Wondered what it would be like to be a host:

Welcome

to

FCMP*fest* 2011!

…just kidding.

Two More Tools for Efficient Processing in UNIX Environments:

I. The SAS PC Files Server(PCFS)
II. The SASFILE Statement

By

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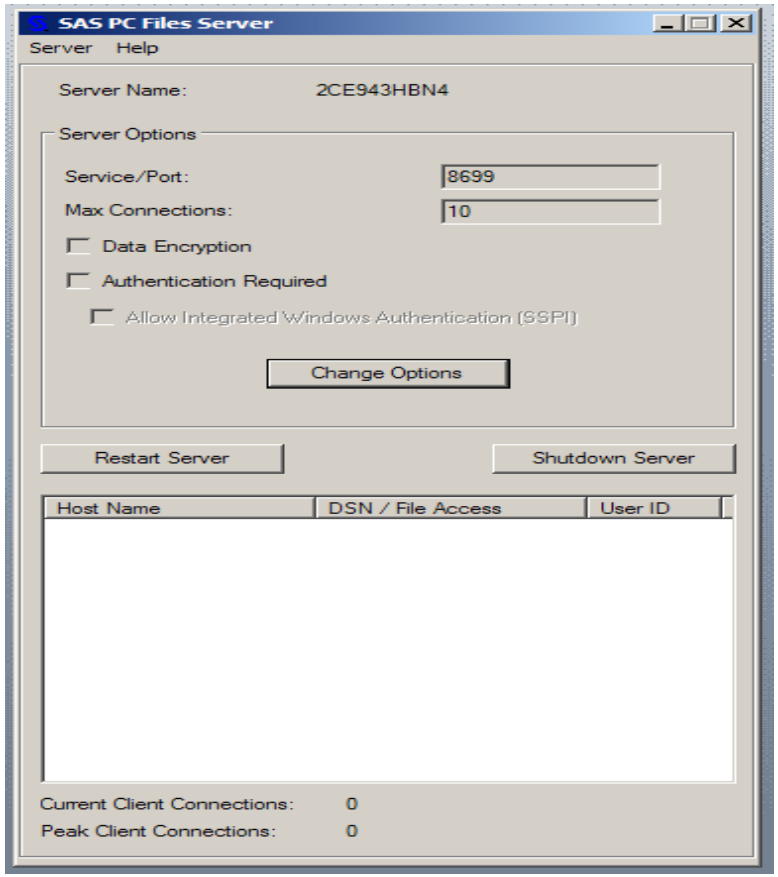
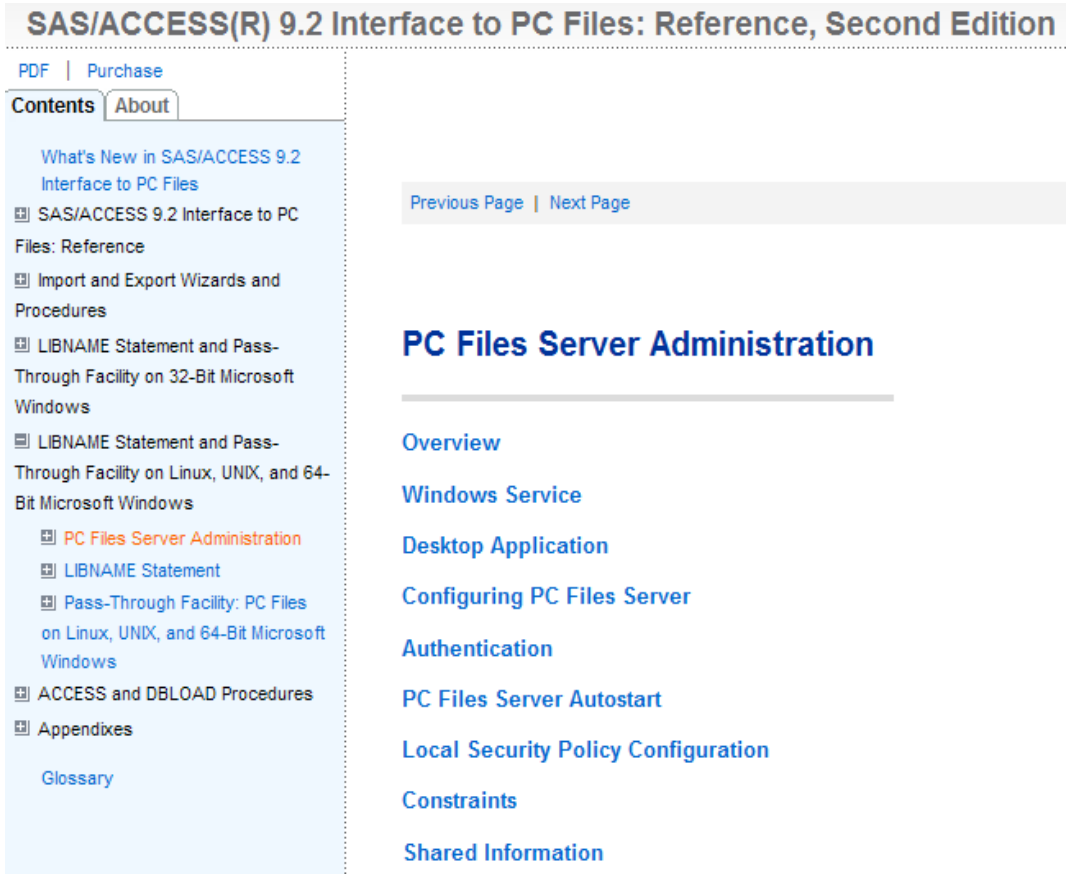
The SAS PC Files Server – an Introduction

