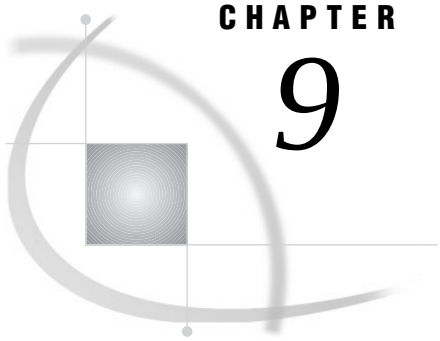

CHAPTER

9

SAS System Options

Definition

System options are instructions that affect your SAS session. They control the way that SAS performs operations such as SAS System initialization, hardware and software interfacing, and the input, processing, and output of jobs and SAS files.

Syntax

The syntax for specifying system options in an OPTIONS statement is

OPTIONS *option(s)*;

where

option
specifies one or more SAS system options you want to change.

The following example shows how to use the system options NODATE and LINESIZE= in an OPTIONS statement:

```
options nodate linesize=72;
```

Operating Environment Information: On the command line or in a configuration file, the syntax is specific to your operating environment. For details, see the SAS documentation for your operating environment. △

Using SAS System Options

Default Settings

SAS system options are initialized with default settings when SAS is invoked. However, the default settings for some SAS system options vary both by operating environment and by site.

Operating Environment Information: For details, see the SAS documentation for your operating environment. △

Determining Which Settings Are in Effect

To determine which settings are in effect for a SAS system option, use one of the following:

OPLIST system option
writes to the SAS log the settings in system and user configuration files that were set when SAS was invoked.

Operating Environment Information: See the SAS documentation for your operating environment for more information. △

SAS System Options window
lists all system option settings.

OPTIONS procedure
writes system option settings to the SAS log. To display the settings of system options with a specific functionality, such as error handling, use the GROUP= option:

```
proc options GROUP=errorhandling;
run;
```

(See the *SAS Procedures Guide* for more information.)

GETOPTION function
returns the value of a specified system option.

VOPTION Dictionary table
located in the SASHELP library, VOPTION contains a list of all current system option settings. You can view this table with SAS Explorer, or you can extract information from the VOPTION table using PROC SQL.

dictionary.options SQL table
accessed with the SQL procedure, this table lists the system options that are in effect.

Changing SAS System Option Settings

At invocation, SAS provides default settings for SAS system options. You can override the default settings

- *at SAS invocation*

  Many SAS system option settings can be specified only during SAS invocation. Descriptions of individual options provide details. At invocation, you can override the settings in the following places:

  - on the command line:

    You can change any SAS system option setting on the command line.

  - in a configuration file:

    If you use the same option settings frequently, it is usually more convenient to specify the options in a configuration file, rather than on the command line.

- *during your SAS session*

  - in an OPTIONS statement:

    You can specify an OPTIONS statement at any time during a session except within data lines or parmcard lines. Settings remain in effect throughout the current program or process unless you reset them with another OPTIONS statement or change them in the SAS System Options window. You can also place an OPTIONS statement in an autoexec file.

  - in a SAS System Options window:

    If you are using a windowing environment, type **options** in the toolbox to open the SAS System Options window. The SAS System Options window lists the names of the SAS system options and allows you to change their current settings. Changes take effect immediately and remain in effect throughout the session unless you reset them with an OPTIONS statement or change them in the SAS System Options window.

How Long System Option Settings Are in Effect

When you specify a SAS system option setting within a DATA or PROC step, the setting applies to that step and to *all subsequent steps* for the duration of the SAS session or until you reset, as shown:

```
data one;
   set items;
run;

   /* option applies to all subsequent steps */
options obs=5;

  /* printing ends with the fifth observation */
proc print data=one;
run;

   /* the SET statement stops reading
      after the fifth observation */
data two;
   set items;
run;
```

To read more than five observations, you must reset the OBS= system option. For more information, see the OBS= system option in *SAS Language Reference: Dictionary*.

Order of Precedence

If the same system option appears in more than one place, the order of precedence from highest to lowest is

1. OPTIONS statement and SAS System Options window
2. autoexec file (that contains an OPTIONS statement)
3. command-line specification
4. configuration file specification
5. SAS system default settings.

Operating Environment Information: In some operating environments, you can specify system options in other places. See the SAS documentation for your operating environment. △

The following table shows the order of precedence that SAS uses for execution mode options. These options are a subset of the SAS invocation options and are specified on the command line during SAS invocation.

Table 9.1 Order of Precedence for SAS Execution Mode Options

Execution Mode Option	Precedence
OBJECTSERVER	Highest
DMR	2nd
INITCMD	3rd
DMS	3rd
DMSEXP	3rd
EXPLORER	3rd

The order of precedence of SAS execution mode options consists of the following rules:

- SAS uses the execution mode option with the highest precedence.
- If you specify more than one execution mode option of equal precedence, SAS uses only the last option listed.

