



CHAPTER

29

The PRINTTO Procedure

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Overview

The PRINTTO procedure defines destinations for SAS procedure output and for the SAS log. By default, SAS procedure output and the SAS log are routed to the default procedure output file and the default SAS log file for your method of operation. See Table 29.1 on page 819. You can store the SAS log or procedure output in an external file or in a SAS catalog entry. With additional programming, you can use SAS output as input data within the same job.

Table 29.1 Default Destinations for SAS Log and Procedure Output

Method of running the SAS System	SAS log destination	Procedure output destination
windowing environment	the LOG window	the OUTPUT window
interactive line mode	the display monitor (as statements are entered)	the display monitor (as each step executes)
noninteractive mode or batch mode	depends on the host operating system	depends on the operating environment

Operating Environment Information: For information and examples specific to your operating system or environment, see the appropriate SAS Companion or technical report. Δ

Procedure Syntax

PROC PRINTTO *<option(s)>*;

PROC PRINTTO Statement

Tip: To reset the destination for the SAS log and procedure output to the default, use the PROC PRINTTO statement without options.

Tip: To route the SAS log and procedure output to the same file, specify the same file with both the LOG= and PRINT= options.

PROC PRINTTO *<option(s)>*;

To do this	Use this option
provide a description for a SAS log or procedure output stored in a SAS catalog entry	LABEL=
route the SAS log to a permanent external file or SAS catalog entry	LOG=
combine the SAS log and procedure output into a single file	LOG= and PRINT= with same destination
replace the file instead of appending to it	NEW=
route procedure output to a permanent external file or SAS catalog entry	PRINT=

Without Options

Using a PROC PRINTTO statement with no options

- closes any files opened by a PROC PRINTTO statement
- points both the SAS log and SAS procedure output to their default destinations.

Interaction: To close the appropriate file and to return only the SAS log or procedure output to its default destination, use LOG=LOG or PRINT=PRINT.

Featured in: Example 1 on page 823 and Example 2 on page 825

Options

LABEL= *'description'*

provides a description for a catalog entry that contains a SAS log or procedure output.

Range: 1 to 40 characters

Interaction: Use the LABEL= option only when you specify a catalog entry as the value for the LOG= or the PRINT= option.

Featured in: Example 2 on page 825

LOG=LOG | *file-specification* | *SAS-catalog-entry*

routes the SAS log to one of three locations:

LOG

routes the SAS log to its default destination.

file-specification

routes the SAS log to an external file. It is one of the following:

'external-file'

the name of an external file specified in quotation marks.

fileref

a fileref previously assigned to an external file.

SAS-catalog-entry

routes the SAS log to a SAS catalog entry. By default, *libref* is SASUSER, *catalog* is PROFILE, and *type* is LOG. Express *SAS-catalog-entry* in one of the following ways:

libref.catalog.entry<.LOG>

a SAS catalog entry stored in the SAS data library and SAS catalog specified.

catalog.entry<.LOG>

a SAS catalog entry stored in the specified SAS catalog in the default SAS data library SASUSER.

entry.LOG

a SAS catalog entry stored in the default SAS library and catalog: SASUSER.PROFILE.

Default: LOG.

Tip: After routing the log to an external file or a catalog entry, you can specify LOG to route the SAS log back to its default destination.

Tip: When routing the SAS log, include a RUN statement in the PROC PRINTTO statement. If you omit the RUN statement, the first line of the following DATA or PROC step is not routed to the new file. (This occurs because a statement does not execute until a step boundary is crossed.)

Interaction: The NEW option replaces the existing contents of a file with the new log. Otherwise, the new log is appended to the file.

Interaction: To route the SAS log and procedure output to the same file, specify the same file with both the LOG= and PRINT= options.

Interaction: When routing the log to a SAS catalog entry, you can use the LABEL option to provide a description for the entry in the catalog directory.

Featured in: Example 1 on page 823, Example 2 on page 825, and Example 3 on page 829

NEW

clears any information that exists in a file and prepares the file to receive the SAS log or procedure output.

Default: If you omit NEW, the new information is appended to the existing file.

Interaction: If you specify both LOG= and PRINT=, NEW applies to both.