A. A SAS for Windows Application

1. Download link - SAS PC Files Server v9.3 download page

2. Documentation - LIBNAME PCFILES Engine and PC Files Server on Windows, v9.2





B. SAS/ACCESS Interface to PC Files required

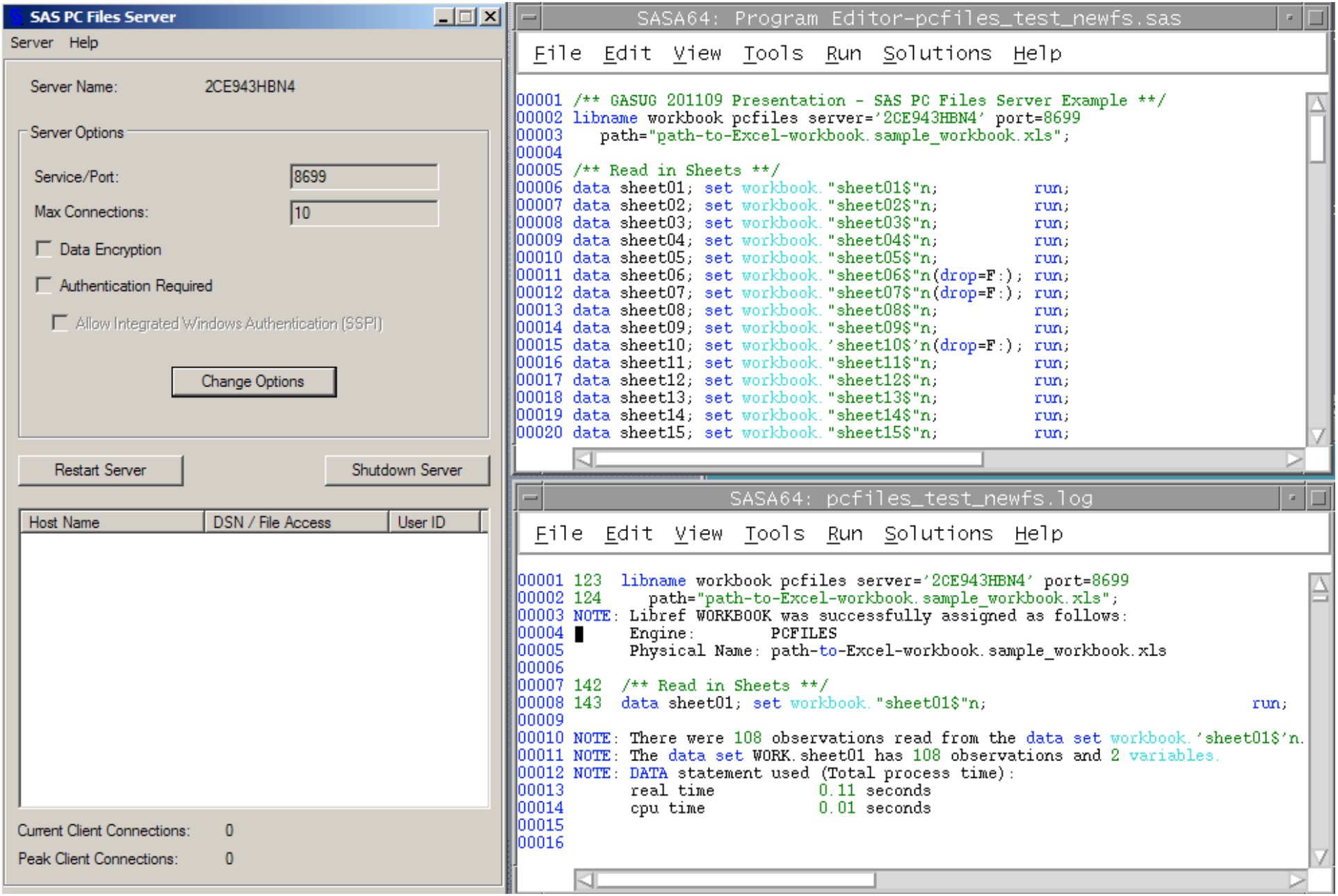
1. It's a SAS Product
2. Runs on 64-bit UNIX, Linux, or Windows
3. Allows access to PC Files in these formats

