Setting Up a Different Windows Environment for Each SAS® Project

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ABSTRACT

Most users modify the autoxec.sas file in their 'My SAS Files' directory and this suits them just fine. For awhile. As a SAS® software user, chances are your employer will begin assigning you multiple projects simultaneously. If the source data for your projects are in different directories, different formats, or even on different servers with different authorizations, it could soon become quite confusing as to what is where and quite time consuming keeping everything straight, let alone initializing everything properly. Setting up a different SAS/Windows® environment for each project may be the answer.

INTRODUCTION

In addition to the AUTOEXEC.SAS file most SAS users are familiar with, there is another environment configuration file that is executed only when a new SAS session is started-SASV9.CFG. Unlike AUTOEXEC.SAS, however, it initializes some environment options that can be set **only** at session start-up. These are the options which control the SAS environment and specifies the information presented to the user through the SAS/Windows GUI interface. It is the settings and values assigned in a copy of the SASV9.CFG file and a custom Windows Shortcut specifying the location of the copy which enables the use of a customized SAS/Windows environment.

THE SASV9.CFG FILE

The presence of a SASV9.CFG is vital for the proper running of SAS/Windows. So much so most users are not allowed to modify it unless default directory permissions are changed. Users who are not working in a collaborative SAS environment (shared SAS resources such as common libraries, catalogs and macro code) can, however, modify a copy of the file which is saved elsewhere–ideally in a project directory. **There should, however, be no more than a single SASV9.CFG file for each SAS project.** Consequently, users working in a collaborative SAS environment must rely on their SAS system/project administrator to generate a custom SASV9.CFG file for each *project*–not collaborator–and save it in a location accessible *by* each collaborator. The system administrator should also determine whether a single AUTOEXEC.SAS file must be used by all collaborators or multiple AUTOEXEC.SAS files can be used and maintained by each collaborator.

As stated in the introduction, the SASV9.CFG file controls the environment and specifies information presented to the SAS user through the SAS/Windows interface. Wei Cheng's SUGI 28 paper, *Build a SAS Development Environment under Windows,* is an excellent initial resource. The paper clearly illustrates how to setup a customized shortcut and describes the variables and settings a SAS user can specify in the *Target* string to customize their environment. The most important of these settings for a custom environment is '-CONFIG' as it specifies the quoted drive, path, and 'SASV9.CFG' file which SAS uses upon initialization.

Project-specific shortcuts may be used both on a desktop and in the Windows *Start* menu. Several different project-specific shortcuts which configure different SAS/Windows environments will save time over the course of their use. In addition to different shortcuts, other icons can be specified for each shortcut, but doing so might negate their advantage unless 'SAS' is included as part of the shortcut's name.
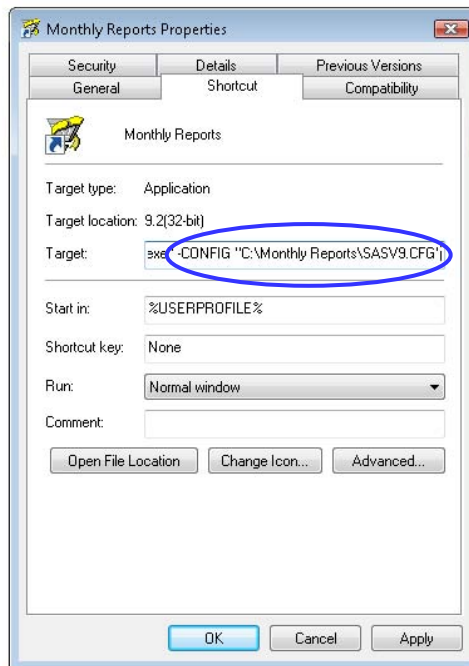
Display 1. Windows Shortcut Icon and Shortcut Properties Dialog Box

SASV9.CFG OPTIONS

CUSTOMIZED SPLASH SCREEN

George J. Hurley's SAS Global Forum 2007 paper, *Customizing Your SAS Initialization*, is a great overview of what a user is able to do when customizing an environment.

The paper mentions '-NOSPLASH' to suppress the display of the SAS splash screen. Having a customized splash screen can be, however, a great double-check that you are working in the desired custom environment. Custom splash screens are quite easy to make—all you really need is a screen-capture utility and image editor. There are quite a few good shareware screen capture applications available on the internet, and an image editor comes with every version of Windows.