Featured in: Example 1 on page 823, Example 2 on page 825, and Example 3 on page 829

PRINT= PRINT | *file-specification* | *SAS-catalog-entry*

routes procedure output to one of three locations:

PRINT

routes procedure output to its default destination. After routing it to an external file or a catalog entry, you can specify PRINT to route subsequent procedure output to its default destination.

file-specification

routes procedure output to an external file. It is one of the following:

'external-file'

the name of an external file specified in quotation marks.

fileref

a fileref previously assigned to an external file.

SAS-catalog-entry

routes procedure output to a SAS catalog entry. By default, *libref* is SASUSER, *catalog* is PROFILE, and *type* is LOG. Express *SAS-catalog-entry* in one of the following ways:

libref.catalog.entry<.LOG>

a SAS catalog entry stored in the SAS data library and SAS catalog specified.

catalog.entry<.LOG>

a SAS catalog entry stored in the specified SAS catalog in the default SAS data library SASUSER.

entry.LOG

a SAS catalog entry stored in the default SAS library and catalog:
SASUSER.PROFILE.

Aliases: FILE=, NAME=

Default: PRINT

Interaction: The NEW option replaces the existing contents of a file with the new procedure output. If you omit NEW, the new output is appended to the file.

Interaction: To route the SAS log and procedure output to the same file, specify the same file with both the LOG= and PRINT= options.

Interaction: When routing procedure output to a SAS catalog entry, you can use the LABEL option to provide a description for the entry in the catalog directory.

Featured in: Example 3 on page 829

UNIT=*nn*

routes the output to the file identified by the fileref FT*nn*F001, where *nn* is an integer between 1 and 99.

Range: 1 to 99, integer only.

Tip: You can define this fileref yourself; however, some operating systems predefine certain filerefs in this form.

Concepts

Page Numbering

- When the SAS system option NUMBER is in effect, there is a single page-numbering sequence for all output in the current job or session. When NONUMBER is in effect, output pages are not numbered.

- You can specify the beginning page number for the output you are currently producing by using the PAGENO= in an OPTIONS statement.

Examples

Example 1: Routing to External Files

Procedure features:

PRINTTO statement:

Without options

Options:

LOG=

NEW

PRINT=

This example uses PROC PRINTTO to route the log and procedure output to an external file and then reset both destinations to the default.

Program

SOURCE writes the lines of source code to the default destination for the SAS log. See Output 29.1 on page 824.

```
options nodate pageno=1 linesize=80 pagesize=60 source;
```

PROC PRINTTO uses LOG= to route the SAS log to an external file. By default, this log is appended to the current contents of **log-file**. See Output 29.2 on page 824.

```
proc printto log='log-file';
run;
```

The DATA step creates the NUMBERS data set.

```
data numbers;
  input x y z;
  datalines;
14.2  25.2  96.8
10.8  51.6  96.8
 9.5  34.2 138.2
 8.8  27.6  83.2
```

```

11.5    49.4    287.0
 6.3    42.0    170.7
;

```

PROC PRINTTO routes output to an external file. Because NEW is specified, any output written to **output-file** will overwrite the file's current contents. The PROC PRINT output is written to the specified external file. See Output 29.3 on page 825.

```

proc printto print='output-file' new;
run;

proc print data=numbers;
  title 'Listing of NUMBERS Data Set';
run;

```

PROC PRINTTO routes subsequent logs and procedure output to their default destinations and closes both of the current files. See Output 29.1 on page 824.

```

proc printto;
run;

```

Log

Output 29.1 Portion of Log Routed to the Default Destination

```

1      options nodate pageno=1 linesize=80 pagesize=60 source;
2      proc printto log='log-file';
3      run;

```

Output 29.2 Portion of Log Routed to an External File

```

5
6      data numbers;
7          input x y z;
8          datalines;

NOTE: The data set WORK.NUMBERS has 6 observations and 3 variables.
NOTE: DATA statement used:
      real time          0.00 seconds
      cpu time           0.00 seconds

15     ;
16     proc printto print='output-file' new;
16
17     run;

NOTE: PROCEDURE PRINTTO used:
      real time          0.00 seconds
      cpu time           0.00 seconds

18
19     proc print data=numbers;
20         title 'Listing of NUMBERS Data Set';
21     run;

NOTE: The PROCEDURE PRINT printed page 1.
NOTE: PROCEDURE PRINT used:
      real time          0.00 seconds
      cpu time           0.00 seconds

22
23     proc printto;
24     run;