See the descriptions of the individual options for more details.

Interaction with Data Set Options

Many system options and data set options share the same name and have the same function. System options remain in effect for all DATA and PROC steps in a SAS job or session unless they are respecified. The data set option, however, overrides the system option only for the step in which it appears.

In this example, the OBS= system option in the OPTIONS statement specifies that only the first 100 observations will be read from any data set within the SAS job. The OBS= data set option in the SET statement, however, overrrides the system option and specifies that only the first 5 observations will be read from data set TWO. The PROC PRINT step uses the system option setting and reads and prints the first 100 observations from data set THREE:

```
options obs=100;

data one;
   set two(obs=5);
run;

proc print data=three;
run;
```

Comparisons

Note the differences between system options, data set options, and statement options.

system options
: remain in effect for all DATA and PROC steps in a SAS job or current process unless they are respecified.

data set options
: apply to the processing of the SAS data set with which they appear. Some data set options have corresponding system options or LIBNAME statement options. For an individual data set, you can use the data set option to override the setting of these other options.

statement options
: control the action of the statement in which they appear. Options in global statements, such as in the LIBNAME statement, can have a broader impact.

SAS System Options by Category

Table 9.2 Categories and Descriptions of SAS System Options

Category	SAS System Option	Description
Communications: Networking and encryption	CONNECTREMOTE=	Specifies the remote session ID that is used for SAS/CONNECT software
	CONNECTSTATUS	Specifies whether or not to display the SAS/CONNECT transfer status window
	CONNECTWAIT	Specifies whether or not to wait for a SAS/CONNECT remote submit statement (rsubmit) to complete before control returns to the local session
	NETENCRYPT	Encrypts all network communications
	NETENCRYPTALGORITHM=	Specifies the algorithm(s) available for the encryption of data that are passed over the network
	NETENCRYPTKEYLEN=	Specifies the key size to use for the encryption of data that are passed over the network
	NETMAC	Controls whether SAS uses Message Authentication Codes (MACs) to detect message corruption across a network

Category	SAS System Option	Description
	SASCMD	Used by the SIGNON portion of SAS/CONNECT to invoke a remote or server SAS session
	SASFRSCR	Contains the fileref that is generated by the SASSCRIPT system option
	SASSCRIPT=	Specifies one or more storage locations of SAS/CONNECT script files
	TBUFSIZE=	Specifies the buffer size to use when you transmit data with SAS/CONNECT or SAS/SHARE software
	TCPPORTFIRST=	Specifies the first TCP/IP port for SAS/CONNECT software
	TCPPORTLAST=	Specifies the last TCP/IP port for SAS/CONNECT software
Environment control: Display	CHARCODE	Determines whether character combinations are substituted for special characters that are not on the keyboard
	FORMS=	Specifies the default form that is used for windowing output
	SOLUTIONS	Specifies whether the SOLUTIONS menu choice appears in all SAS windows and whether the SOLUTIONS folder appears in the SAS Explorer window
Environment control: Error handling	BYERR	Controls whether SAS generates an error message and sets the error flag when a _NULL_ data set is used in the SORT procedure
	CLEANUP	Specifies how to handle an out-of-resource condition
	DSNFERR	Controls how SAS responds when a SAS data set is not found
	ERRORABEND	Specifies how SAS responds to errors
	ERRORCHECK=	Controls error handling in batch processing
	ERRORS=	Controls the maximum number of observations for which complete error messages are printed
	FMTERR	Determines whether or not SAS generates an error message when a format of a variable cannot be found
	VNFERR	Controls how SAS responds when a _NULL_ data set is used
Environment control: Files	APPLETLOC=	Specifies the location of Java applets
	DOCLOC=	Specifies the base location of SAS online documentation
	FMTSEARCH=	Controls the order in which format catalogs are searched