a. MS Access	b. Lotus 1-2-3	c. JMP	d. Stata
e. MS Excel	f. DBF	g. SPSS	h. Paradox

4. Access PC Files by these methods
   a. Import/Export wizards or procedures
   b. Pass-through facility
   c. PC Files Server
   d. DBLoad Procedure
   e. DBF and DIF Procedures

Experienced with these formats or methods

An Example(path is to Windows folder)



Recap

A. Download SAS PC Files Server from SAS site and install – PCFS version and SAS/ACCESS for PC Files version must match

B. Read the online documentation available at SAS support – nice overview, configuration of server, using PCFILES engine, get familiar with requirements before going to IT support

C. Verify client running SAS System can connect to PC running PC Files Server – my client SAS sessions cannot connect to the PCFS, possible firewall issues(no connections listed in example)

D. Start up PC Files Server on laptop – desktop application or a service

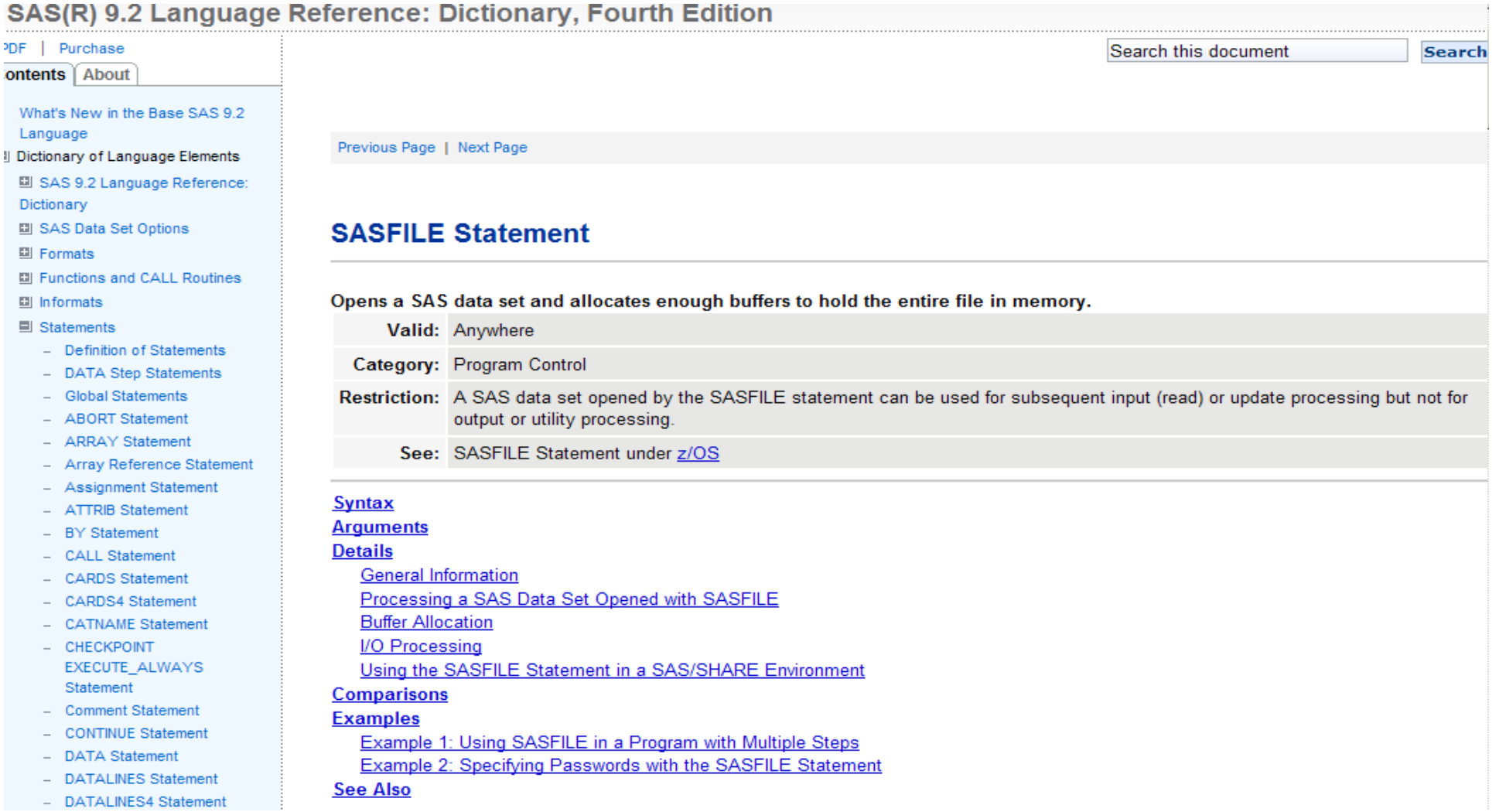
E. Define SAS libraries on client using PCFILES engine – server, port, path to PC file

F. Start reading and writing PC Files from 64-bit UNIX environments - without PC SAS

Introduction to the SASFILE statement

A. Using memory to forget about I/O constraints

B. Documentation - SASFILE Statement



SAS(R) 9.2 Language Reference: Dictionary, Fourth Edition

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What's New in the Base SAS 9.2 Language

Dictionary of Language Elements

SAS 9.2 Language Reference: Dictionary

SAS Data Set Options

Formats

Functions and CALL Routines

Informats

Statements

- Definition of Statements
- DATA Step Statements
- Global Statements
- ABORT Statement
- ARRAY Statement
- Array Reference Statement
- Assignment Statement
- ATTRIB Statement
- BY Statement
- CALL Statement
- CARDS Statement
- CARDS4 Statement
- CATNAME Statement
- CHECKPOINT EXECUTE_ALWAYS Statement
- Comment Statement
- CONTINUE Statement
- DATA Statement
- DATALINES Statement
- DATALINES4 Statement

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SASFILE Statement

Opens a SAS data set and allocates enough buffers to hold the entire file in memory.