Once you have a screen capture utility installed, go ahead and start a SAS session and capture SAS' splash screen:
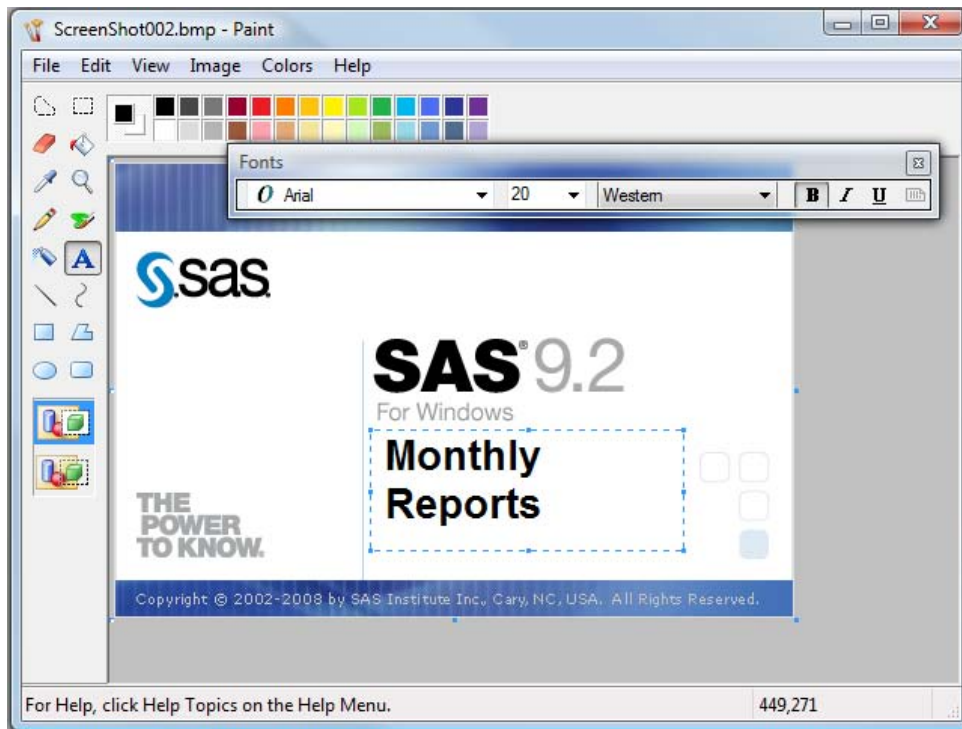

Display 2. The SAS Splash Screen

Once captured the splash screen image can be imported into any handy image application. The Windows PAINT application can be used:
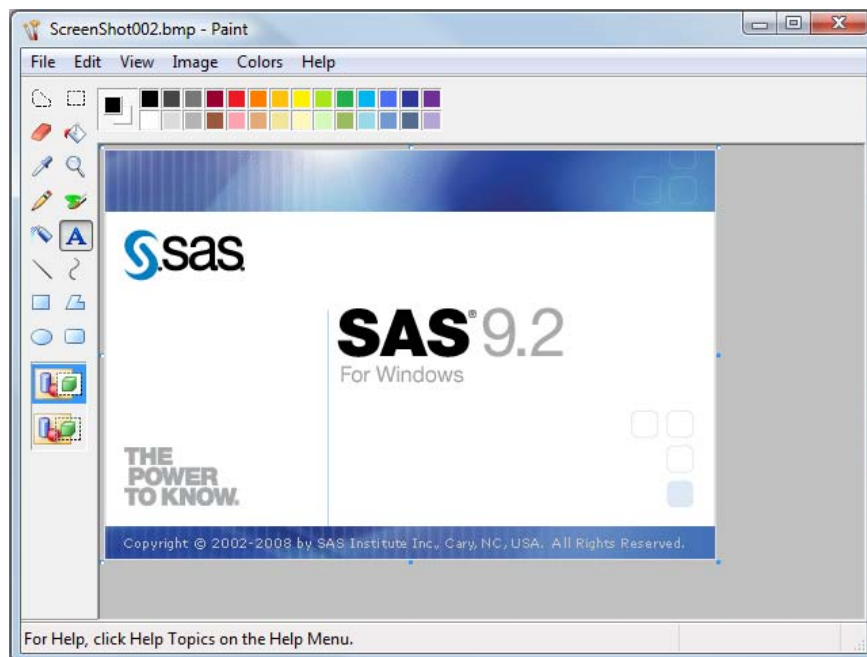
Display 3. Windows PAINT Application Screen Loaded with SAS' Splash Image

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A *text box* can be used to add the project name to the splash screen image…

