,448	$36,576	$790
13	Asia	Women's Dress	Seoul	7	$78,234	$140,628	$1,891
14	Asia	Sport Shoe	Tokyo	1	$1,155	$15,602	$22

Often a company will have a logo used specifically to brand corporate Excel spreadsheets. This option gives you a way to free up space for that logo (or anything else) without having to manually move the data. See Chapter 6 for using CSS style options to add images.

CONCLUSION

Using the ID= ODS action allows you to write many different outputs with the same SAS code. Additionally, each ID= statement can have different options applied to the output Excel or other files. That means you can apply different ODS formatting, and other ODS Excel Destination options to individual outputs. The ODS Excel Destination STYLE option allows you to spruce up your output to the production level at the time the workbook is created. While it may take a little extra time to produce the first fancy workbook, any others will only require minor adjustments and save manual effort to upgrade the outputs. Finally the ODS Excel Destination START_AT suboption gives you the ability your move your data to any location inside the worksheet. This has been one of the most frequently asked questions I have gotten about sending data from SAS to Excel. This feature makes it almost effortless to do that job, without opening the workbook. Doing it while the workbook is being built is also a big time saver.

REFERENCES

SAS Institute Inc. 2016. SAS® 9.4 Output Delivery System: User's Guide, Fifth Edition. Cary, NC: SAS Institute Inc.

Benjamin, William E., Jr. 2017. *Exchanging Data From SAS to Excel: The ODS Excel Destination*. Cary, NC: SAS Institute Inc.

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