



## CHAPTER

## 8

# Routing the SAS Log and SAS Procedure Output

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## Introduction

For each SAS job, process, or session, the SAS System automatically creates the SAS log file and the WORK data library. (For a discussion of the WORK data library, see “The WORK Data Library under OpenVMS” on page 32.) If procedures in the SAS program produce printed output, then SAS also creates the procedure output file. The procedure output file is often called the listing file. If they are stored as disk files, the SAS log and procedure output files usually have file types of .LOG and .LIS, respectively.

The SAS log and procedure output files have default destinations, but you can control these defaults by using SAS system options and the PRINTTO procedure. This section describes how to choose output destinations (terminal, printer, or disk file) from the various modes of running SAS.

*Note:* When you send your log or procedure output to a printer from the SAS windowing environment, you can use the FSFORM command to invoke the FORM window to set your default printer destination, page format, and so on. For more information about the OpenVMS specifics of the FSFORM command, see “Host-Specific

Frames of the FORM Window” on page 240. For general information about the FSFORM command, refer to the SAS online Help.  $\triangle$

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## Attributes of the SAS Log and Procedure Output Files

The physical line size (number of columns per line) and the page size (number of lines per page) of the SAS log and procedure output files depend on the destination of the file. If these files appear on your display, then the default line size and page size are derived from the size of your display. For example, on a display device, the default line size is dependent on the window size determined by X resources.

If these files are sent to the system printer or written to a disk file (.LOG or .LIS), then the default line size is 132 characters, and the default page size is 60 lines. You can change these defaults with the LINESIZE= and PAGESIZE= system options. The value of LINESIZE= can range from 64 to 256; the value of PAGESIZE= can range from 15 to 32767.

*Note:* You can change the line size or page size either when you invoke the SAS System or during your session with the OPTIONS statement.  $\triangle$

The .LOG and .LIS files have the following OpenVMS file attributes:

- file organization: sequential
- record format: variable length
- record attributes: FORTRAN carriage control.

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## Controlling Log and Output Destinations

Each method of running the SAS System has a default destination for the SAS log and procedure output files, but you can override these defaults with either SAS system options (when you invoke the SAS System) or the PRINTTO procedure (while you are running the SAS System).

Two system options control the destination of the SAS log: LOG= and ALTLOG=. Two similar options control the destination of procedure output: PRINT= and ALTPRINT=. The LOG= and PRINT= system options change the default destination of the SAS log and procedure output; the output does not appear at the original default destination. The ALTLOG= and ALTPRINT= system options send a *copy* of the output to the new destination; the output also appears at the original default destination. These options can only be specified when you invoke SAS or a new SAS process.

If you want to reroute the SAS log or the procedure output after you enter your SAS session, you can use the PRINTTO procedure with the LOG= and PRINT= statement options. Unlike the ALTLOG= and ALTPRINT= system options, the PRINTTO procedure does not send the output to both the new and default destinations; only the specified destination receives output. You must use the PROC PRINTTO statement before the SAS log entries or procedure output you want to route are generated. When you want the output to revert to the default destination, use a PROC PRINTTO statement with no statement options.

The following sections describe the default destinations for the SAS log and procedure output file for each method of running the SAS System, and they explain how to send these files to a display, printer, or disk file.

## Windowing Environment Mode

In the windowing environment, the SAS log is automatically routed to the LOG window, and the procedure output is automatically routed to the OUTPUT window. The LOG= and PRINT= system options are ignored in the windowing environment.

### Routing the Log to a Printer

To send the SAS log to a printer from the windowing environment, choose from the following methods:

#### PRINT

This command, issued from the LOG window command line, sends the contents of the LOG window to the default system printer (SYSS\$PRINT).

You can also use the PRTFILE command, which is described in “Using the PRTFILE Command” on page 196.

#### \$ SAS/ALTLOG=SYSS\$PRINT

This SAS command sends a copy of the SAS log to the SYSS\$PRINT printer queue and to the default destination (LOG window). If you want to send the copy to a different printer, you must redefine the SYSS\$PRINT logical name.