Display 4. Editing SAS' Splash Image with Windows PAINT *text box*

…and save it as a .bmp file in the project directory. Once saved, the edited image can be specified as the project's splash screen with the '-SPLASHLOC' environment option in the custom SASV9.CFG file:

```
/* CUSTOMIZE ENVIRONMENT FOR MONTHLY REPORTS */

-SPLASHLOC "C:\Monthly Reports\reportsSplash.bmp"
```
Note: no option-terminating ';'

Display 5. Customized Splash Image

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CUSTOMIZED AWS TITLE

Another important environment option is '–AWSTITLE'. This setting is used to specify the title string displayed in the SAS/Windows' application frame. The generic display for SAS/Windows 9.2 is merely 'SAS'. Using something along the lines of '`-AWSTITLE "SAS: Monthly Reports"` ' would certainly remove any doubt of what a user was working on before lunch.

```
        /* CUSTOMIZE ENVIRONMENT FOR MONTHLY REPORTS */

        -SPLASHLOC "C:\Monthly Reports\reportsSplash.bmp"
        -AWSTITLE "SAS: Monthly Reports"
```
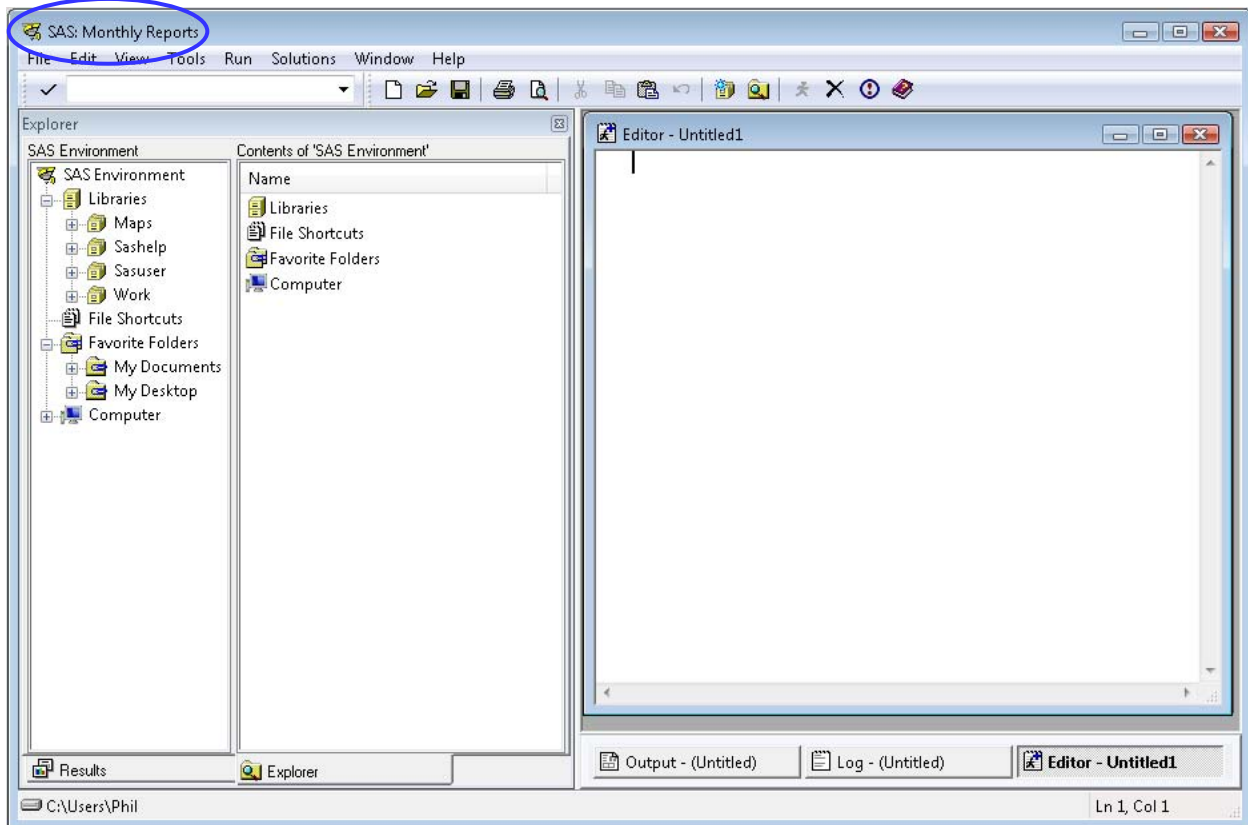