Category	SAS System Option	Description
	HELPLOC=	Specifies the location of the text and index files for the facility that is used to view SAS help
	NEWS=	Specifies a file that contains messages to be written to the SAS log
	PARM=	Specifies a parameter string that is passed to an external program
	PARMCARDS=	Specifies the file reference to use as the PARMCARDS file
	REP_MGRLOC=	Specifies the location of the repository manager for common metadata
	RSASUSER	Controls access to the SASUSER library
	SASAUTOS=	Specifies the autocall macro library
	SASHELP=	Specifies the location of the SASHELP library
	SASUSER=	Specifies the name of the SASUSER library
	SYSPARM=	Specifies a character string that can be passed to SAS programs
	TRAINLOC=	Specifies the base location of SAS online training courses
	USER=	Specifies the default permanent SAS data library
	WORK=	Specifies the WORK data library
	WORKINIT	Initializes the WORK data library
	WORKTERM	Controls whether SAS erases WORK files at the termination of a SAS session
Environment control: Initialization and operation	BATCH	Specifies whether batch settings for LINESIZE, OVP, PAGESIZE, and SOURCE are in effect when SAS executes
	DMR	Controls the ability to invoke a remote SAS session so that you can run SAS/CONNECT software
	DMS	Invokes the SAS windowing environment
	DMSEXP	Invokes SAS with the Explorer, program editor, log, output, and results windows
	EXPLORER	Controls whether or not you invoke SAS with only the Explorer window
	INITCMD	Suppresses the Log, Output, and Program Editor windows when you enter a SAS/AF application
	INITSTMT=	Specifies a SAS statement to be executed after any statements in the autoexec file and before any statements from the SYSIN= file
	MULTENVAPPL	Controls whether SAS/AF, SAS/FSP, and base windowing applications use a default on an operating environment specific font selector window

Category	SAS System Option	Description
Environment control: Initialization and operation	OBJECTSERVER	Specifies whether or not to put the SAS session into DCOM/CORBA server mode
	TERMINAL	Determines whether SAS evaluates the execution mode and, if needed, resets the option
Environment control: Language control	DFLANG=	Specifies language for international date informats and formats
	TRANTAB=	Specifies the translation tables that are used by various parts of SAS
Files: External files	STARTLIB	Allows previous library references (librefs) to persist in a new SAS session
	SYNCHIO	Specifies whether synchronous I/O is enabled
Files: SAS files	ASYNCHIO	Specifies whether asynchronous I/O is enabled
	BUFNO=	Specifies the number of buffers to use for SAS data sets
	BUFSIZE=	Specifies the permanent buffer size for output SAS data sets
	CATCACHE=	Specifies the number of SAS catalogs to keep open
	CBUFNO=	Controls the number of extra page buffers to allocate for each open SAS catalog
	COMPRESS=	Controls the compression of observations in output SAS data sets
	DATASTMTCHK=	Prevents certain errors by controlling the SAS keywords that are allowed in the DATA statement
	DKRICOND=	Controls the level of error detection for input data sets during processing of DROP=, KEEP=, and RENAME= data set options
	DKROCOND=	Controls the level of error detection for output data sets during the processing of DROP=, KEEP=, and RENAME= data set options and the corresponding DATA step statements
	DLDMGACTION=	Specifies what type of action to take when a SAS catalog or a SAS data set in a SAS data library is detected as damaged
	ENGINE=	Specifies the default access method for SAS data libraries
	FIRSTOBS=	Causes SAS to begin reading at a specified observation or record
	LAST=	Specifies the most recently created data set
	MERGENOBY	Controls whether a message is issued when MERGE processing occurs without an associated BY statement
	OBS=	Specifies which observation SAS processes last

Category	SAS System Option	Description
	REPLACE	Controls whether you can replace permanently stored SAS data sets
	REUSE=	Specifies whether or not SAS reuses space when observations are added to a compressed SAS data set
	VALIDVARNAME=	Controls the type of SAS variable names that can be created and processed during a SAS session
Graphics: Driver settings	DEVICE=	Specifies a terminal device driver for SAS/GRAPH software
	GISMAPS=	Specifies the location of the SAS data library that contains SAS/GIS-supplied US Census Tract maps
	GWINDOW	Controls whether SAS displays SAS/GRAPH output in the GRAPH window of the windowing environment
	MAPS=	Specifies the list of locations to search for maps
Input control: Data processing	CARDIMAGE	Processes SAS source and data lines as 80-byte cards
	INVALIDDATA=	Specifies the value SAS is to assign to a variable when invalid numeric data are encountered
	PROC	Enables a PROC statement to invoke external programs
	S=	Specifies the length of statements on each line of a source statement and the length of data on lines that follow a DATALINES statement
	S2=	Specifies the length of secondary source statements
	SEQ=	Specifies the length of the numeric portion of the sequence field in input source lines or datalines
	SPOOL	Controls whether SAS writes SAS statements to a utility data set in the WORK data library
Input control: Data processing	CAPS	Indicates whether to translate input to uppercase
	YEARCUTOFF=	Specifies the first year of a 100-year span that will be used by date informats and functions to read a two–digit year
Log and procedure output control: Procedure output	FORMDLIM=	Specifies a character to delimit page breaks in SAS output
	PRINTINIT	Initializes the SAS print file
Log and procedure output control: SAS log	OVP	Overprints output lines
	SOURCE	Controls whether SAS writes source statements to the SAS log