#### PROC PRINTTO LOG=*fileref*;

This procedure statement sends any following SAS log entries to the default system printer during a SAS session. You must have defined *fileref* in a FILENAME statement or function with the PRINTER device-type keyword. For more information, see the procedure “PRINTTO” on page 346 and “Device-Type Keywords” on page 360 in the FILENAME statement.

### Routing the Log to a Disk File

To send the SAS log to a disk file from the windowing environment, choose from the following methods:

#### FILE *file-specification*

This command, issued from the command line of the LOG window, sends a copy of the window’s contents to the file associated with *file-specification*.

For more information about the FILE command, see “FILE” on page 228.

#### \$ SAS/ALTLOG=*file-specification*

This SAS command sends a copy of the SAS log to the disk file *file-specification*, as well as to the default destination (LOG window). The following is an example of this command:

```
$ SAS/ALTLOG=MYLOG.LOG
```

#### PROC PRINTTO LOG=*file-specification*;

This procedure statement sends any following SAS log entries to the disk file associated with *file-specification* during a SAS session. The value for *file-specification* can be any valid external file specification discussed in “Identifying External Files to the SAS System” on page 166.

### Routing Procedure Output to a Printer

To send the procedure output to a printer from the windowing environment, choose from the following methods:

**PRINT**

This command, issued from the OUTPUT window command line, sends the contents of the OUTPUT window to the default system printer (SYSS\$PRINT). See your system manager for the location of your default printer.

You can also use the PRTFILE command. For more information, see “Using the PRTFILE Command” on page 196.

**P selection-field command**

When issued from the OUTPUT MANAGER window, this selection-field command sends the procedure output to the default system printer. Also, you can edit your output from the OUTPUT MANAGER EDIT window and then send the modified output to the printer. For more information about the OUTPUT MANAGER window, refer to the SAS online Help.

**\$ SAS/ALTPRINT=SYSS\$PRINT**

This SAS command sends a copy of the procedure output to the SYSS\$PRINT printer queue and to the default destination (OUTPUT window). If you want to send the procedure output to a different printer, you must redefine the SYSS\$PRINT logical name.

**PROC PRINTTO PRINT=*fileref*;**

This procedure statement sends any following procedure output to the default system printer during a SAS session. You must have defined *fileref* in a FILENAME statement or function with the PRINTER device-type keyword. For more information, see the procedure “PRINTTO” on page 346 and “Device-Type Keywords” on page 360 in the FILENAME statement.

## Routing Procedure Output to a Disk File

To send the procedure output to a disk file from the windowing environment, choose from the following methods:

**FILE *file-specification***

When issued from the command line of the OUTPUT window, this command sends a copy of the window’s contents to the file associated with *file-specification*. For more information about the FILE command, see “FILE” on page 228.

**F selection-field command**

When issued from the OUTPUT MANAGER window, this selection-field command brings up a requestor window that asks for the filename and allows you to specify attributes such as REPLACE or APPEND. Also, you can edit your procedure output from the OUTPUT MANAGER EDIT window and then send the modified output to a file. For more information about the OUTPUT MANAGER window, refer to the SAS online Help.

**\$ SAS/ALTPRINT=*file-specification***

This SAS command sends a copy of the procedure output to the disk file *file-specification* and to the default destination (OUTPUT window). The following is an example of this command:

```
$ SAS/ALTPRINT=MYPROG.LIS
```

**PROC PRINTTO PRINT=*file-specification*;**

This procedure statement sends any following procedure output to the disk file associated with *file-specification* during a SAS session. The value for *file-specification* can be any valid external file specification discussed in “Identifying External Files to the SAS System” on page 166.

---

## Interactive Line Mode

If you run your SAS program in interactive line mode, the SAS log and procedure output appear on the display by default. SAS statements from your program, the SAS log, and procedure output (if the program produces any) are interleaved on the display according to the order of DATA and PROC steps in your program.

### Routing the Log to a Printer

To send the SAS log to a printer in interactive line mode, choose from the following methods:

**\$ SAS/NODMS/LOG=SYSS\$PRINT**

This SAS command sends the SAS log to the SYSS\$PRINT printer queue instead of the default destination (the display). If you want to send the log to a different printer, you must redefine the SYSS\$PRINT logical name.