Display 6. Customized AWS Title

DEFAULT FOLDERS

There are two different methods to specify the initial default folder for a SAS/Windows session. The easiest method for a user to make this specification is to add a quoted string containing the drive and path to the *Start in:* specification of the Windows shortcut. The default value for this specification is an environment variable–%USERPROFILE%. This variable usually specifies the 'My SAS Files' folder, but users can change the specification to a project-specific folder, as long as the folder exists prior to applying the change in the Windows shortcut.
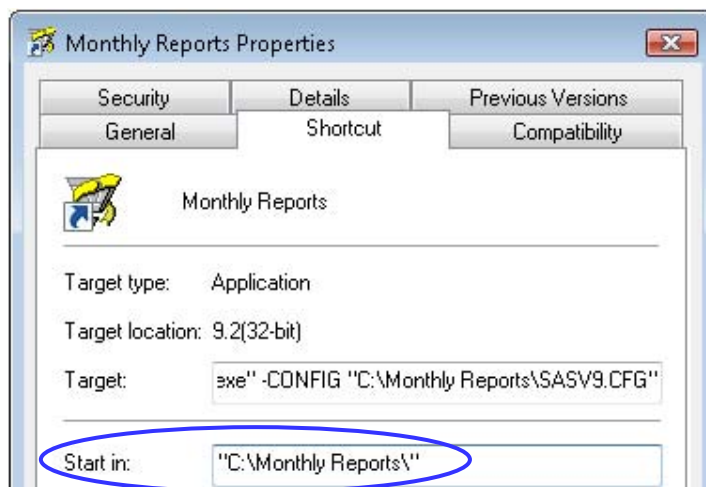
Display 7. Shortcut Specification of Initial Default Folder

The second method to specify the default SAS/Windows session folder is the use of the SASV9.CFG file option '-SASINITIALFOLDER':

```
/* CUSTOMIZE ENVIRONMENT FOR MONTHLY REPORTS */

-SPLASHLOC "C:\Monthly Reports\reportsSplash.bmp"
-AWSTITLE "SAS: Monthly Reports"
-SASINITIALFOLDER "C:\Monthly Reports"
```

Whereas the Windows Shortcut method is fine for non-collaborative users, the SASV9.CFG method is better-suited for collaborative environments as it would be specified by the system/project administrator and overrides the Windows Shortcut specification.

SESSION LOGGING

The next two configuration options are quite simple but, when used together, provide some extremely useful output: -ALTLOG and -ALTPRINT. These options specify files where the SAS/Windows session saves copies of the ASCII text versions of log output and print output respectively. When both specify the **same** output file the file subsequently documents exactly when, how, and what information was generated—There is no longer a need to follow the session flow with two different files. This can be especially useful when debugging session crashes as the file is still available after a session closes.

The output is rather raw as far as formatting goes, but as documentation for the processing session it is hard to beat, especially given how little effort takes:

```
/* CUSTOMIZE ENVIRONMENT FOR MONTHLY REPORTS */

-SPLASHLOC "C:\Monthly Reports\reportsSplash.bmp"
-AWSTITLE "SAS: Monthly Reports"
-SASINITIALFOLDER "C:\Monthly Reports"
-ALTLOG "C:\Monthly Reports\session_info.txt"
-ALPRINT "C:\Monthly Reports\session_info.txt"
```

Submitting the following code:

```
proc contents
    data = sashelp.class
    varnum
;
run ;

proc means
    data = sashelp.class
;
var
    _NUMERIC_
;
run ;
```

Generates:

```
NOTE: Copyright (c) 2002-2008 by SAS Institute Inc., Cary, NC, USA.
NOTE: SAS (r) Proprietary Software 9.2 (TS2M0)
      Licensed to UNIVERSITY OF MICHIGAN-T&R, Site 70006787.
NOTE: This session is executing on the W32_VSPRO  platform.



NOTE: SAS initialization used:
      real time           3.66 seconds
      cpu time            2.19 seconds

1    proc contents
2       data = sashelp.class
3       varnum
4    ;
```

```
5    run ;
```

```
                                    The SAS System          02:59 Tuesday, August 10, 2010    1

                        The CONTENTS Procedure
```