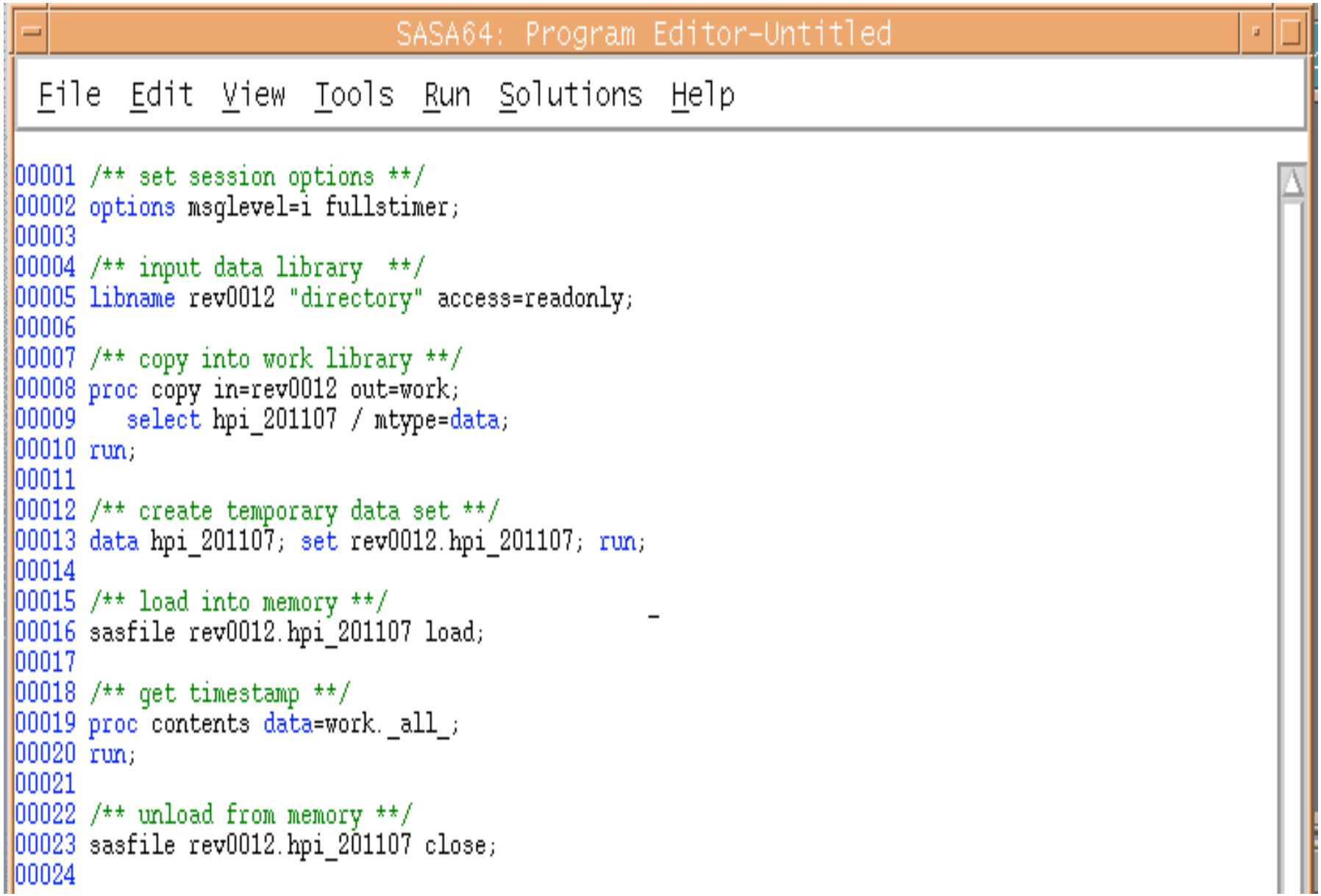
Valid:	Anywhere
Category:	Program Control
Restriction:	A SAS data set opened by the SASFILE statement can be used for subsequent input (read) or update processing but not for output or utility processing.
See:	SASFILE Statement under z/OS

Syntax
Arguments
Details
- General Information
- Processing a SAS Data Set Opened with SASFILE
- Buffer Allocation
- I/O Processing
- Using the SASFILE Statement in a SAS/SHARE Environment

Comparisons
Examples
- Example 1: Using SASFILE in a Program with Multiple Steps
- Example 2: Specifying Passwords with the SASFILE Statement

See Also

An Example(the code)



An Example(Process information)

TOP Command Snapshots(for first run)

```
System: server                                          Tue Sep 13 10:33:09 2011
CPU TTY      PID USERNAME PRI NI   SIZE    RES STATE    TIME %WCPU  %CPU COMMAND
15 pts/4   16815 uggh26   152 24   146M 17928K run      0:19 13.89 13.86 sas(1)
15 pts/4   16815 uggh26   152 24   149M 18096K run      0:22 10.25 10.23 sas(2)
15 pts/4   16815 uggh26   152 24   482M   351M run      0:23  2.78  2.78 sas(3)
15 pts/4   16815 uggh26   152 24   156M 25056K run      0:23  0.73  0.72 sas(4)
```