**\$ SAS/NODMS/ALTLOG=SYSS\$PRINT**

This SAS command sends a copy of the SAS log to the SYSS\$PRINT printer queue and to the default destination (the display). If you want to send the log to a different printer, you must redefine the SYSS\$PRINT logical name.

**PROC PRINTTO LOG=*fileref*;**

This procedure statement sends any following SAS log entries to the default system printer during a SAS session. You must have defined *fileref* in a FILENAME statement or function with the PRINTER device-type keyword. For more information, see the procedure “PRINTTO” on page 346 and “Device-Type Keywords” on page 360 in the FILENAME statement.

### Routing the Log to a Disk File

To send the SAS log to a disk file in interactive line mode, choose one of the following methods:

**\$ SAS/NODMS/LOG=*file-specification***

This SAS command sends the SAS log to the disk file *file-specification* instead of the default destination (the display). The following is an example of this command:

```
$ SAS/NODMS/LOG=MYLOG.LOG
```

**\$ SAS/NODMS/ALTLOG=*file-specification***

This SAS command sends a copy of the SAS log to the disk file *file-specification* and to the default destination (the display). The following is an example of this command:

```
$ SAS/NODMS/ALTLOG=MYLOG.LOG
```

**PROC PRINTTO LOG=*file-specification*;**

This procedure statement sends any following SAS log entries to the disk file associated with *file-specification* during a SAS session. The value for *file-specification* can be any valid external file specification discussed in “Identifying External Files to the SAS System” on page 166.

### Routing Procedure Output to a Printer

To send the procedure output to a printer in interactive line mode, choose from the following methods:

**\$ SAS/NODMS/PRINT=SYSS\$PRINT**

This SAS command sends the procedure output to the SYSS\$PRINT printer queue instead of to the default destination (the display). If you want to send the procedure output to a different printer, you must redefine the SYSS\$PRINT logical name.

**\$ SAS/NODMS/ALTPRINT=SYSS\$PRINT**

This SAS command sends a copy of the procedure output to the SYSS\$PRINT printer queue and to the default destination (the display). If you want to send the procedure output to a different printer, you must redefine the SYSS\$PRINT logical name.

**PROC PRINTTO PRINT=*fileref*;**

This procedure statement sends any following procedure output to the default system printer during a SAS session. You must have defined *fileref* in a FILENAME statement or function with the PRINTER device-type keyword. For more information, see the procedure “PRINTTO” on page 346 and “Device-Type Keywords” on page 360 in the FILENAME statement.

## Routing Procedure Output to a Disk File

To send the procedure output to a disk file in interactive line mode, choose from the following methods:

**\$ SAS/NODMS/PRINT=*file-specification***

This SAS command sends the procedure output to the disk file *file-specification* instead of to the default destination (the display). The following is an example of this command:

```
$ SAS/NODMS/PRINT=MYPROG.LIS
```

**\$ SAS/NODMS/ALTPRINT=*file-specification***

This SAS command sends a copy of the procedure output to the disk file *file-specification* and to the default destination (the display). The following is an example:

```
$ SAS/NODMS/ALTPRINT=MYPROG.LIS
```

**PROC PRINTTO PRINT=*file-specification*;**

This procedure statement sends any following procedure output to the disk file associated with *file-specification* during a SAS session. The value for *file-specification* can be any valid external file specification discussed in “Identifying External Files to the SAS System” on page 166.

---

## Noninteractive Mode

In noninteractive mode, the default destination for the log is the disk file *program-name*.LOG, where *program-name* is the name of the file that contains the submitted SAS statements. The default destination for the procedure output is a disk file named *program-name*.LIS. For example, if you run your SAS program in noninteractive mode using the following command, the SAS log is automatically directed to a file named PROGNAME.LOG and the procedure output is written to a file named PROGNAME.LIS:

```
$ SAS PROGNAME
```

Both files are written in the default directory.

## Routing the Log to a Display

To send the SAS log to a display in noninteractive mode, choose from the following methods:

\$ SAS/LOG=SYSS\$OUTPUT *program-name*

This SAS command sends the SAS log to your display instead of the default destination (*program-name*.LOG file).

\$ SAS/ALTLOG=SYSS\$OUTPUT *program-name*

This SAS command sends a copy of the SAS log to your display and to the default destination (*program-name*.LOG file).

