SAS® FORUM
UNITED KINGDOM 2015

Troubleshooting your SAS Environment – A Users Perspective

Technical Tips Stream

Presenter: Matt Lomas

sas THE POWER TO KNOW.

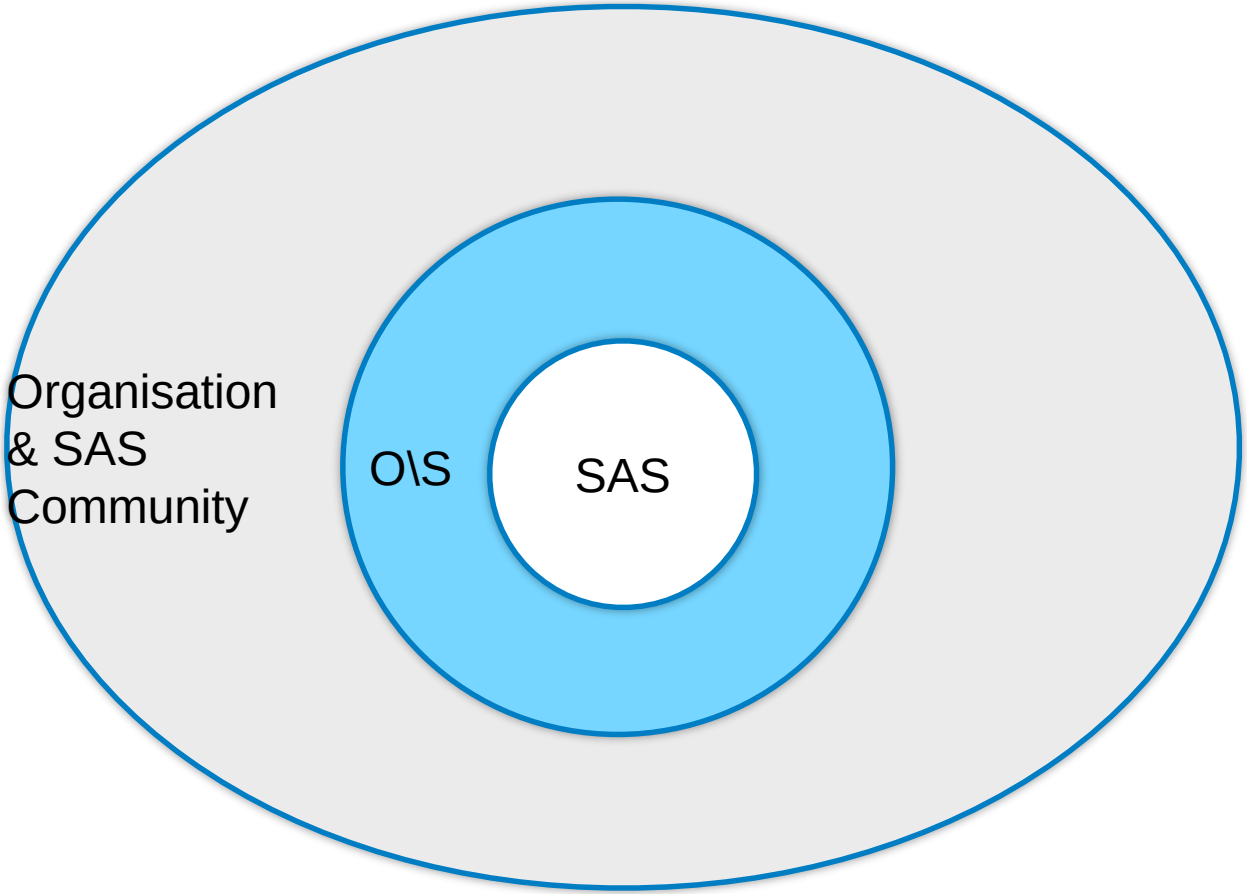
Presenter Bio

- 16 years in the IT industry.
- 11 years focused on SAS technologies starting off as a consultant out of the SAS UK Marlow office.
- Founder of LCI Consulting who have been helping enable organisational intelligence using the SAS Platform for the last 8 years.

Agenda

- The SAS Environment & User Applications
- The SAS Log & Log4SAS
- Reviewing SAS Session Information
- Requesting SAS Session Information
- Using SAS Session Information
- Q&A

The SAS Environment



User Applications

- Interactive Line Mode
- DMS (BASE)
- Enterprise Guide
- Enterprise Miner
- Visual Analytics
- Enterprise Data Integration Suite
- ~~Enterprise BI Suite~~
- Running A SAS Grid?