(1) – PROC COPY

(2) – DATA STEP

(3) – SASFILE LOAD

(4) – SASFILE CLOSE

An Example(Run 2 Log)

```
30    /** set session options **/
31    options msglevel=i fullstimer;
32    /** input data library  **/
33    libname rev0012 "/fs008/lossmodel/201107/rev0012" access=readonly;
NOTE: Libref REV0012 was successfully assigned as follows:
      Engine:          V9
      Physical Name: /fs008/lossmodel/201107/rev0012
34    /** copy into work library **/
35    proc copy in=rev0012 out=work;
36       select hpi_201107 / mtype=data;
37    run;

NOTE: Copying REV0012.HPI_201107 to WORK.HPI_201107 (memtype=DATA).
INFO: Engine's block-read method is in use.
INFO: Engine's block-write  method is in use.
INFO: Multiple concurrent threads will be used to create the index.
NOTE: Simple index match_key has been defined.
NOTE: There were 1544832 observations read from the data set REV0012.HPI_201107.
NOTE: The data set WORK.HPI_201107 has 1544832 observations and 21 variables.
NOTE: PROCEDURE COPY used (Total process time):
      real time               3.59 seconds
      user cpu time           2.49 seconds
      system cpu time         2.10 seconds
      Memory                                  100209k
      OS Memory                               115144k
      Timestamp               9/13/2011  10:39:29 AM
      Page Faults                             0
      Page Reclaims                           0
      Page Swaps                              0
      Voluntary Context Switches              2151
      Involuntary Context Switches            100
      Block Input Operations                  0
      Block Output Operations                 3204


38    /** create temporary data set **/
39    data hpi_201107; set rev0012.hpi_201107; run;

NOTE: There were 1544832 observations read from the data set REV0012.HPI_201107.
NOTE: The data set WORK.HPI_201107 has 1544832 observations and 21 variables.
NOTE: DATA statement used (Total process time):
      real time               2.39 seconds
      user cpu time           0.92 seconds
      system cpu time         1.46 seconds
      Memory                                  404k
      OS Memory                               16168k
      Timestamp               9/13/2011  10:39:32 AM
      Page Faults                             0
      Page Reclaims                           0
      Page Swaps                              0
      Voluntary Context Switches              21
      Involuntary Context Switches            53
      Block Input Operations                  0
      Block Output Operations                 1
```

An Example(Run 2 Log - continued)

```
40    /** load into memory **/
41    sasfile rev0012.hpi_201107 load;
NOTE: The file REV0012.HPI_201107.DATA has been loaded into memory by the SASFILE
42    /** get timestamp **/
43    proc contents data=work._all_;
44    run;

NOTE: PROCEDURE CONTENTS used (Total process time):
      real time               0.05 seconds
      user cpu time           0.05 seconds
      system cpu time         0.01 seconds
      Memory                                359k
      OS Memory                             342888k
      Timestamp                9/13/2011  10:39:34 AM
      Page Faults                           0
      Page Reclaims                         0
      Page Swaps                            0
      Voluntary Context Switches            5
      Involuntary Context Switches          1
      Block Input Operations                0
      Block Output Operations               0


45    /** unload from memory **/
46    sasfile rev0012.hpi_201107 close;
NOTE: The file REV0012.HPI_201107.DATA has been closed by the SASFILE statement.
```

A Second Example

SASA64: Program Editor-Untitled

File Edit View Tools Run Solutions Help

```
00001 /** create temporary data set **/
00002 data hpi_201107; set rev0012.hpi_201107; run;
00003
00004 /** load into memory **/
00005 sasfile rev0012.hpi_201107 load;
00006 sasfile hpi_201107 load;
00007
00008 /** append original data loaded in memory to
00009     temporary data set in memory **/
00010 proc append base=hpi_201107 data=rev0012.hpi_201107; run;
00011 proc append base=hpi_201107 data=rev0012.hpi_201107; run;
00012 proc append base=hpi_201107 data=rev0012.hpi_201107; run;
00013 proc append base=hpi_201107 data=rev0012.hpi_201107; run;
00014 proc append base=hpi_201107 data=rev0012.hpi_201107; run;
00015
00016 /** unload from memory **/
00017 sasfile rev0012.hpi_201107 close;
00018 sasfile hpi_201107 close;
00019
```