PROC PRINTTO LOG=*fileref*;

This procedure statement sends the SAS log to your display during a noninteractive job. You must have defined *fileref* in a FILENAME statement or function with the TERMINAL device-type keyword. For more information, see the procedure “PRINTTO” on page 346 and “Device-Type Keywords” on page 360 in the FILENAME statement.

## Routing the Log to a Printer

To send the SAS log to a printer in noninteractive mode, choose from the following methods:

\$ SAS/LOG=SYSS\$PRINT *program-name*

This SAS command sends the SAS log to the SYSS\$PRINT printer queue instead of the default destination (*program-name*.LOG file). If you want to send the log to a different printer, you must redefine the SYSS\$PRINT logical name.

\$ SAS/ALTLOG=SYSS\$PRINT *program-name*

This SAS command sends a copy of the SAS log to the SYSS\$PRINT printer queue and to the default destination (*program-name*.LOG file). If you want to send the log to a different printer, you must redefine the SYSS\$PRINT logical name.

PROC PRINTTO LOG=*fileref*;

This procedure statement sends the SAS log to a printer during a noninteractive job. You must have defined *fileref* in a FILENAME statement or function with the PRINTER device-type keyword. For more information, see the procedure “PRINTTO” on page 346 and “Device-Type Keywords” on page 360 in the FILENAME statement.

You can also use the DCL PRINT command to send the *program-name*.LOG file to the printer after a noninteractive job finishes.

## Routing the Log to a Disk File

To send the SAS log to a disk file in noninteractive mode, choose one of the following methods:

\$ SAS/LOG=*file-specification* *program-name*

This SAS command sends the SAS log to the file *file-specification* instead of the default destination (*program-name*.LOG file). The following is an example of this command:

```
$ SAS/LOG=MYLOG.LOG PROG1
```

\$ SAS/ALTLOG=*file-specification* *program-name*

This SAS command sends a copy of the SAS log to the disk file *file-specification* and to the default destination (*program-name*.LOG file). The following is an example of this command:

```
$ SAS/ALTLOG=MYLOG.LOG PROG1
```

```
PROC PRINTTO LOG=file-specification;
```

This procedure statement sends any following SAS log entries to the disk file associated with *file-specification* during a noninteractive job. The value for *file-specification* can be any valid external file specification, as discussed in “Identifying External Files to the SAS System” on page 166.

## Routing Procedure Output to a Display

To send the procedure output to a display in noninteractive mode, choose from the following methods:

```
$ SAS/PRINT=SYSS$OUTPUT program-name
```

This SAS command sends the procedure output to your display instead of the default destination (*program-name*.LIS file).

```
$ SAS/ALTPRINT=SYSS$OUTPUT program-name
```

This SAS command sends a copy of the procedure output to your display and to the default destination (*program-name*.LIS file).

```
PROC PRINTTO PRINT=fileref;
```

This procedure statement sends the procedure output to your display during a noninteractive job. You must have defined *fileref* in a FILENAME statement or function with the TERMINAL device-type keyword. For more information, see the procedure “PRINTTO” on page 346 and “Device-Type Keywords” on page 360 in the FILENAME statement.

## Routing Procedure Output to a Printer

To send the procedure output to a printer in noninteractive mode, choose from the following methods:

```
$ SAS/PRINT=SYSS$PRINT program-name
```

This SAS command sends the procedure output to the SYSS\$PRINT printer queue instead of the default destination (*program-name*.LIS file). If you want to send the procedure output to a different printer, you must redefine the SYSS\$PRINT logical name.

```
$ SAS/ALTPRINT=SYSS$PRINT program-name
```

This SAS command sends a copy of the procedure output to the SYSS\$PRINT printer queue and to the default destination (*program-name*.LIS file). If you want to send the procedure output to a different printer, you must redefine the SYSS\$PRINT logical name.

```
PROC PRINTTO PRINT=fileref;
```

This procedure statement sends the procedure output to a printer during a noninteractive job. You must have defined *fileref* in a FILENAME statement or function with the PRINTER device-type keyword. For more information, see the procedure “PRINTTO” on page 346 and “Device-Type Keywords” on page 360 in the FILENAME statement.

You can also use the DCL PRINT command to send the *program-name*.LIS file to the printer after a noninteractive job finishes.