Category	SAS System Option	Description
	SOURCE2	Writes secondary source statements from included files to the SAS log
Log and procedure output control: ODS printing	BINDING=	Specifies the binding edge for the ODS printer destination
	BOTTOMMARGIN=	Specifies the size of the margin at the bottom of the page for the ODS printer destination
	COLLATE	Specifies the collation of multiple copies for output for the ODS printer destination
	COLORPRINTING	Specifies color printing, if it is supported, for the ODS printer destination
	COPIES=	Specifies the number of copies to make when printing to the ODS printer destination
	DUPLEX	Specifies duplexing controls for the ODS printer destination
	LEFTMARGIN=	Specifies the size of the margin on the left side of the page for the ODS printer destination
	ORIENTATION=	Specifies the paper orientation to use when printing to the ODS printer destination
	PRINTERPATH=	Specifies a printer for SAS print jobs directed to the ODS printer destination
Log and procedure output control: Procedure output	BYLINE	Controls whether BY lines are printed above each BY group
	CENTER	Controls alignment of SAS procedure output
	FORMCHAR=	Specifies the default output formatting characters
	LABEL	Determines whether SAS procedures can use labels with variables
	PAGENO=	Resets the page number
	PROBSIG=	Specifies the number of significant digits in *p*-values for some statistical procedures
	SKIP=	Specifies the number of lines to skip at the top of each page of SAS output
Log and procedure output control: SAS log	CONSOLELOG=	Specifies the location of the console log
	CPUID	Specifies whether hardware information is written to the SAS log
Log and procedure output control: SAS log and procedure output	NUMBER	Controls the printing of page numbers
Log and procedure output control: SAS log and procedure output	DATE	Prints the date and time that the SAS session was initialized
	DETAILS	Specifies whether to include additional information when files are listed in a SAS data library

Category	SAS System Option	Description
	LINESIZE=	Specifies the line size of SAS procedure output
	MISSING=	Specifies the character to print for missing numeric values
	PAGESIZE=	Specifies the number of lines that compose a page of SAS output
Log and procedure output control: SAS log	ECHOAUTO	Controls whether autoexec code in an input file is echoed to the log
	MSGLEVEL=	Controls the level of detail in messages that are written to the SAS log
	NOTES	Writes notes to the SAS log
Macro: SAS macro	CMDMAC	Determines whether the macro processor recognizes a command-style macro invocation
	IMPLMAC	Controls whether SAS allows statement-style macro calls
	MACRO	Specifies whether the SAS macro language is available
	MAUTOSOURCE	Determines whether the macro autocall feature is available
	MERROR	Controls whether SAS issues a warning message when a macro-like name does not match a macro keyword
	MFILE	Specifies whether MPRINT output is directed to an external file
	MLOGIC	Controls whether SAS traces execution of the macro language processor
	MPRINT	Displays SAS statements that are generated by macro execution
	MRECALL	Controls whether SAS searches the autocall libraries for a file that was not found during an earlier search
	MSTORED	Determines whether the macro facility searches a specific catalog for a stored, compiled macro
	MSYMTABMAX=	Specifies the maximum amount of memory that is available to macro variable symbol tables
	MVARSIZE=	Specifies the maximum size for macro variables that are stored in memory
	SASMSTORE=	Specifies the libref of a SAS data library that contains a catalog of stored, compiled SAS macros
	SERROR	Controls whether SAS issues a warning message when a defined macro variable reference does not match a macro variable
	SYMBOLGEN	Controls whether the results of resolving macro variable references are written to the SAS log

Category	SAS System Option	Description
SAS log and procedure output control: ODS printing	PAPERDEST=	Specifies the bin to receive printed output for the ODS printer destination
	PAPERSIZE=	Specifies the paper size to use when printing to the ODS printer destination
	PAPERSOURCE=	Specifies the paper bin to use for printing to the ODS printer destination
	PAPERTYPE=	Specifies the type of paper to use for printing to the ODS printer destination
	RIGHTMARGIN=	Specifies the size of the margin at the right side of the page for printed output directed to the ODS printer destination
	TOPMARGIN=	Specifies the size of the margin at the top of the page for the ODS printer destination
SAS log and procedure output: SAS log	PRINTMSGLIST	Controls the printing of extended lists of messages to the SAS log
Sort: Procedure options	SORTDUP=	Controls the SORT procedure's application of the NODUP option to physical or logical records
	SORTSEQ=	Specifies which collating sequence the SORT procedure is to use
	SORTSIZE=	Specifies the amount of memory that is available to the SORT procedure
System administration: Installation	SETINIT	Controls whether site license information can be altered
System administration: Memory	SUMSIZE=	Specifies a limit on the amount of memory that is available for data summarization procedures when class variables are active
System administration: Performance	CMPOPT	Controls whether SAS language compiler optimization is in effect

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