A Second Example(Log)

```
47    /** create temporary data set **/
48    data hpi_201107; set rev0012.hpi_201107; run;

NOTE: There were 1544832 observations read from the data set REV0012.HPI_201107.
NOTE: The data set WORK.HPI_201107 has 1544832 observations and 21 variables.
NOTE: DATA statement used (Total process time):
      real time             4.53 seconds
      user cpu time         0.94 seconds
      system cpu time       1.97 seconds
      Memory                                 427k
      OS Memory                              16168k
      Timestamp               9/13/2011   10:54:42 AM
      Page Faults                            0
      Page Reclaims                          0
      Page Swaps                             0
      Voluntary Context Switches             468
      Involuntary Context Switches           71
      Block Input Operations                 0
      Block Output Operations                1


49    /** load into memory **/
50    sasfile rev0012.hpi_201107 load;
NOTE: The file REV0012.HPI_201107.DATA has been loaded into memory by the SASFILE
51    sasfile hpi_201107 load;
NOTE: The file WORK.HPI_201107.DATA has been loaded into memory by the SASFILE st
52    /** append original data loaded in memory to
53        temporary data set in memory **/
54    proc append base=hpi_201107 data=rev0012.hpi_201107; run;

NOTE: Appending REV0012.HPI_201107 to WORK.HPI_201107.

INFO: Engine's fast-append process in use.
INFO: 10:54:50 Reading DATA file, updating BASE file
INFO: Starting data set size is 19073 pages
INFO: Engine's block-read method is in use.
INFO: Engine's block-write  method is in use.
INFO: Ending data set size is 38145 pages, 19072 added.
INFO: 00:00:01 Elapsed time
INFO: 10:54:51 Finished updating BASE file

NOTE: There were 1544832 observations read from the data set REV0012.HPI_201107.
NOTE: 1544832 observations added.
NOTE: The data set WORK.HPI_201107 has 3089664 observations and 21 variables.
NOTE: PROCEDURE APPEND used (Total process time):
      real time             2.43 seconds
      user cpu time         0.51 seconds
      system cpu time       1.93 seconds
      Memory                                 360248k
      OS Memory                              1062780k
      Timestamp               9/13/2011   10:54:52 AM
      Page Faults                            0
      Page Reclaims                          0
      Page Swaps                             0
      Voluntary Context Switches             1
      Involuntary Context Switches           39
      Block Input Operations                 0
```

A Second Example(Log - continued)

```
55    proc append base=hpi_201107 data=rev0012.hpi_201107; run;

NOTE: Appending REV0012.HPI_201107 to WORK.HPI_201107.

INFO: Engine's fast-append process in use.
INFO: 10:54:52 Reading DATA file, updating BASE file
INFO: Starting data set size is 38145 pages
INFO: Engine's block-read method is in use.
INFO: Engine's block-write  method is in use.
INFO: Ending data set size is 57217 pages, 19072 added.
INFO: 00:00:01 Elapsed time
INFO: 10:54:53 Finished updating BASE file

NOTE: There were 1544832 observations read from the data set REV0012.HPI_201107.
NOTE: 1544832 observations added.
NOTE: The data set WORK.HPI_201107 has 4634496 observations and 21 variables.
NOTE: PROCEDURE APPEND used (Total process time):
      real time               2.55 seconds
      user cpu time           0.53 seconds
      system cpu time         1.96 seconds
      Memory                                  361089k
      OS Memory                               1474428k
      Timestamp                9/13/2011   10:54:55 AM
      Page Faults                             0
      Page Reclaims                           0
      Page Swaps                              0
      Voluntary Context Switches              69
      Involuntary Context Switches            47
      Block Input Operations                  0
      Block Output Operations                 0


56    proc append base=hpi_201107 data=rev0012.hpi_201107; run;

NOTE: Appending REV0012.HPI_201107 to WORK.HPI_201107.

INFO: Engine's fast-append process in use.
INFO: 10:54:55 Reading DATA file, updating BASE file
INFO: Starting data set size is 57217 pages
INFO: Engine's block-read method is in use.
INFO: Engine's block-write  method is in use.
INFO: Ending data set size is 76289 pages, 19072 added.
INFO: 00:00:01 Elapsed time
INFO: 10:54:56 Finished updating BASE file

NOTE: There were 1544832 observations read from the data set REV0012.HPI_201107.
NOTE: 1544832 observations added.
NOTE: The data set WORK.HPI_201107 has 6179328 observations and 21 variables.
NOTE: PROCEDURE APPEND used (Total process time):
      real time               2.45 seconds
      user cpu time           0.55 seconds
      system cpu time         1.80 seconds
      Memory                                  360974k
      OS Memory                               1885820k
      Timestamp                9/13/2011   10:54:57 AM
      Page Faults                             0
      Page Reclaims                           0
```

