SAS® GLOBAL FORUM 2016

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Considerations in Organizing the Structure of SAS® Macro Libraries

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Overview of a SAS Macro System

There are 2 kind of files that compose most simple systems: a driver file and SAS code files.

1. A driver file directs what is going on. It calls in SAS code files. The driver file is submitted to run most systems.
2. The SAS Code files
   -some of these are in development areas
   -some of these are in production areas when they mature. Access to production area is restricted to administrators
3. Some SAS code files are “Core” files. They usually contain all or nearly all of the code to run the system.
4. Some SAS code files are “Supplemental” files. They contain a limited number of lines of code that are called in by the “Core” files to fill small voids. Creative use of these can limit cluttering up the “Core” code areas with multiple versions of “Core” files that are nearly identical

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What is in a “Driver File”

1. A Header (Banner) that gives filename, version, author, purpose, etc.
2. %include statements to bring in files from the Development and/or Production area
   These may be core or supplemental file
   These files may contain SAS code (nonmacro) or SAS code that has macros.
   If the sasautocall feature is being used and the files being brought in are named by the name of the macro they contain.
   They do NOT need to be “%included”.
3. Assorted SAS system and macro options (make an effort to turn these on and off in the driver. They are much easier to maintain if they are set here rather than downstream in an obscure place.
4. Operational details regarding the SAS autocall capability. These are listed on the next slide

IMPORTANT: AVOID PLACING ACTUAL SAS CODE (MACRO OR NONMACRO) IN THE DRIVER FILE. Place it in the Development and Production areas.

ONLY DRIVER (CONTROLLING) TYPES OF ACTIVITIES SHOULD BE HERE

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What is in the “SASAUTOS” part of the “Driver File”

1. A Header (Banner) that gives filename, version, author, purpose, etc
2. Options mautosource;
3. Setup directory order to search for named macro files

```
Options mautosource;
options sasautos=('C:\Users\RogerMuller\Documents\My SAS Files\Project_A\Development\Supplement\’
'C:\Users\RogerMuller\Documents\My SAS Files\Project_A\Development\Core\’
‘z:\Master\ResearchDivision\Production\Supplement\’ ‘z:\Master\Research Dvision\Production\Core\' sasautos);
```

4. Turn on the option to report back location of file used for autocall macro compilation

```
Options mautolocdisplay;
```

IMPORTANT: This should ALWAYS be used if sasautos are used to call macros in files of the macro name.
See the next slide.

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Example of statement on log if mautolocdisplay is on

```
127  %prtspeed;     *this is the macro being called by the sasautos
127! sort order;
MAUTOLOCDISPLAY(PRTSPEED):  This macro was compiled from the autocall
                            file C:\Users\RogerMuller\Documents\My
                            SAS Files\SAS
                            EG\SGF_2014_Paper_226\Macros\Macro_Code_Co
                            rporate\prtspeed.sas

NOTE: There were 3 observations read from the data set
      WORK.INDY_SPEEDS.
NOTE: PROCEDURE PRINT used (Total process time):
      real time               0.03 seconds
      cpu time                0.00 seconds
```

Slick! You can see which file was compiled. Remember SAS went through the sasautos order directory by directory and used the first file it found with the macro name being the same as the filename.

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What is in a “Core Code File”

1. SAS Code (non-macro)
2. SAS Code (containing macro definitions)
3. Macro calls (note that these may also be in driver files)
4. And other assorted odds and ends

Core code files contain the bulk of the code of the system.
We try to avoid making multiple copies of these files with only slightly different content.
Rather we use supplemental files to do small one-off things

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What is in a “Supplemental Code File”

1. SAS Code (non-macro)
2. SAS Code (macro)
3. Macro calls

Usually, these files contain very few lines of code.

Core code files contain the bulk of the code of the system. Supplemental files fill in voids. When cleverly used they avoid cluttering up the system with multiple core files with very slight differences between them.

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- See proceedings paper for much more detail.
- See Youtube channel for accompanying video with this technique in action (details on linking are in paper)

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END