Enterprise Guide Options - Example

SAS Enterprise Guide - ee.review.and.planning.egp

File Edit View Tasks Program Tools Help ACT.Investigation

Project Tree

- ACT.Investigation
  - metadata.function.information.sas.supp
  - Programs
    - create.act
    - apply.act
    - remove.applied.act
    - remove.demotable.and.act
- EE.Data.Processing.Jobs.Review
  - MART_CCAHVS_INVENTORY
    - Filter and Sort
    - Query Builder
    - One-Way Frequencies
  - EE Conventions for SAS Developers
  - Programs
    - Job count by meta tree
    - Table count by meta tree
    - Program

Server List

Refresh Disconnect Stop

- Servers
- OLAP Servers
- Private OLAP Servers

ACT.Investigation

Run Stop Export Schedule Zoom Project Log Properties

create.act
apply.act
remove.ap...
remove.de...
metadata....

Options

General
Project Views
Project Recovery
Results
Results General
Viewer
SAS Report
HTML
RTF
PDF
Graph
Stored Process
Data
Data General
Performance
Query
OLAP Data
Tasks
Tasks General
Custom Code
Output Library
SAS Programs
Security
Administration

SAS Programs

General

Close all open data before running code

Editor Options...

Additional SAS code

Insert custom SAS code before submitted code Edit...

Insert custom SAS code after submitted code Edit...

Submit SAS code when server is connected Edit...

Edit

```
/* Insert custom code before submitted code here */

%assign_lib(library=mylib);

%ccahv2_setup;
```

Save Cancel

Enables you to create or edit your custom code.

More (F1)...

Reset All OK Cancel

Enterprise Guide Options - Example

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SAS Programs

General

Close all open data before running code

Editor Options...

Additional SAS code

Insert custom SAS code before submitted code — Edit...

Insert custom SAS code after submitted code — Edit...

Submit SAS code when server is connected — Edit...

Edit

```
/* Insert custom code after submitted code here */
%put _all_;
options nosource;
%put START_JOB:%sysfunc(datetime(),datetime22.);
%put HOST:   &SYSTCPIPHOSTNAME.;
%put USER:   &SYSUSERID.;
%put PID:    &SYSJOBID.;
%put %sysfunc(getoption(WORK));
options source;
```

Save Cancel

Enables you to create or edit your custom code.

More (F1)...

Reset All OK Cancel

Enterprise Guide Options - Example

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  Tasks General
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SAS Programs

General

- [x] Close all open data before running code

Editor Options...

Additional SAS code

- [x] Insert custom SAS code before submitted code — Edit...
- [x] Insert custom SAS code after submitted code — Edit...
- [x] Submit SAS code when server is connected — Edit...

Edit

```
/* Insert custom code after server connection here */
%put _all_;
options nosource;
%put STOP_JOB:%sysfunc(datetime(),datetime22.);
%put HOST:   &SYSTCPIPHOSTNAME.;
%put USER:   &SYSUSERID.;
%put PID:    &SYSJOBID.;
%put %sysfunc(getoption(WORK));
options source;
```

Save Cancel

Enables you to create or edit your custom code.

More (F1)...

Reset All OK Cancel

The SAS Log - Example

```
NOTE: Copyright (c) 2007-2008 by SAS Institute Inc., Cary, NC, USA.  1
NOTE: SAS (r) 9.2 (TS1B0) 2
      Licensed to SAS Institute Inc., Site 0000000001.  3
NOTE: This session is executing on the XP_PRO platform.  4


NOTE: SAS initialization used:
      real time           4.20 seconds
      cpu time            1.18 seconds

1     options pagesize=24 linesize=64 nodate;  5
2
3     data logsample;  6
4        infile '/u/abcdef/testdir/sampledata.dat';
5        input LastName $ 1-12 ID $ Gender $ Birth : date7.  7
5   ! score1 score2 score3
6                                                          score
6   ! 4 score5 score6;
7        format Birth mmddyy8.;
8     run;

NOTE: The infile '/u/abcdef/testdir/sampledata.dat' is:  8
      Filename=/u/abcdef/testdir/sampledata.dat,
      Owner Name=abcdef,Group Name=pubs,
```

The SAS Log

Appending to or Replacing the SAS Log

If you specify a destination for the SAS log in the LOG= system option, SAS verifies if a SAS log already exists. If the log does exist, you can specify how content is written to the SAS log by using the OPEN= option of the LOGPARM= system option:

OPEN=APPEND
appends the SAS log content to the existing SAS log

OPEN=REPLACE
replaces the existing SAS log

OPEN=REPLACEOLD
replace the existing SAS log if it is older than 24 hours

In the following SAS command, both the LOG= and LOGPARM= system options are specified in order to replace an existing SAS log that is more than one day old:

```
sas -sysin "my-batch-program" -log "c:\sas\SASlogs\mylog"
    -logparm open=replaceold
```

The OPEN= option is ignored when the ROLLOVER= option of the LOGPARM= system option is set to a specific size, *n*.