A Second Example(Log - continued)

```
57   proc append base=hpi_201107 data=rev0012.hpi_201107; run;

NOTE: Appending REV0012.HPI_201107 to WORK.HPI_201107.

INFO: Engine's fast-append process in use.
INFO: 10:54:57 Reading DATA file, updating BASE file
INFO: Starting data set size is 76289 pages
INFO: Engine's block-read method is in use.
INFO: Engine's block-write  method is in use.
INFO: Ending data set size is 95361 pages, 19072 added.
INFO: 00:00:02 Elapsed time
INFO: 10:54:59 Finished updating BASE file

NOTE: There were 1544832 observations read from the data set REV0012.HPI_201107.
NOTE: 1544832 observations added.
NOTE: The data set WORK.HPI_201107 has 7724160 observations and 21 variables.
NOTE: PROCEDURE APPEND used (Total process time):
      real time               2.56 seconds
      user cpu time           0.56 seconds
      system cpu time         1.87 seconds
      Memory                                  361087k
      OS Memory                               2297468k
      Timestamp                9/13/2011   10:55:00 AM
      Page Faults                             0
      Page Reclaims                           0
      Page Swaps                              0
      Voluntary Context Switches              79
      Involuntary Context Switches            45
      Block Input Operations                  0
      Block Output Operations                 0


58   proc append base=hpi_201107 data=rev0012.hpi_201107; run;

NOTE: Appending REV0012.HPI_201107 to WORK.HPI_201107.

INFO: Engine's fast-append process in use.
INFO: 10:55:00 Reading DATA file, updating BASE file
INFO: Starting data set size is 95361 pages
INFO: Engine's block-read method is in use.
INFO: Engine's block-write  method is in use.
INFO: Ending data set size is 114433 pages, 19072 added.
INFO: 00:00:02 Elapsed time
INFO: 10:55:02 Finished updating BASE file

NOTE: There were 1544832 observations read from the data set REV0012.HPI_201107.
NOTE: 1544832 observations added.
NOTE: The data set WORK.HPI_201107 has 9268992 observations and 21 variables.
NOTE: PROCEDURE APPEND used (Total process time):
      real time               2.49 seconds
      user cpu time           0.57 seconds
      system cpu time         1.87 seconds
      Memory                                  361087k
      OS Memory                               2709116k
      Timestamp                9/13/2011   10:55:03 AM
      Page Faults                             0
      Page Reclaims                           0
```

A Second Example(Log - continued)

```
59   /** unload from memory **/
60   sasfile rev0012.hpi_201107 close;
NOTE: The file REV0012.HPI_201107.DATA has been closed by the SASFILE statement.
61   sasfile hpi_201107 close;
NOTE: The file WORK.HPI_201107.DATA has been closed by the SASFILE statement.
```

SASFILE statement – Recap

A. Read documentation in SAS® 9.2 Language Reference: Dictionary Fourth Edition

B. Determine physical memory available to SAS System on computing platform

C. Syntax - **SASFILE** <*libref*.>*member-name*<.*member-type*> <(*password-option(s)*)> OPEN | LOAD | CLOSE ;

D. Allowed processing requests – notice cannot create a data set in memory

Processing Request	Open Mode	Allowed
APPEND procedure	update	Yes
FSEDIT procedure	update	Yes
PRINT procedure	input	Yes
SQL procedure to modify, add, or delete observations	update	Yes

Experienced request along with PROC MEANS, PROC SUMMARY, and PROC TABULATE