```

Output**Output 29.3** Procedure Output Routed to an External File

Listing of NUMBERS Data Set				1
OBS	x	y	z	
1	14.2	25.2	96.8	
2	10.8	51.6	96.8	
3	9.5	34.2	138.2	
4	8.8	27.6	83.2	
5	11.5	49.4	287.0	
6	6.3	42.0	170.7	

Example 2: Routing to SAS Catalog Entries

Procedure features:

PRINTTO statement:

Without options

Options:

LABEL=

LOG=

NEW

PRINT=

This example uses PROC PRINTTO to route the SAS log and procedure output to a SAS catalog entry and then to reset both destinations to the default.

Program

```
libname lib1 'SAS-data-library';

options nodate pageno=1 linesize=80 pagesize=60 source;
```

PROC PRINTTO routes the SAS log to a SAS catalog entry named SASUSER.PROFILE.TEST.LOG. The PRINTTO procedure uses the default libref and catalog SASUSER.PROFILE because only the entry name and type are specified. LABEL= assigns a description for the catalog entry. See Output 29.4 on page 828.

```
proc printto log=test.log label='Inventory program' new;
run;
```

The DATA step creates a permanent SAS data set.

```
data lib1.inventory;
  length Dept $ 4 Item $ 6 Season $ 6 Year 4;
  input dept item season year @@;
  datalines;
3070 20410  spring 1996 3070 20411  spring 1997
3070 20412  spring 1997 3070 20413  spring 1997
3070 20414  spring 1996 3070 20416  spring 1995
3071 20500  spring 1994 3071 20501  spring 1995
3071 20502  spring 1996 3071 20503  spring 1996
3071 20505  spring 1994 3071 20506  spring 1994
3071 20507  spring 1994 3071 20424  spring 1994
;
```

PROC PRINTTO routes procedure output from the subsequent PROC REPORT to the SAS catalog entry LIB1.CAT1.INVENTORY.OUTPUT. LABEL= assigns a description for the catalog entry. See Output 29.5 on page 828.

```
proc printto print=lib1.cat1.inventory.output
             label='Inventory program' new;
run;

proc report data=lib1.inventory nowindows headskip;
  column dept item season year;
  title 'Current Inventory Listing';
run;
```

PROC PRINTTO closes the current files opened by PROC PRINTTO and reroutes subsequent SAS logs and procedure output to their default destinations.

```
proc printto;
run;
```

Log

Output 29.4 SAS Log Routed to SAS Catalog Entry SASUSER.PROFILE.TEST.LOG.

You can view this catalog entry in the BUILD window of the SAS Explorer.

```
8
9  data lib1.inventory;
10     length Dept $ 4 Item $ 6 Season $ 6 Year 4;
11     input dept item season year @@;
12     datalines;

NOTE: SAS went to a new line when INPUT statement reached past the end of a
      line.
NOTE: The data set LIB1.INVENTORY has 14 observations and 4 variables.
NOTE: DATA statement used:
      real time          0.00 seconds
      cpu time           0.00 seconds

20 ;
21
22 proc printto print=lib1.cat1.inventory.output
23     label='Inventory program' new;
24 run;

NOTE: PROCEDURE PRINTTO used:
      real time          0.00 seconds
      cpu time           0.00 seconds

25
26 proc report data=lib1.inventory nowindows headskip;
27     column dept item season year;
28     title 'Current Inventory Listing';
29 run;

NOTE: PROCEDURE REPORT used:
      real time          0.00 seconds
      cpu time           0.00 seconds

30
31 proc printto;
32 run;
```

Output

Output 29.5 Procedure Output Routed to SAS Catalog Entry LIB1.CAT1.INVENTORY.OUTPUT.

You can view this catalog entry in the BUILD window of the SAS Explorer.

Current Inventory Listing				1
Dept	Item	Season	Year	
3070	20410	spring	1996	
3070	20411	spring	1997	
3070	20412	spring	1997	
3070	20413	spring	1997	
3070	20414	spring	1996	
3070	20416	spring	1995	
3071	20500	spring	1994	
3071	20501	spring	1995	
3071	20502	spring	1996	
3071	20503	spring	1996	
3071	20505	spring	1994	
3071	20506	spring	1994	
3071	20507	spring	1994	
3071	20424	spring	1994	

Example 3: Using Procedure Output as an Input File

Procedure features:

PRINTTO statement:

Without options

Options:

LOG=

NEW

PRINT=

This example uses PROC PRINTTO to route procedure output to an external file and then uses that file as input to a DATA step.