The SAS Log

Specifying When to Write to the SAS Log

Content can be written to the SAS log either as the log content is produced or it can be buffered and written when the buffer is full. By default, SAS writes to the log when the log buffer is full. By buffering the log content, SAS performs more efficiently by writing to the log file periodically instead of writing one line at a time.

Operating Environment Information: Under Windows, the buffered log contents are written periodically, using a SAS-specified interval.

You use the WRITE= option of the LOGPARM= system option to configure when the SAS log contents are written. Set LOGPARM="WRITE=IMMEDIATE" for the log content to be written as it is produced and set LOGPARM="WRITE=BUFFERED" for the log content to be written when the buffer is full.

The SAS Log

Altering the Contents of the Log

When you have large SAS production programs or an application that you run on a regular basis without changes, you might want to suppress part of the log. SAS system options enable you to suppress SAS statements and system messages, as well as to limit the number of error messages. Note that all SAS system options remain in effect for the duration of your session or until you change the options. You should not suppress log messages until you have successfully executed the program without errors.

The following list describes some of the SAS system options that you can use to alter the contents of the log:

Commonly Used:

FULLSTIMER

writes a subset of system performance statistics to the SAS log.

MLOGIC

writes macro execution trace information to the SAS log.

MPRINT | NOMPRINT

specifies whether SAS statements that are generated by macro execution are written to the SAS log.

SOURCE | NOSOURCE

specifies whether SAS writes source statements to the SAS log.

Reviewing Session Information

- Interactively in an App - open a table.
  - SASHELP data library VOPTION.
- Output to the Log
- Proc Options Statement - list current settings of the SAS System in the Log.
- %PUT _ALL_ - list the all current macro variables including automatic and global.
- GETOPTION Function - %PUT %SYSFUNC(GETOPTION(WORK));
- SYSJOBID, SYSTCPIPHOSTNAME, SYSHOSTNAME

Reviewing Session Information

Writing to the Log in All Modes

In all modes, you can instruct SAS to write additional information to the log by using the following statements:

PUT statement

writes selected lines (including text strings and DATA step variable values) to the SAS log in the current iteration of a DATA step. If a FILE statement with the LOG destination executes before a PUT statement, the PUT statement output is directed to a destination that is specified by the FILE statement.

%PUT statement

enables you to write a text string or macro variable values to the SAS log. %PUT is a SAS macro program statement that is independent of the DATA step and can be used anywhere.

PUTLOG statement

writes a user-specified message to the SAS log. Use the PUTLOG statement in a DATA step.

LIST statement

writes to the SAS log the input data records for the data line that is being processed. The LIST statement operates only on data that are read with an INPUT statement. It has no effect on data that are read with a SET, MERGE, MODIFY, or UPDATE statement. Use the LIST statement in a DATA step.

DATA statement with /NESTING option

writes to the SAS log a note for the beginning and end for each nesting level of DO-END and SELECT-END statements. This enables you to debug mismatched DO-END and SELECT-END statements.

ERROR statement

sets the automatic _ERROR_ variable to 1 and (OPTIONAL) writes to the log a message that you specify. Use the ERROR statement in a DATA step.

Use the PUT, PUTLOG, LIST, DATA, and ERROR statements in combination with conditional processing to debug DATA steps by writing selected information to the log.

Requesting Information

- Updates to existing or new.
- Is there a request process?
- BAU or project request?
- Impact of an environment with mixed BAU and project work - split out needed?
- Organisation approvers

Using Information - Macro Tracker

Add to the macros to be tracked:

```
%macro [name](parameters…) / PBUFF;
..
%local macro;
%let macro=&SYSMACRONAME;
%let parms=&SYSPBUFF;
%tracker(Macro, &MACRO, &PARMS);
```

Using Information - Macro Tracker

```
%macro tracker(action, description, parameters);
option nonotes;
filename mtrack
mtrack_&DESCRIPTION_USER.&SYSUSERID._dts.&SYSDATE9.&SYSTIME..log
data _null_;
file mtrack ;
put “Action=upcase(“&ACTION”), Description=upcase("&DESCRIPTION")
, parameters=upcase(“&PARAMETERS”),
User=upcase(“SYSUSERID”),datetime=dhms(today(),0,0,time());
quit;option notes;%mend;
```

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Thank you for attending - Q&A

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