Data Set Name	SASHELP.CLASS	Observations	19
Member Type	DATA	Variables	5
Engine	V9	Indexes	0
Created	Monday, December 22, 2008 01:44:42 PM	Observation Length	40
Last Modified	Monday, December 22, 2008 01:44:42 PM	Deleted Observations	0
Protection		Compressed	NO
Data Set Type		Sorted	NO
Label	Student Data		
Data Representation	WINDOWS_32		
Encoding	us-ascii ASCII (ANSI)		

```
                        Engine/Host Dependent Information
```

```
Data Set Page Size          4096
Number of Data Set Pages    1
First Data Page             1
Max Obs per Page            101
Obs in First Data Page      19
Number of Data Set Repairs  0
Filename                    C:\Program
                            Files\SAS\SASFoundation\9.2(32-bit)\core\sashelp\class.sas7bdat
Release Created             9.0202M0
Host Created                XP_PRO
```
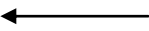
```
                        Variables in Creation Order
```

```
                    #    Variable    Type    Len
                    1    Name        Char      8
                    2    Sex         Char      1
                    3    Age         Num       8
                    4    Height      Num       8
                    5    Weight      Num       8
NOTE: PROCEDURE CONTENTS used (Total process time):
      real time           0.92 seconds
      cpu time            0.17 seconds
```

```
6
7    proc means
8       data = sashelp.class
9    ;
10   var
11      _NUMERIC_
12   ;
13   run ;
```

Output from previous step ends:
Code for next step begins

```
                                    The SAS System          02:59 Tuesday, August 10, 2010    2

                        The MEANS Procedure
```

Variable	N	Mean	Std Dev	Minimum	Maximum
Age	19	13.3157895	1.4926722	11.0000000	16.0000000

```
        Height      19      62.3368421      5.1270752      51.3000000      72.0000000
        Weight      19     100.0263158     22.7739335      50.5000000     150.0000000
_____
```

```
NOTE: There were 19 observations read from the data set SASHELP.CLASS.
NOTE: PROCEDURE MEANS used (Total process time):
      real time           0.46 seconds
      cpu time            0.06 seconds
```

As stated, not the best looking output, but there is no mistaking what code in the log window generated the information in the output window.

Experienced SAS users will probably notice using –ALTLOG and –ALTPRINT in the above manner has a significant drawback—a subsequent SAS/Windows session will overwrite the files from the previous session. As the names for the files are specified *during* SAS initialization, macro variable date and datetime values are not yet available for use as part of the file names–Instead, Windows environment variables can be used. Detailed usage of Windows environment variables is currently beyond the scope of this paper. There are, however, at least two papers which discuss the use of Windows environment variables with SAS available on SAS' Support web site:

Peter Crawford's SAS Global Forum 2007 paper, *EASY SAS Customisation,* is also an excellent place to start looking at what exactly can done with not only the SASV9.CFG file but also with Windows environment variables.

Clark Thatcher's SAS Global Forum 2010 paper, *Make Your SAS Code Environmentally Aware,* also demonstrates integrating SAS with the local environment through both environment variables and code.

SOURCE CONTROL MANAGEMENT

Although not a SASV9.CFG option, Source Control Management(SCM) can be an important aspect of a development environment for an individual user working on an extremely large and complex project. SCM, when properly implemented, allows the individual user to quickly retrieve the last saved version of working code. In a collaborative environment, SCM is a necessity as it allows for all collaborators to modify and test versions of code sections without impacting the development of other collaborators.

The SCM utility included with SAS/Windows is a SAS/AF® application and can be implemented for both the individual and collaborative user. Once again, the primary difference for individual and collaborative users is the involvement of a system/project administrator. Whereas the individual user can implement the SCM utility and configure it for only their system, the system/project administrator must implement SCM in conjunction with a SAS/SHARE® server. The server manages the rights and permissions of the SAS resources of the project and collaborators.

SCM implementation is, however, moderately involved for both the individual and collaborative user alike. Including details for implementing SCM would exceed the *Conference Proceedings* limits for this paper. In addition to SAS' on-line documentation itself, there are, again, a few good papers already available on SAS' Support web site. Larry Altmayer's description for the use of SAS' SCM utility in the development of a system that processes over 100 current economic systems in his paper Everyone Trying to Update at the Same Time? Let's Try the Source Control Manager! provides an excellent overview.

CONCLUSION

The goal of this paper was to bring together information regarding the SAS/Windows environment from several other papers with a focus on what an individual user, or for a collaborative project a system/project administrator, can do to create a custom, project-oriented environment with relatively little effort (with the exception of Source Control Management) and show the value added. The creation and use of a custom SASV9.CFG file was described. Specifying environment options -SPLASHLOC, -AWSTITLE, -SASINITIALFOLDER, -ALTLOG and –ALTPRINT was described. In addition, the important environment consideration of Source Control Management was touched upon.

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