The DATA step uses the RANUNI function to randomly generate values for variables X and Y in data set A.

```
data test;
  do n=1 to 1000;
    x=int(ranuni(77777)*7);
    y=int(ranuni(77777)*5);
    output;
  end;
run;
```

The FILENAME statement assigns a fileref to an external file. PROC PRINTTO routes subsequent procedure output to the file referenced by the fileref ROUTED. See Output 29.6 on page 830.

```
filename routed 'output-filename';

proc printto print=routed new;
run;
```

PROC FREQ computes frequency counts and a chi-square analysis on variables X and Y in data set TEST. This output is routed to the file referenced as ROUTED.

```
proc freq data=test;
  tables x*y / chisq;
run;
```

You must use another PROC PRINTTO to close the file referenced by fileref ROUTED so that the following DATA step can read it. The step also routes subsequent procedure output to the default destination. PRINT= causes the step to affect only procedure output, not the SAS log.

```
proc printto print=print;
run;
```

The DATA step uses ROUTED, the file containing PROC FREQ output, as an input file and creates data set PROBTEST. This DATA step reads all records in ROUTED but creates an observation only from a record that begins with **Chi-Squa**.

```
data probtest;
  infile routed;
  input word1 $ @;
  if word1='Chi-Squa' then
    do;
      input df chisq prob;
      keep chisq prob;
      output;
    end;
run;
```

PROC PRINT produces a simple listing of data set PROBTEST. This output is routed to the default destination. See Output 29.7 on page 831.

```
proc print data=probtest;
  title 'Chi-Square Analysis for Table of X by Y';
run;
```

Output 29.6 PROC FREQ Output Routed to the External File Referenced as ROUTED

The FREQ Procedure						
Table of x by y						
x	y					
Frequency						
Percent						
Row Pct						
Col Pct	0	1	2	3	4	Total
0	29	33	12	25	27	126
	2.90	3.30	1.20	2.50	2.70	12.60
	23.02	26.19	9.52	19.84	21.43	
	15.18	16.18	6.25	11.74	13.50	
1	23	26	29	20	19	117
	2.30	2.60	2.90	2.00	1.90	11.70
	19.66	22.22	24.79	17.09	16.24	
	12.04	12.75	15.10	9.39	9.50	
2	28	26	32	30	25	141
	2.80	2.60	3.20	3.00	2.50	14.10
	19.86	18.44	22.70	21.28	17.73	
	14.66	12.75	16.67	14.08	12.50	
3	26	24	36	32	45	163
	2.60	2.40	3.60	3.20	4.50	16.30
	15.95	14.72	22.09	19.63	27.61	
	13.61	11.76	18.75	15.02	22.50	
4	25	31	28	36	29	149
	2.50	3.10	2.80	3.60	2.90	14.90
	16.78	20.81	18.79	24.16	19.46	
	13.09	15.20	14.58	16.90	14.50	
5	32	29	26	33	27	147
	3.20	2.90	2.60	3.30	2.70	14.70
	21.77	19.73	17.69	22.45	18.37	
	16.75	14.22	13.54	15.49	13.50	
6	28	35	29	37	28	157
	2.80	3.50	2.90	3.70	2.80	15.70
	17.83	22.29	18.47	23.57	17.83	
	14.66	17.16	15.10	17.37	14.00	
Total	191	204	192	213	200	1000
	19.10	20.40	19.20	21.30	20.00	100.00

2

The FREQ Procedure			
Statistics for Table of x by y			
Statistic	DF	Value	Prob
Chi-Square	24	27.2971	0.2908
Likelihood Ratio Chi-Square	24	28.1830	0.2524
Mantel-Haenszel Chi-Square	1	0.6149	0.4330
Phi Coefficient		0.1652	
Contingency Coefficient		0.1630	
Cramer's V		0.0826	

Sample Size = 1000

Output 29.7 PROC PRINT Output of Data Set PROBTTEST, Routed to Default Destination

Chi-Square Analysis for Table of X by Y			3
Obs	chisq	prob	
1	27.297	0.291	

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