## Routing Procedure Output to a Disk File

To send the procedure output to a disk file in noninteractive mode, choose one of the following methods:



**\$ SAS/PRINT=***file-specification program-name*

This SAS command sends the procedure output to the disk file *file-specification* instead of the default destination (*program-name.LIS* file). The following is an example of this command:

```
$ SAS/PRINT=MYPROG.LIS PROG1
```

**\$ SAS/ALTPRINT=***file-specification program-name*

This SAS command sends a copy of the procedure output to the file *file-specification* and to the default destination (*program-name.LIS* file). The following is an example of this command:

```
$ SAS/ALTPRINT=MYPROG.LIS PROG1
```

**PROC PRINTTO PRINT=***file-specification*;

This procedure statement sends any following procedure output to the disk file associated with *file-specification* during a noninteractive job. The value for *file-specification* can be any valid external file specification discussed in “Identifying External Files to the SAS System” on page 166.

## Batch Mode

The default for handling output in batch mode is similar to noninteractive mode. When you invoke SAS in batch mode, the SAS log is written to a file with OpenVMS file type .LOG, and the procedure output is written to a file with OpenVMS file type .LIS in the default directory of the command procedure within which SAS was invoked. Typically, the default directory for a batch job is the SYSS\$LOGIN directory. You can change the default by using a SET DEFAULT command in the BATCH command file. The filename for the .LOG and .LIS files is the name of the SAS program file that you specified in the SAS command.

In addition to the .LOG and .LIS files that are created for SAS output, the OpenVMS system also creates an OpenVMS log file in batch mode. The OpenVMS batch log is named *command-file*.LOG, where *command-file* is the command procedure that you submitted for execution. Do not confuse the OpenVMS log with the SAS log. Both have the OpenVMS file type .LOG, but the OpenVMS log contains commands and messages that are generated by OpenVMS when it processes any batch job, including a SAS batch job. The SAS log contains statements and messages that are generated by the SAS System.

### CAUTION:

**Do not give your SAS program and the command procedure the same name.** This causes confusion when the OpenVMS and SAS logs are created. If this does occur, the OpenVMS log is created first (for example MYPROG.LOG;1) and the SAS log is created second (MYPROG.LOG;2). If you cannot keep more than one version of a file, the OpenVMS batch log is overwritten with the SAS log.  $\Delta$

You can send the SAS log and procedure output to a printer instead of to the default .LOG and .LIS files. To redirect the SAS log and procedure output to the system printer, use SYS\$PRINT as the value for the LOG=, ALTLOG=, PRINT=, and ALTPRINT= system options, where appropriate. You can also use the DCL PRINT command to send the .LOG and .LIS files to the printer after a batch job has finished.

---

## Using the PRTFILE Command

The PRTFILE command enables you to change the control information for a file that you are routing to a printer. For example, if you want to send a file to a printer queue other than the default, submit the following FILENAME statement:

```
filename woutput printer queue=myqueue;
```

Then you can issue the following series of commands from the command line of a window to send the contents of the window to the MYQUEUE printer queue:

```
prtfile woutput  
print  
free
```

After you issue the PRTFILE command, a note in the SAS log indicates that the output was sent to a file named SAS *nnnn.DAT*. This is a temporary file that is deleted when you issue the PRINT command.

As another example, the following FILENAME statement associates the fileref MYFILE with the external file [MYDIR]SPECIAL.SAS and specifies that the carriage-control format is FORTRAN:

```
filename myfile '[mydir]special.sas' cc=fortran;
```

Then the following series of commands from the command line of a window sends the contents of the window to the external file SPECIAL.SAS:

```
prtfile woutput  
print myfile  
free
```

*Note:* Do not use the PRTFILE command with the FSFORM command. For information about the FSFORM command, see “Host-Specific Frames of the FORM Window” on page 240.  $\Delta$

The correct bibliographic citation for this manual is as follows: SAS Institute Inc., *SAS<sup>®</sup> Companion for the OpenVMS Environment, Version 8*, Cary, NC: SAS Institute Inc., 1999. 518 pp.

**SAS<sup>®</sup> Companion for the OpenVMS Environment, Version 8**

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1-58025-526-4

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1st printing, October 1999

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